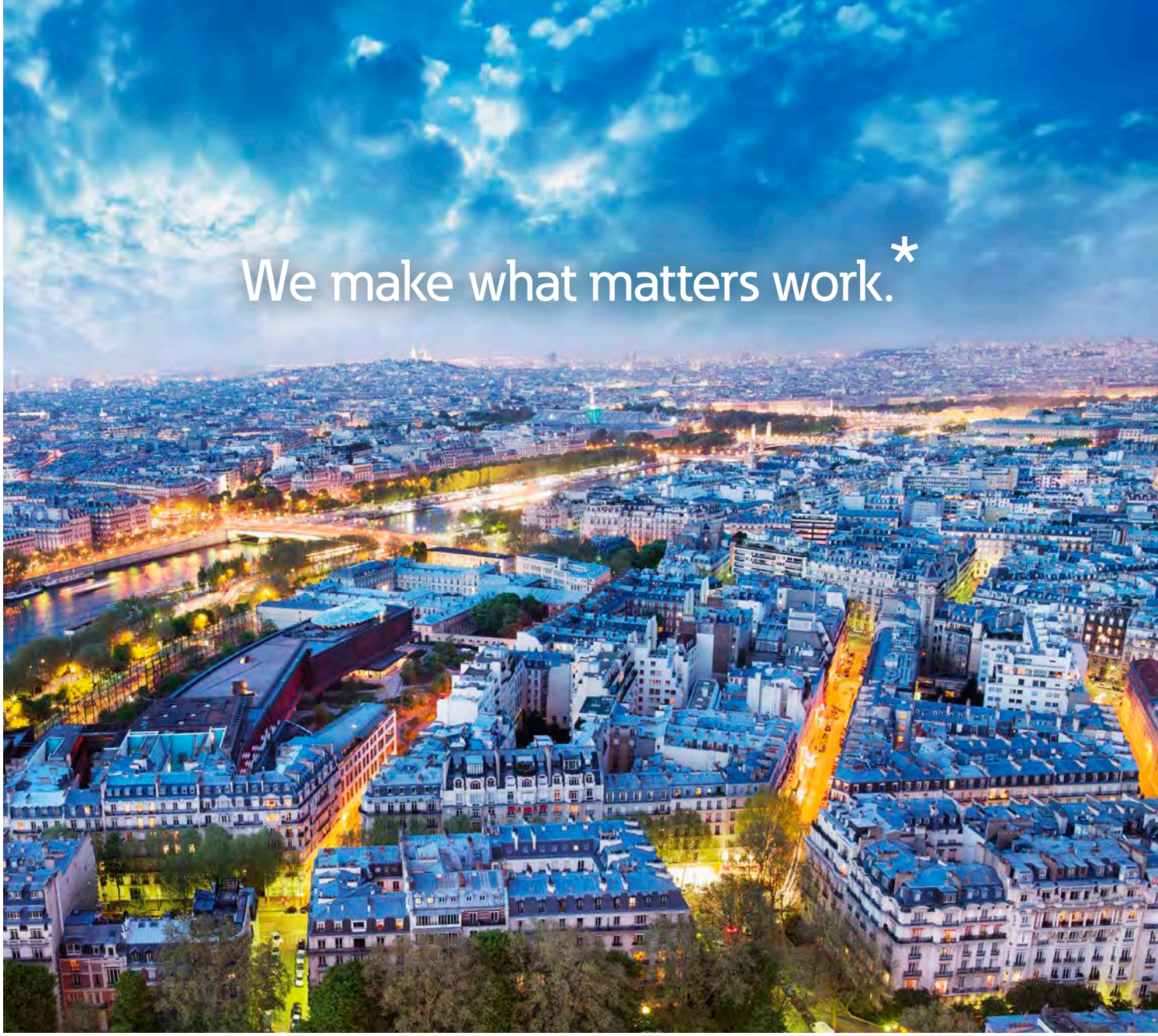
Pipe hangers & supports

Powering Business Worldwide



* At Eaton, we believe that power is a fundamental part of just about everything people do. That's why we're dedicated to helping our customers find new ways to manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. To improve people's lives, the communities where we live and work, and the planet our future generations depend upon. Because this is what really matters. And we're here to make sure it works.

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* C & P is Carpenter & Paterson

Introduction

Eaton is a leading manufacturer and fabricator of B-Line series metal products used in the support of pipe and equipment for industrial, residential, commercial, utility, and OEM installations. Eaton is proud of the exacting standards of research, design, engineering, and manufacturing that go into each and every product that comprise our pipe hanger product line. Our customers have access to one of the most complete support systems offered in the industry, including pipe hangers, strut system, cable tray, slotted angle, seismic bracing, fasteners, communications, enclosures and anchors.

Many of Eaton B-Line series products are listed by Underwriters' Laboratories, Inc. and FM Global approved for fire sprinkler system installations. All Eaton B-Line series products are manufactured to meet or exceed industry standards.

Eaton B-Line series products are produced in plants consisting of over 1,000,000 square feet. These facilities are located in Highland, Illinois; Troy, Illinois; Reno, Nevada; and Sherman, Texas. Regional sales and distribution centers are located throughout the United States and stock standard B-Line series products for quick service and delivery.

This catalog is designed to help engineers and contractors in the application and selection of pipe hangers, supports and seismic bracing for construction and maintenance.

If a unique application requires a special product not included in this catalog, Eaton engineering personnel are ready to furnish design consultation and material estimates. In addition, engineering sales representatives are located throughout the United States and abroad for your convenience.

⚠WARNING

All hanger products in this catalog should be installed and serviced only as illustrated or described. Do not use them for any purpose other than those described in this catalog. Products that are used for unintended purposes could fail, resulting in severe personal injury or death.

Examples of misapplications which could cause severe personal injury or death include, but are not limited to:

- Using a beam clamp on a beam other than those described in the catalog;
- Using concrete inserts as anchors for pulling pipe up to the required elevation;
- Suspending clevis hangers, one under another, which could result in an accumulative load that is greater than that which the pipe hanger will support.

Eaton B-Line series pipe hanger and support products are manufactured in accordance with industry standards. Our customers should exercise care in using these products properly as to avoid potential damage or injury. Contact us if you have any questions about proper installation and use of the products in this catalog.

NOTICE

Eaton reserves the right to change the specifications, materials, equipment, prices or the availability of products at any time without prior notice. While every effort has been made to assure the accuracy of information contained in this catalog at the time of publication, Eaton is not responsible for inaccuracies resulting from undetected errors or omissions.

Manufacturers Standardization Society of the Valve and Fitting Industry, Inc.

ISO 9001:2008

B-Line Division
509 West Monroe Street
Highland, Illinois 62249-0326
Phone: 800-851-7415

www.eaton.com/pipehangers

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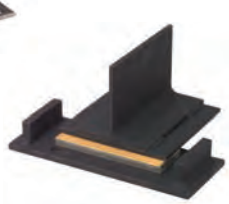

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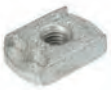

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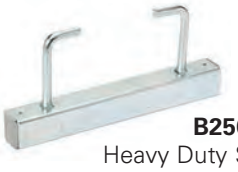

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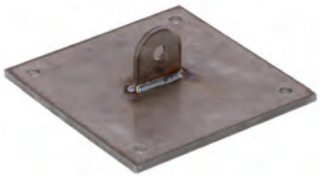

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Fig. 98
Rod Stiffener
Page 252

Fig. 98B
Rod Stiffener with
Break Off Bolt Head
Page 252

B3211
Welded Eye Rod
254

B3211X
Linked Welded Eye Rod
Page 255

SC228
Rod Stiffener
Page 252

B3212
J-Bolt
Page 256

B3213
Coach Screw Rod
Page 253

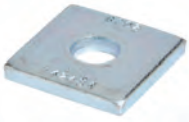
B3228
Hex Head Lag Bolt
Page 256

DS 16 x 2
#16 x 2"
Drive Screw
Page 256

B655
Steel Rod Coupling

B656
Steel Reducer
Rod Coupling
Page 257

B3220
Malleable Iron
Rod Coupling
Page 258



B200
Square Washer
Page 258

B3248
Steel Washer Plate
Page 259

B3234
Bevel Washer
Page 259

HN - Hex Nut
HHN - Heavy Hex Nut
Page 260

FW
Flat Washer
Page 261

LW
Lock Washer
Page 261

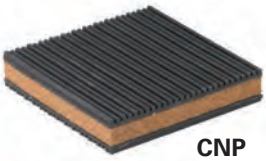
FFW
Flat Fender Washer
Page 261

ATB
Toggle Bolt
Page 262

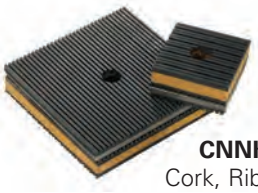
AWA
Wedge Anchor
Page 262

Vibration Isolation

NNP
Ribbed Neoprene Pad
Page 267



CNP
Cork and Ribbed Neoprene Pad
Page 268



CNNK
Cork, Ribbed Neoprene and Steel
Page 269

VRP
Rubber Cube Pad
Page 270

BVS Type
1⅝" Wide Vibra Strip™
Page 271

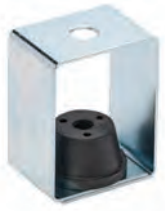
RM & RM-D Type
Neoprene Mounts
Page 272

OS Type
Steel Spring Isolator Restraints
1", 2", & 3" Deflection
Pages 273 & 274

JQ Type
Isolator Restraints w/OPA-0070
Pre-Approved Seismic Protection
1", 2", & 3" Deflection
Pages 275 & 277

JQ-TQN Type
Neoprene Isolator Restraints w/ OPA-0070
Pre-Approved Seismic Protection
½" Deflection
Pages 278 & 279

RQ & RQD Type
Neoprene Mount w/Integrak Seismic Restraints
¼" & ½" Deflection
Pages 280 & 281



RH & RHD Type
Neoprene Hanger
¼" & ½" Deflection
Page 282

CHSCS Type
Spring Hanger w/Seismic Cushion Stop
1" & 2" Deflection
Pages 283 & 284

HHSCS Type
Combination Hanger Spring & Neoprene w/ Seismic Cushion Stop
1½" & 2½" Deflection
Pages 287 & 288

CH30SCS Type
Deflection Combination Hanger
15° Tilt Spring & Neoprene w/ Seismic Cushion Stop
1" & 2" Deflection
Pages 285 & 286

HH30SCS Type
Deflection Combination Hanger
15° Tilt Spring & Neoprene w/ Seismic Cushion Stop
1½" & 2½" Deflection
Pages 289 & 290

Dura-Blok™ Rooftop Supports

DBP
Base
Page 293

DBM
Base
Page 293

DB Series
Base & Short Channel
Page 294

DB6 Series
Base & Tall Channel
Page 295

DB10 Series
Double Base & Long Channel
Page 296

DBM Series
Base & Clamp Riser
Page 297

DB__DS Series
Bases & Harness Assembly
Pages 298 & 299

DBR Series
Base & Fixed Height Roller Assembly
Page 300

DBR Series
Base & Adjustable Height Roller Assembly
Page 301

DBE Series
Base & Adjustable Height Channel
Page 301

CLDP10
Load Distribution Plate
Page 302

KwikWire™ System

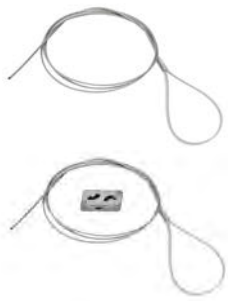
KwikWire Clamp
Page 307

Wire Rope
Page 307

KwikPak™ Kit
Page 308

Wire Rope Cutter
Page 308

KwikWire Hanger
Page 309



BKL & BKLK Series
Loop Termination
Page 311

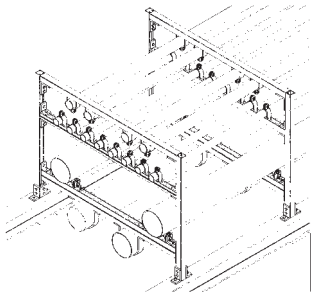
BKH & BKHK Series
Single Hook Termination
Page 312

BKYH & BKYHK Series
Double Hook Termination
Page 313

BKB & BKBK Series
Bolt Termination
Page 314

BKA & BKAK Series
Angle Bracket Termination
Page 315

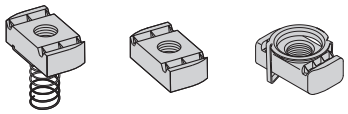
The B-Line series metal framing support system is designed with many time-saving features. Fully adjustable and reusable, with a complete line of channels, fittings, and accessories for multi-purpose applications.



SELECTION CHART
for Channels, Materials and Hole Patterns

Channel	Channel Dimensions: Height	Channel Dimensions: Width	Material & Thickness: Steel 1	Material & Thickness: Alum. 2	Material & Thickness: Stainless Steel Type 304 3	Material & Thickness: Stainless Steel Type 316 4	Channel Hole Pattern: SH	Channel Hole Pattern: S	Channel Hole Pattern: H1 7/8	Channel Hole Pattern: TH	Channel Hole Pattern: KO6
B11	3 1/4" (82.5)	1 5/8" (41.3)	12 Ga.	--	--	--	1	1	1	--	1
B12	2 7/16" (61.9)	1 5/8" (41.3)	12 Ga.	.105	--	--	1 2	1	1 2	--	1 2
B22	1 5/8" (41.3)	1 5/8" (41.3)	12 Ga.	.105	12 Ga.	12 Ga.	1 2 3 4	1	1 2 3 4	1	1 2
B24	1 5/8" (41.3)	1 5/8" (41.3)	14 Ga.	.080	14 Ga.	14 Ga.	1 2 3 4	1	1 2 3 4	--	1 2
B26	1 5/8" (41.3)	1 5/8" (41.3)	16 Ga.	--	--	--	1	1	1	--	1
B32	1 3/8" (34.9)	1 5/8" (41.3)	12 Ga.	--	12 Ga.	--	1 3	1	1 3	--	1
B42	1" (25.4)	1 5/8" (41.3)	12 Ga.	--	12 Ga.	--	1 3	1	1 3	--	1
B52	13/16" (20.6)	1 5/8" (41.3)	12 Ga.	--	--	--	1	1	1	--	1
B54	13/16" (20.6)	1 5/8" (41.3)	14 Ga.	.080	14 Ga.	14 Ga.	1 2 3 4	1	1 2 3 4	--	1 2
B56	13/16" (20.6)	1 5/8" (41.3)	16 Ga.	--	--	--	1	1	1	--	1

Channel Nuts



Size and Part Number			
Thread Size	With Spring	Without Spring	Twirl Nut
1/4"-20	**N224**	**N224WO**	**TN224**
3/8"-16	**N228**	**N228WO**	**TN228**
1/2"-13	**N225**	**N225WO**	**TN225**
5/8"-11	**N255**	**N255WO**	**--**
3/4"-10	**N275**	**N275WO**	**--**

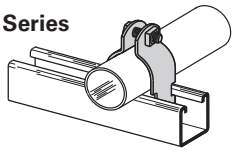
Available Finishes: Electro-Galvanized

Combo Nut Washers

Part Number	Thread Size
NW524	1/4"-20
NW528	3/8"-16
NW525	1/2"-13

Available Finishes: Electro-Galvanized

B2000 Series



Copper Tubing Clamps
DURA-COPPER™

Part No.	Nominal Tubing Size	Mat'l Ga.
B2026DCU	1/2" (15)	16
B2008DCU	3/4" (20)	16
B2030DCU	1" (25)	14
B2032DCU	1 1/4" (32)	14
B2011DCU	1 1/2" (40)	14
B2038DCU	2" (50)	12
B2042DCU	2 1/2" (60)	12
B2046DCU	3" (80)	12
B2050DCU	3 1/2" (90)	12
B2054DCU	4" (100)	11

Available Finishes: Electro-Galvanized, Aluminum, Stainless, DURA-COPPER Painted, Hot-Dip Galvanized and PVC coated.
Nut and bolts are included with all two-piece clamps.
** Add "PA" to Part No. for Pre-assembled

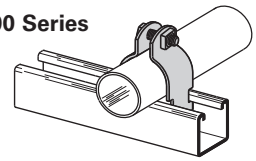
Schedule 40 Pipe Clamps

Part No.	Nominal Pipe Size	Mat'l Ga.
B2001	3/8" (10)	16
B2008	1/2" (15)	16
B2009	3/4" (20)	14
B2010	1" (25)	14
B2011	1 1/4" (32)	14
B2012	1 1/2" (40)	12
B2013	2" (50)	12
B2014	2 1/2" (60)	12
B2015	3" (80)	12
B2016	3 1/2" (90)	11
B2017	4" (100)	11
B2018	4 1/2" (115)	11
B2019	5" (125)	11
B2020	6" (150)	11
B2021	7" (175)	11
B2022	8" (200)	11

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

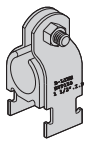
Below are some basic clamp and cushions to be used with a strut system. For the industry's most complete line of strut and strut fittings, refer to B-Line series Strut Systems catalog.

B2000 Series



O.D. Pipe Clamps

Part No.	O.D. Size (Outside Dia.)		Mat'l Ga.
B2023	1/4"	(6.3)	16
B2024	3/8"	(9.5)	16
B2025	1/2"	(12.7)	16
B2026	5/8"	(15.9)	16
B2027	3/4"	(19.0)	16
B2028	7/8"	(22.2)	16
B2029	1"	(25.4)	14
B2030	1 1/8"	(28.6)	14
B2031	1 1/4"	(31.7)	14
B2032	1 3/8"	(34.9)	14
B2004	1 1/2"	(38.1)	14
B2011	1 5/8"	(41.3)	14
B2005	1 3/4"	(44.4)	12
B2036	1 7/8"	(47.6)	12
B2037	2"	(50.8)	12
B2038	2 1/8"	(54.0)	12
B2039	2 1/4"	(57.1)	12
B2013	2 3/8"	(60.3)	12
B2041	2 1/2"	(63.5)	12
B2042	2 5/8"	(66.7)	12
B2043	2 3/4"	(69.8)	12
B2014	2 7/8"	(73.0)	12
B2045	3"	(76.2)	12
B2046	3 1/8"	(79.4)	12
B2047	3 1/4"	(82.5)	12
B2048	3 3/8"	(85.7)	12
B2015	3 1/2"	(88.9)	12
B2050	3 5/8"	(92.1)	11
B2051	3 3/4"	(95.2)	11
B2016	4"	(101.6)	11
B2054	4 1/8"	(104.8)	11
B2055	4 1/4"	(107.9)	11
B2056	4 3/8"	(111.1)	11
B2017	4 1/2"	(114.3)	11
B2058	4 5/8"	(117.5)	11
B2059	4 3/4"	(120.6)	11
B2060	4 7/8"	(123.8)	11
B2061	5"	(127.0)	11
B2062	5 1/8"	(130.2)	11
B2063	5 1/4"	(133.3)	11
B2064	5 3/8"	(136.5)	11
B2065	5 1/2"	(139.7)	11



BVT & BVP Series Vibra-Clamp™

For Copper Tubing & OD Sizes

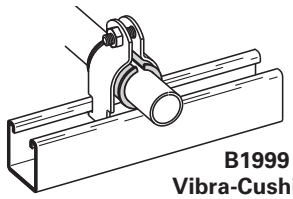
Catalog No.	Copper & OD Tubing Size		Nominal Copper Size	
BVT025	1/4"	(6.3)	–	–
BVT037	3/8"	(9.5)	1/4"	(6)
BVT050	1/2"	(12.7)	3/8"	(10)
BVT062	5/8"	(15.9)	1/2"	(15)
BVT075	3/4"	(19.0)	5/8"	(17)
BVT087	7/8"	(22.2)	3/4"	(20)
BVT100	1"	(25.4)	–	–
BVT112	1 1/8"	(28.6)	1"	(25)
BVT125	1 1/4"	(31.7)	–	–
BVT137	1 3/8"	(34.9)	1 1/4"	(32)
BVT150	1 1/2"	(38.1)	–	–
BVT162	1 5/8"	(41.3)	1 1/2"	(40)
BVT175	1 3/4"	(44.4)	–	–
BVT187	1 7/8"	(47.6)	–	–
BVT200	2"	(50.8)	–	–
BVT212	2 1/8"	(54.0)	2"	(50)
BVT225	2 1/4"	(57.1)	–	–
BVT250	2 1/2"	(63.5)	–	–
BVT262	2 5/8"	(66.7)	2 1/2"	(65)
BVT300	3"	(76.2)	–	–
BVT312	3 1/8"	(79.4)	3"	(80)
BVT362	3 5/8"	(92.1)	3 1/2"	(90)
BVT412	4 1/8"	(104.8)	4"	(100)
BVT612	6 1/8"	(155.6)	6"	(150)

Available for tubing and pipe sizes 1/4" to 6", OD sizes 1/4" to 6 5/8". Easy one tool installation, dampens vibration and noise, secures tubing firmly, and protects against galvanic reaction.

Stainless Steel available

For Pipe Sizes

Catalog No.	Nominal Pipe Size	
BVP025	1/4"	(6)
BVP037	3/8"	(10)
BVP050	1/2"	(15)
BVP075	3/4"	(20)
BVP100	1"	(25)
BVP125	1 1/4"	(32)
BVP150	1 1/2"	(40)
BVP200	2"	(50)
BVP250	2 1/2"	(65)
BVP300	3"	(80)
BVP350	3 1/2"	(90)
BVP400	4"	(100)
BVP500	5"	(125)
BVP600	6"	(150)



B1999 Vibra-Cushion™

- Inhibits Galvanic Reaction
- Reduces Sound & Vibration
- Used on refrigeration, HVAC, copper tubing, glass pipes & hydraulic lines Available in 20 Ft. rolls.

For Rigid Conduit or Iron Pipe

Nominal Size		Length of Vibra-Cushion		Use Clamp No.
3/8"	(10)	2 1/8"	(54.0)	**B2002**
1/2"	(15)	2 5/8"	(66.7)	**B2009**
3/4"	(20)	3 1/4"	(82.5)	**B2031**
1"	(25)	4 1/8"	(104.8)	**B2004**
1 1/4"	(32)	5 3/16"	(131.8)	**B2012**
1 1/2"	(40)	5 15/16"	(150.8)	**B2038**
2"	(50)	7 1/2"	(190.5)	**B2042**
2 1/2"	(65)	9"	(228.6)	**B2046**
3"	(80)	11"	(279.4)	**B2051**
3 1/2"	(90)	12 1/2"	(317.5)	**B2055**
4"	(100)	14 1/2"	(368.3)	**B2059**
5"	(125)	17 7/16"	(442.9)	**B2067**
6"	(150)	20 3/4"	(527.0)	**B2116**

For Thinwall (EMT) Conduit

Nominal Size		Length of Vibra-Cushion		Use Clamp No.
3/8"	(10)	1 13/16"	(46.0)	**B2027**
1/2"	(15)	2 3/16"	(58.7)	**B2002**
3/4"	(20)	2 7/8"	(73.0)	**B2003**
1"	(25)	3 5/8"	(92.1)	**B2032**
1 1/4"	(32)	4 3/8"	(120.6)	**B2036**
1 1/2"	(40)	5 7/16"	(138.1)	**B2012**
2"	(50)	6 7/8"	(174.6)	**B2013**

For Thinwall (EMT) Conduit

Nominal Size		Length of Vibra-Cushion		Use Clamp No.
1/4"	(6)	1 3/16"	(30.2)	**B2026**
3/8"	(10)	1 9/16"	(39.7)	**B2027**
1/2"	(15)	1 7/8"	(47.6)	**B2028**
5/8"	(17)	2 5/16"	(58.7)	**B2029**
3/4"	(20)	2 3/4"	(69.8)	**B2030**
1"	(25)	3 1/2"	(88.9)	**B2032**
1 1/4"	(32)	4 5/16"	(109.5)	**B2011**
1 1/2"	(40)	5 1/8"	(130.2)	**B2036**
2"	(50)	6 11/16"	(169.9)	**B2013**
2 1/2"	(65)	8 1/4"	(209.5)	**B2014**
3"	(80)	9 13/16"	(249.2)	**B2048**
3 1/2"	(90)	11 3/8"	(288.9)	**B2052**
4"	(100)	12 15/16"	(328.6)	**B2056**
5"	(125)	6 1/8"	(409.6)	**B2064**
6"	(150)	19 1/4"	(488.9)	**B2112**
8"	(200)	25 1/2"	(647.7)	**B2128**

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

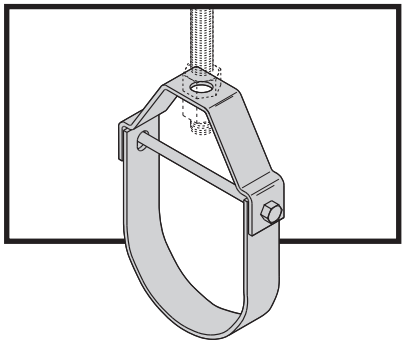
MATERIALS

Carbon Steel

Carbon steel is used in the manufacture of B-Line series pipe hangers and supports. Excellent strength characteristics and adaptability to cold forming provide a well engineered design. By cold forming the steel, mechanical properties are increased, adding to the structural integrity of the fabricated hanger.

Stainless Steel

AISI Type 304 and Type 316 are non-magnetic members of the austenitic stainless steel group. Several conditions make the use of stainless steel ideal. These include reducing long term maintenance costs, high ambient temperatures, appearance, and stable structural properties such as yield strength, and high creep resistance.



CORROSION

All metal surfaces exposed to the environment are affected by corrosion. Depending on the physical properties of the metal and its proximity to other dissimilar metals, an electrochemical reaction may occur which causes an attack on the metal itself, resulting in corrosion. Chemical corrosion is limited to highly corrosive environments, high temperatures, or a combination of both.

FINISHES

Zinc Coatings

Protective zinc coatings are available on a number of pipe hangers and accessories in three basic forms: Electro-galvanized, pre-galvanized, and hot-dip galvanized after fabrication. In all cases, the zinc protects the steel first as a sacrificial anode to repair bare areas on cut edges and gouges.

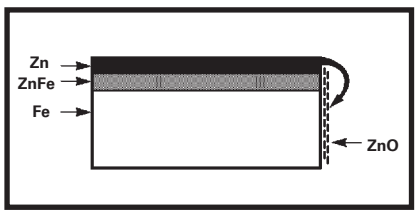
When exposed to air and moisture, zinc forms a tough, adherent protective film consisting of a mixture of zinc oxides, hydroxides, and carbonates. The corrosion resistance of zinc is directly related to its thickness and the environment. For example a 0.2 mil (5 μm) coating will last twice as long as a 0.1 mil (2.5 μm) coating in the same environment.

Electro-Galvanized (ASTM B633 SC1 or SC3)

An electro-galvanized process deposits a coating of zinc on the steel by electrolysis from a bath of zinc salts. This coating is pure zinc and adheres to the steel with a molecular bond. A maximum of 0.5 mils (12.7 μm) of zinc can be applied by this method. This coating is recommended for in-door use in relatively dry areas.

Pre-Galvanized Zinc (ASTM A653 Coating Designation G90)

Pre-galvanized zinc is produced by continuously rolling the steel coils or sheets through molten zinc at the steel mills. This is also known as "mill-galvanized" or "hot-dipped mill galvanized". Coils are then slit to size for fabrication of pipe hangers. Coating thicknesses of G90, is 0.90 ounces per square foot (0.27 kg/m^2) of steel surface.



Protection of cut edges with zinc coatings.

Cut edges and welded areas are not zinc coated; however, zinc near the uncoated metal becomes a sacrificial anode which protects the bare areas after a short period of time. Pre-galvanized steel is not generally recommended for use outdoors in industrial environments, but is suitable for extended exposure in dry or mildly corrosive atmospheres.

Hot-Dip Galvanized After Fabrication (ASTM A123)

After a pipe hanger or fitting has been fabricated, it is completely immersed in a bath of molten zinc. A metallurgical bond is formed, resulting in a zinc coating that completely coats all surfaces, including edges. Zinc coatings of this specification have a minimum thickness of 1.50 ounces per square foot (0.45 kg/m^2) on each side or a total of 3.0 ounces per square foot (0.9 kg/m^2) of steel.

Hot-dip galvanized after fabrication is recommended for outdoor exposure. For best results, a zinc rich paint (available from Eaton) should be applied to field cuts. The zinc rich paint will provide immediate protection for field cuts and eliminate the short time period for galvanic action to "heal" the damaged coating.

Plastic Coating

Some products offered by Eaton are plastic or vinyl coated for prevention of galvanic reaction between materials or for noise reduction. These coated products can also be used where contact between glass pipe and hanger is not desirable. Felt lined hangers may be substituted for same purpose.

Red Primer

A corrosion resistant metal primer containing rust inhibitive pigments.

DURA-COPPER and DURA GREEN Epoxy Coatings

DURA-COPPER™ and DURA GREEN™ are water borne epoxy coatings applied to B-Line series products by a precisely controlled cathodic electro-deposition process. This process is accomplished using a conveyor to transport parts through several cleaning, phosphatizing and application stages prior to being baked (See diagram below).

This custom designed paint system is used for painting all copper painted hanger parts and all green channel, slotted angle and fittings.

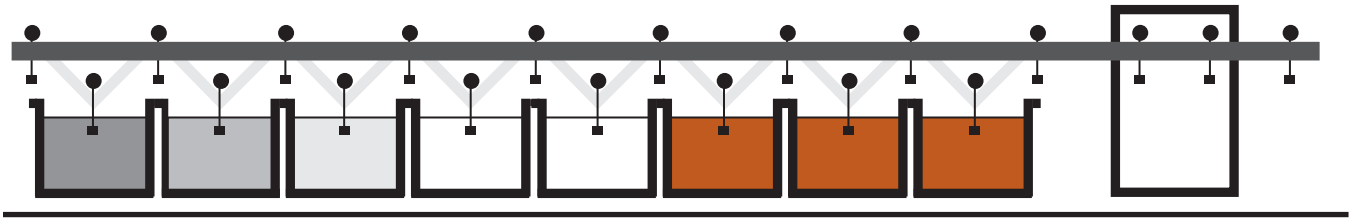
Samples are selected on a routine basis for Salt Spray (fog) testing to verify the quality of the finish. These tests are performed in accordance with ASTM B117-73 and evaluated and rated according to ASTM D1654-79 (Tables 1 & 2). The DURA-COPPER and DURA GREEN Epoxy coatings have been tested and listed by Underwriters Laboratories in accordance with "Standard for Pipe Hanger Equipment for Fire Protection Service, UL 203" and meet or exceed all requirements of Federal Specification TT-C-490B Paragraph 3.

Quality Assurance

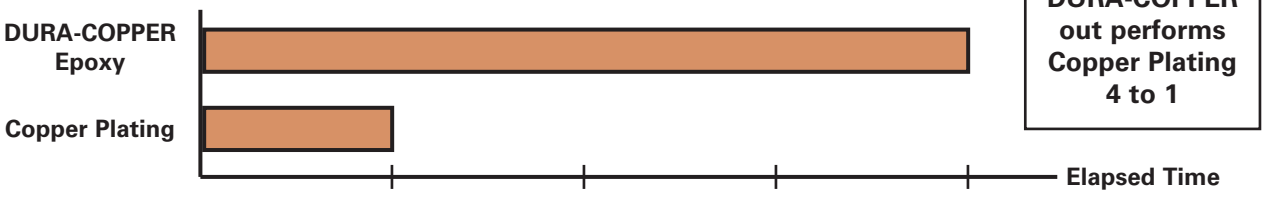
Eaton's Quality Assurance Program has been developed and implemented for compliance to various industry standards and specifications.

DURA-COPPER & DURA GREEN EPOXY COATING PROCESS

TANK 1	TANK 2	TANK 3	TANK 4	TANK 5	TANK 6	TANK 7	TANK 8	BAKE OVEN
Parts are thoroughly cleaned and phosphatized.	Rinse is applied to remove insoluble salts and unreacted phosphates.	Phosphatized sealer is applied to insure corrosion resistance and paint adhesion.	The material moves through clear water rinse to remove excess phosphates.	Deionized rinse prepares the metal for the cathodic electro-coating.	The electro-coating tank applies a uniform coat of epoxy paint to the entire surface.	The first post rinse removes any unelectrically attracted solids.	The final rinse insures a smooth, nonblemish finish.	The curing process takes 20 minutes at a baking temperature of 375°F (199°C).



SALT SPRAY TEST RESULTS



(1) All salt spray (fog) tests conducted in accordance with ASTM B117-73 and evaluated and rated according to ASTM D1654-79 Tables 1 & 2. Tests were performed and certified by an independent testing laboratory.

General Information

Torque

The torque values in this catalog are to be used as a guide only. The relationship between the applied torque or torque wrench reading and the actual tension created in the bolt may be substantially different. Important factors affecting torque-tension relationships include friction under the bolt head or nut, hole tolerances, and torque wrench tolerances. Accuracy of many commercial torque wrenches may vary as much as plus or minus 25%.

Charts and Tables

Charts and tables in this section are compiled from information published by nationally recognized organizations and are intended for use as a guide only. Eaton recommends that users of this information determine the validity of such information as applied to their own applications.

Eaton reserves the right to make specification changes without notice.

SECTION 15140 - PIPE HANGERS AND SUPPORTS

Part I - GENERAL

1.01 SECTION INCLUDES

A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, and services to completely execute the pipe hanger and supports as described in this specification.

1.02 REFERENCES

A. ASTM B633 - Specification for Electrodeposited Coatings of Zinc on Iron and Steel.

B. ASTM A123 - Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

C. ASTM A653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

D. ASTM A1011 - Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability.

E. ANSI/MSS SP-58 - Manufacturers Standardization Society: Pipe Hangers and Supports - Materials, Design, and Manufacture.

F. ANSI/MSS SP-69 - Manufacturers Standardization Society: Pipe Hangers and Supports - Selection and Application.

G. NFPA 13 - Installation of Sprinkler Systems.

1.03 QUALITY ASSURANCE

A. Hangers and supports used in fire protection piping systems shall be listed and labeled by Underwriters Laboratories.

B. Steel pipe hangers and supports shall have the manufacturers name, part number, and applicable size stamped in the part itself for identification.

C. Hangers and supports shall be designed and manufactured in conformance with ANSI/MSS SP-58.

D. Supports for sprinkler piping shall be in conformance with NFPA 13.

1.04 SUBMITTALS

A. Submit product data on all hanger and support devices, including shields and attachment methods. Product data to include, but not limited to materials, finishes, approvals, load ratings, and dimensional information.

Part II - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with these specifications, pipe hanger and support systems shall be as manufactured by Eaton.

2.02 PIPE HANGERS AND SUPPORTS

A. Hangers

1. Uninsulated pipes 2 inch and smaller:

   a. Adjustable steel swivel ring (band type) hanger, B-Line series Fig. 200.

   b. Adjustable steel swivel J-hanger, B-Line series B3690.

   c. Malleable iron ring hanger, B-Line series B3198R or hinged ring hanger, B3198H.

   d. Adjustable steel clevis hanger, B-Line series B3104 or B3100.

2. Uninsulated pipes 2 1/2 inch and larger:
   a. Adjustable steel clevis hanger, B-Line series B3100.
   b. Pipe roll with sockets, B-Line series B3114.
   c. Adjustable steel yoke pipe roll, B-Line series B3110.
3. Insulated pipe - Hot or steam piping:
   a. 2 inch and smaller pipes: use adjustable steel clevis with galvanized sheet metal shield, B-Line series B3100 with B3151 or B3153 series.
   b. 2 1/2 inch and larger pipes:
      i. Adjustable steel yoke pipe roll with pipe covering protection saddle, B-Line series B3110 with B3160 - B3165 series.
      ii. Pipe roll with sockets with pipe covering protection saddle, B-Line series B3114 with B3160 - B3165 series.
4. Insulated pipe - Cold or chilled water piping:
   a. 5 inch and smaller pipes: use adjustable steel clevis with galvanized sheet metal shield, B-Line series B3100 with B3151 or B3153 series.
   b. 6 inch and larger pipes:
      i. Adjustable steel yoke pipe, B-Line series B3110, with B3380CW - B3384CW calcium silicate shield.
      ii. Pipe roll with sockets, B-Line series B3114, with B3380CW - B3384CW calcium silicate shield.

B. PIPE CLAMPS
1. When flexibility in the hanger assembly is required due to horizontal movement, use pipe clamps with weldless eye nuts, B-Line series B3140 or B3142 with B3200. For insulated lines use double bolted pipe clamps, B-Line series B3144 or B3146 with B3200.

C. MULTIPLE OR TRAPEZE HANGERS
1. Trapeze hangers shall be constructed from 12 gauge roll formed ASTM A1011 SS Gr. 33 structural steel channel, 1 5/8" x 1 5/8" minimum, B-Line series B22 strut or stronger as required.
2. Mount pipes to trapeze with two piece pipe straps sized for outside diameter of pipe, B-Line series B2000 series.
3. For pipes subjected to axial movement:
   a. Strut mounted roller support, B-Line series B3126. Use pipe protection shield or saddles on insulated lines.
   b. Strut mounted pipe guide, B-Line series B2417.

D. WALL SUPPORTS
1. Pipes 4 inch and smaller:
   a. Carbon steel hook, B-Line series B3191.
   b. Carbon steel J-hanger, B-Line series B3690.
2. Pipes larger than 4 inch:
   a. Welded strut bracket and pipe straps, B-Line series B3064 and B2000 series.
   b. Welded steel brackets, B-Line series B3066 or B3067, with roller chair or adjustable steel yoke pipe roll. B-Line series B3120 or B3110. Use pipe protection shield or saddles on insulated lines.

E. FLOOR SUPPORTS

1. Hot piping under 6 inch and all cold piping:
   a. Carbon steel adjustable pipe saddle and nipple attached to steel base stand sized for pipe elevation, B-Line series B3093 and B3088T or B3090 and B3088. Pipe saddle shall be screwed or welded to appropriate base stand.
2. Hot piping 6 inch and larger:
   a. (Adjustable) Roller stand with base plate, B-Line series B3117SL (or B3118SL).
   b. Adjustable roller support and steel support sized for elevation, B-Line series B3124

F. VERTICAL SUPPORTS

1. Steel riser clamp sized to fit outside diameter of pipe, B-Line series B3373.

G. COPPER TUBING SUPPORTS

1. Hangers shall be sized to fit copper tubing outside diameters.
   a. Adjustable steel swivel ring (band type) hanger, B-Line series B3170CT.
   b. Malleable iron ring hanger, B-Line series B3198CT or hinged ring hanger B3198HCT.
   c. Adjustable steel clevis hanger, B-Line series B3104CT.

H. PLASTIC PIPE SUPPORTS

1. V-bottom clevis hanger with galvanized 18 gauge continuous support channel, B-Line series B3106 and B3106V, to form a continuous support system for plastic pipe or flexible tubing.

I. SUPPLEMENTARY STRUCTURAL SUPPORTS

1. Design and fabricate supports using structural quality steel bolted framing materials as manufactured by Eaton. Channels shall be roll formed, 12 gauge ASTM A1011 SS Grade 33 steel, $1\frac{5}{8}$" x $1\frac{5}{8}$" or greater as required by loading conditions. Submit designs for pipe tunnels, pipe galleries, etc., to engineer for approval. Use clamps and fittings designed for use with the strut system.

2.04 UPPER ATTACHMENTS

A. BEAM CLAMPS

1. Beam clamps shall be used where piping is to be suspended from building steel. Clamp type shall be selected on the basis of load to be supported, and load configuration.
2. C-Clamps shall have locknuts and cup point set screws, B-Line series B351L, B3036L or Fig. 65XT Top flange C-clamps shall be used when attaching a hanger rod to the top flange of structural shapes, B-Line series B3034 or B3033. Refer to manufacturers' recommendation for setscrew torque. Retaining straps shall be used to maintain the clamp's position on the beam where required (Fig. 69, Fig. 69R).
3. Center loaded beam clamps shall be used where specified. Steel clamps shall be B-Line series B3050 or B3055. Malleable iron or forged steel beam clamps with cross bolt shall be B-Line series B3054 or B3291 - B3297 series as required to fit beams.

B. CONCRETE INSERTS

1. Cast in place spot concrete inserts shall be used where applicable, either steel or malleable iron body, B-Line series B2500 or B3014. Spot inserts shall allow for lateral adjustment and have means for attachment to forms. Select insert nuts to suit threaded hanger rod sizes, B-Line series N2500 or B3014N series.

2. Continuous concrete inserts shall be used where applicable. Channels shall be 12 gauge, ASTM A 1011 SS Grade 33 structural quality carbon steel, complete with styrofoam inserts and end caps with nail holes for attachment to forms. The continuous concrete insert shall have a load rating of 2,000 lbs/ft. in concrete, B-Line series B22I, B32I, or B52I (B52I is limited to 1,500 lbs/ft.). Select channel nuts suitable for strut and rod sizes.

2.05 VIBRATION ISOLATION AND SUPPORTS

A. For refrigeration, air conditioning, hydraulic, pneumatic, and other vibrating system applications, use a clamp that has a vibration dampening insert and a nylon inserted locknut. For copper and steel tubing use B-Line series BVT Vibra-Clamp™, for pipe sizes use BVP Vibra-Clamp.

B. For larger tubing or piping subjected to vibration, use neoprene or spring hangers as required.

C. For base mounted equipment use vibration pads, molded neoprene mounts, or spring mounts as required.

D. Vibration isolation products as provided by Eaton's B-Line series.

2.06 ACCESSORIES

A. Hanger rods shall be threaded both ends, B-Line series B3205, or continuous threaded rods of circular cross section. Use adjusting locknuts at upper attachments and hangers. No wire, chain, or perforated straps are allowed.

B. Shields shall be 180° galvanized sheet metal, 12 inch minimum length, 18 gauge minimum thickness, designed to match outside diameter of the insulated pipe, B-Line series B3151.

C. Pipe protection saddles shall be formed from carbon steel, 1/8 inch minimum thickness, sized for insulation thickness. Saddles for pipe sizes greater than 12 inch shall have a center support rib.

2.07 FINISHES

INDOOR FINISHES

A. Hangers and clamps for support of bare copper piping shall be coated with copper colored epoxy paint, B-Line series DURA-COPPER™. Additionally a plastic coating or a felt lining in hanger can be used.

B. Hangers for other than bare copper pipe shall be zinc plated in accordance with ASTM B633 - SC3 or shall have an electro-deposited green epoxy finish, B-Line series DURA GREEN™.

C. Strut channels shall be pre-galvanized in accordance with ASTM A653 G90 or have an electro-deposited green epoxy finish, B-Line series DURA GREEN.

OUTDOOR AND CORROSIVE AREA FINISHES

D. Hangers and strut located outdoors shall be hot dip galvanized after fabrication in accordance with ASTM A123. All hanger hardware shall be hot-dip galvanized or stainless steel. Zinc plated hardware is not acceptable for outdoor or corrosive use.

E. Hangers and strut located in corrosive areas shall be Type 304 (316) stainless steel with stainless steel hardware.

Part III - EXECUTION

3.01 PIPE HANGERS AND SUPPORTS

A. Pipe shall be adequately supported by pipe hanger and supports specified in PART II - PRODUCTS. Hangers for insulated pipes shall be sized to accommodate insulation thickness.

B. Horizontal steel piping shall be supported in accordance with ANSI/MSS SP-69 & SP-58 Tables 3 and 4, excerpts of which follow below:

NOMINAL PIPE SIZE	ROD DIAMETER	MAXIMUM SPACING
3/8" - 1 1/4"	3/8"	7'-0"
1 1/2"	3/8"	9'-0"
2"	3/8"	10'-0"
2 1/2"	1/2"	11'-0"
3"	1/2"	12'-0"
3 1/2"	1/2"	13'-0"
4"	5/8"	14'-0"
5"	5/8"	16'-0"
6"	3/4"	17'-0"
8"	3/4"	19'-0"
10"	7/8"	22'-0"
12"	7/8"	23'-0"
14"	1"	25'-0"
16"	1"	27'-0"

C. Horizontal copper tubing shall be supported in accordance with ANSI/MSS SP-69 & SP-58 Tables 3 and 4, excerpts of which follow below:

NOMINAL TUBING SIZE	ROD DIAMETER	MAXIMUM SPACING
1/4" - 3/4"	3/8"	5'-0"
1"	3/8"	6'-0"
1 1/4"	3/8"	7'-0"
1 1/2"	3/8"	8'-0"
2"	3/8"	8'-0"
2 1/2"	1/2"	9'-0"
3"	1/2"	10'-0"
3 1/2"	1/2"	11'-0"
4"	1/2"	12'-0"
5"	1/2"	13'-0"
6"	5/8"	14'-0"
8"	3/4"	16'-0"

D. Provide means of preventing dissimilar metal contact such as plastic coated hangers, copper colored B-Line series DURA-COPPER™ epoxy paint, or non-adhesive isolation tape (B-Line series Iso-Pipe™). Galvanized felt isolators sized for copper tubing may also be used, B-Line series B3195CT.

E. Support horizontal cast iron pipe adjacent to each hub, with 10 feet maximum spacing between hangers.

F. Install hangers to provide a minimum of 1/2 inch space between finished covering and adjacent work.

G. Place a hanger within 12 inches of each horizontal elbow.

H. Support vertical piping independently of connected horizontal piping. Support vertical pipes at every (other) floor. Wherever possible, locate riser clamps directly below pipe couplings or shear lugs.

I. Where several pipes can be installed in parallel and at the same elevation, provide trapeze hangers as specified in Section 2.02 C. Trapeze hangers shall be spaced according to the smallest pipe size, or install intermediate supports according to schedule in Section 3.01 B.

J. Do not support piping from other pipes, ductwork or other equipment which is not building structure.

3.02 CONCRETE INSERTS

A. Provide inserts for placement in formwork before concrete is poured.

B. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Where concrete slabs form finished ceilings, provide inserts to be flush with slab surface.

D. For inserts carrying 5" nominal pipe and larger, provide hooked rod to concrete reinforcement.

Beam Clamps

Beam clamps offered in this section are designed to provide attachment of hanger rods to structural members without drilling or welding. A wide range of types and sizes are available for various applications.

Materials

Carbon Steel, Malleable Iron and Forged Steel are used in the manufacturing of beam clamps and accessories. Stainless steel and other materials are available.

Finishes

The standard finishes for mechanical supports are plain steel (oil coated) sometimes referred to as black and Electro-Galvanized Zinc (ASTM B633 SC3). Hot-Dip Galvanized After Fabrication (ASTM A123), Red Primer, Plastic Coating and DURA GREEN™. Other special coatings are available upon request.

Note: Due to the design of some products, (threads, connecting hardware, swivels, etc.) items may or may not be uniformly coated with special finishes. In some cases, the hanger itself may be coated, however, the hardware may be supplied Electro-Plated, copper plated, or in stainless steel.

Recommended Set screw Torque (unless otherwise specified)

1/4"-20	3/8"-16	1/2"-13	5/8"-11	3/4"-10
4 ft/lbs (5 Nm)	5 ft/lbs (7 Nm)	11 ft/lbs (15 Nm)	21 ft/lbs (28 Nm)	34 ft/lbs (46 Nm)

Over torqued set screws will damage beam clamps in this section.

We are aware that torque wrenches are not used or not available in many instances. In the absence of a torque wrench, the set screw should be finger tightened to the I-beam and then an additional 1/4 to 1/2 turn applied to the set screw.

Approvals (as noted)

Items in this section are Underwriters Laboratories Listed, Factory Mutual Approved, and comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B351L - Steel C-Clamp With Locknut

Size Range: 3/8"-16 thru 7/8"-9 rod

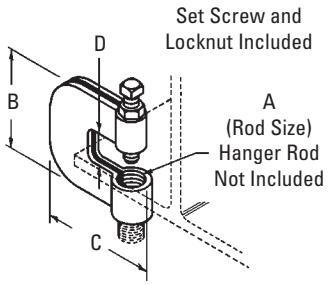
Material: Steel

Function: For attachment to I-beams, channels, and wide flange beams where the thickness does not exceed 3/4" (19.0mm). Hardened set screw secures "C" Clamp to beam.

Approvals: B351L (3/8"-16 thru 3/4"-10), is Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL).** Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 23 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 23.

Finish: Plain. Contact customer service for alternative finishes and materials.
Note: When retaining strap is required, order B3362 thru B3365 separately. See page 30.

Order By: Part number and finish



Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	Design Load Lbs.	Design Load (kN)	Maximum Iron Pipe Size Per UL in.	Maximum Iron Pipe Size Per UL (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B351L-3/8	3/8"-16	2 3/8"	(60.3)	2 3/8"	(60.3)	3/4"	(19.0)	300	(0.89)	4"	(100)	41	(18.6)
B351L-1/2	1/2"-13	2 3/8"	(60.3)	2 3/8"	(60.3)	3/4"	(19.0)	380	(1.69)	6"	(150)	41	(18.6)
B351L-5/8	5/8"-11	2 3/8"	(60.3)	2 1/4"	(57.1)	3/4"	(19.0)	550	(2.44)	6"	(150)	60	(27.2)
B351L-3/4	3/4"-10	2 3/8"	(60.3)	2 1/4"	(57.1)	3/4"	(19.0)	630	(2.80)	6"	(150)	71	(32.2)
B351L-7/8	7/8"-9	3"	(76.2)	3 1/4"	(82.5)	1"	(25.4)	1200	(5.34)	--	--	184	(83.4)

Note: See page 28 for recommended setscrew torque.

B3036L - Malleable Iron C-Clamp With Locknut

Size Range: 3/8"-16 thru 3/4"-10 rod

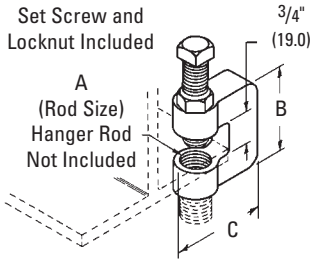
Material: Malleable Iron

Function: Designed for attaching a hanger rod to the flange of a beam.

Approvals: B3036L is Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL).** Complies with Federal Specification WW-H-171E & A-A-1192A Type 23 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58 Type 23.

Finish: Plain or Electro-Galvanized

Order By: Part number and finish. When retaining strap is required, order B3362 thru B3365 separately. See page 30.



Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	Design Load Lbs.	Design Load (kN)	Maximum Iron Pipe Size Per UL in.	Maximum Iron Pipe Size Per UL (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3036L-3/8	3/8"-16	1 3/4"	(44.4)	1 3/4"	(44.4)	300	(0.89)	4"	(100)	41	(18.6)
B3036L-1/2	1/2"-13	1 3/4"	(44.4)	1 3/4"	(44.4)	380	(1.69)	5"	(125)	41	(18.6)
B3036L-5/8	5/8"-11	2"	(50.8)	1 7/8"	(47.6)	530	(2.36)	6"	(150)	60	(27.2)
B3036L-3/4	3/4"-10	2"	(50.8)	2"	(50.8)	530	(2.36)	6"	(150)	71	(32.2)

Note: See page 28 for recommended setscrew torque.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3362, B3363, B3364, B3365 - Retaining Strap

Size Range: 6" (152.4mm) to 12" (304.8mm) lengths

Material: Steel (Stainless Steel available)

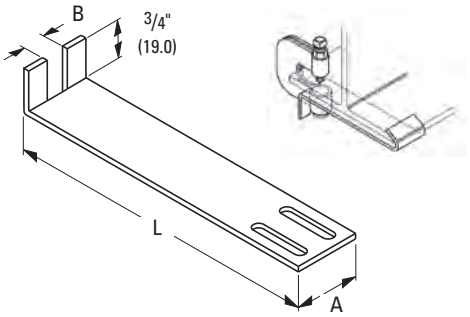
Finish: Pre-Galvanized

Function: Designed for use with B351L and B3036L C-Clamps.

Order By: Part number, length 'L', (add 1" (25.4) minimum to flange width), and finish.

Note: Requires field forming on beam.

Flange Width in.	(mm)	Length L in.	(mm)
3"-5"	(76-127)	6"	(152.4)
5"-7"	(127-178)	8"	(203.2)
7"-9"	(178-228)	10"	(254.0)
9"-11"	(228-279)	12"	(304.8)



Material Thickness
12 Gauge (2.7)

Part No.	For Use With	A in.	(mm)	B in.	(mm)	Approx. Wt./100 for Length 'L' of 6" (152.4) Lbs.	(kg)	8" (203.2) Lbs.	(kg)	10" (254.0) Lbs.	(kg)	12" (304.8) Lbs.	(kg)
B3362-L	B351L-3/8 & 1/2	1 1/4"	(31.7)	7/16"	(11.1)	27	(12.2)	35	(15.9)	44	(19.9)	52	(23.6)
B3363-L	B351L-5/8 & 3/4, B3036L-3/8 & 1/2	1 1/4"	(31.7)	5/8"	(15.9)	26	(11.8)	35	(15.9)	43	(19.5)	52	(23.6)
B3364-L	B3036L-5/8 & 3/4	1 1/4"	(31.7)	11/16"	(17.4)	26	(11.8)	35	(15.9)	43	(19.5)	52	(23.6)
B3365-L	B351L-7/8	1 1/2"	(38.1)	3/4"	(19.0)	32	(14.5)	42	(19.0)	52	(23.6)	62	(28.1)

B3037Z - Z-Purlin Malleable C-Clamp

Material: Malleable Iron

Function: Designed for attaching a 3/8"-16 hanger rod to the bottom flange of a Z-purlin.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** for up to 4" (100mm) pipe. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 23 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 23.

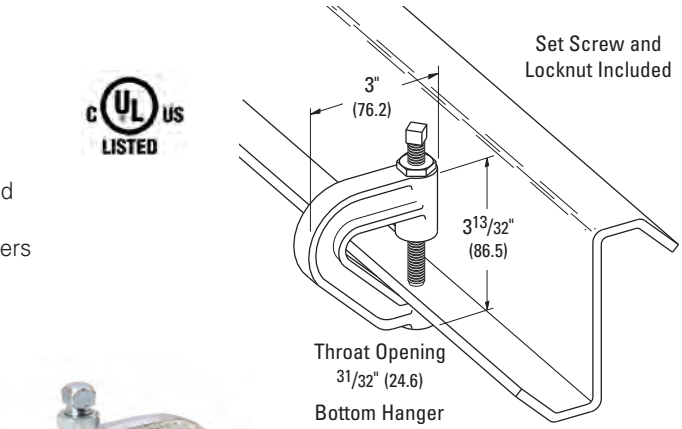
Finish: Plain or Electro-Galvanized

Order By: Part number and finish.

Weight: Approx. Wt./100 90 Lbs. (40.8kg)

Design Load: 400 Lbs. (1.78kN)

Note: See page 28 for recommended setscrew torque.



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3031-3/8 - Light Duty Malleable C-Clamp

Material: Malleable Iron

Function: Designed for attaching a 3/8"-16 hanger rod to the top or bottom flange of a beam or bar joist when setscrew is in the down position as shown.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** for up to 4" pipe. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 19 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 19.

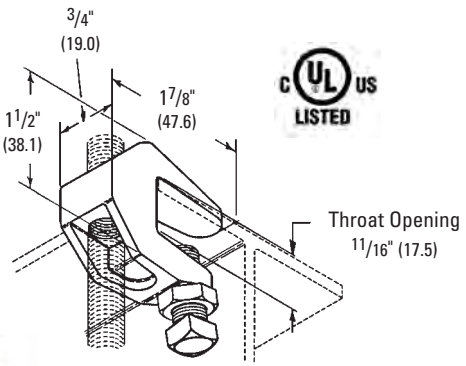
Finish: Plain or Electro-Galvanized

Order By: Part number and finish. When retaining strap is required, order Fig. 69 separately. See Page 37.

Weight: Approx. Wt./100 25 Lbs. (11.3kg)

Design Load: 350 Lbs. (1.55kN)

Note: See page 28 for recommended setscrew torque.



Hanger Rod Not Included

Set Screw and Locknut Included

B3033 - Wide Jaw Reversible C-Clamp

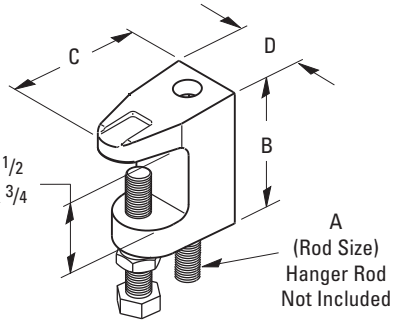
Size Range: 3/8"-16 thru 3/4"-10 rod
Material: Cast Malleable Steel with hardened cup point set screw and jam nut

Function: For attachment to structural shapes requiring wider throat especially under roof with bar joist construction.
This clamp may be used with the set screw in the up or down position.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL),** and Factory Mutual Engineering Approved **(FM)**. Conforms to Federal Specification WW-H-171E Type 19 & A-A-1192A, Type 19 & 23 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 19 & 23.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish

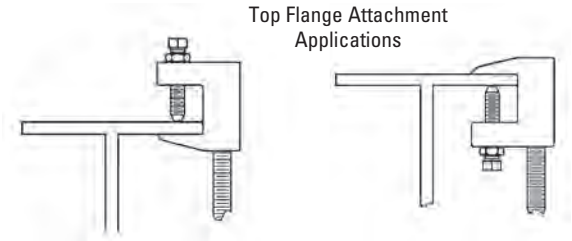


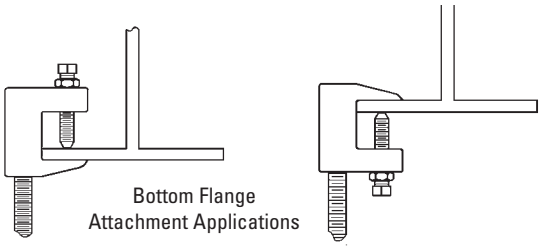
Throat Opening
1 1/4" (31.7) for B3033-3/8 & 1/2
1 5/16" (33.3) for B3033-5/8 & 3/4

Set Screw and Locknut Included

c UL us LISTED

FM APPROVED





Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	Design Load with Setscrew Lbs.	Design Load with Setscrew (kN)	Maximum Iron Pipe Size Per UL in.	Maximum Iron Pipe Size Per UL (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3033-3/8	3/8"-16	2 1/4"	(57.1)	2"	(50.8)	1 1/8"	(28.6)	500	(2.22)	4"	(100)	54	(24.5)
B3033-1/2	1/2"-13	2 5/16"	(58.7)	2 3/16"	(55.6)	1 1/4"	(31.7)	810	(3.60)	8"	(200)	51	(23.1)
B3033-5/8	5/8"-11	2 5/8"	(66.7)	2 1/2"	(63.5)	1 3/8"	(34.9)	1000	(4.45)	8"	(200)	70	(31.7)
B3033-3/4	3/4"-10	2 11/16"	(68.3)	2 1/2"	(63.5)	1 7/16"	(36.5)	1400	(6.23)	10"	(250)	98	(44.4)

Note: See page 28 for recommended setscrew torque.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3034 - C-clamp

Size Range: 3/8"-16 thru 3/4"-10 rod

Material: Cast Malleable Steel with hardened cup point set screw and jam nut

Function: Recommended for hanging from steel beam where flange thickness does not exceed 3/4" (19.0mm).

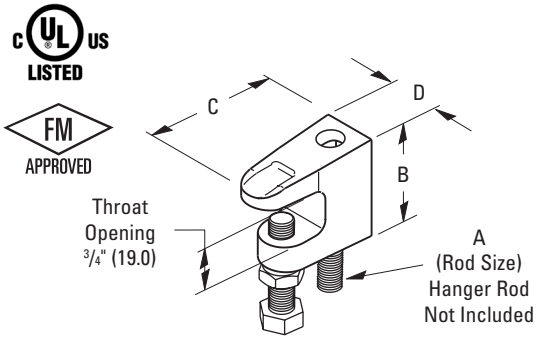
Features: May be used on top or bottom flange of the beam. Beveled lip allows hanging from top flange where clearance is limited. may be installed with the set screw in the up or down position. Offset design permits unlimited rod adjustment by allowing the rod to be threaded completely through the clamp. The rear window design permits inspection of thread engagement.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**, and Factory Mutual Engineering Approved **(FM)** for 3/8"-16 and 1/2"-13 rod sizes. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 19 & 23 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 19 & 23. 3/8"-16 is **(cULus)** Listed to support up to 4" (100mm) pipe with the set screw in the down position, up to 3" (75mm) pipe with the set screw in the up position. 1/2"-13 is **(cULus)** Listed to support up to 8" (200mm) pipe with the set screw in the down position, up to 6" (150mm) pipe with the set screw in the up position.

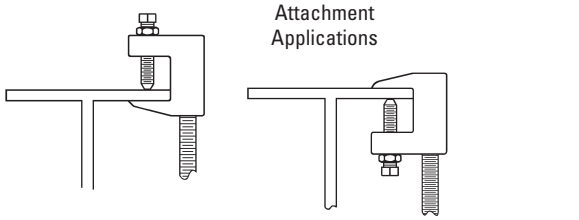
Finish: Plain. Contact customer service for alternative finishes and materials.

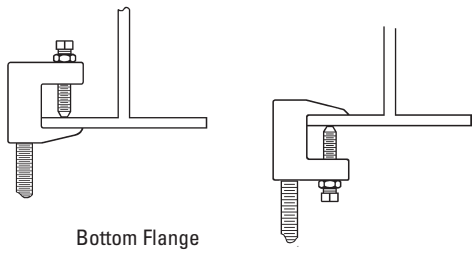
Order By: Part number and finish

B3034-3/8" and B3034-1/2" sizes
Attach only as shown.

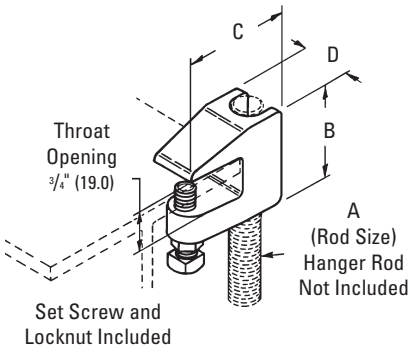


B3034-3/8
Shown





B3034-5/8" and B3034-3/4" sizes
Attach only as shown.



Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	Design Load with Setscrew Lbs.	Design Load with Setscrew (kN)	Maximum Iron Pipe Size Per UL in.	Maximum Iron Pipe Size Per UL (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3034-3/8	3/8"-16	1 5/8"	(41.3)	2"	(50.8)	7/8"	(19.0)	560	(2.49)	4"	(100)	30	(13.6)
B3034-1/2	1/2"-13	1 13/16"	(46.0)	2 3/16"	(55.6)	1 3/16"	(30.2)	810	(3.60)	8"	(200)	47	(21.3)
B3034-5/8	5/8"-11	1 3/4"	(44.5)	2 1/8"	(54.0)	1 1/4"	(31.7)	600	(2.67)	—	—	58	(26.3)
B3034-3/4	3/4"-10	2"	(50.8)	2 1/4"	(57.2)	1 1/4"	(31.7)	800	(3.56)	—	—	77	(35.0)

Note: See page 28 for recommended setscrew torque.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 65 - Reversible Steel C-Type Beam Clamp 3/4" (19.0mm) Throat Opening

Size Range: 1/2"-13 and 5/8"-11 rod sizes

Material: Steel with hardened cup point set screw and jam nut

Function: Recommended for hanging from steel beam where flange thickness does not exceed 3/4" (19.0mm).

Features: All steel construction eliminates structural deficiencies associated with casting type beam clamps. May be used on top or bottom flange of beam. (Beveled lip allows hanging from top flange where clearance is limited.) May be installed with set screw in up or down position. Offset design permits unlimited rod adjustment by allowing the rod to be threaded completely through the clamp. Open design permits inspection of thread engagement.

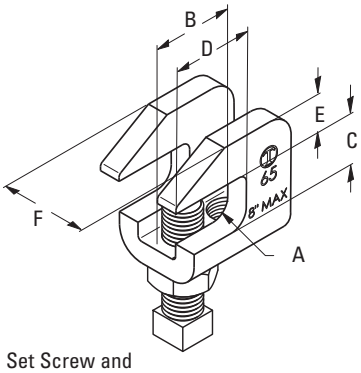
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL).** Exceeds requirements of the National Fire Protection Association (NFPA), pamphlet 13,
3/8"-16 rod will support 1/2" (15mm) thru 4" (100mm) pipe
1/2"-13 rod will support 1/2" (15mm) thru 8" (200mm) pipe
Included in the Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load spacing and placement information relating OSHPD projects, please refer to the Seismic Restraint System Guidelines.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

Fig. 65 Patent #4,570,885

Component of State of California OSHPD Approved Seismic Restraints System



Set Screw and Locknut Included

Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	E in.	E (mm)
65-1/2	1/2"-13	1 1/2"	(38.1)	3/4"	(19.0)	1"	(25.4)	9/16"	(14.3)
65-5/8	5/8"-11	1 1/2"	(38.1)	3/4"	(19.0)	1"	(25.4)	9/16"	(14.3)

Part No.	F in.	F (mm)	Max. Rec. Load * lbs.	Max. Rec. Load * (kN)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
65-1/2	1 1/4"	(31.7)	1130	(5.02)	55	(24.9)
65-5/8	1 1/4"	(31.7)	1130	(5.02)	55	(24.9)

* Maximum loads for clamp with set screw in up or down position.

Note: See page 28 for recommended setscrew torque.

TOLCO™ Fig. 65XT - Reversible Steel C-Type Beam Clamp 3/4" (19.0mm) Throat Opening

Size Range: 3/8"-16 rod size

Feature: Extruded holes allow for more thread engagement of threaded rod and set screw.

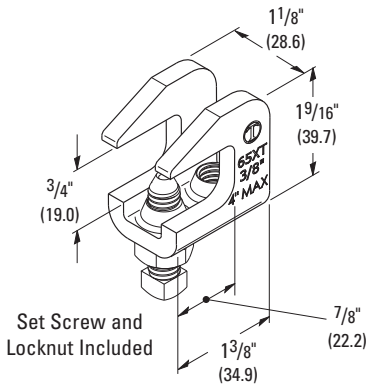
Weight: Approx. Wt./100 - 28.0 Lbs. (12.7kg)

Design Load: 730 Lbs (3.25kN)

Finish: Plain or Electro-Galvanized

Order By: Part number and finish

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**, and Factory Mutual Engineering Approved **(FM)** for up to 4" (100mm) pipe.



Note: See page 28 for recommended setscrew torque.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 66 - Reversible Steel C-Type Beam Clamp 1 1/4" (31.7mm) Throat Opening

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: 3/8"-16, 1/2"-13 rod sizes, and 5/8"-11 rod sizes

Material: Steel with hardened cup point set screw and jam nut

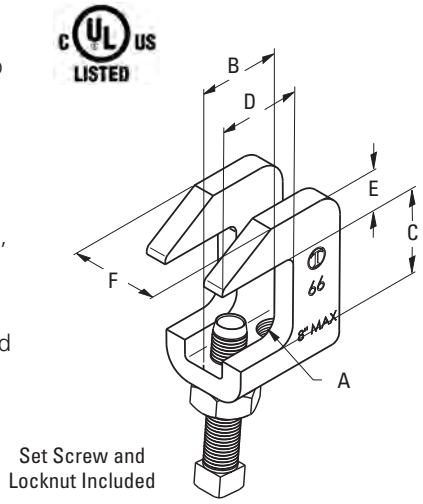
Function: Recommended for hanging from steel beam where flange thickness does not exceed 1 1/4" (31.7mm).

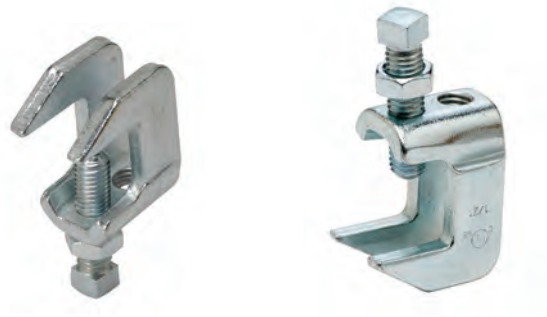
Features: All steel construction eliminates structural deficiencies associated with casting type beam clamps. May be used on top or bottom flange of beam. (Beveled lip allows hanging from top flange where clearance is limited.) May be installed with set screw in up or down position. Offset design permits unlimited rod adjustment by allowing the rod to be threaded completely through the clamp. Open design permits inspection of thread engagement.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL).**
Exceeds requirements of the National Fire Protection Association (NFPA), pamphlet 13,
3/8"-16 rod will support 1/2" (15mm) thru 4" (100mm) pipe
1/2"-13 rod will support 1/2" (15mm) thru 8" (200mm) pipe
Included in the Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load spacing and placement information relating OSHPD projects, please refer to the Seismic Restraint System Guidelines.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish





Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	E in.	E (mm)
66-3/8	3/8"-16	1 3/16"	(30.2)	1 1/4"	(31.7)	1"	(25.4)	7/16"	(11.1)
66-1/2	1/2"-13	1 1/2"	(38.1)	1 1/4"	(31.7)	1"	(25.4)	9/16"	(14.3)
66-5/8	5/8"-11	1 1/2"	(38.1)	1 1/4"	(31.7)	1"	(25.4)	9/16"	(14.3)

Part No.	F in.	F (mm)	Max. Rec. Load * lbs.	Max. Rec. Load * (kN)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
66-3/8	1"	(25.4)	610	(2.71)	28	(12.7)
66-1/2	1 1/4"	(31.7)	1130	(5.02)	55	(24.9)
66-5/8	1 1/4"	(31.7)	1130	(5.02)	55	(24.9)

* Maximum loads for clamp with set screw in up or down position.

Note: See page 28 for recommended setscrew torque.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 67SS - Stainless Steel Reversible C-Type Beam Clamp 3/4" (19.0mm) Throat Opening
TOLCO™ Fig. 68SS - Stainless Steel Reversible C-Type Beam Clamp Wide Mouth

Size Range: 3/8"-16 and 1/2"-13 rod sizes

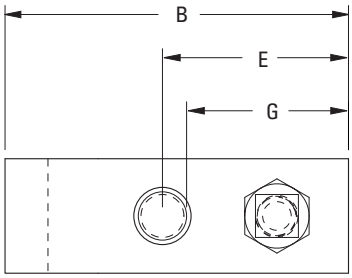
Material: Stainless Steel (Type 316 or 304)

Function: Recommended for hanging from steel beams where flange thickness does not exceed 3/4" (19.0mm) for Fig. 67SS or 1 1/4" (31.7mm) for Fig. 68SS.

Features: All steel construction eliminates structural deficiencies associated with casting type beam clamps. May be used on top or bottom flange of beam. May be installed with set screw in up or down position. Offset design permits unlimited rod adjustment by allowing the rod to be threaded completely through the clamp.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL).** Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 19. Meets or exceeds requirements of the National Fire Protection Association (NFPA), pamphlet 13.
3/8"-16 rod will support 1/2" (15mm) thru 4" (100mm) pipe
1/2"-13 rod will support 1/2" (15mm) thru 8" (200mm) pipe

Order By: Part number and stainless steel type.



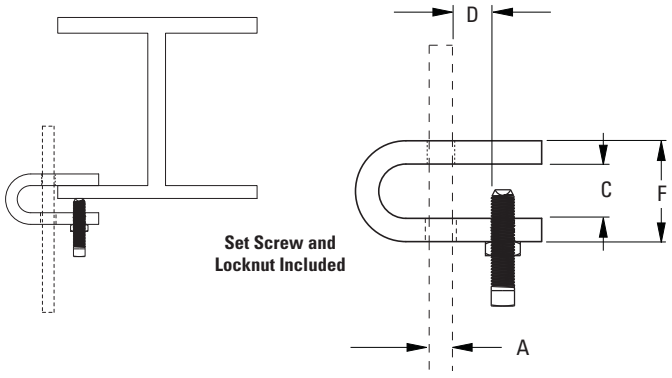


Fig. 67SS

Part No.	Rod Size A	Pipe Size in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)	E in.	(mm)
67SS-3/8	3/8"-16	1/2" - 4"	(15 - 100)	3"	(76,2)	7/8"	(22.2)	1"	(25.4)	1 5/8"	(41.3)
67SS-1/2	1/2"-13	5" - 8"	(125 -200)	3"	(76,2)	7/8"	(22.2)	1"	(25.4)	1 5/8"	(41.3)

Part No.	F in.	(mm)	G in.	(mm)	Test Load lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
67SS-3/8	1 5/8"	(41.3)	1 1/8"	(28.6)	1500	(6.67)	84	(38.1)
67SS-1/2	1 5/8"	(41.3)	1 1/8"	(28.6)	4050	(18.01)	170	(77.1)

Fig. 68SS *

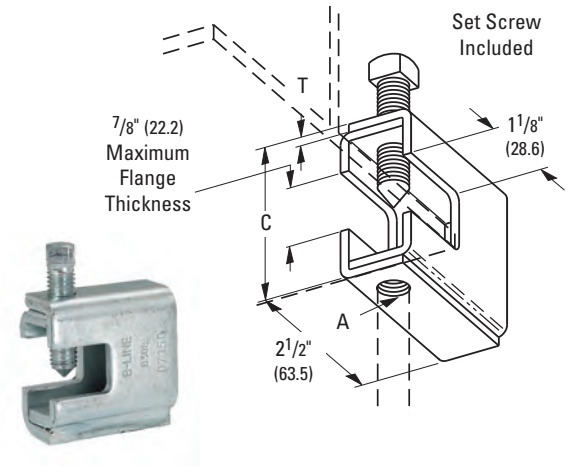
Part No.	Rod Size A	Pipe Size in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)	E in.	(mm)
68SS-3/8	3/8"-16	1/2" - 4"	(15 - 100)	2 1/16"	(52.4)	1 1/8"	(28.6)	3/4"	(19.0)	1 1/4"	(31.7)
68SS-1/2	1/2"-13	5" - 8"	(125 -200)	2 1/4"	(57.1)	1 1/4"	(31.7)	13/16"	(20.6)	1 1/4"	(31.7)

Part No.	F in.	(mm)	Test Load lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
68SS-3/8	2"	(50.8)	1500	(6.67)	84	(38.1)
68SS-1/2	2 1/4"	(57.1)	4050	(18.01)	170	(77.1)

* Fig. 68SS minimum order quantity of 30 pieces.
Note: See page 28 for recommended setscrew torque.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B303-B309 - Beam Clamp



Size Range: 1/4"-20 thru 5/8"-11 rod

Material: Steel

Function: Designed for attaching a hanger rod to the flange of a beam.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 19 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 19.

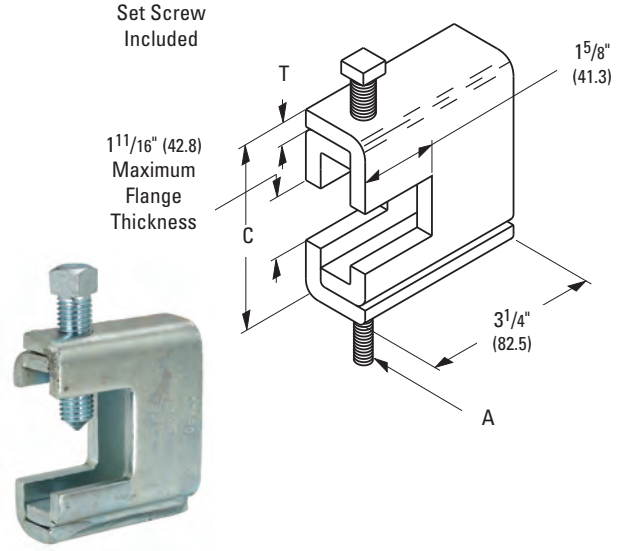
Finish: Electro-Galvanized or Hot-Dip Galvanized

Order By: Part number and finish. When retaining strap is required, order B312 separately. See page 39.

Recommended Set Screw Torque:
3/8"-16 = 150 in-lbs (16.9 N•m)
1/2"-13 = 350 in-lbs (39.5 N•m)

Part No.	Rod Size A	Setscrew Size	C in.	C (mm)	T in.	T (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B303	1/4"-20	3/8"-16	2 5/16"	(58.7)	11 Ga.	(3.0)	400	(1.78)	72	(32.6)
B304	5/16"-18	3/8"-16	2 5/16"	(58.7)	11 Ga.	(3.0)	600	(2.67)	72	(32.6)
B305	3/8"-16	3/8"-16	2 5/16"	(58.7)	11 Ga.	(3.0)	600	(2.67)	72	(32.6)
B306	3/8"-16	1/2"-13	2 7/16"	(61.9)	7 Ga.	(4.5)	1100	(4.89)	97	(44.0)
B307	1/2"-13	1/2"-13	2 7/16"	(61.9)	7 Ga.	(4.5)	1100	(4.89)	97	(44.0)
B308	1/2"-13	1/2"-13	2 9/16"	(65.1)	1/4"	(6.3)	1500	(6.67)	133	(60.3)
B309	5/8"-11	1/2"-13	2 9/16"	(65.1)	1/4"	(6.3)	1500	(6.67)	133	(60.3)

Fig. B321 - Series Beam Clamp



Size Range: 3/8"-16 thru 3/4"-10 rod

Material: Steel

Function: Designed for attaching a hanger rod to the flange of a beam.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 19 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 19.

Finish: Electro-Galvanized or Hot-Dip Galvanized

Ordering: Part number and finish. When retaining strap is required, order B312 separately. See page 39.

Recommended Set Screw Torque:
1/2"-13 = 350 in-lbs (39.5 N•m)
5/8"-11 = 700 in-lbs (79.0 N•m)

Minimum Flange Thickness:
For B321-1 thru B321-3 = 3/8" (9.5)
For B321-4 & B321-5 = 5/8" (15.9)

Part No.	Rod Size A	Setscrew Size	C in.	C (mm)	T in.	T (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B321-1	3/8"-16	1/2"-13	3 9/16"	(92.1)	1/4"	(6.3)	1300	(5.78)	187	(84.8)
B321-2	1/2"-13	1/2"-13	3 9/16"	(92.1)	1/4"	(6.3)	1400	(6.23)	186	(84.3)
B321-3	5/8"-11	1/2"-13	3 9/16"	(92.1)	1/4"	(6.3)	1600	(7.12)	185	(83.9)
B321-4	5/8"-11	5/8"-11	3 23/32"	(94.4)	5/16"	(7.9)	1800	(8.00)	239	(108.4)
B321-5	3/4"-10	5/8"-11	3 23/32"	(94.4)	5/16"	(7.9)	2000	(8.89)	238	(107.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 69 - Beam Clamp Retaining Strap

Size Range: 3/8"-16 thru 3/4"-10 rod
4" (101,6mm) thru 16" (406.4mm) lengths
Note: longer lengths are available consult factory

Material: Pre-Galvanized Steel

Function: To offer more secure fastening of various types of beam clamps to beam where danger of movement might be expected. NFPA 13 requires the use of retaining straps with all beam clamps installed in earthquake areas. Satisfies requirements of NFPA 13.

Important Note: Good installation practice of a retaining strap requires that the strap be held tightly and securely to all component parts of the assembly. Therefore a locking mechanism of some kind, such as a hex nut or the beveled locking slot of the Fig. 69R will provide a more secure reliable installation.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL).** Approved for use with any listed beam clamp. Included in the Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load spacing and placement information relating OSHPD projects, please refer to the Seismic Restraint System Guidelines.

Finish: Pre-Galvanized

Order By: Part number, length (L), and finish.

Note: Minimum return on strap is 1" (25.4mm)
Lengths over 16" (406mm) are not UL Listed

Component of State of California OSHPD Approved Seismic Restraints System

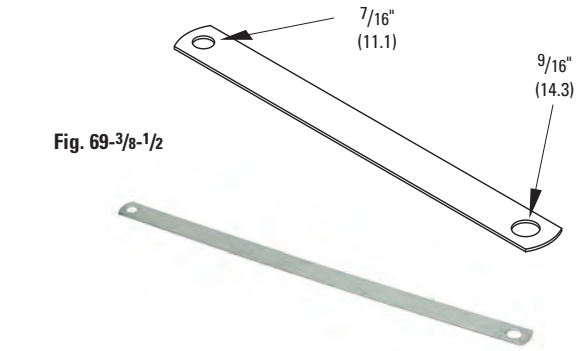


Fig. 69-3/8-1/2

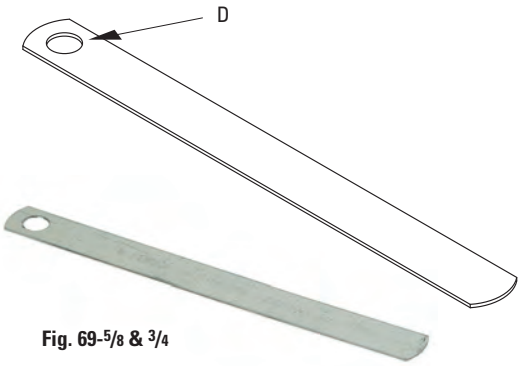
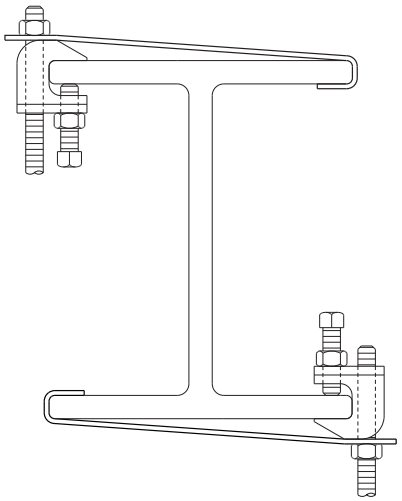


Fig. 69-5/8 & 3/4

Part No.	Hole Dia. D in.	(mm)	For Use With	Length
69-3/8-1/2-L	see drawing		B3033-3/8, B3034-3/8, B3031-3/8, 65-3/8, 65XT-3/8, 66-3/8 B3033-1/2, B3034-1/2, 65-1/2, 66-1/2	Specify
69-5/8-L	11/16"	(17.5)	B3033-5/8, 65-5/8, 66-5/8	Specify
69-3/4-L	13/16"	(20.6)	B3033-3/4	Specify



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 69R - Retrofit Capable Beam Clamp Retaining Strap

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: 3/8"-16 & 1/2"-13 rod
4" (101,6mm) thru 16" (406.4mm) lengths
Note: longer lengths are available consult factory

Material: Pre-Galvanized Steel

Function: To offer more secure fastening of various types of beam clamps to beam where danger of movement might be expected. NFPA 13 requires the use of retaining straps with all beam clamps installed in earthquake areas. Satisfies requirements of NFPA 13.

Features: Beveled locking slot* is precisely formed to align with the threaded section of a hanger rod or set screw and engage the unit securely. May be used as shown in Section "A-A" or inverted. Allows easy installation for new construction or retrofit applications.

Important Note: Good installation practice of a retaining strap requires that the strap be held tightly and securely to all component parts of the assembly. Therefore a locking mechanism of some kind, such as a hex nut or the beveled locking slot of the Fig. 69R will provide a more secure reliable installation.

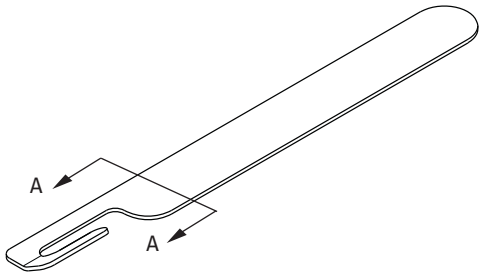
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL).** Approved for use with any listed beam clamp. Included in the Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load spacing and placement information relating OSHPD projects, please refer to the Seismic Restraint System Guidelines.

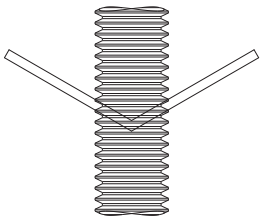
Finish: Pre-Galvanized

Order By: Part number, length, and finish.

Note: Minimum return on strap is 1" (25.4mm)

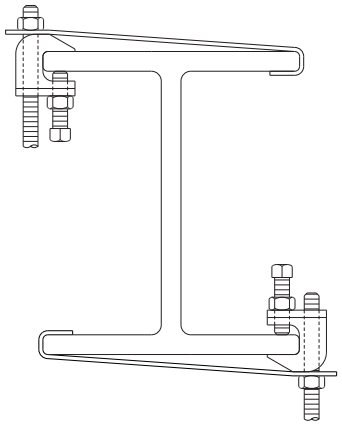
* Patent #5,947,424

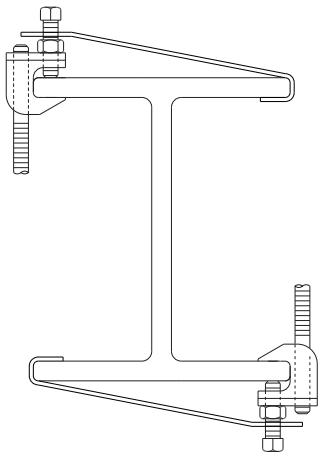




A - A

Part No.	Slot Width in.	Slot Width (mm)	For Use With	Length
69R-3/8-L	7/16"	(11.1)	B3033-3/8, B3034-3/8, B3031-3/8, 65-3/8, 65XT-3/8, 66-3/8	Specify
69R-1/2-L	9/16"	(14.3)	B3033-1/2, B3034-1/2, 65-1/2, 66-1/2	Specify





All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B312 - Retaining Strap

Size Range: 9″ (228.6mm) to 18″ (457.2mm) strap lengths

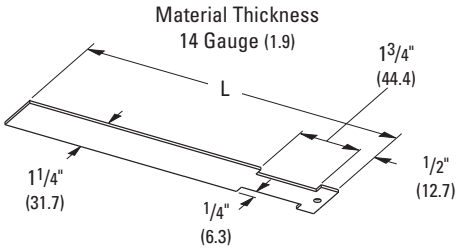
Material: Steel

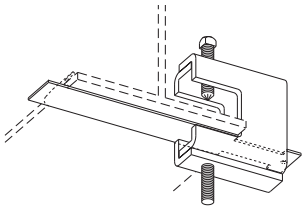
Function: Designed for use with B303-B309 and B321 beam clamps.

Finish: Pre-Galvanized

Order By: Part number and finish.

Note:
Maximum beam thickness 3/4″ (19.0). For thicker beams step up one flange width size. Requires field forming on beam.





Part No.	For Flange With in.	(mm)	L in.	(mm)	Approx. Wt./100 Lbs.	kg
B312-6	6"	(152.4)	9"	(228.6)	22	(10.0)
B312-9	9"	(228.6)	12"	(304.8)	30	(13.6)
B312-12	12"	(304.8)	15"	(381.0)	40	(18.1)
B312-15	15"	(381.0)	18"	(457.2)	49	(22.2)

B3040 - Adjustable Beam Clamp

Size Range: 3/8"-16 thru 3/4"-10 rod

Material: Steel

Function: Fits structural I-Beams and wide flange beams, flange widths 3 1/2" (88.9mm) to 8" (203.2mm), thickness up to 1/2" (12.7mm).

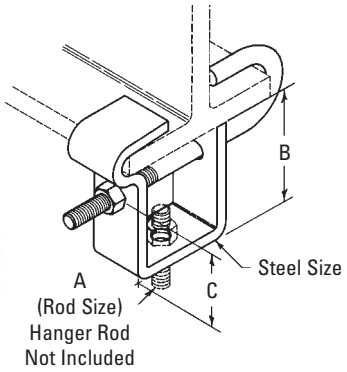
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 54, and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 27.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

J-Hook and Hex Nut Included

C
Center of J-Hook to bottom of clamp body.



Part No.	Rod Size A	B in.	(mm)	C in.	(mm)	Steel Size in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3040-3/8	3/8"-16	2 3/4"	(69.8)	1 13/16"	(46.0)	1/4" x 1 1/4"	(6.3 x 31.7)	300	(1.33)	120	(54.4)
B3040-1/2	1/2"-13	2 3/4"	(69.8)	1 3/4"	(44.4)	1/4" x 1 1/2"	(6.3 x 38.1)	700	(3.11)	160	(72.6)
B3040-5/8	5/8"-11	3"	(76.2)	1 3/4"	(44.4)	1/4" x 1 3/4"	(6.3 x 44.4)	1000	(4.45)	216	(98.0)
B3040-3/4	3/4"-10	3 3/8"	(85.7)	1 7/8"	(47.6)	3/8" x 2"	(9.5 x 50.8)	1800	(8.00)	442	(200.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3050 - Beam Clamp

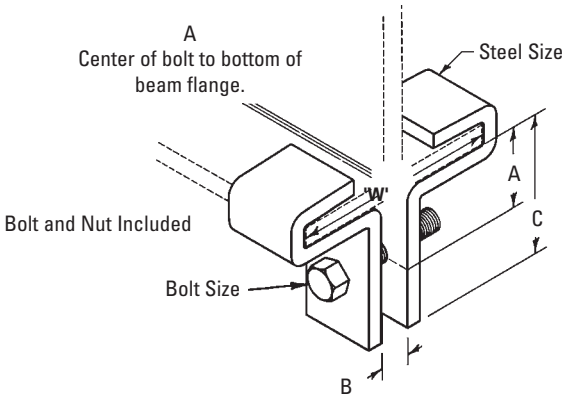
Material: Steel

Function: Recommended for the suspending of hanger rod from the center of an I-beam, equally distributing the load on both sides of the beam. Use with B3210 eye rod, B3211 welded eye rod or B3200 weldless eye nut.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 21 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 21.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, type, width of flange and finish.



Part Number & Size	Bolt Size	Flange Thickness Min. in. (mm)	Flange Thickness Max. in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	Steel Size in. (mm)	Design Load Lbs. (kN)
B3050-2X*	1/2"-13	3/16" (4.8)	1/2" (12.7)	1 3/8" (34.9)	5/8" (15.9)	2 1/8" (54.0)	1/4" x 1 1/4" (6.3 x 31.7)	1000 (3.11)
B3050-5X*	3/4"-10	5/8" (25.9)	1" (25.4)	1 7/8" (47.6)	7/8" (22.2)	3" (76.2)	1/2" x 2" (12.7 x 50.8)	3000 (6.67)

* Any flange width shown in bottom chart.

Flange Width *	'W' in. (mm)	Approx. Wt./100 For Beam Clamp Size 2 lbs. (kg)	5 lbs. (kg)
4	4" (101.6)	116 (52.6)	429 (194.6)
5	5" (127.0)	125 (56.7)	458 (207.8)
6	6" (152.4)	134 (60.8)	486 (220.5)
7	7" (177.8)	143 (64.9)	514 (233.2)
8	8" (203.2)	152 (69.0)	543 (246.3)
9	9" (228.6)	160 (72.6)	571 (259.0)
10	10" (254.0)	169 (76.7)	599 (271.8)
12	12" (304.8)	187 (84.8)	656 (297.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3055 - Steel Beam Clamp

Size Range: 3/8"-16 thru 1"-8 rod

Material: Steel

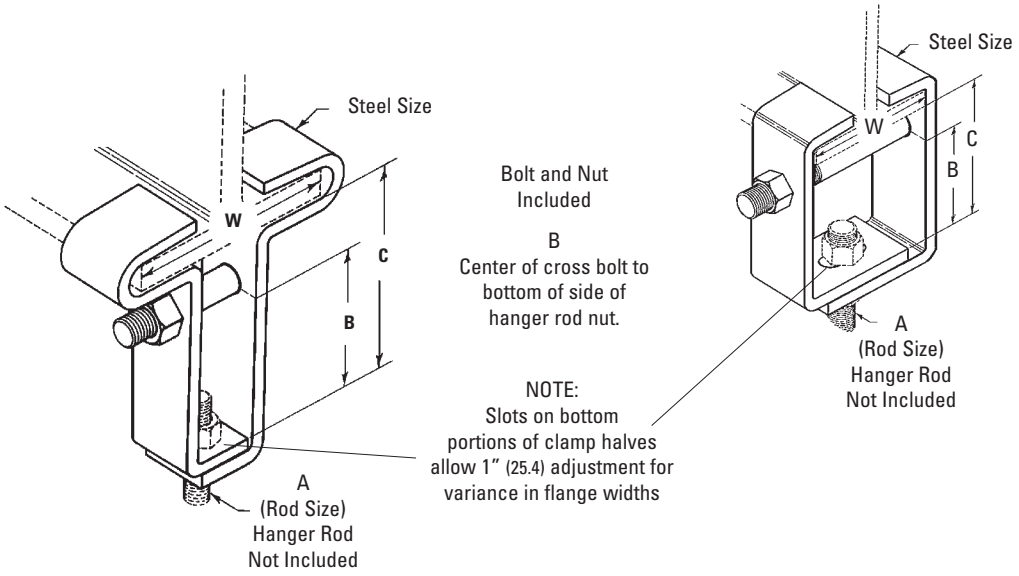
Function: Designed for attaching a hanger rod to be centered under beam flanges. 2" (50.8mm) vertical adjustment is provided in the clamp.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 21 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 21.

Finish: Plain or Electro-Galvanized

Order By: Part number, flange width, and finish.

Note: Consult factory for additional flange widths.



Note:
Box Style
Furnished For
B3055-3/8 x 4"
B3055-1/2 x 4"
B3055-5/8 x 4"
B3055-3/4 x 4"
B3055-7/8 x 4"
B3055-7/8 x 5"
B3055-1 x 4"
B3055-1 x 5"
B3055-1 x 6"

Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	Steel Size in.	Steel Size (mm)	Design Load Lbs.	Design Load (kN)
B3055-3/8	3/8"-16	3"	(76.2)	4"	(101.6)	1/4" x 1 1/4"	(6.3 x 31.7)	550	(2.44)
B3055-1/2	1/2"-13	3"	(76.2)	4"	(101.6)	1/4" x 1 1/2"	(6.3 x 38.1)	850	(3.78)
B3055-5/8	5/8"-11	3 1/4"	(82.5)	4 1/2"	(114.3)	3/8" x 1 1/2"	(9.5 x 38.1)	1100	(4.89)
B3055-3/4	3/4"-10	3 1/4"	(82.5)	4 1/2"	(114.3)	3/8" x 2"	(9.5 x 50.8)	1500	(6.67)
B3055-7/8	7/8"-9	3 1/2"	(88.9)	5"	(127.0)	1/2" x 2"	(12.7 x 50.8)	2600	(11.56)
B3055-1	1"-8	3 1/2"	(88.9)	5 1/2"	(139.7)	1/2" x 2"	(12.7 x 50.8)	4300	(19.12)

Flange Width W		Approximate Wt./100 For Beam Clamp Size Lbs. (kg)											
in.	(mm)	B3055-3/8"		B3055-1/2"		B3055-5/8"		B3055-3/4"		B3055-7/8"		B3055-1"	
4"	(101.6)	168	(76.2)	201	(91.2)	328	(148.8)	434	(196.8)	657	(298.0)	797	(361.5)
5"	(127.0)	181	(82.1)	217	(98.4)	352	(159.6)	466	(211.4)	667	(302.5)	824	(373.7)
6"	(152.4)	193	(87.5)	231	(104.8)	373	(169.2)	495	(224.5)	705	(319.8)	877	(397.8)
7"	(177.8)	205	(93.0)	246	(111.6)	395	(179.2)	525	(238.1)	744	(337.5)	926	(420.0)
8"	(203.2)	214	(97.1)	256	(116.1)	411	(186.4)	546	(247.6)	773	(350.6)	962	(436.3)
10"	(254.0)	235	(106.6)	282	(127.9)	449	(203.6)	596	(270.3)	840	(381.0)	1046	(474.4)
12"	(304.8)	259	(117.5)	311	(141.0)	493	(223.6)	655	(297.1)	918	(416.4)	1143	(518.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3054 - Malleable Iron Beam Clamp With Extension
B3054WO - Malleable Iron Beam Clamp Without Extension

Size Range: 3/8"-16 thru 7/8"-9 rod

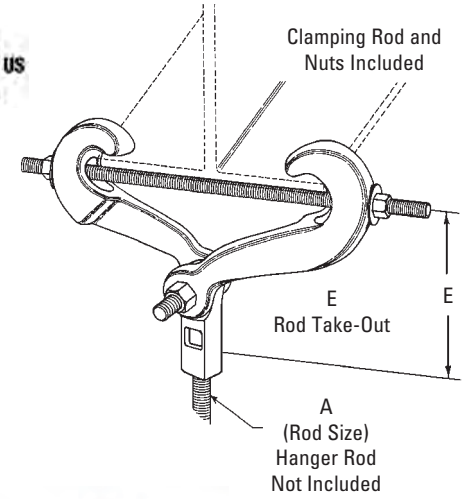
Material: Malleable Iron

Function: Designed for attaching a hanger rod to the bottom flange of a beam. Adjustable for flange widths of 3" (76.2mm) to 7" (177.8mm) and a flange thickness of no greater than 5/8" (15.9mm).

Approvals: Underwriters Laboratories Listed. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 30 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 30.

Finish: Plain or Electro-Galvanized

Ordering: Part number and finish



B3054WO

B3054-Rod Size

Part No.	Rod Size A	Rod Take Out 'E' For Beam Flange Width Of in. (mm) 3" (76.2)	4" (101.6)	5" (127.0)	6" (152.4)	7" (177.8)
B3054-3/8	3/8"-16	4 11/16" (119.1)	4 9/16" (115.9)	4 5/8" (117.5)	4" (101.6)	3 1/8" (79.4)
B3054-1/2	1/2"-13	4 13/16" (122.2)	4 1/2" (114.3)	4 5/16" (109.5)	3 15/16" (100.0)	3 1/4" (82.5)
B3054-5/8	5/8"-11	4 7/8" (123.8)	4 5/8" (117.5)	4 3/8" (111.1)	3 3/4" (95.2)	3 5/16" (84.1)
B3054-3/4	3/4"-10	5 1/8" (130.2)	5" (127.0)	4 5/8" (117.5)	4 1/4" (107.9)	3 3/4" (95.2)
B3054-7/8	7/8"-9	5 3/16" (131.8)	4 7/8" (123.8)	4 11/16" (119.1)	4 5/16" (109.5)	3 3/4" (95.2)

Part No.	Design Load Lbs.	(kN)	Max. Iron Pipe Size Per UL in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3054-3/8	730	(3.25)	4"	(100)	236	(107.0)
B3054-1/2	1350	(6.00)	8"	(200)	254	(115.2)
B3054-5/8	1365	(6.07)	10"	(250)	260	(117.9)
B3054-3/4	1365	(6.07)	10"	(250)	278	(126.1)
B3054-7/8	1365	(6.07)	10"	(250)	292	(132.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3291, B3292, B3293, B3294, B3295, B3296, B3297, B3298
UFS Beam Clamp With Weldless Eye Nut

Available with left hand threads by adding an L to part number Example: B3291L-*

Size Range: 3/8"-16 thru 2"-4 1/2 rod

Material: Forged Steel

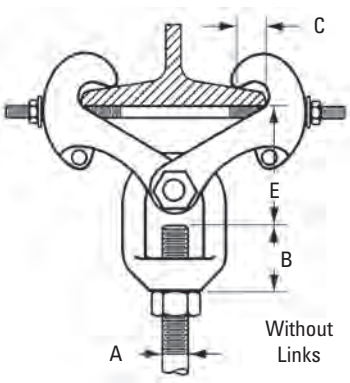
Function: Designed for attaching a hanger rod to the bottom flange of a beam. Adjustable from flange widths of 3" (76.2mm) to 15" (381.0mm). and flange thickness of no greater than 1 1/32" (26.2mm).

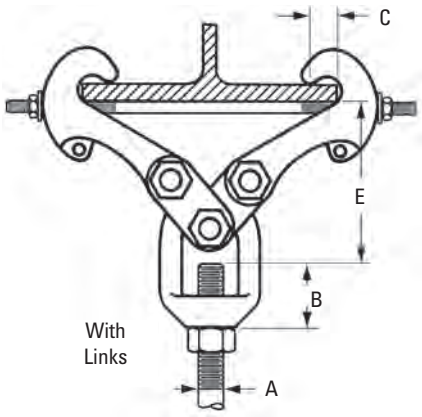
Approvals: Complies with Federal Specification WW-H-171E & A-A-1192A (Type 28 without links; Type 29 with links,) and ANSI/MSS SP-58 (Type 28 without links; Type 29 with links).

Finish: Plain or Electro-Galvanized

Order By: Part number, rod size and finish.

Note: Design load for B3291 thru B3295 based on maximum rod size shown. Use the appropriate all threaded rod design load shown on page 322 for sizes less than maximum.





B3294

B3293

Part No. *Rod Size	Maximum Beam Flange Thickness In.	(mm)	Rod Size A (Specify) *	B In.	(mm)	C In.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3291-*	.60	(15.2)	3/8"-16, 1/2"-13, 5/8"-11, 3/4"-10	1 1/4"	(31.7)	1 1/8"	(28.6)	3230	(14.36)	390	(176.9)
B3292-*	.60	(15.2)	7/8"-9, 1"-8	1 11/16"	(42.9)	1 1/8"	(28.6)	5900	(26.24)	915	(415.0)
B3293-*Δ	.60	(15.2)	3/8"-16, 1/2"-13, 5/8"-11, 3/4"-10, 7/8"-9, 1"-8	1 11/16"	(42.9)	1 1/8"	(28.6)	5900	(26.24)	1300	(589.6)
B3294-*	1.031	(26.2)	7/8"-9, 1"-8	1 1/2"	(38.1)	1 1/8"	(28.6)	5900	(26.24)	2165	(982.0)
B3295-*Δ	1.031	(26.2)	7/8"-9, 1"-8	1 1/2"	(38.1)	1 1/8"	(28.6)	5900	(26.24)	3385	(1535.4)
B3296-*	1.031	(26.2)	1"-8, 1 1/8"-7, 1 1/4"-7, 1 1/2"-6	2 1/8"	(54.0)	1 1/8"	(28.6)	11500	(51.15)	2390	(1084.1)
B3297-*Δ	1.031	(26.2)	1 1/8"-7, 1 1/4"-7, 1 1/2"-6	2 1/8"	(54.0)	1 1/8"	(28.6)	11500	(51.15)	3575	(1621.6)
B3298-*	1.031	(26.2)	1 3/4"-5, 2"-4 1/2	4 9/16"	(115.9)	1 1/8"	(28.6)	11500	(51.15)	3675	(1666.9)

	'E' Rod Take-Out For Flange Width												
Part No.	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	13"	14"	15"
B3291-*	4 1/2"	5 5/16"	4 1/16"	3 5/8"	2 7/8"	--	--	--	--	--	--	--	--
B3292-*	--	4 3/4"	4 7/16"	4 1/16"	3 3/8"	--	--	--	--	--	--	--	--
B3293-*Δ	--	--	--	--	5 15/16"	6"	5 5/16"	5"	--	--	--	--	--
B3294-*	--	6 13/16"	6 5/8"	6 3/8"	5 7/8"	5 7/8"	5 3/8"	4 13/16"	--	--	--	--	--
B3295-* Δ	--	--	--	--	--	--	--	--	8 1/8"	7 3/4"	7 1/8"	6 5/8"	6 1/16"
B3296-*	--	7 3/16"	7"	6 3/4"	6 1/4"	6 5/16"	5 13/16"	5 3/16"	--	--	--	--	--
B3297-* Δ	--	--	--	--	--	--	--	--	8 1/2"	8 1/8"	7 1/2"	7"	6 7/16"
B3298-*	--	8 3/8"	8 7/16"	8 3/16"	7 3/4"	7 3/4"	7 1/4"	6 5/8"	--	--	--	--	--

To determine (mm) in the above chart, multiply inches by 25.4.

* Rod Size required to finish part number (see Rod Size 'A' in top chart).

Δ These part numbers are furnished with links.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3042 - Top Beam Hook

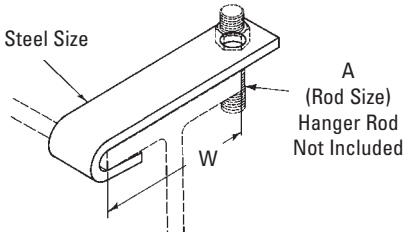
Size Range: 3/8"-16 and 1/2"-13 rod

Material: Steel

Function: Designed for attaching hanger rod to the top flange of a beam or angle truss. The support rod completes assembly and secures it to the flange.

Finish: Plain or Electro-Galvanized

Order By: Part number flange width, flange thickness and finish.



Allows 1/8" (3.2) clearance between hanger rod and flange of beam.

Part No.	A	For Pipe Size in.	(mm)	Design Load Lbs.	(kN)
B3042-3/8	3/8"-16	3/4"-2"	(20-50)	300	(1.33)
B3042-1/2	1/2"-13	2 1/2"-3 1/2"	(65-90)	500	(2.22)

Part No.	Approximate Wt./100 Lbs. (kg) For Width of Beam Flange 'W' 4" (101.6)		6" (152.4)		8" (203.2)		12" (304.8)	
B3042-3/8	47	(21.3)	62	(28.1)	72	(32.6)	108	(49.0)
B3042-1/2	65	(29.5)	86	(39.0)	105	(47.6)	146	(66.2)

B3045 - Side Beam Clamp

Size Range: 3/8"-16 thru 7/8"-9 rods
3" (76.2mm) thru 9" (228.6mm) flange widths

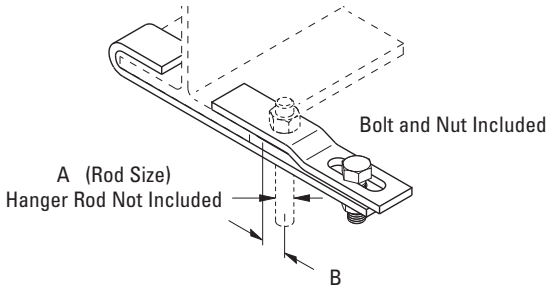
Material: Steel

Function: Designed for attaching hanger rod to the side of a beam flange. Works on top or bottom of beam.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 53 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 25.

Finish: Plain or Electro-Galvanized

Order By: Part number, flange width and thickness, and finish.



Part No.	Rod Size A	B in.	(mm)	Flange Width in.	(mm)	Design Load Lbs.	(kN)
B3045-3/8	3/8"-16	2 1/16"	(52.4)	3" - 9"	(76.2 - 228.6)	300	(1.33)
B3045-1/2	1/2"-13	2 5/16"	(58.7)	3" - 9"	(76.2 - 228.6)	500	(2.22)
B3045-5/8	5/8"-11	2 7/16"	(61.9)	3" - 9"	(76.2 - 228.6)	700	(3.11)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3042T - Bar Joist Hanger

Size Range: 3/8"-16 and 1/2"-13 rod

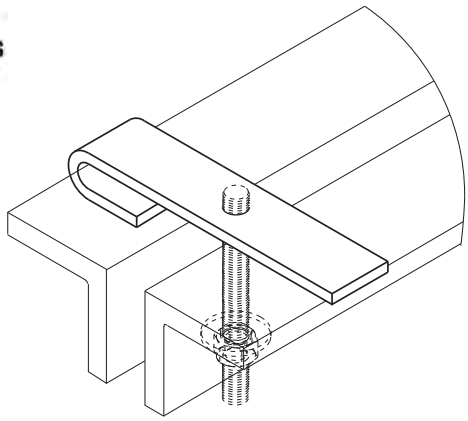
Material: Steel

Function: Designed to hook on top chord of metal bar joist. Hanger rod is threaded into product and secured with a washer and nut.

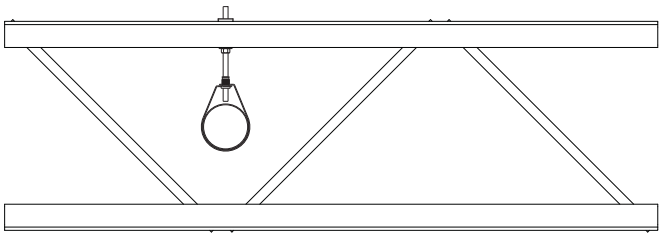
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** for up to 4" (100mm) pipe with 3/8"-16 rod, up to 6" (150mm) pipe with 1/2"-13 rod.

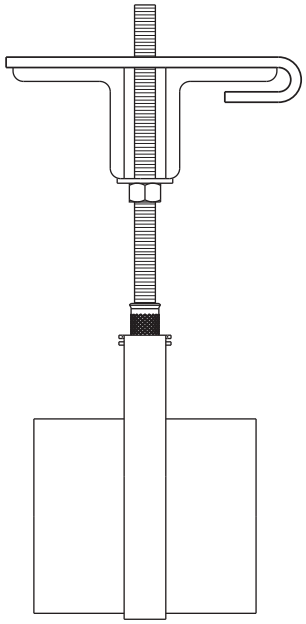
Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, width and thickness of bar joist, and finish.



Part No.	Rod Size Size	For Pipe Size in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3042T-3/8	3/8"-16	Up to 4"	(up to 100)	300	(1.33)	50.6	(22.9)
B3042T-1/2	1/2"-13	6"	(150)	600	(2.67)	50.0	(22.7)





All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 130 - Trus Joist Beam Clamp

Size Range: 130-1 = TJI 230 or equivalent
130-2 = TJI S31 or equivalent
130-3 = TJI 110 or equivalent
130-4 = TJI 560 or equivalent
130-5 = TJI 560 or equivalent
130-6 = —

Material: Steel

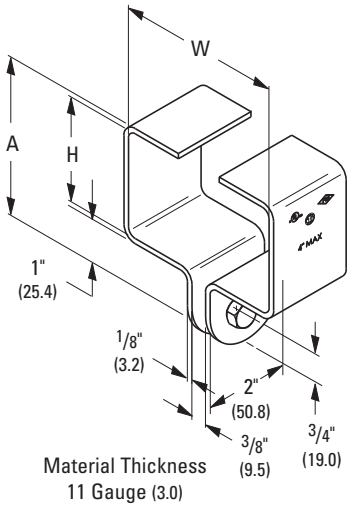
Function: Designed for attachment to trus joist beams. Use with B3210 Series eye rods.

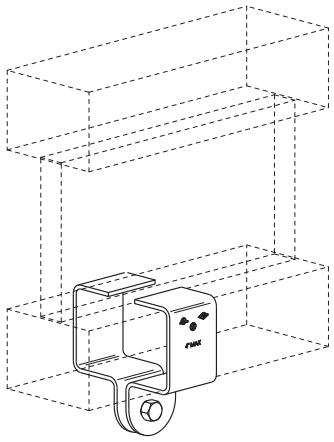
Approvals: Sizes 1 - 6 are Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** list through 4" (100mm) pipe. All Fig. 130 Beam Clamps meet requirements of Factory Mutual Engineering and NFPA 13, through 4" (100mm) pipe.

Finish: Electro-Galvanized or Hot-Dip Galvanized

Order By: Part number and finish.

Hardware Included





Part No.	Hardware Size	A in.	A (mm)	H in.	H (mm)	W in.	W (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
130-1	3/8"-16	3 1/4"	(82.5)	1 1/2"	(38.1)	2 5/16"	(58.7)	65	(29.5)
130-2	3/8"-16	3 1/2"	(88.9)	1 3/4"	(44.4)	2 1/2"	(63.5)	70	(31.7)
130-3	3/8"-16	3 1/4"	(82.5)	1 1/2"	(38.1)	1 3/4"	(44.4)	58	(26.3)
130-4	3/8"-16	3 1/2"	(88.9)	1 1/2"	(38.1)	3 1/2"	(88.9)	83	(37.6)
130-5†	1/2"-13	3 5/8"	(92.1)	1 3/4"	(44.4)	3 1/2"	(88.9)	86	(39.0)
130-6†	1/2"-13	4 1/2"	(114.3)	2 1/2"	(63.5)	3 7/8"	(98.4)	101	(45.8)

'H' and 'W' are beam dimensions.
* Maximum Recommended Load 500 Lbs. (2.22kN) Safety Factor of 5
† Larger bolts and I-rods are required for 5" (125mm) and 6" (150mm) pipe sizes

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Pipe Hangers

Pipe hangers offered in this section are designed to support insulated or non-insulated pipe allowing for vertical adjustment and limited movement in the piping system.

Materials

Carbon Steel, Malleable Iron and AISI Type 304 & 316 Stainless Steel are used in the manufacturing of pipe hangers. Other materials are available.

Finishes

The standard finishes for mechanical supports are plain steel (oil coated) sometimes referred to as black, Electro-Galvanized Zinc (ASTM B633 SC3), Pre-Galvanized (ASTM A653 G90), Hot-Dip Galvanized After Fabrication (ASTM A123), Red Primer, Plastic Coating, DURA GREEN™, DURA-COPPER™ and other special coatings are available upon request.

Note: Due to the design of some products, (threads, connecting hardware, swivels, etc.) items may or may not be uniformly coated with special finishes i.e. Hot-Dip Galvanized, DURA GREEN, DURA-COPPER, PVC etc. In some cases, the hanger itself may be coated, however, the hardware may be supplied Electro-Plated, DURA-COPPER Painted or Stainless Steel. Consult customer service for availability.

Approvals (as noted)

Items in this section are Underwriters Laboratories Listed, Factory Mutual Approved, and comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58.
Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD).

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 1CBS - Clevis Pipe Spacer

Size Range: Size 1" (25mm) thru 20" (500mm) clevis hanger

Material: Steel

Function: Used as a spacer at a seismic brace location to keep clevis hanger from collapsing during seismic event.

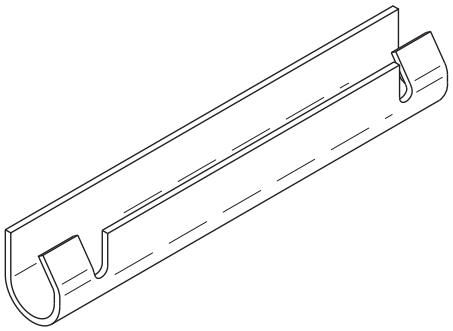
Approvals: Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the Seismic Restraint Systems Guidelines.

Installation Note: Fig. 1CBS fits easily over the cross bolt and attaches by pinching tabs down.

Finish: Pre-Galvanized. Contact customer service for alternative finishes and materials.

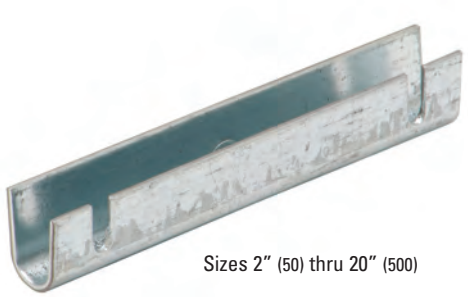
Order By: Part number and finish.

Component of State of California OSHPD Approved Seismic Restraints System

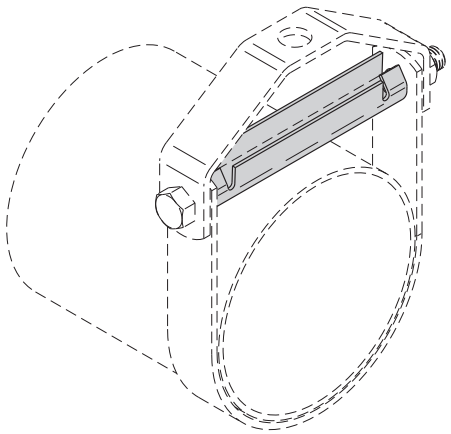


Sizes 1″ (25) thru 1 1/2″ (40)

Part No.	Pipe Size in.	(mm)	Approx. Wt./100 lbs.	(kg)
1CBS-1	1″	(25)	3.2	(1.4)
1CBS-1 1/4	1 1/4″	(32)	4.1	(1.8)
1CBS-1 1/2	1 1/2″	(40)	4.8	(2.2)
1CBS-2	2″	(50)	9.4	(4.2)
1CBS-2 1/2	2 1/2″	(65)	11.4	(5.2)
1CBS-3	3″	(75)	13.9	(6.8)
1CBS-3 1/2	3 1/2″	(90)	16.0	(7.2)
1CBS-4	4″	(100)	18.0	(8.1)
1CBS-5	5″	(125)	27.3	(12.4)
1CBS-6	6″	(150)	32.5	(14.7)
1CBS-8	8″	(200)	42.5	(19.2)
1CBS-10	10″	(250)	72.7	(32.9)
1CBS-12	12″	(300)	86.3	(39.1)
1CBS-14	14″	(350)	157.6	(71.5)
1CBS-16	16″	(400)	183.7	(83.3)
1CBS-18	18″	(450)	224.6	(101.9)
1CBS-20	20″	(500)	254.0	(115.2)



Sizes 2″ (50) thru 20″ (500)



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3100 - Standard Clevis Hanger

Component of State of California OSHPD Approved Seismic Restraints System

SLIDE-RITE™ Clevis Hanger Features

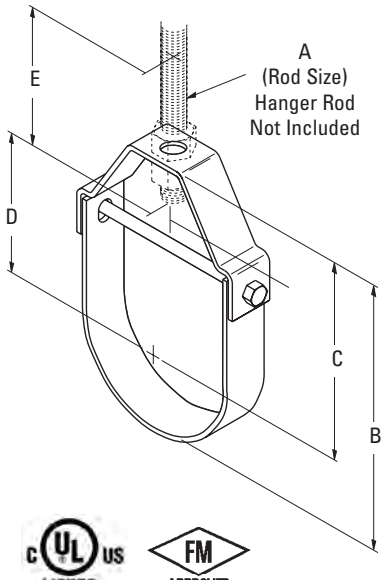
Pipe will not 'pinch' when installing.

15° swing in either direction allows pipe to easily feed thru.

Engineered design aligns bolt holes for quicker overhead installation.

*SLIDE-RITE Clevis Hanger design, as shown below, for sizes 2, 2 1/2, 3, 4, 5 & 6.

Pat. No. 5,848,770
5,924,655



c UL us LISTED

FM APPROVED

B
Bottom of pipe to top of hanger.
C
Center of pipe to top of hanger.
D
Rod Take-Out
Center of pipe to bottom of hanger rod.
E
Minimum thread length of hanger rod
F
Adjustment
Top of cross bolt to bottom of hanger rod nut inside the hanger.

Part No.	Nominal Pipe Size in.	(mm)	Rod Size A Std	NFPA**	B in.	(mm)	C in.	(mm)	D in.	(mm)
B3100-1/2	1/2"	(15)	3/8"-16	3/8"-16	2 1/8"	(54.0)	1 3/4"	(44.4)	15/16"	(23.8)
B3100-3/4	3/4"	(20)	3/8"-16	3/8"-16	2 1/2"	(63.5)	2"	(50.8)	1 1/8"	(28.6)
B3100-1	1"	(25)	3/8"-16	3/8"-16	2 7/8"	(73.0)	2 1/4"	(57.1)	1 3/8"	(34.9)
B3100-1 1/4	1 1/4"	(32)	3/8"-16	3/8"-16	3 1/2"	(88.9)	2 11/16"	(68.2)	1 13/16"	(46.0)
B3100-1 1/2	1 1/2"	(40)	3/8"-16	3/8"-16	4"	(101.6)`	3 1/16"	(77.8)	2 1/4"	(57.1)
B3100-2 *	2"	(50)	3/8"-16	3/8"-16	4 1/2"	(114.3)	3 5/16"	(84.1)	2 1/2"	(63.5)
B3100-2 1/2 *	2 1/2"	(65)	1/2"-13	3/8"-16	5 3/8"	(136.5)	3 15/16"	(100.0)	3 1/16"	(77.8)
B3100-3 *	3"	(80)	1/2"-13	3/8"-16	6 1/2"	(165.1)	4 3/4"	(120.6)	3 15/16"	(100.0)
B3100-3 1/2	3 1/2"	(90)	1/2"-13	3/8"-16	7 1/4"	(184.1)	5 1/4"	(133.3)	4 1/16"	(103.2)
B3100-4 *	4"	(100)	5/8"-11	3/8"-16	7 3/4"	(196.8)	5 1/2"	(139.7)	5 1/2"	(139.7)
B3100-5 *	5"	(125)	5/8"-11	1/2"-13	8 3/4"	(222.2)	6 1/8"	(155.6)	6"	(152.4)
B3100-6 *	6"	(150)	3/4"-10	1/2"-13	10 5/16"	(261.9)	6 15/16"	(176.2)	7"	(177.8)
B3100-8	8"	(200)	3/4"-10	1/2"-13	12 3/4"	(323.8)	8 7/16"	(214.3)	7 1/8"	(181.0)
B3100-10	10"	(250)	7/8"-9	5/8"-11	15 1/8"	(384.2)	9 3/4"	(247.6)	8 3/8"	(212.7)
B3100-12	12"	(300)	7/8"-9	5/8"-11	17 1/2"	(444.5)	11 1/8"	(282.6)	9 11/16"	(246.1)
B3100-14	14"	(350)	1"-8	--	19 3/8"	(492.1)	12 3/8"	(314.3)	10 5/8"	(269.9)
B3100-16	16"	(400)	1"-8	--	21 3/8"	(542.9)	13 3/8"	(339.7)	11 9/16"	(293.7)
B3100-18	18"	(450)	1"-8	--	25"	(635.0)	16"	(406.4)	14 3/16"	(360.3)
B3100-20	20"	(500)	1 1/4"-7	--	28 3/4"	(730.2)	17 3/4"	(450.8)	16 5/8"	(422.3)
B3100-24	24"	(600)	1 1/4"-7	--	32 3/4"	(831.8)	19 3/4"	(501.6)	18 5/8"	(473.1)
B3100-30	30"	(750)	1 1/4"-7	--	39 15/16"	(1014.4)	24 15/16"	(633.4)	22 3/4"	(577.8)
B3100-36	36"	(900)	1 1/4"-7	--	46"	(1168.4)	28"	(711.2)	25"	(635.0)

**Note: Do not use the dimensions shown in the B3100 chart for NFPA hanger sizes. Contact customer service for NFPA rod sizing on 1/2" (15mm) thru 12" (300mm) pipe. Part numbers will be 1NFPA-pipe size.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3100 - Standard Clevis Hanger

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: 1/2" (15mm) to 36" (900mm)

Material: Steel

Function: Recommended for the suspension of non-insulated pipe or insulated pipe with a B3151 shield.

Note: When an oversized clevis is used, a pipe spacer should be placed over the cross bolt to assure that the lower U-strap will not move in on the bolt. When attaching seismic bracing to the clevis hangers, a Fig. 1CBS (cross bolt spacer) must be installed. See Seismic Restraints Approval Guidelines.
Order pipe sleeves Fig. 1CBS-(pipe size) separately.

Approvals: Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the B-Line/TOLCO Seismic Restraint Systems Guidelines. Underwriter's Laboratories Listed in the USA **(UL)** and Canada **(cUL)** for sizes 3/4" (20mm) thru 12" (300mm). Factory Mutual Engineering Approved **(FM)** for 3/4" (20mm) thru 12" (300mm) pipe. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 1 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 1. Also available to accommodate rod schedule per National Fire Protection Association (NFPA) Pamphlet 13.

Maximum Temperature: 650°F (343°C).

Standard Finish: Plain, Electro-Galvanized, DURA GREEN™, or Hot-Dip Galvanized also available in Stainless Steel

Order By: Part number and finish.

For AWWA - Ductile Iron Clevis Hangers, see B3102, page 53.

Part No.	E in.	E (mm)	Adjustment F in.	Adjustment F (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3100-1/2	2 1/2"	(63.5)	7/16"	(11.1)	730	(3.25)	25	(11.3)
B3100-3/4	2 1/2"	(63.5)	1/2"	(12.7)	730	(3.25)	29	(13.1)
B3100-1	2 1/2"	(63.5)	5/8"	(15.9)	730	(3.25)	35	(15.9)
B3100-1 1/4	2 1/2"	(63.5)	7/8"	(22.2)	730	(3.25)	40	(18.1)
B3100-1 1/2	2 1/2"	(63.5)	1 3/16"	(30.2)	730	(3.25)	42	(19.0)
B3100-2 *	2 1/2"	(63.5)	1 5/8"	(41.3)	730	(3.25)	52	(23.6)
B3100-2 1/2 *	2 1/2"	(63.5)	2"	(50.8)	1350	(6.00)	90	(40.8)
B3100-3 *	2 1/2"	(63.5)	2"	(50.8)	1350	(6.00)	110	(49.9)
B3100-3 1/2	2 1/2"	(63.5)	2"	(50.8)	1350	(6.00)	142	(64.4)
B3100-4 *	2 1/2"	(63.5)	2"	(50.8)	1430	(6.36)	132	(59.9)
B3100-5 *	2 1/2"	(63.5)	2"	(50.8)	1430	(6.36)	215	(97.5)
B3100-6 *	3"	(76.2)	2"	(50.8)	1940	(8.63)	320	(145.1)
B3100-8	3 1/2"	(88.9)	2 5/16"	(58.7)	2000	(8.89)	485	(220.0)
B3100-10	3 1/2"	(88.9)	2 5/16"	(58.7)	3600	(16.01)	846	(383.7)
B3100-12	3 1/2"	(88.9)	2 5/8"	(66.7)	3800	(16.90)	1083	(491.2)
B3100-14	4"	(101.6)	2 7/8"	(73.0)	4200	(18.68)	1432	(649.5)
B3100-16	4"	(101.6)	2 11/16"	(68.3)	4600	(20.46)	2200	(997.9)
B3100-18	4 1/2"	(114.3)	3 15/16"	(100.0)	4800	(21.35)	2500	(1134.0)
B3100-20	5"	(127.0)	5 3/8"	(136.5)	4800	(21.35)	4400	(1995.8)
B3100-24	5"	(127.0)	5 3/8"	(136.5)	4800	(21.35)	5000	(2268.0)
B3100-30	5"	(127.0)	6 1/4"	(158.7)	6000	(26.69)	6600	(2993.7)
B3100-36	5"	(127.0	5 7/16"	(138.1)	6000	(26.69)	8474	(3843.8)

*SLIDE-RITE™ Clevis Hanger design, as shown above, for sizes 2, 2 1/2, 3, 4, 5 & 6.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3100C - Standard Clevis Hanger - Plastic Coated
B3100F - Standard Clevis Hanger - Felt Lined for Copper Tubing

Size Range: 1/2" (15mm) to 8" (200mm) pipe

Material: Steel

Insulation Material: 1/8" (3.2mm) Felt

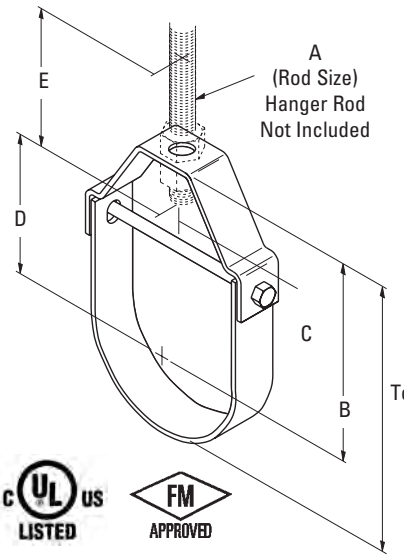
Service: The B3100F is designed for the suspension of copper tube so as to prevent electrolysis between tubing and hanger. The B3100C is designed for steel or other pipe types of the same O.D. Both B3100F and B3100C act to reduce noise and vibration in pipe or tubing systems.

Approvals: Underwriter's Laboratories Listed in the USA **(UL)** and Canada **(cUL)**.

Maximum Temperature: 650°F (343°C).

Standard Finish: Plain, Electro-Galvanized, or Hot-Dip Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



B
Bottom of pipe to top of hanger.

C
Center of pipe to top of hanger.

D
Rod Take-Out
Center of pipe to bottom of hanger rod.

E
Minimum thread length of hanger rod

F
Adjustment
Top of cross bolt to bottom of hanger rod nut inside the hanger.

Part No.	Pipe Size in.	Pipe Size (mm)	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)
B3100-1/2	1/2"	(15)	3/8"-16	2 1/8"	(54.0)	1 11/16"	(42.9)	15/16"	(23.8)
B3100-3/4	3/4"	(20)	3/8"-16	2 7/16"	(61.9)	1 7/8"	(47.6)	1 1/8"	(28.6)
B3100-1	1"	(25)	3/8"-16	2 13/16"	(71.4)	2 1/8"	(54.0)	1 3/8"	(34.9)
B3100-1 1/4	1 1/4"	(32)	3/8"-16	3 7/16"	(87.3)	2 9/16"	(65.1)	1 13/16"	(46.0)
B3100-1 1/2	1 1/2"	(40)	3/8"-16	4"	(101.6)`	3"	(76.2)	2 1/4"	(57.1)
B3100-2	2"	(50)	3/8"-16	4 1/2"	(114.3)	3 1/4"	(82.5)	2 1/2"	(63.5)
B3100-2 1/2	2 1/2"	(65)	1/2"-13	5 9/16"	(141.3)	4"	(101.6)	3 1/16"	(77.8)
B3100-3	3"	(80)	1/2"-13	6 3/4"	(171.4)	4 7/8"	(123.8)	3 15/16"	(100.0)
B3100-3 1/2	3 1/2"	(90)	1/2"-13	7"	(177.8)	5"	(127.0)	4 1/16"	(103.2)
B3100-4	4"	(100)	5/8"-11	7 13/16"	(198.4)	5 1/2"	(139.7)	4 3/8"	(111.1)
B3100-5	5"	(125)	5/8"-11	9 1/16"	(230.2)	6 1/8"	(155.6)	5"	(127.0)
B3100-6	6"	(150)	3/4"-10	10 7/16"	(265.1)	6 15/16"	(176.2)	5 11/16"	(144.5)
B3100-8	8"	(200)	3/4"-10	12 3/4"	(323.8)	8 3/8"	(212.7)	7 1/8"	(181.0)

Part No.	E in.	E (mm)	Adjustment F in.	Adjustment F (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3100-1/2	2 1/2"	(63.5)	7/16"	(11.1)	730	(3.25)	25	(11.3)
B3100-3/4	2 1/2"	(63.5)	1/2"	(12.7)	730	(3.25)	29	(13.1)
B3100-1	2 1/2"	(63.5)	5/8"	(15.9)	730	(3.25)	35	(15.9)
B3100-1 1/4	2 1/2"	(63.5)	7/8"	(22.2)	730	(3.25)	40	(18.1)
B3100-1 1/2	2 1/2"	(63.5)	1 3/16"	(30.2)	730	(3.25)	42	(19.0)
B3100-2	2 1/2"	(63.5)	1 5/8"	(41.3)	730	(3.25)	52	(23.6)
B3100-2 1/2	2 1/2"	(63.5)	2"	(50.8)	1350	(6.00)	90	(40.8)
B3100-3	2 1/2"	(63.5)	2"	(50.8)	1350	(6.00)	110	(49.9)
B3100-3 1/2	2 1/2"	(63.5)	2"	(50.8)	1350	(6.00)	142	(64.4)
B3100-4	2 1/2"	(63.5)	2"	(50.8)	1430	(6.36)	132	(59.9)
B3100-5	2 1/2"	(63.5)	2"	(50.8)	1430	(6.36)	215	(97.5)
B3100-6	3"	(76.2)	2"	(50.8)	1940	(8.63)	320	(145.1)
B3100-8	3 1/2"	(88.9)	2 5/16"	(58.7)	2000	(8.89)	485	(220.0)

B3100C

B3100F

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3102 - A.W.W.A. Clevis Hanger

Size Range: 4" (100mm) to 24" (600mm)

Material: Steel

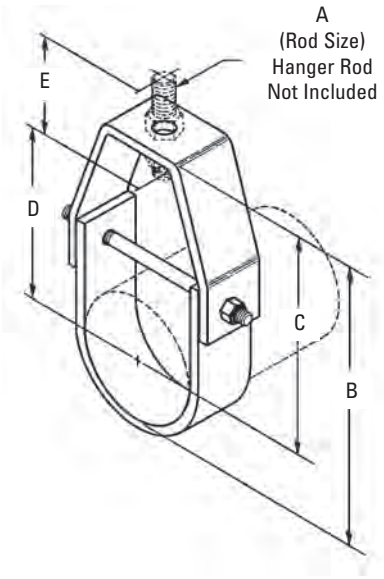
Function: Recommended for the suspension of flanged or bell and spigot A.W.W.A. cast iron or ductile iron pipe. The O.D. of the A.W.W.A. iron pipe is shown in the data table.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 1 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 1.

Maximum Temperature: 650°F (343°C).

Standard Finish: Plain & Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



B
Bottom of pipe to top of hanger.

C
Center of pipe to top of hanger.

D
Rod Take-Out
Center of pipe to bottom of hanger rod.

E
Minimum thread length of hanger rod

F
Adjustment
Top of cross bolt to bottom of hanger rod nut inside the hanger.

Part No.	Pipe O.D. in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)	D in.	(mm)	E in.	(mm)	F in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3102-4	4.80	(121.9)	5/8"-11	8 5/16"	(211.1)	5 13/16"	(147.6)	4 5/8"	(117.5)	2 1/2"	(63.5)	2"	(50.8)	1430	(6.36)	203	(92.1)
B3102-6	6.90	(175.2)	3/4"-10	10 5/8"	(269.9)	7 1/16"	(179.4)	5 13/16"	(147.6)	3"	(76.2)	2"	(50.8)	1940	(8.63)	352	(159.6)
B3102-8	9.05	(229.9)	3/4"-10	13 1/4"	(336.5)	8 5/8"	(219.1)	7 3/16"	(182.5)	3 1/2"	(88.9)	2 1/8"	(54.0)	2000	(8.89)	532	(241.3)
B3102-10	11.10	(281.9)	7/8"-9	15 7/8"	(403.2)	10 1/4"	(260.3)	8 11/16"	(220.6)	3 1/2"	(88.9)	2 1/4"	(57.1)	3600	(16.01)	800	(362.9)
B3102-12	13.20	(335.3)	7/8"-9	18"	(457.2)	11 5/16"	(287.3)	9 3/4"	(247.6)	3 1/2"	(88.9)	2 1/4"	(57.1)	3800	(16.90)	1152	(522.5)
B3102-14	15.30	(388.6)	1"-8	20 3/8"	(517.5)	12 5/8"	(320.7)	11 3/16"	(281.6)	4"	(101.6)	2 7/8"	(73.0)	4200	(18.68)	1449	(657.2)
B3102-16	17.40	(441.9)	1"-8	23 1/2"	(569.9)	14 11/16"	(373.1)	12 7/8"	(327.0)	4"	(101.6)	3 3/8"	(85.7)	4600	(20.46)	2100	(952.6)
B3102-18	19.50	(495.3)	1"-8	25 5/8"	(650.9)	15 3/4"	(400.0)	13 15/16"	(354.0)	4 1/2"	(114.3)	3 3/8"	(85.7)	4800	(21.35)	2294	(1040.5)
B3102-20	21.60	(548.6)	1 1/4"-7	29 1/2"	(749.3)	18 9/16"	(471.5)	17 7/16"	(442.9)	5"	(127.0)	4 13/16"	(122.2)	4800	(21.35)	3887	(1763.1)
B3102-24	25.80	(655.3)	1 1/4"-7	33"	(838.2)	19 1/8"	(508.0)	20"	(485.8)	5"	(127.0)	5 1/4"	(133.3)	4800	(21.35)	4844	(2197.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3108 - Extended Clevis Hanger

Size Range: 3/4" (20mm) thru 12" (300mm) pipe

Material: Steel

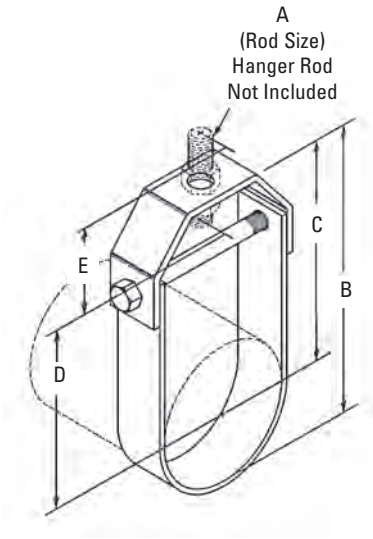
Function: Recommended for the suspension of insulated pipe where the temperature does not require the use of slides, guides, or rollers for movement.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 1 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 1.

Maximum Temperature: 650°F (343°C).

Order By: Part number and finish.

Standard Finish: Plain, Electro-Galvanized or Hot Dip Galvanized
For service temperatures of 750°F (399°C) thru 1050°F (565°C) specify Type 304 Stainless Steel



B
Bottom of pipe to top of hanger.

C
Center of pipe to top of hanger.

D
Rod Take-Out
Center of pipe to bottom of hanger rod.

E
Minimum thread length of hanger rod.

F
Adjustment
Top of cross bolt to bottom of hanger rod nut inside the hanger.

H
Maximum insulation thickness.

Part No.	Nominal Pipe Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)	D in.	(mm)
B3108-3/4	3/4"	(20)	3/8"-16	4 3/8"	(111.1)	3 13/16"	(96.8)	3 1/16"	(77.8)
B3108-1	1"	(25)	3/8"-16	4 3/4"	(120.6)	4 1/16"	(103.2)	3 1/4"	(82.5)
B3108-1 1/4	1 1/4"	(32)	3/8"-16	5 3/8"	(136.5)	4 1/2"	(114.3)	3 5/16"	(84.1)
B3108-1 1/2	1 1/2"	(40)	3/8"-16	6 7/8"	(174.6)	5 15/16"	(150.8)	5 1/8"	(130.2)
B3108-2	2"	(50)	3/8"-16	8 13/16"	(223.8)	7 5/8"	(193.7)	6 7/8"	(174.6)
B3108-2 1/2	2 1/2"	(65)	1/2"-13	10"	(254.0)	8 1/2"	(215.9)	7 9/16"	(192.1)
B3108-3	3"	(80)	1/2"-13	10 5/8"	(269.9)	8 13/16"	(223.8)	7 7/8"	(200.0)
B3108-4	4"	(100)	5/8"-11	11 13/16"	(300.0)	9 1/2"	(241.3)	8 3/8"	(212.7)
B3108-5	5"	(125)	5/8"-11	13 1/8"	(333.4)	10 5/16"	(261.9)	9 1/8"	(231.8)
B3108-6	6"	(150)	3/4"-10	14 3/8"	(365.1)	11"	(279.5)	9 11/16"	(246.0)
B3108-8	8"	(200)	3/4"-10	16 3/4"	(425.4)	12 3/8"	(314.3)	11 1/8"	(282.6)
B3108-10	10"	(250)	7/8"-9	19 1/4"	(488.9)	13 13/16"	(350.8)	12 5/16"	(312.7)
B3108-12	12"	(300)	7/8"-9	21 5/8"	(549.3)	15 3/16"	(385.8)	13 5/8"	(346.1)

Part No.	E in.	(mm)	F in.	(mm)	H in.	(mm)	Design Load lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
B3108-3/4	2 1/2"	(63.5)	1/2"	(12.7)	2"	(50.8)	730	(3.25)	45	(20.4)
B3108-1	2 1/2"	(63.5)	5/8"	(15.9)	2"	(50.8)	730	(3.25)	49	(22.2)
B3108-1 1/4	2 1/2"	(63.5)	7/8"	(22.2)	2"	(50.8)	730	(3.25)	55	(24.9)
B3108-1 1/2	2 1/2"	(63.5)	1 3/16"	(30.2)	2"	(50.8)	730	(3.25)	67	(30.4)
B3108-2	2 1/2"	(63.5)	1 5/8"	(41.3)	4"	(101.6)	730	(3.25)	83	(37.6)
B3108-2 1/2	2 1/2"	(63.5)	2"	(50.8)	4"	(101.6)	1350	(6.00)	177	(80.3)
B3108-3	2 1/2"	(63.5)	2"	(50.8)	4"	(101.6)	1350	(6.00)	191	(86.6)
B3108-4	2 1/2"	(63.5)	2"	(50.8)	4"	(101.6)	1430	(6.36)	237	(107.5)
B3108-5	2 1/2"	(63.5)	2"	(50.8)	4"	(101.6)	1430	(6.36)	302	(137.0)
B3108-6	3"	(76.2)	2"	(50.8)	4"	(101.6)	1940	(8.63)	397	(180.1)
B3108-8	3 1/2"	(88.9)	2 5/16"	(58.7)	4"	(101.6)	2000	(8.89)	582	(264.0)
B3108-10	3 1/2"	(88.9)	2 5/16"	(58.7)	4"	(101.6)	3600	(16.01)	968	(439.1)
B3108-12	3 1/2"	(88.9)	2 5/8"	(66.7)	4"	(101.6)	3800	(16.90)	1221	(553.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3690 - J-Hanger for Pipe or Conduit
B3690F - Felt Lined J-Hanger for Copper Tubing
B3690C - PVC Coated J-Hanger for Pipe or Conduit

Size Range: 1/2" (15mm) to 10" (250mm) pipe size

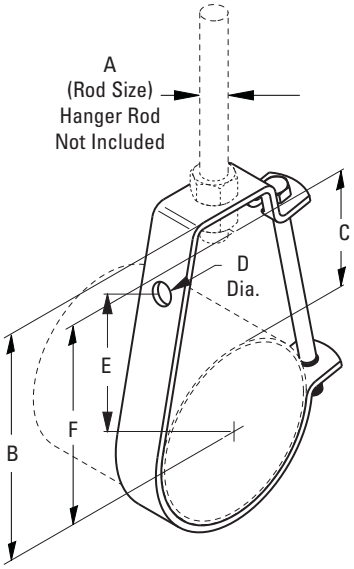
Material: Steel

Function: Recommended for the suspension of non-insulated pipe, or insulated pipe with B3151 shield. Side hole allows for wall mounting.
B3690F and B3690C are designed to reduce noise and vibration and/or prevent electrolysis between pipe and hanger.

Approvals: Conforms Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 5.

Standard Finish: Electro-Plated. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



B
Center of pipe to top of hanger.

F
Rod Take-Out
Center of pipe to bottom of hanger rod.

B3690F

B3690C

Part No.	Nominal Pipe Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)	D in.	(mm)	E in.	(mm)	F in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3690-1/2	1/2"	(15)	3/8"-16	2 5/8"	(66.7)	1 3/4"	(44.4)	7/16"	(11.1)	1 1/2"	(38.1)	1 15/16"	(49.2)	400	(1.78)	18	(8.1)
B3690-3/4	3/4"	(20)	3/8"-16	2 7/8"	(73.0)	1 7/8"	(47.6)	7/16"	(11.1)	1 11/16"	(42.9)	2 1/8"	(54.0)	400	(1.78)	21	(9.5)
B3690-1	1"	(25)	3/8"-16	2 15/16"	(74.6)	1 15/16"	(49.2)	7/16"	(11.1)	1 13/16"	(46.0)	2 5/16"	(58.7)	400	(1.78)	22	(10.0)
B3690-1 1/4	1 1/4"	(32)	3/8"-16	3 1/4"	(82.5)	2"	(50.8)	7/16"	(11.1)	2 1/16"	(52.4)	2 5/8"	(66.7)	400	(1.78)	25	(11.3)
B3690-1 1/2	1 1/2"	(40)	3/8"-16	3 9/16"	(90.5)	2 3/16"	(55.6)	7/16"	(11.1)	2 7/16"	(61.9)	2 7/8"	(73.0)	400	(1.78)	27	(12.2)
B3690-2	2"	(50)	3/8"-16	3 11/16"	(93.7)	2 1/8"	(54.0)	7/16"	(11.1)	2 9/16"	(65.1)	3 1/16"	(77.8)	400	(1.78)	29	(13.1)
B3690-2 1/2	2 1/2"	(65)	1/2"-13	4 7/16"	(112.7)	2 7/16"	(61.9)	9/16"	(14.3)	3 3/16"	(81.0)	3 5/8"	(92.1)	500	(2.22)	64	(29.0)
B3690-3	3"	(80)	1/2"-13	4 13/16"	(122.2)	2 9/16"	(65.1)	9/16"	(14.3)	3 1/2"	(88.9)	4 1/16"	(103.2)	500	(2.22)	72	(32.6)
B3690-3 1/2	3 1/2"	(90)	1/2"-13	5 1/8"	(130.2)	2 5/8"	(66.7)	9/16"	(14.3)	3 3/4"	(95.2)	4 3/8"	(111.1)	500	(2.22)	84	(38.1)
B3690-4	4"	(100)	5/8"-11	6 1/8"	(155.6)	3 3/16"	(81.0)	9/16"	(14.3)	4 5/8"	(117.5)	5 3/16"	(131.8)	550	(2.44)	138	(62.6)
B3690-5	5"	(125)	5/8"-11	6 3/4"	(171.4)	3 1/4"	(82.5)	9/16"	(14.3)	5 1/16"	(128.6)	5 3/4"	(146.0)	550	(2.44)	162	(73.5)
B3690-6	6"	(150)	3/4"-10	7 3/4"	(196.8)	3 9/16"	(90.5)	9/16"	(14.3)	5 13/16"	(147.6)	6 5/8"	(168.3)	600	(2.67)	249	(112.9)
B3690-8	8"	(200)	7/8"-9	9 3/16"	(233.4)	3 15/16"	(100.0)	9/16"	(14.3)	6 15/16"	(176.2)	8"	(203.3)	760	(3.38)	291	(132.0)
B3690-10	10"	(250)	7/8"-9	10 3/4"	(273.0)	3 7/8"	(98.4)	9/16"	(14.3)	7 5/8"	(193.7)	9 1/8"	(231.8)	760	(3.38)	315	(142.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3109 - Flat Top Clevis Hanger

Size Range: 2″ (50mm) to 8″ (200mm) pipe size

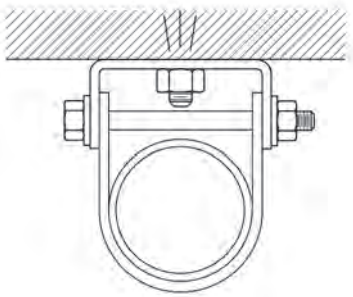
Material: Steel

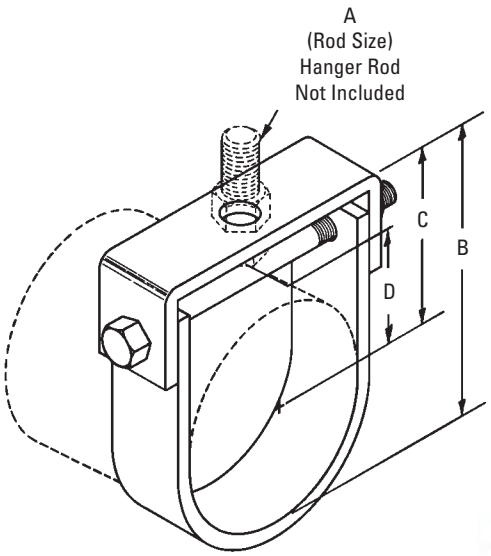
Function: Recommended for suspending non-insulated, stationary pipe where space is limited.

Approvals: Complies with Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58 Type 1.

Standard Finish: Plain or Electro-Galvanized

Order By: Part number and finish.





B
Bottom of pipe
to top of hanger.

C
Center of pipe
to top of hanger.

D
Rod Take-Out
Center of pipe to
bottom of hanger rod.

Part No.	Nominal Pipe Size in.	(mm)	Rod Size A	B in.	(mm)
B3109-2	2"	(50)	3/8"-16	3 13/16"	(96.8)
B3109-2 1/2	2 1/2"	(65)	1/2"-13	4 5/8"	(117.5)
B3109-3	3"	(80)	1/2"-13	5 5/16"	(134.9)
B3109-3 1/2	3 1/2"	(90)	1/2"-13	5 13/16"	(147.6)
B3109-4	4"	(100)	5/8"-11	6 1/2"	(165.1)
B3109-5	5"	(125)	5/8"-11	7 13/16"	(198.4)
B3109-6	6"	(150)	3/4"-10	9 7/16"	(230.2)
B3109-8	8"	(200)	3/4"-10	11 3/8"	(288.9)

Part No.	C in.	(mm)	Rod Take-Out D in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3109-2	2 5/8"	(66.7)	1 7/8"	(47.6)	300	(1.33)	52	(23.6)
B3109-2 1/2	3 3/16"	(81.0)	2 3/16"	(55.6)	500	(2.22)	116	(52.6)
B3109-3	3 9/16"	(90.5)	2 5/8"	(66.7)	500	(2.22)	133	(60.3)
B3109-3 1/2	3 13/16"	(96.8)	2 7/8"	(73.0)	500	(2.22)	145	(65.8)
B3109-4	4 1/4"	(107.9)	3 1/8"	(79.4)	700	(3.11)	180	(81.6)
B3109-5	5"	(127.0)	3 7/8"	(98.4)	700	(3.11)	248	(112.5)
B3109-6	5 11/16"	(144.5)	4 7/16"	(112.7)	900	(4.00)	332	(150.6)
B3109-8	7"	(177.8)	5 13/16"	(147.6)	1000	(4.45)	513	(232.7)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3106 - Vee Bottom Clevis Hanger

Size Range: 1/2" (15mm) to 4" (100mm) pipe

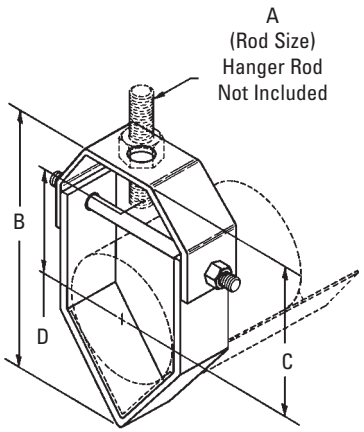
Material: Steel

Function: Recommended for the suspension of flexible plastic pipe. Use with B3106V support trough for plastic pipe.

Approvals: Complies with Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58 Type 1.

Standard Finish: Plain & Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



B
Overall Height

C
Center of pipe to top of hanger.

D
Rod Take-Out
Center of pipe to bottom of hanger rod.

E
Minimum thread length of hanger rod.

Part No.	Nominal Pipe Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)
B3106-2	1/2" to 2"	(15 to 50)	3/8"-16	5 15/16"	(150.8)	4 1/16"	(103.2)
B3106-4	2 1/2" to 4"	(65 to 100)	1/2"-13	9 3/8"	(238.1)	6"	(152.4)

Part No.	Rod Take-Out D in.	(mm)	Adjustment E in.	(mm)	Design Load Lbs.	(kN)	Approx Wt./100 Lbs.	(kg)
B3106-2	3 5/16"	(84.1)	1 5/8"	(41.3)	150	(.67)	60	(27.2)
B3106-4	4 13/16"	(122.2)	2 3/16"	(55.6)	150	(.67)	143	(64.8)

B3106V - Plastic Pipe Support Channel

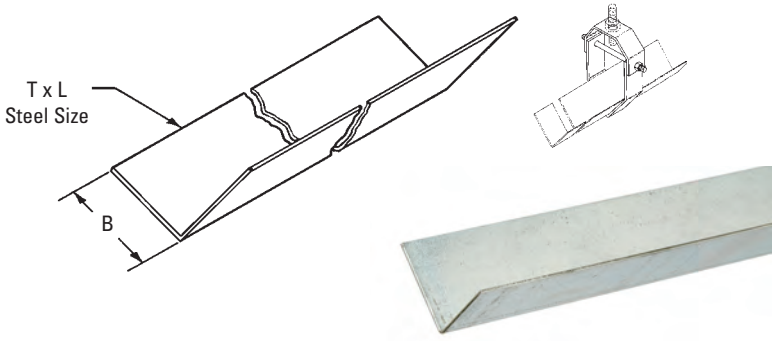
Size Range: 1/2" (15mm) to 4" (100mm) pipe

Material: Steel

Function: Designed for use with B3106 as a support for plastic or other flexible pipe systems.

Standard Finish: Pre-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



Part No.	For Nominal Pipe Sizes in.	(mm)	Steel Size T x L in.	(mm)	B in.	(mm)	Maximum Hanger Spacing Ft.	(M)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3106V-2	1/2" to 2"	(15 to 50)	18 Ga. x 96"	(1.2 x 2438.4)	1 9/16"	(39.7)	8	(2.44)	150	(.67)	449	(203.6)
B3106V-4	2 1/2" to 4"	(65 to 100)	18 Ga. x 120"	(1.2 x 3048.0)	3 1/8"	(79.4)	10	(3.05)	150	(.67)	1123	(509.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3104 - Light-Duty Clevis Hanger
B3104F - Light-Duty Clevis Hanger - Felt Lined
B3104C - Light-Duty Clevis Hanger - PVC Coated

Size Range: 1/2" (15mm) to 4" (100mm) pipe

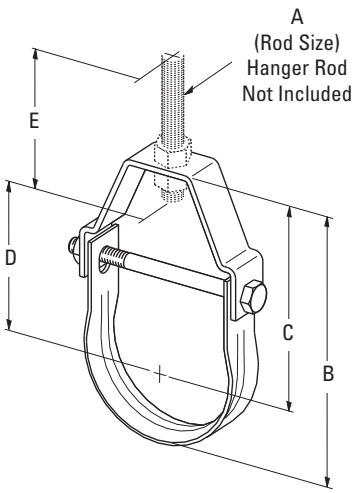
Material: Steel

Function: Recommended for the suspension of light stationary pipe allowing for vertical adjustment.

Approvals: Underwriter's Laboratories Listed in the USA **(UL)** and Canada **(cUL)** for sizes 3/4" (20mm) thru 4" (100mm). Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 12 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 1.

Standard Finish: Plain, Electro-Galvanized, or DURA-GREEN™

Order By: Part number and finish.



*Slide-Rite™ Clevis Hanger design for sizes 2, 3 & 4.

Pat. No. 5,848,770
5,924,655

B
Bottom of pipe to top of hanger.

C
Center of pipe to top of hanger.

D
Rod Take-Out
Center of pipe to bottom of hanger rod.

E
Minimum thread length of hanger rod.

F
Adjustment
Top of cross bolt to bottom of hanger rod nut inside the hanger.

B3104C

B3104F

Part No.	Nominal Pipe Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)
B3104-1/2	1/2"	(15)	3/8"-16	1 15/16"	(49.2)	1 1/2"	(38.1)
B3104-3/4	3/4"	(20)	3/8"-16	2 5/16"	(58.7)	1 3/4"	(44.4)
B3104-1	1"	(25)	3/8"-16	2 3/4"	(69.8)	2 1/16"	(52.4)
B3104-1 1/4	1 1/4"	(32)	3/8"-16	3 5/16"	(84.1)	2 7/16"	(61.9)
B3104-1 1/2	1 1/2"	(40)	3/8"-16	3 5/8"	(92.1)	2 5/8"	(66.7)
B3104-2 *	2"	(50)	3/8"-16	4 13/16"	(122.2)	3 5/8"	(92.1)
B3104-2 1/2	2 1/2"	(65)	1/2"-13	5 13/16"	(147.6)	4 5/16"	(109.5)
B3104-3 *	3"	(80)	1/2"-13	6 7/16"	(163.5)	4 5/8"	(117.5)
B3104-3 1/2	3 1/2"	(90)	1/2"-13	6 15/16"	(176.2)	4 15/16"	(125.4)
B3104-4 *	4"	(100)	1/2"-13	7 3/4"	(196.8)	5 1/2"	(139.7)

Part No.	Rod Take-Out D in.	(mm)	E in.	(mm)	Adjustment F in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3104-1/2	13/16"	(20.6)	2 1/2"	(63.5)	7/16"	(11.1)	150	(.67)	13	(5.9)
B3104-3/4	1"	(25.4)	2 1/2"	(63.5)	7/16"	(11.1)	250	(1.11)	22	(10.0)
B3104-1	1 3/8"	(34.9)	2 1/2"	(63.5)	9/16"	(14.3)	250	(1.11)	24	(10.9)
B3104-1 1/4	1 3/4"	(44.4)	2 1/2"	(63.5)	13/16"	(20.6)	250	(1.11)	29	(13.1)
B3104-1 1/2	2"	(50.8)	2 1/2"	(63.5)	1"	(25.4)	250	(1.11)	30	(13.6)
B3104-2 *	2 15/16"	(74.6)	2 1/2"	(63.5)	1 3/4"	(44.4)	250	(1.11)	35	(15.9)
B3104-2 1/2	3 7/16"	(87.3)	2 1/2"	(63.5)	2"	(50.8)	350	(1.55)	82	(37.2)
B3104-3 *	3 3/4"	(95.2)	2 1/2"	(63.5)	2"	(50.8)	350	(1.55)	91	(41.3)
B3104-3 1/2	4"	(101.6)	2 1/2"	(63.5)	2"	(50.8)	350	(1.55)	98	(44.4)
B3104-4 *	4 9/16"	(115.9)	2 1/2"	(63.5)	2 3/16"	(55.6)	400	(1.78)	132	(59.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3104CT - Clevis Hanger
B3104CTC - Clevis Hanger - PVC Coated

Size Range: 1/2" (15mm) to 6" (150mm) copper tubing

Material: Steel

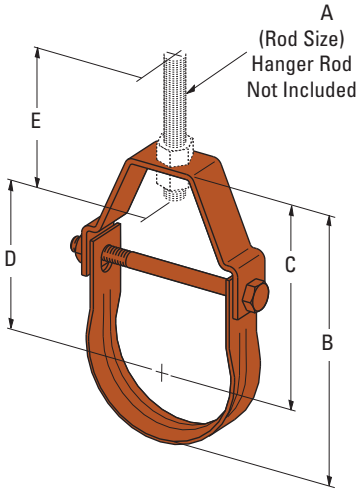
Function: Recommended for the suspension of non- insulated stationary copper tubing lines. Available with plastic coating to provide additional separation between tubing and hanger.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 12 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 1.

Standard Finish: DURA-COPPER™

Order By: Part number and finish.

B3104CTC



B
Bottom of pipe to top of hanger.
C
Center of pipe to top of hanger.
D
Rod Take-Out
Center of pipe to bottom of hanger rod.
E
Minimum thread length of hanger rod.
F
Adjustment
Top of cross bolt to bottom of hanger rod nut inside the hanger.

B3104CT

Part No.	Tubing Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)	Rod Take-Out D in.	(mm)
B3104CT-1/2	1/2"	(15)	3/8"-16	2 1/4"	(57.1)	1 15/16"	(49.2)	1 1/8"	(28.6)
B3104CT-3/4	3/4"	(20)	3/8"-16	1 15/16"	(49.2)	1 1/2"	(38.1)	1 1/8"	(28.6)
B3104CT-1	1"	(25)	3/8"-16	2 5/16"	(58.7)	1 3/4"	(44.4)	1 5/16"	(33.3)
B3104CT-1 1/4	1 1/4"	(32)	3/8"-16	2 3/4"	(69.8)	2 1/16"	(52.4)	1 9/16"	(39.7)
B3104CT-1 1/2	1 1/2"	(40)	3/8"-16	3 5/16"	(84.1)	2 7/16"	(61.9)	2 1/16"	(52.4)
B3104CT-2	2"	(50)	3/8"-16	4 1/2"	(114.3)	3 7/16"	(87.3)	3 3/8"	(85.7)
B3104CT-2 1/2	2 1/2"	(65)	1/2"-13	5 11/16"	(144.5)	4 1/2"	(114.3)	3 15/16"	(100.0)
B3104CT-3	3"	(80)	1/2"-13	5 3/16"	(131.8)	3 5/8"	(92.1)	4"	(101.6)
B3104CT-3 1/2	3 1/2"	(90)	1/2"-13	6 1/2"	(165.1)	4 9/16"	(115.9)	4 1/8"	(104.8)
B3104CT-4	4"	(100)	1/2"-13	7 3/8"	(187.3)	3 5/16"	(134.9)	4 3/8"	(111.1)
B3104CT-5	5"	(125)	1/2"-13	9"	(228.6)	6 7/16"	(163.5)	5 3/4"	(146.0)
B3104CT-6	6"	(150)	5/8"-11	10 5/16"	(261.9)	7 1/4"	(184.1)	6 1/2"	(165.1)

Part No.	E in.	(mm)	Adjustment F in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3104CT-1/2	2 1/2"	(63.5)	3/8"	(9.5)	150	(.67)	12	(5.4)
B3104CT-3/4	2 1/2"	(63.5)	7/16"	(11.1)	250	(1.11)	12	(5.4)
B3104CT-1	2 1/2"	(63.5)	9/16"	(14.3)	250	(1.11)	22	(10.0)
B3104CT-1 1/4	2 1/2"	(63.5)	9/16"	(14.3)	250	(1.11)	24	(10.9)
B3104CT-1 1/2	2 1/2"	(63.5)	15/16"	(23.8)	250	(1.11)	30	(13.6)
B3104CT-2	2 1/2"	(63.5)	1 3/4"	(44.4)	250	(1.11)	35	(15.9)
B3104CT-2 1/2	2 1/2"	(63.5)	2 1/8"	(54.0)	350	(1.55)	80	(36.3)
B3104CT-3	2 1/2"	(63.5)	2 1/16"	(52.4)	350	(1.55)	88	(39.9)
B3104CT-3 1/2	2 1/2"	(63.5)	2 1/8"	(54.0)	350	(1.55)	94	(42.6)
B3104CT-4	2 1/2"	(63.5)	2 1/8"	(54.0)	400	(1.78)	116	(52.6)
B3104CT-5	2 1/2"	(63.5)	2 1/2"	(63.5)	550	(2.44)	208	(94.3)
B3104CT-6	2 1/2"	(63.5)	3"	(76.2)	550	(2.44)	247	(112.0)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3170CT - Adjustable Swivel Hanger for Copper Tubing
B3170CTC - Adjustable Swivel Hanger for Copper Tubing - Plastic Coated

Size Range: 1/2" (15mm) thru 6" (150mm) copper tubing

Material: Steel

Function: Recommended for the suspension of copper tubing, allowing for vertical adjustment. (Available with plastic coating to provide additional separation between tubing and hanger.)

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 10 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 10.

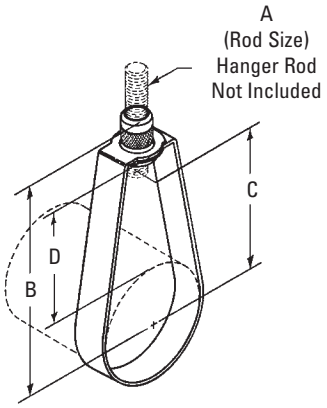
Standard Finish: DURA-COPPER™

Order By: Part number and finish.

B
Center of pipe to top of knurled hanger rod nut.

C
Rod Take-Out
Center of pipe to bottom of hanger rod.

D
Top of pipe to bottom of hanger rod nut.



Part No.	Nominal Pipe Size		Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)
B3170CT-1/2	1/2"	(15)	3/8"-16	2 1/16"	(52.4)	1 1/8"	(28.6)	31/32"	(24.6)
B3170CT-3/4	3/4"	(20)	3/8"-16	2 5/16"	(58.7)	1 5/16"	(33.3)	1 1/32"	(26.2)
B3170CT-1	1"	(25)	3/8"-16	2 1/2"	(63.5)	1 9/16"	(39.7)	1 5/32"	(29.3)
B3170CT-1 1/4	1 1/4"	(32)	3/8"-16	2 1/2"	(63.5)	1 9/16"	(39.7)	1"	(25.4)
B3170CT-1 1/2	1 1/2"	(40)	3/8"-16	2 15/16"	(74.6)	2"	(50.8)	1 5/16"	(33.3)
B3170CT-2	2"	(50)	3/8"-16	3 1/8"	(79.4)	2 1/8"	(54.0)	1 3/16"	(30.2)
B3170CT-2 1/2	2 1/2"	(65)	1/2"-13	4 1/16"	(103.2)	2 9/16"	(65.1)	1 3/8"	(34.9)
B3170CT-3	3"	(75)	1/2"-13	3 15/16"	(100.0)	3 3/4"	(95.2)	1 1/4"	(31.7)
B3170CT-3 1/2	3 1/2"	(90)	1/2"-13	4 7/16"	(112.7)	3 1/4"	(82.5)	1 1/2"	(38.1)
B3170CT-4	4"	(100)	1/2"-13	4 11/16"	(119.1)	3 9/16"	(89.6)	1 9/16"	(39.7)
B3170CT-5	5"	(125)	1/2"-13	5 15/16"	(150.8)	4 5/16"	(109.5)	1 25/32"	(45.2)
B3170CT-6	6"	(150)	1/2"-13	6 11/16"	(169.9)	5 3/16"	(131.8)	2 1/8"	(54.0)

Part No.	Max. Rec. Load lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
B3170CT-1/2	180	(0.80)	8	(6.6)
B3170CT-3/4	180	(0.80)	10	(4.5)
B3170CT-1	180	(0.80)	10	(4.5)
B3170CT-1 1/4	180	(0.80)	12	(5.4)
B3170CT-1 1/2	180	(0.80)	12	(5.4)
B3170CT-2	180	(0.80)	12	(5.4)
B3170CT-2 1/2	200	(0.89)	31	(24.0)
B3170CT-3	250	(1.11)	33	(14.9)
B3170CT-3 1/2	300	(1.33)	39	(17.2)
B3170CT-4	360	(1.60)	40	(18.1)
B3170CT-5	480	(2.13)	95	(43.1)
B3170CT-6	630	(2.80)	118	(53.5)

B3170CT

B3170CTC

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 200 - "Trimline" adjustable band hanger
TOLCO Fig. 200F - "Trimline" adjustable band hanger with felt lining for copper tubing
TOLCO Fig. 200C - "Trimline" adjustable band hanger with plastic coated
TOLCO Fig. 200S - "Trimline" adjustable band hanger with removable nut (for sizes 1" thru 2")

Size Range:
Fig. 200 - 1/2" (15mm) thru 8" (200mm) pipe

Material: Steel, Pre-Galvanized to G90 specifications

Function: For fire sprinkler and other general piping purposes. Knurled swivel nut design permits hanger adjustment after installation.

Features:

- 1/2" (15mm) thru 2" (50mm) sizes have flared edges for ease of installation on all pipe types and protects CPVC plastic pipe from abrasion. Captured knurled nut design (flared top) on 1" thru 2" sizes keep nut from separating with hanger. Hanger is easily installed around pipe.
- 1/2" (15mm), 3/4" (20mm), and 2 1/2" (65mm) thru 8" (200mm)) Spring tension on nut holds it securely in hanger before installation. Knurled nut is easily removed.
- For 1/2" (15mm) and 3/4" (20mm) sizes with non-captured knurl nuts order Fig. 200S

Approvals: Underwriters Laboratories listed (1/2" (15mm) thru 8" (200mm)) in the USA **(UL)** and Canada **(cUL)** for steel and CPVC plastic pipe and Factory Mutual Engineering Approved (3/4" (20mm) thru 8" (200mm)). Conforms to Federal Specifications WW-H-171E & A-A-1192A, Type 10 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 10.

Maximum Temperature: 650°F (343°C)

Finish: Pre-Galvanized. Stainless Steel materials will be supplied with (2) hex nuts in place of a knurl nut.

Order By: Part number and pipe size

** **Note:** For metric hanger rod sizes add the metric rod size to the figure number. Example: 200M8-1 1/2 or 200M10-1 1/2

† M8 rod size is not UL Listed or FM Approved

A
Overall Height

B
Center of pipe to top of knurled hanger rod nut.

D
Top of pipe to bottom of hanger rod nut.

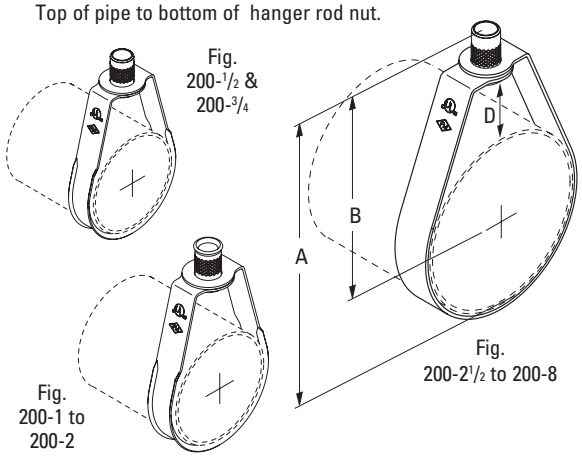


Fig. 200C
200C-1 1/2 shown

Fig. 200F
200F-1 1/2 shown

Fig. 200
shown with captured nut
1" thru 2" sizes only

Fig. 200 & Fig. 200S
shown with
non-captured nut

Part No.**	Nominal Pipe Size in.	(mm)	Rod Size in.	mm**	A in.	(mm)	B in.	(mm)	D in.	(mm)	Max. Rec. Load lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
200-1/2	1/2"	(15)	3/8"-16	M8† or M10	3 1/8"	(79.4)	2 5/8"	(66.7)	1 11/32"	(34.1)	400	(1.78)	11	(5.0)
200-3/4	3/4"	(20)	3/8"-16	M8† or M10	3 1/8"	(79.4)	2 1/2"	(63.5)	1 1/16"	(27.0)	400	(1.78)	11	(5.0)
200-1	1"	(25)	3/8"-16	M8† or M10	3 3/8"	(85.7)	2 5/8"	(66.7)	1 1/8"	(28.6)	400	(1.78)	12	(5.5)
200-1 1/4	1 1/4"	(32)	3/8"-16	M8† or M10	3 3/4"	(94.0)	2 7/8"	(73.0)	1 5/32"	(29.3)	400	(1.78)	13	(5.9)
200-1 1/2	1 1/2"	(40)	3/8"-16	M8† or M10	3 7/8"	(98.4)	2 7/8"	(73.0)	1 3/16"	(30.2)	400	(1.78)	14	(6.4)
200-2	2"	(50)	3/8"-16	M8† or M10	4 1/2"	(114.3)	3 9/50"	(80.8)	1 3/16"	(30.2)	400	(1.78)	15	(6.9)
200-2 1/2	2 1/2"	(65)	3/8"-16	M10	5 5/8"	(142.9)	4 1/8"	(104.7)	1 7/16"	(36.5)	600	(2.67)	27	(12.3)
200-3	3"	(75)	3/8"-16	M10	5 7/8"	(149.1)	4"	(101.6)	1 1/4"	(31.7)	600	(2.67)	29	(13.3)
200-3 1/2	3 1/2"	(90)	3/8"-16	M10	7 3/8"	(187.3)	5 1/4"	(133.3)	2 3/16"	(55.6)	600	(2.67)	34	(15.6)
200-4	4"	(100)	3/8"-16	M10	7 3/8"	(187.3)	5"	(127.0)	1 3/8"	(34.9)	1000	(4.45)	35	(16.0)
200-5	5"	(125)	1/2"-13	M12	9 1/8"	(231.8)	6 1/4"	(158.7)	3 11/32"	(84.9)	1250	(5.56)	66	(30.2)
200-6	6"	(150)	1/2"-13	M12	10 1/8"	(257.2)	6 3/4"	(171.4)	2 7/32"	(56.3)	1250	(5.56)	73	(33.4)
200-8	8"	(200)	1/2"-13	M12	13 1/8"	(333.4)	8 3/4"	(222.2)	3 7/32"	(81.7)	1250	(5.56)	136	(62.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 1-5-21

TOLCO™ Fig. 200H - Heavy Duty Band Hanger (For Trapeze)

Size Range: 2" (50mm) thru 4" (100mm) trapeze pipe size.

Material: Steel — Pre-Galvanized to G40 Spec

Function: Designed primarily to support substantially heavier loads than is normally intended for the nominal hanger size. Used extensively to support trapeze installations and the increased loads from both above and below the trapeze assembly.

Features: Furnished with 3/8"-16 or 1/2"-13 adjusting threaded ring nut.

Approvals: Underwriters Laboratories listed in the USA **(UL)** and Canada **(cUL)**. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 10 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 10.

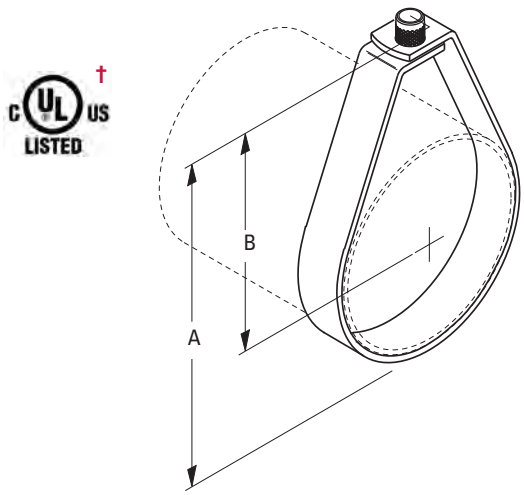
Maximum Temperature: 650°F (343°C)

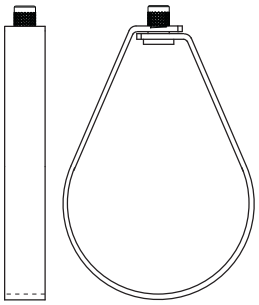
Finish: Pre-Galvanized

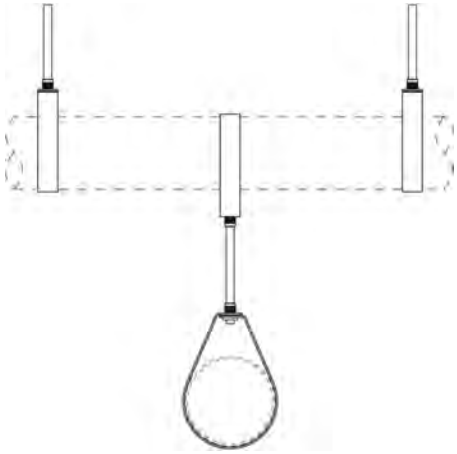
Order By: Part number, pipe size and rod size.

Important Design Note. Because of the increased loads applied to the trapeze assembly, both the upper trapeze supports as well as the lower hanging unit must be able to hold the maximum loads intended.

† If using metric rods the M8 rod size is not UL Listed







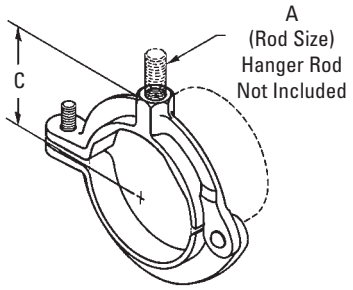
Part No.	Pipe Size in.	(mm)	Rod Size	A in.	(mm)	B in.	(mm)	Max. Rec. Load lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
200H-2-3/8	2"	(50)	3/8"-16†	4 9/16"	(115.9)	3 7/32"	(81.7)	1200	(5.34)	48	(21.8)
200H-2-1/2	2"	(50)	1/2"-13	4 23/32"	(119.8)	3 3/8"	(85.7)	1200	(5.34)	45	(20.4)
200H-2 1/2-3/8	2 1/2"	(65)	3/8"-16†	5 5/16"	(134.9)	3 23/32"	(94.4)	1200	(5.34)	59	(26.7)
200H-2 1/2-1/2	2 1/2"	(65)	1/2"-13	5 15/32"	(138.9)	3 7/8"	(98.3)	1200	(5.34)	56	(25.4)
200H-3-3/8	3"	(75)	3/8"-16†	5 3/4"	(146.0)	3 27/32"	(97.6)	1200	(5.34)	63	(28.6)
200H-3-1/2	3"	(75)	1/2"-13	5 7/8"	(148.1)	3 31/32"	(100.8)	1200	(5.34)	60	(27.2)
200H-4-3/8	4"	(100)	3/8"-16†	6 7/8"	(174.6)	4 7/16"	(112.7)	1200	(5.34)	76	(34.5)
200H-4-1/2	4"	(100)	1/2"-13	7 1/32"	(178.6)	4 19/32"	(1116.7)	1200	(5.34)	73	(33.1)

Note:
Select trapeze pipe size based on section modulus required for span of trapeze per information provided in NFPA 13 (2002) Table 9.1.1.6.1 (a and b).

All sizes are UL Listed to support up to 8" pipe at max spacing per NFPA 13.
For 6" (150mm) and 8" (200mm) trapeze pipe, consult factory.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3198H - Hinged Extension Split Pipe Clamp



Size Range: 3/8" (10mm) to 3" (80mm) pipe

Material: Malleable Iron

Function: Designed for suspending non-insulated pipe horizontally or vertically.

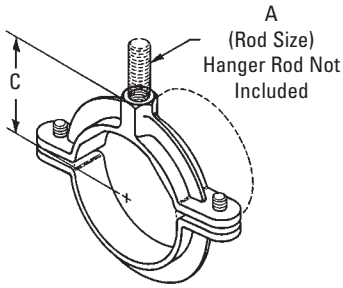
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 25 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 12.

Standard Finish: Plain or Electro-Galvanized

Order By: Part number and finish.

Part No.	Pipe Size in.	(mm)	Rod Size A	C in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3198H-3/8	3/8"	(10)	3/8"-16	31/32"	(24.6)	180	(.80)	9	(4.1)
B3198H-1/2	1/2"	(15)	3/8"-16	1 1/16"	(27.0)	180	(.80)	12	(5.4)
B3198H-3/4	3/4"	(20)	3/8"-16	1 7/32"	(30.9)	180	(.80)	12	(5.4)
B3198H-1	1"	(25)	3/8"-16	1 11/32"	(34.1)	180	(.80)	13	(5.9)
B3198H-1 1/4	1 1/4"	(32)	3/8"-16	1 19/32"	(39.7)	180	(.80)	18	(8.1)
B3198H-1 1/2	1 1/2"	(40)	3/8"-16	1 23/32"	(43.6)	180	(.80)	21	(9.5)
B3198H-2	2"	(50)	3/8"-16	2"	(50.8)	180	(.80)	44	(19.9)
B3198H-2 1/2	2 1/2"	(65)	1/2"-13	2 11/32"	(59.5)	300	(1.33)	73	(33.1)
B3198H-3	3"	(80)	1/2"-13	2 23/32"	(69.0)	300	(1.33)	95	(43.1)

B3198R - Extension Split Pipe Clamp



Size Range: 3/8" (10mm) to 4" (100mm) pipe

Material: Malleable Iron

Function: Designed for suspending non-insulated pipe horizontally or vertically.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 25 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 12.

Standard Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.

Part No.	Pipe Size in.	(mm)	Rod Thread Size A	C in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3198R-3/8	3/8"	(10)	3/8"-16	31/32"	(24.6)	180	(.80)	12	(5.4)
B3198R-1/2	1/2"	(15)	3/8"-16	1 1/16"	(27.0)	180	(.80)	16	(7.2)
B3198R-3/4	3/4"	(20)	3/8"-16	1 7/32"	(30.9)	180	(.80)	18	(8.1)
B3198R-1	1"	(25)	3/8"-16	1 11/32"	(34.1)	180	(.80)	24	(10.9)
B3198R-1 1/4	1 1/4"	(32)	3/8"-16	1 19/32"	(39.7)	180	(.80)	29	(13.1)
B3198R-1 1/2	1 1/2"	(40)	3/8"-16	1 23/32"	(43.6)	180	(.80)	32	(14.5)
B3198R-2	2"	(50)	3/8"-16	2"	(50.8)	180	(.80)	39	(17.7)
B3198R-2 1/2	2 1/2"	(65)	1/2"-13	2 11/32"	(59.5)	300	(1.33)	115	(52.1)
B3198R-3	3"	(80)	1/2"-13	2 23/32"	(69.0)	300	(1.33)	140	(63.5)
B3198R-4	4"	(100)	1/2"-13	3 11/32"	(84.9)	300	(1.33)	160	(72.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3198HCT - Hinged Extension Split Pipe Clamp

Size Range: 1/2" (15mm) to 2" (50mm) copper tubing

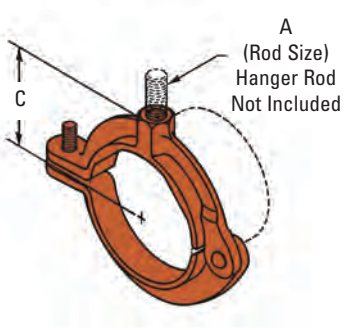
Material: Malleable Iron

Function: A rigid support to suspend tubing horizontally or vertically.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 25 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 12.

Standard Finish: DURA-COPPER™

Order By: Part number and finish.



Part No.	Tubing Size in.	(mm)	Rod Size A	C in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3198HCT-1/2	1/2"	(15)	3/8"-16	5/8"	(15.9)	180	(.80)	8	(3.6)
B3198HCT-3/4	3/4"	(20)	3/8"-16	13/16"	(20.6)	180	(.80)	10	(4.5)
B3198HCT-1	1"	(25)	3/8"-16	15/16"	(23.8)	180	(.80)	10	(4.5)
B3198HCT-1 1/4	1 1/4"	(32)	3/8"-16	1 1/8"	(28.6)	180	(.80)	14	(6.3)
B3198HCT-1 1/2	1 1/2"	(40)	3/8"-16	1 5/16"	(33.3)	180	(.80)	18	(8.1)
B3198HCT-2	2"	(50)	3/8"-16	1 9/16"	(39.7)	180	(.80)	23	(10.4)

B3198RCT - Extension Split Pipe Clamp

Size Range: 1/2" (15mm) to 2" (50mm) copper tubing

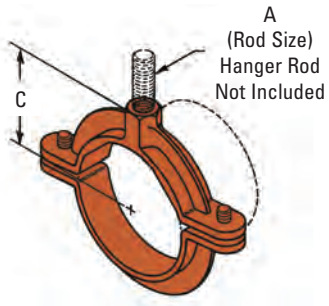
Material: Malleable Iron

Function: A rigid support to suspend tubing horizontally or vertically.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 25 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 12.

Standard Finish: DURA-COPPER™

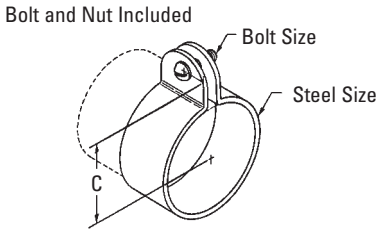
Order By: Part number and finish.



Part No.	Tubing Size in.	(mm)	Rod Size A	C in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3198RCT-3/8	3/8"	(10)	3/8"-16	9/16"	(14.3)	180	(.80)	12	(5.4)
B3198RCT-1/2	1/2"	(15)	3/8"-16	11/16"	(17.5)	180	(.80)	12	(5.4)
B3198RCT-3/4	3/4"	(20)	3/8"-16	7/8"	(22.2)	180	(.80)	14	(6.3)
B3198RCT-1	1"	(25)	3/8"-16	1 1/16"	(27.0)	180	(.80)	17	(7.7)
B3198RCT-1 1/4	1 1/4"	(32)	3/8"-16	1 1/8"	(28.6)	180	(.80)	17	(7.7)
B3198RCT-1 1/2	1 1/2"	(40)	3/8"-16	1 1/4"	(31.7)	180	(.80)	22	(10.0)
B3198RCT-2	2"	(50)	3/8"-16	1 1/2"	(38.1)	180	(.80)	26	(11.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3175 - Ring and Bolt Hanger



Size Range: 1/2" (15mm) to 6" (150mm) pipe

Material: Pre-Galvanized Steel

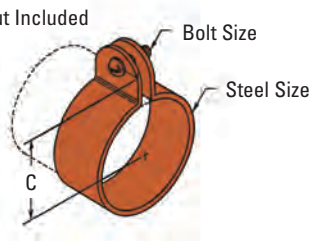
Function: Designed for suspending light-weight non-insulated pipe. (Use with B3222 eye socket or B3224 hanger adjuster).

Standard Finish: Pre-Galvanized

Order By: Part number and finish.

Part No.	Pipe Size in.	(mm)	C in.	(mm)	Bolt Size	Steel Size in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3175-1/2	1/2"	(15)	1 1/16"	(27.0)	1/4"-20	18 Ga. x 7/8"	(1.2 x 22.2)	275	(1.22)	7.5	(3.4)
B3175-3/4	3/4"	(20)	1 3/16"	(30.2)	1/4"-20	18 Ga. x 7/8"	(1.2 x 22.2)	275	(1.22)	8.0	(3.6)
B3175-1	1"	(25)	1 5/16"	(33.3)	1/4"-20	18 Ga. x 7/8"	(1.2 x 22.2)	275	(1.22)	9.0	(4.1)
B3175-1 1/4	1 1/4"	(32)	1 1/2"	(38.1)	1/4"-20	18 Ga. x 7/8"	(1.2 x 22.2)	275	(1.22)	10.5	(4.7)
B3175-1 1/2	1 1/2"	(40)	1 5/8"	(41.3)	1/4"-20	18 Ga. x 7/8"	(1.2 x 22.2)	275	(1.22)	11.5	(5.2)
B3175-2	2"	(50)	1 13/16"	(46.0)	1/4"-20	18 Ga. x 7/8"	(1.2 x 22.2)	275	(1.22)	13.0	(5.9)
B3175-2 1/2	2 1/2"	(65)	2 5/16"	(58.7)	5/16"-18	16 Ga. x 1 1/4"	(1.5 x 31.7)	500	(2.22)	30.0	(13.6)
B3175-3	3"	(80)	2 5/8"	(66.7)	5/16"-18	16 Ga. x 1 1/4"	(1.5 x 31.7)	500	(2.22)	35.0	(15.9)
B3175-3 1/2	3 1/2"	(90)	2 7/8"	(73.0)	5/16"-18	16 Ga. x 1 1/4"	(1.5 x 31.7)	500	(2.22)	38.5	(17.4)
B3175-4	4"	(100)	3 1/8"	(79.4)	5/16"-18	16 Ga. x 1 1/4"	(1.5 x 31.7)	500	(2.22)	42.0	(19.0)
B3175-5	5"	(125)	3 5/8"	(92.1)	5/16"-18	16 Ga. x 1 1/4"	(1.5 x 31.7)	500	(2.22)	51.0	(23.1)
B3175-6	6"	(150)	4 3/16"	(106.4)	5/16"-18	16 Ga. x 1 1/4"	(1.5 x 31.7)	500	(2.22)	58.5	(26.5)

B3175CT - Ring and Bolt Hanger, DURA-COPPER Coated



Size Range: 1/2" (15mm) to 4" (100mm) pipe

Material: Pre-Galvanized Steel

Function: Designed for suspending copper tubing allowing for vertical adjustment. (Use with B3222 eye socket or B3224 hanger adjuster).

Standard Finish: DURA-COPPER™

Order By: Part number and finish.

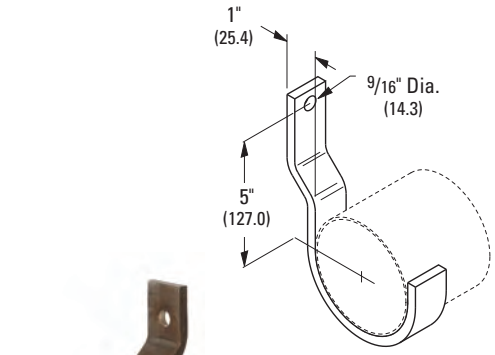
Part No.	Tubing Size in.	(mm)	C in.	(mm)	Bolt Size	Steel Size in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3175CT-1/2	1/2"	(15)	1 5/16"	(33.3)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	8	(3.6)
B3175CT-3/4	3/4"	(20)	1 3/8"	(34.9)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	8	(3.6)
B3175CT-1	1"	(25)	1 3/16"	(30.2)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	8	(3.6)
B3175CT-1 1/4	1 1/4"	(32)	1 5/16"	(33.3)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	10	(4.5)
B3175CT-1 1/2	1 1/2"	(40)	1 1/2"	(38.1)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	11	(5.0)
B3175CT-2	2"	(50)	1 15/16"	(49.2)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	11	(5.0)
B3175CT-2 1/2	2 1/2"	(65)	2 3/16"	(55.6)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	12	(5.4)
B3175CT-3	3"	(80)	2 11/16"	(68.3)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	14	(6.3)
B3175CT-3 1/2	3 1/2"	(90)	2 15/16"	(74.6)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	16	(7.2)
B3175CT-4	4"	(100)	3 3/16"	(81.0)	1/4"-20 x 1"	1/16" x 7/8"	(1.6 x 22.2)	200	(.89)	18	(8.1)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3190 Return Line Offset J-Hook

Size Range: 1/2" (15mm) to 8" (200mm) pipe
Material: Steel (Stainless steel available)
Function: Recommended for supporting light pipe runs with a 1" (25.4) offset from mounting surfaces.
Standard Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.
Order By: Part number and finish.

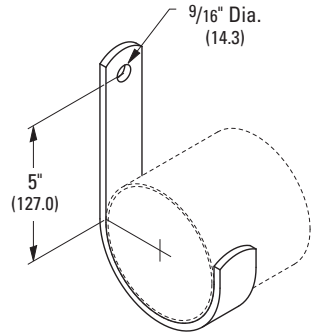
Part No.	Pipe Size in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3190-1/2	1/2"	(15)	200	(.89)	54	(24.5)
B3190-3/4	3/4"	(20)	200	(.89)	55	(24.9)
B3190-1	1"	(25)	200	(.89)	78	(35.4)
B3190-1 1/4	1 1/4"	(32)	200	(.89)	85	(38.5)
B3190-1 1/2	1 1/2"	(40)	200	(.89)	90	(40.8)
B3190-2	2"	(50)	200	(.89)	98	(44.4)
B3190-2 1/2	2 1/2"	(65)	350	(1.55)	126	(57.1)
B3190-3	3"	(80)	350	(1.55)	136	(61.7)
B3190-3 1/2	3 1/2"	(90)	350	(1.55)	147	(66.8)
B3190-4	4"	(100)	450	(2.00)	235	(106.6)
B3190-5	5"	(125)	450	(2.00)	350	(158.7)
B3190-6	6"	(150)	450	(2.00)	383	(173.7)
B3190-8	8"	(200)	450	(2.00)	605	(274.4)



B3191 Return Line Straight J-Hook

Size Range: 1/2" (15mm) to 8" (200mm) pipe
Material: Steel (Stainless steel available)
Function: Recommended for supporting light pipe runs flush with the mounting surfaces.
Standard Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.
Order By: Part number and finish.

Part No.	Pipe Size in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3191-1/2	1/2"	(15)	200	(.89)	54	(24.5)
B3191-3/4	3/4"	(20)	200	(.89)	55	(24.9)
B3191-1	1"	(25)	200	(.89)	76	(34.5)
B3191-1 1/4	1 1/4"	(32)	200	(.89)	82	(37.2)
B3191-1 1/2	1 1/2"	(40)	200	(.89)	87	(39.4)
B3191-2	2"	(50)	200	(.89)	96	(43.5)
B3191-2 1/2	2 1/2"	(65)	350	(1.55)	124	(56.2)
B3191-3	3"	(80)	350	(1.55)	134	(60.8)
B3191-3 1/2	3 1/2"	(90)	350	(1.55)	145	(65.8)
B3191-4	4"	(100)	450	(2.00)	153	(69.4)
B3191-5	5"	(125)	450	(2.00)	348	(157.8)
B3191-6	6"	(150)	450	(2.00)	381	(172.8)
B3191-8	8"	(200)	450	(2.00)	600	(272.1)



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 120RWA - Retrofit Wrap Around "U" Hanger Clamp

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: 1" (25mm) thru 6" (150mm) pipe

Material: Steel

Function: Designed to restrain movement of the pipe within standard U-hangers as required by NFPA 13. Where retrofit capability is crucial, the Fig. 120RWA is a labor efficient alternative to the standard B-Line series Fig. 120W wrap around U-hanger.

Features Installs easily by tightening two hex nuts. Features a unique bracing slot that locks onto a standard U-hanger to become a solid unit that will stabilize the pipe during seismic activity or sprinkler head activation. Designed to be used in retrofit or new construction applications. Will clamp to existing U-Hangers without restriction to leg angle.

Approvals: Underwriters Laboratories listed in the USA **(UL)** and Canada **(cUL)** as a restrainer. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the B-Line series Seismic Restraint Systems Guidelines. NFPA 13 (2010) 9.3.6.3.

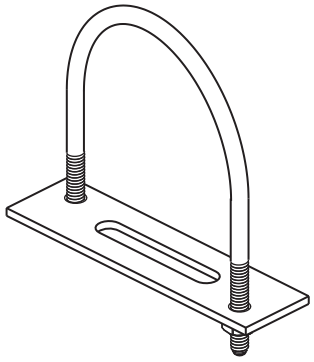
Finish: Plain and Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number, type numbers and pipe size

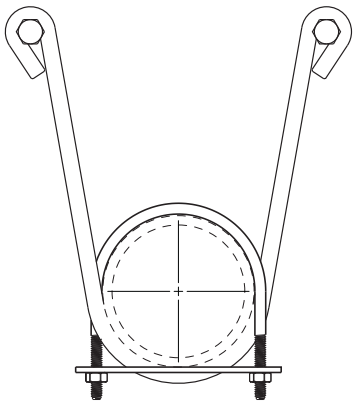
Ordering Note: Order by the following type and pipe size:
Type 1 — (1" (25mm) and 1 1/4" (32mm) pipe size)
Type 2 — (1 1/2" (40mm) and 2" (50mm) pipe size)
Type 3 — (2 1/2" (65mm) and 3" (80mm) pipe size)
Type 4 — (4" (100mm) pipe size)
Type 6 — (5" (125mm) and 6" (150mm) pipe size)

Important Note: The bracing slot feature is sized to fit the U-Hanger rod schedule as required by NFPA 13 as follows:

5/16" (7.9mm) rod for up to 2" (50mm) pipe
3/8" (9.5mm) rod for 2 1/2" (65mm) - 6" (160mm) pipe
For other rod size requirements consult factory.



Part No.	Type	Pipe Size in.	(mm)
120RWA-TYPE1-1	1	1"	(20)
120RWA-TYPE1-1 1/4	1	1 1/4"	(25)
120RWA-TYPE2-1 1/2	2	1 1/2"	(40)
120RWA-TYPE2-2	2	2"	(50)
120RWA-TYPE3-2 1/2	3	2 1/2"	(65)
120RWA-TYPE3-3	3	3"	(80)
120RWA-TYPE4-3 1/2	4	3 1/2"	(90)
120RWA-TYPE4-4	4	4"	(100)
120RWA-TYPE6-5	6	5"	(125)
120RWA-TYPE6-6	6	6"	(150)



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 120 - "U" Hanger

Size Range: Size 3/4" (20mm) thru 8" (200mm) pipe

Material: Steel

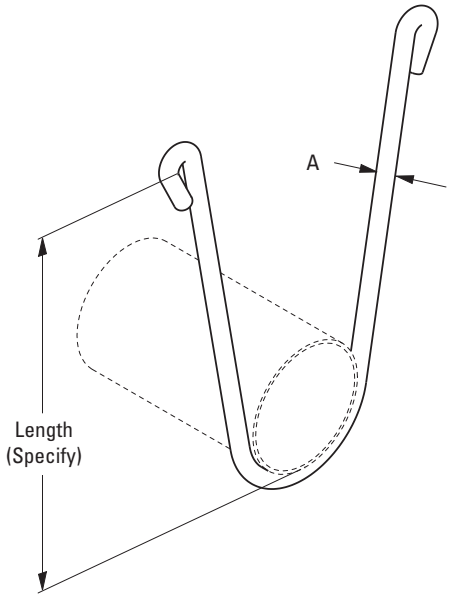
Function: Used to support piping from wood beams where no contraction is expected. Used extensively in automatic fire sprinkler systems.

Approvals: Meets or exceeds the requirements of National Fire Protection Association **(NFPA)**, Pamphlet 13. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the Seismic Restraint Systems Guidelines.

Maximum Temperature: 750°F (399°C)

Finishes: Plain, Electro Galvanized, Hot-Dip Galvanized, SS4 or SS6.

Order By: Part number, pipe size, length and finish



Part No.	Pipe Size in.	(mm)	A in.	(mm)	Fastener Size	Max. Rec. Load*** lbs.	(kN)
120-3/4	3/4"	(20)	5/16"	(7.9)	16 x 2*	250	(1.11)
120-1	1"	(25)	5/16"	(7.9)	16 x 2*	250	(1.11)
120-1 1/4	1 1/4"	(32)	5/16"	(7.9)	16 x 2*	250	(1.11)
120-1 1/2	1 1/2"	(40)	5/16"	(7.9)	16 x 2*	250	(1.11)
120-2	2"	(50)	5/16"	(7.9)	16 x 2*	250	(1.11)
120-2 1/2	2 1/2"	(65)	3/8"	(9.5)	3/8 x 2 1/2**	320	(1.42)
120-3	3"	(80)	3/8"	(9.5)	3/8 x 2 1/2**	320	(1.42)
120-3 1/2	3 1/2"	(90)	3/8"	(9.5)	3/8 x 2 1/2**	560	(2.49)
120-4	4"	(100)	3/8"	(9.5)	1/2 x 3**	560	(2.49)
120-5	5"	(125)	1/2"	(12.7)	1/2 x 3**	560	(2.49)
120-6	6"	(150)	1/2"	(12.7)	1/2 x 3**	760	(3.38)
120-8	8"	(200)	1/2"	(12.7)	5/8 x 3**	--	(--)

* Drive Screw
** Lag Bolt
*** With minimum safety factor of 5
Fastener schedule per NFPA

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 120MJ - Mutt & Jeff "U" Hanger

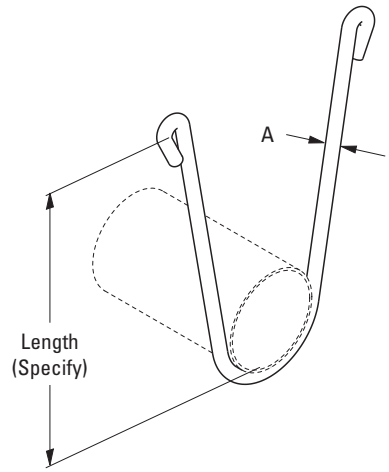
Size Range: Size 3/4" (20mm) thru 8" (200mm) pipe

Material: Steel

Function: Used to support piping from wood beams where no contraction is expected. Used extensively in automatic fire sprinkler systems. Fig. 120MJ is used when the wood beam is on a diagonal.

Finishes: Plain, Electro Galvanized, Hot-Dip Galvanized, SS4 or SS6.

Order By: Part number, side length and finish



Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	Fastener Size	Max. Rec. Load*** lbs.	Max. Rec. Load*** (kN)
120MJ-3/4	3/4"	(20)	5/16"	(7.9)	16 x 2*	250	(1.11)
120MJ-1	1"	(25)	5/16"	(7.9)	16 x 2*	250	(1.11)
120MJ-1 1/4	1 1/4"	(32)	5/16"	(7.9)	16 x 2*	250	(1.11)
120MJ-1 1/2	1 1/2"	(40)	5/16"	(7.9)	16 x 2*	250	(1.11)
120MJ-2	2"	(50)	5/16"	(7.9)	16 x 2*	250	(1.11)
120MJ-2 1/2	2 1/2"	(65)	3/8"	(9.5)	3/8 x 2 1/2**	320	(1.42)
120MJ-3	3"	(80)	3/8"	(9.5)	3/8 x 2 1/2**	320	(1.42)
120MJ-3 1/2	3 1/2"	(90)	3/8"	(9.5)	3/8 x 2 1/2**	560	(2.49)
120MJ-4	4"	(100)	3/8"	(9.5)	1/2 x 3**	560	(2.49)
120MJ-5	5"	(125)	1/2"	(12.7)	1/2 x 3**	560	(2.49)
120MJ-6	6"	(150)	1/2"	(12.7)	1/2 x 3**	760	(3.38)
120MJ-8	8"	(200)	1/2"	(12.7)	5/8 x 3**	--	(--)

* Drive Screw
** Lag Bolt
*** With minimum safety factor of 5 Fastener schedule per NFPA

TOLCO™ Fig. 120W - Wrap Around "U" Hanger

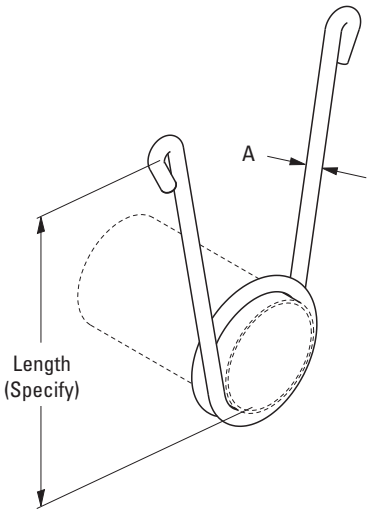
Size Range: Size 3/4" (20mm) thru 2" (50mm) pipe

Material: Steel

Function: Required for automatic fire protection agencies to be used on the end of branch lines to prevent pipe from whipping vertical and striking ceiling or beam.

Finishes: Plain, Electro Galvanized, Hot-Dip Galvanized, SS4 or SS6.

Order By: Part number, side length and finish



Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	Fastener Size	Max. Rec. Load*** lbs.	Max. Rec. Load*** (kN)
120W-3/4	3/4"	(20)	5/16"	(7.9)	16 x 2*	250	(1.11)
120W-1	1"	(25)	5/16"	(7.9)	16 x 2*	250	(1.11)
120W-1 1/4	1 1/4"	(32)	5/16"	(7.9)	16 x 2*	250	(1.11)
120W-1 1/2	1 1/2"	(40)	5/16"	(7.9)	16 x 2*	250	(1.11)
120W-2	2"	(50)	5/16"	(7.9)	16 x 2*	250	(1.11)

* Drive Screw
*** With minimum safety factor of 5 Fastener schedule per NFPA

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3262 Light Duty Spring Hanger

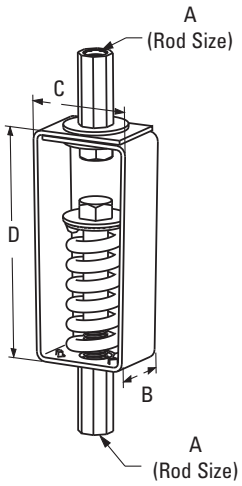
Rod Size Range: 3/8"-16 to 3/4"-10

Material: Steel

Service: Designed for use with a light piping system where vertical movement does not exceed 1 1/4" (31.7).

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 49 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 48.

Order By: Part number.



Part No.	Rod Size A	Spring Color	B In	B (mm)	C In	C (mm)	D In	D (mm)
B3262-3/8	3/8"-16	Brown	2"	(50.8)	2 3/4"	(69.8)	4 1/2"	(114.3)
B3262-1/2	1/2"-13	Black	2"	(50.8)	2 3/4"	(69.8)	4 1/2"	(114.3)
B3262-5/8	5/8"-11	Red	2"	(50.8)	2 3/4"	(69.8)	4 1/2"	(114.3)
B3262-3/4	3/4"-10	Orange	2"	(50.8)	3"	(76.2)	7"	(177.8)

Part No.	Spring Deflection In	Spring Deflection (mm)	Rated Load Lbs.	Rated Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3262-3/8	1.20	(30.1)	100-150	(.44 - .67)	390	(176.2)
B3262-1/2	1.10	(27.7)	150-250	(.67 - 1.11)	410	(186.0)
B3262-5/8	1.00	(25.4)	350-450	(1.56 - 2.00)	470	(213.2)
B3262-3/4	1.20	(30.1)	600-750	(2.67 - 3.34)	1240	(562.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

BH-2-4, BH-5-8, BH-9-12 - Parallel Strap Hangers
BH-2-4-R, BH-5-8-R, BH-9-12-R - Right Angle Strap Hangers

Material: Steel

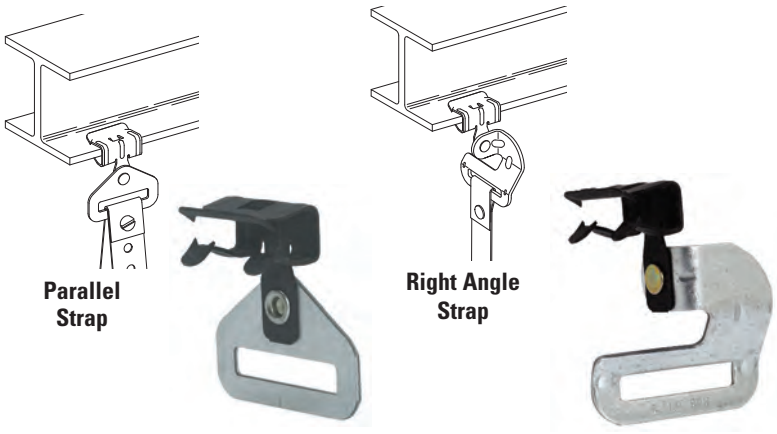
Function: The Parallel Strap Hanger series is designed for suspending up to 1" (50.8) wide straps parallel to beams.

The Right Angle Strap Hanger series is designed for suspending up to 1" (50.8) wide straps at right angle to the beam.

Note: Install clip to beam with hammer.

Standard Finish: Zinc Phosphate

Order By: Part number and finish.



Part No.		Flange Thickness		Maximum Load		Approx. Wt./100 BH-2-12		Approx. Wt./100 BH-2-12R	
Parallel	Right Angle	In.	(mm)	Lbs.	(kN)	Lbs.	(kg)	Lbs.	(kg)
BH-2-4	BH-2-4-R	1/8" to 1/4"	(3.2 to 6.3)	200	(.89)	4.5	(2.0)	6.0	(2.7)
BH-5-8	BH-5-8-R	5/16" to 1/2"	(7.9 to 12.7)	200	(.89)	5.0	(2.3)	6.5	(2.9)
BH-9-12	BH-9-12-R	9/16" to 3/4"	(14.3 to 19.0)	200	(.89)	5.5	(2.5)	7.0	(3.2)

Design Load is a static straight down load.

BL1400 - Hanger

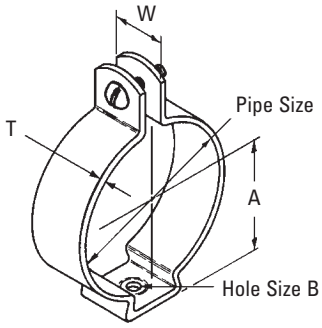
Size Range: 1/2" (15mm) to 4" (100mm) pipe

Material: Steel

Function: Designed to support or suspend light duty stationary pipe runs.

Standard Finish: Electro-Galvanized.
Also available in Stainless Steel Type 304 (SS4)

Order By: Part number.

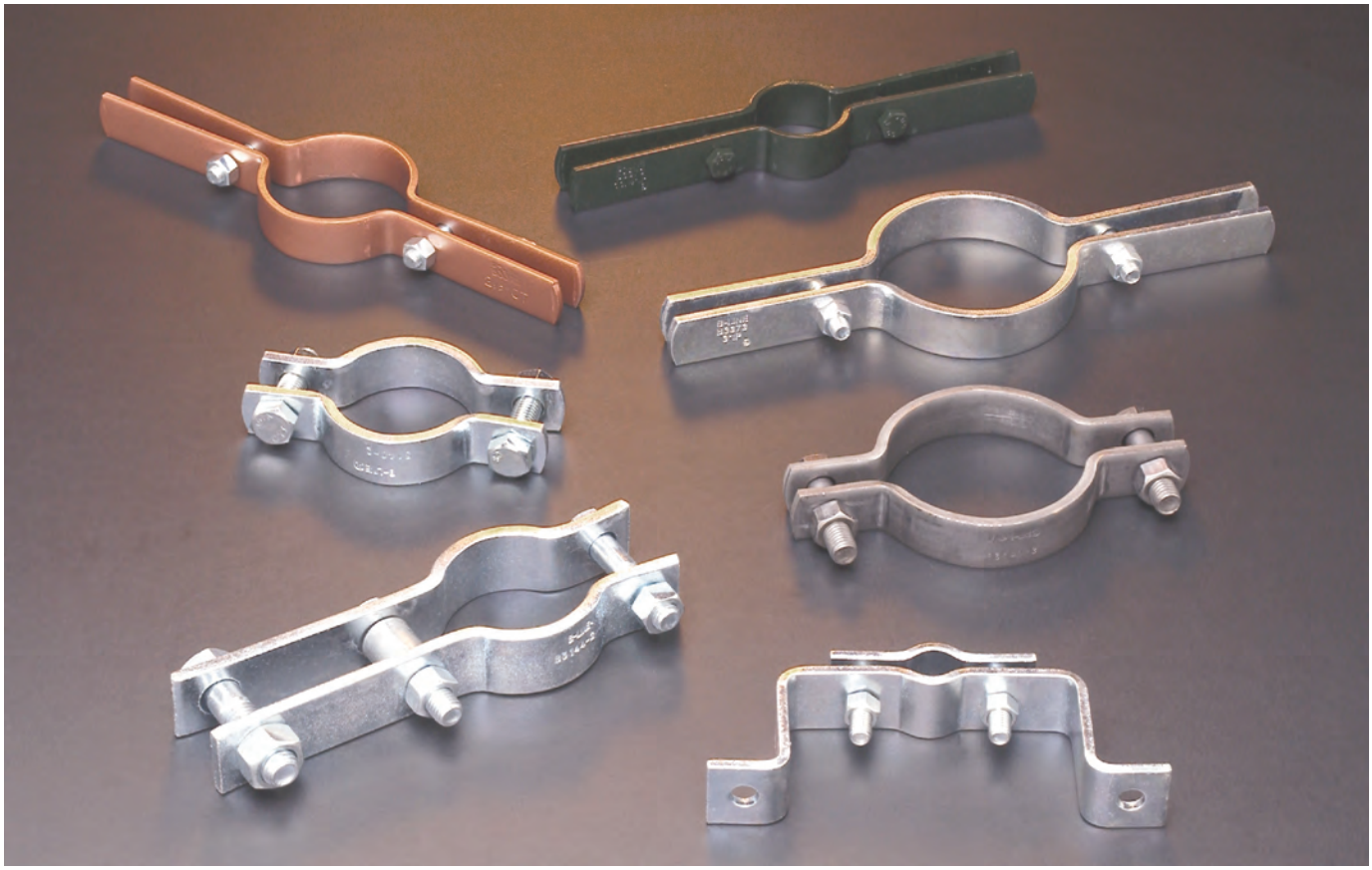


Part No.	Pipe Size In.	(mm)	A In.	(mm)	B In.	(mm)	T In.	(mm)	W In.	(mm)	Approx. Wt./100 Lbs.	(kg)
BL1400	1/2"	(15)	29/32"	(23.0)	9/32"	(7.1)	16 Ga.	(1.5)	3/4"	(19.0)	6	(2.7)
BL1410	3/4"	(20)	31/32"	(24.6)	9/32"	(7.1)	16 Ga.	(1.5)	3/4"	(19.0)	7	(3.2)
BL1420	1"	(25)	1 1/4"	(31.7)	9/32"	(7.1)	16 Ga.	(1.5)	3/4"	(19.0)	8	(3.6)
BL1430	1 1/4"	(32)	1 13/32"	(35.7)	9/32"	(7.1)	18 Ga.	(1.5)	7/8"	(22.2)	10	(4.5)
BL1440	1 1/2"	40)	5 5/8"	(41.3)	11/32"	(8.7)	16 Ga.	(1.5)	1"	(25.4)	17	(7.7)
BL1450	2"	(50)	1 7/8"	(47.6)	11/32"	(8.7)	16 Ga.	(1.5)	1 1/4"	(31.7)	25	(11.3)
BL1460	2 1/2"	(65)	2 1/16"	(52.4)	11/32"	(8.7)	16 Ga.	(1.5)	1 1/4"	(31.7)	26	(11.8)
BL1470	3"	(80)	2 1/2"	(63.5)	11/32"	(8.7)	16 Ga.	(1.5)	1 1/4"	(31.7)	33	(14.9)
BL1480	3 1/2"	(90)	2 3/4"	(69.8)	11/32"	(8.7)	16 Ga.	(1.5)	1 1/4"	(31.7)	36	(16.3)
BL1490	4"	(100)	3 1/2"	(88.9)	11/32"	(8.7)	16 Ga.	(1.5)	1 1/4"	(31.7)	40	(18.1)

Designed for positioning only, no load rating.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Pipe Clamps



Pipe clamps offered in this section are designed for support and attachment of pipe to structural members. A wide range of pipe clamps are available for various applications.

Materials
Carbon Steel is used in the manufacturing of riser and pipe clamps. Stainless Steel and other materials are available.

Finishes
The standard finishes for mechanical supports are plain steel (oil coated) sometimes referred to as black and Electro-Galvanized Zinc (ASTM B633 SC3). Hot-Dip Galvanized After Fabrication (ASTM A123), Red Primer, Plastic Coating, DURA GREEN™, DURA-COPPER™ and other special coatings are available upon request.

Note: Due to the design of some products, (threads, connecting hardware, swivels, etc.) items may or may not be uniformly coated with special finishes. In some cases, the hanger itself may be coated, however, the hardware may be supplied Electro-Plated, Copper Plated, or in Stainless Steel.

Recommended Torque (Pipe Clamp Hardware)

1/4"-20	5/16"-18	3/8"-16	1/2"-13	5/8"-11	3/4"-10 & larger
6 ft/lbs (8 Nm)	11 ft/lbs (19 Nm)	19 ft/lbs (26 Nm)	50 ft/lbs (68 Nm)	65 ft/lbs (88 Nm)	75 ft/lbs (101 Nm)

Approvals (as noted)
Items in this section are Underwriters Laboratories Listed, Factory Mutual Approved, and comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58.

All pipe hangers and supports in this section are sized to fit schedule 40/80 pipe unless otherwise noted. Some steel items may be specially fabricated to fit other pipe diameters i.e. ductile iron, cast iron, etc. Select pipe O.D. from charts on pages 321 thru 325.

B3373 - Standard Riser Clamp
B3373F - Felt Lined Standard Riser Clamp for Copper Tubing (not UL Listed or FM Approved)
B3373C - PVC Coated Standard Riser Clamp (not FM Approved)

Size Range: (B3373) 1/2" (15mm) thru 30" (760mm) pipe
(B3373F) 1/2" (15mm) thru 2 1/2" (65mm) copper tubing
(B3373C) 1/2" (15mm) thru 6" (150mm) pipe

Material: Steel

Insulation Material: (B3373F) 1/8" (3.2mm) thick felt.

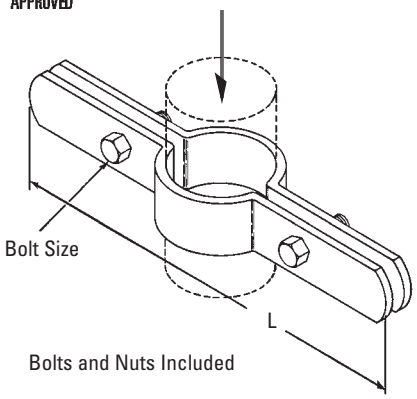
Function: Used for supporting vertical piping.

Approvals: Underwriters Laboratories Listed in the USA **(UL)**, Canada **(cUL)** 3/4" (20mm) - 8" (200mm).
Factory Mutual Engineering Approved **(FM)** for plain and electro-Galvanized zinc, 3/4" (20mm) thru 8" (200mm). Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 8 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 8.

Maximum Temperature: 650°F (343°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By:
(B3373 and B3373C) pipe size and finish.
B3373F is available for Iron Pipe Size, consult factory.



B3373C

B3373F

B3373

Part No.	Pipe Size in.	(mm)	L in.	(mm)	Bolt Size	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3373-1/2	1/2"	(15)	8 1/2"	(215.9)	3/8"-16 x 1 1/4"	255	(1.13)	101	(45.9)
B3373-3/4	3/4"	(20)	8 3/4"	(222.2)	3/8"-16 x 1 1/4"	255	(1.13)	105	(47.7)
B3373-1	1"	(25)	9 1/16"	(230.2)	3/8"-16 x 1 1/4"	255	(1.13)	109	(49.4)
B3373-1 1/4	1 1/4"	(32)	9 1/2"	(241.3)	3/8"-16 x 1 1/4"	255	(1.13)	112	(50.9)
B3373-1 1/2	1 1/2"	(40)	9 3/4"	(247.6)	3/8"-16 x 1 1/2"	255	(1.13)	113	(51.1)
B3373-2	2"	(50)	10 1/4"	(260.3)	3/8"-16 x 1 1/2"	255	(1.13)	165	(75.0)
B3373-2 1/2	2 1/2"	(65)	11 15/16"	(303.2)	3/8"-16 x 1 1/2"	390	(1.73)	180	(81.6)
B3373-3	3"	(80)	11 7/16"	(290.8)	3/8"-16 x 1 1/2"	530	(2.35)	195	(88.4)
B3373-3 1/2	3 1/2"	(90)	12 3/8"	(314.3)	1/2"-13 x 1 3/4"	670	(2.98)	217	(98.5)
B3373-4	4"	(100)	12 7/8"	(327.0)	1/2"-13 x 1 3/4"	810	(3.60)	228	(103.5)
B3373-5	5"	(125)	13 3/4"	(349.2)	1/2"-13 x 1 3/4"	1160	(5.16)	480	(217.7)
B3373-6	6"	(150)	14 3/4"	(374.6)	1/2"-13 x 2"	1570	(6.98)	526	(238.6)
B3373-8	8"	(200)	17 3/4"	(450.8)	5/8"-11 x 2 1/2"	2500	(11.12)	957	(434.1)
B3373-10	10"	(250)	19 7/16"	(493.7)	5/8"-11 x 2 1/2"	2500	(11.12)	1101	(499.4)
B3373-12	12"	(300)	21 11/16"	(550.9)	5/8"-11 x 3"	2700	(12.01)	1622	(735.7)
B3373-14	14"	(350)	23 9/16"	(598.5)	5/8"-11 x 3"	2700	(12.01)	1732	(785.6)
B3373-16	16"	(400)	26 3/8"	(669.9)	3/4"-10 x 3 1/4"	2900	(12.90)	2959	(1342.2)
B3373-18	18"	(450)	28 7/8"	(733.4)	3/4"-10 x 3 1/4"	2900	(12.90)	3235	(1467.4)
B3373-20	20"	(500)	30 7/8"	(784.2)	3/4"-10 x 3 1/2"	2900	(12.90)	3568	(1618.4)
B3373-24	24"	(600)	34 7/8"	(885.8)	3/4"-10 x 3 1/2"	2900	(12.90)	4064	(1843.3)
B3373-30	30"	(750)	40 3/4"	(1035.0)	7/8"-9 x 3 1/2"	2900	(12.90)	6016	(2728.8)

Notes: For ductile iron (D.I.) pipe use part number B3373DI-pipe size. Contact B-Line Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3373CT - Copper Tubing Riser Clamp
B3373CTC - PVC Coated Cooper Tubing Riser Clamp

Size Range: — Size 1/2" (15mm) thru 6" (150mm) copper tubing

Material: — Steel

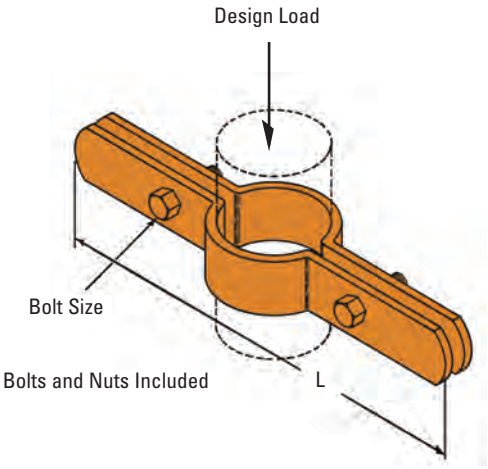
Function: — Used for supporting vertical copper tubing.

Approvals: — Conforms to Federal Specification WW-H-171E & A-A-1192A Type 8 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58 Type 8.

Finish: — DURA-COPPER™

Note: — Available with plastic coating, specify by ordering B3373CTC

Order By: — Part number and nominal tubing size



B3373CT

B3373CTC

Part No.	Tubing Size in.	(mm)	L in.	(mm)	Bolt Size	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3373CT-1/2	1/2"	(15)	8 3/4"	(222.2)	5/16"-18 x 1"	75	(.33)	72	(32.6)
B3373CT-3/4	3/4"	(20)	9 1/16"	(234.9)	5/16"-18 x 1"	75	(.33)	73	(33.2)
B3373CT-1	1"	(25)	9 5/16"	(236.5)	3/8"-16 x 1"	120	(.53)	74	(33.6)
B3373CT-1 1/4	1 1/4"	(32)	9 5/8"	(244.5)	3/8"-16 x 1"	150	(.67)	77	(34.8)
B3373CT-1 1/2	1 1/2"	(40)	9 3/4"	(247.6)	3/8"-16 x 1 1/4"	150	(.67)	111	(50.3)
B3373CT-2	2"	(50)	10 7/16"	(265.1)	3/8"-16 x 1 1/4"	150	(.67)	120	(54.5)
B3373CT-2 1/2	2 1/2"	(65)	10 15/16"	(277.8)	3/8"-16 x 1 1/4"	300	(1.33)	128	(58.1)
B3373CT-3	3"	(80)	11 7/16"	(290.5)	3/8"-16 x 1 1/4"	300	(1.33)	136	(61.5)
B3373CT-3 1/2	3 1/2"	(90)	11 15/16"	(303.2)	3/8"-16 x 1 1/4"	300	(1.33)	145	(65.7)
B3373CT-4	4"	(100)	12 1/2"	(317.5)	1/2"-13 x 1 3/4"	300	(1.33)	170	(77.3)
B3373CT-5	5"	(125)	13 5/8"	(346.1)	1/2"-13 x 2"	500	(2.22)	355	(161.0)
B3373CT-6	6"	(150)	14 5/8"	(371.5)	1/2"-13 x 2"	500	(2.22)	386	(175.1)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3132 - Two-Bolt Underground Clamp

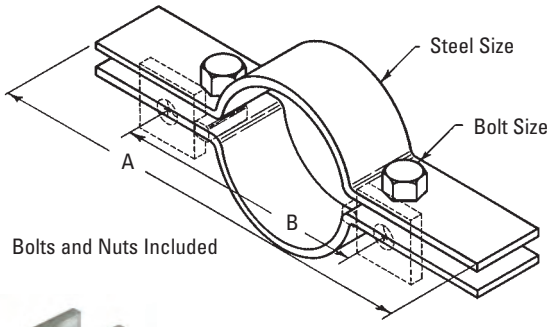
Size Range: 4" (100mm) thru 24" (600mm) pipe

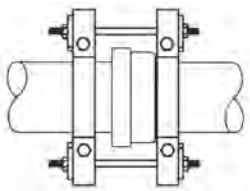
Material: Steel

Function: Clamp is used for underground A.W.W.A. cast iron and ductile iron water pipe to prevent joints from separating. The O.D. of the A.W.W.A. pipe is shown in the data table.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and outside diameter of pipe. Order B3132W lugs, tie rods and hex nuts separately.





Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	Clamp I.D. in.	(mm)	Steel Size in.	(mm)	Bolt Size	Approx. Wt./100 Lbs.	(kg)
B3132-4	4"	(100)	12 7/8"	(327.0)	9 3/4"	(247.6)	5"	(127.0)	1/2" x 2"	(12.7 x 50.8)	5/8"-11 x 3"	864	(391.9)
B3132-6	6"	(150)	14 3/4"	(374.6)	12"	(304.8)	7 1/16"	(179.4)	1/2" x 2"	(12.7 x 50.8)	5/8"-11 x 3"	1020	(462.6)
B3132-8	8"	(200)	17 1/4"	(438.1)	14 1/4"	(361.9)	9 3/16"	(233.4)	1/2" x 2"	(12.7 x 50.8)	5/8"-11 x 3"	1222	(554.3)
B3132-10	10"	(250)	19 3/8"	(492.1)	16 1/2"	(419.1)	11 3/8"	(288.9)	1/2" x 2"	(12.7 x 50.8)	5/8"-11 x 3"	1409	(639.1)
B3132-12	12"	(300)	21 7/8"	(555.6)	18 7/8"	(479.4)	13 1/2"	(342.9)	1/2" x 2"	(12.7 x 50.8)	5/8"-11 x 3"	1608	(729.4)
B3132-14	14"	(350)	26"	(660.4)	22 1/4"	(565.1)	15 3/4"	(400.0)	3/4" x 3"	(19.0 x 76.2)	7/8"-9 x 4 1/2"	4359	(1977.2)
B3132-16	16"	(400)	28 3/8"	(720.7)	24 5/8"	(625.5)	17 7/8"	(454.0)	3/4" x 4"	(19.0 x 101.6)	1"-8 x 4 1/2"	6403	(2904.4)
B3132-18	18"	(450)	31 3/8"	(796.9)	27 5/8"	(701.7)	20"	(508.0)	3/4" x 4"	(19.0 x 101.6)	1 1/4"-7 x 5"	7293	(3308.1)
B3132-20	20"	(500)	33 1/2"	(850.9)	29 3/4"	(755.6)	22 1/8"	(562.0)	3/4" x 4 1/2"	(19.0 x 114.3)	1 1/4"-7 x 5"	8778	(3981.7)
B3132-24	24"	(600)	39"	(990.6)	35 1/4"	(895.3)	26 3/8"	(669.9)	3/4" x 5"	(19.0 x 127.0)	1 1/4"-6 x 5 1/2"	11659	(5288.5)

B3132W - Lug Washer

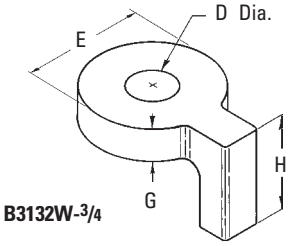
Size Range: 3/4" (20mm) thru 1 1/2" (40mm) rod

Material: Cast Iron for B3132W-3/4, steel for other sizes

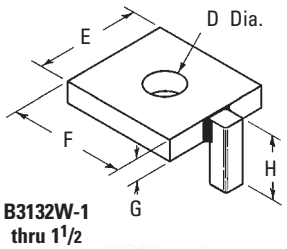
Function: Used with B3132 to secure tie rods. The projecting lug bears against the clamp bolt to prevent washer and tie rod from slipping off clamp.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish



B3132W-3/4



B3132W-1 thru 1 1/2

Part No.	Tie Rod Size	Use With Pipe Size in.	(mm)	Dia. in.	(mm)	E in.	(mm)	F in.	(mm)	G in.	(mm)	H in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3132W-3/4	3/4"-10	4"-12"	(100-300)	7/8"	(22.2)	2 3/8"	(60.3)	--	--	5/8"	(15.9)	1 5/8"	(41.3)	74	(33.7)
B3132W-1	1"-8	14"-16"	(350-400)	1 1/8"	(28.6)	3 1/2"	(88.9)	3 1/2"	(88.9)	5/8"	(15.9)	2 1/2"	(63.5)	207	(93.9)
B3132W-1 1/4	1 1/4"-7	18"	(450)	1 3/8"	(34.9)	3 1/2"	(88.9)	4"	(101.6)	5/8"	(15.9)	3 1/2"	(63.5)	236	(107.0)
B3132W-1 3/8	1 3/8"-6	20"	(500)	1 1/2"	(38.1)	4"	(101.6)	4 1/4"	(107.9)	5/8"	(15.9)	4"	(101.6)	231	(104.8)
B3132W-1 1/2	1 1/2"-6	24"	(600)	1 5/8"	(41.3)	4"	(101.6)	4 3/4"	(120.6)	5/8"	(15.9)	4"	(101.6)	259	(117.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3134 - Double Bolt Underground Socket Clamp

Size Range: 4" (100mm) thru 24" (600mm) pipe

Material: Steel

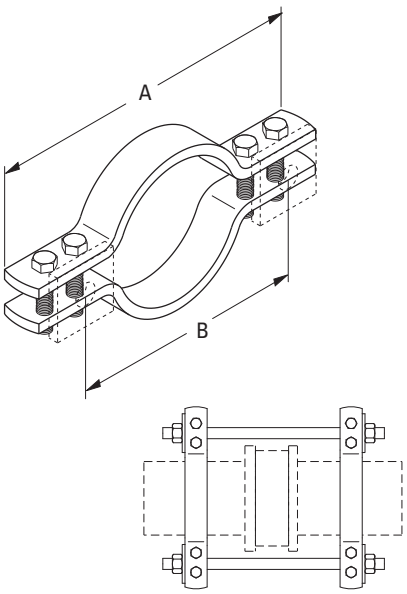
Function: Clamp is used for underground A.W.W.A. cast iron and ductile iron water pipe to prevent joints from separating. The O.D. of the A.W.W.A. pipe is shown in the data table.

Approvals: Conforms to National Fire Protection Association (NFPA) Pamphlet 24, 4" (100mm) thru 12" (300mm) pipe sizes.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and outside diameter of pipe.

Order B3134W plate washers, tie rods and hex nuts separately.



Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	Bolt Size	B3134 Washer Size)	Approx. Wt./100 lbs.	(kg)
B3134-4	4.80"	(121.9)	14 1/16"	(357.2)	9 5/16"	(236.5)	5/8"-11	B3134W-3/4	1275	(578.3)
B3134-6	6.90"	(175.3)	16 7/16"	(417.5)	11 11/16"	(298.9)	5/8"-11	B3134W-3/4	1455	(660.0)
B3134-8	9.05"	(229.9)	19 5/8"	(498.5)	14 7/8"	(442.6)	5/8"-11	B3134W-3/4	2350	(1065.9)
B3134-10	11.10"	(281.9)	21 13/16"	(554.0)	17 1/16"	(433.4)	3/4"-10	B3134W-3/4	2925	(1326.8)
B3134-12	13.20"	(335.3)	24 1/2"	(622.3)	19 1/4"	(488.9)	7/8"-9	B3134W-1	4030	(1828.0)
B3134-14	15.30"	(388.6)	26 15/16"	(684.2)	21 11/16"	(550.9)	7/8"-9	B3134W-1	5385	(2442.6)
B3134-16	17.40"	(441.9)	30 3/4"	(781.0)	24 3/4"	(628.6)	1"-8	B3134W-1 1/8	7645	(3467.8)
B3134-18	19.50"	(495.3)	34 5/16"	(871.5)	27 5/16"	(693.7)	1 1/4"-7	B3134W-1 1/4	9425	(4275.2)
B3134-20	21.60"	(548.6)	36 5/8"	(930.3)	29 5/8"	(752.5)	1 1/4"-7	B3134W-1 1/2	10975	(4978.2)
B3134-24	25.80"	(655.3)	42 1/8"	(1070.0)	34 3/8"	(873.1)	1 1/2"-6	B3134W-1 1/2	14865	(6742.6)

B3134W - Plate Washer

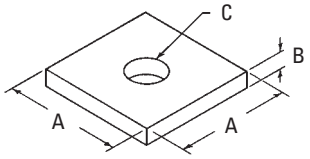
Size Range: 3/4"-10 thru 1 1/2"-6 rod

Material: Steel

Function: Used with B3134 to secure tie rods.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish



Part No.	Tie Rod Size	A in.	(mm)	B in.	(mm)	Hole Size C in.	(mm)	Approx. Wt./100 lbs.	(kg)
B3134W-3/4	3/4"-10	3"	(76.2)	1/2"	(12.7)	7/8"	(22.2)	120	(54.4)
B3134W-1	1"-8	3 1/2"	(88.9)	1/2"	(12.7)	1 1/8"	(28.6)	157	(71.2)
B3134W-1 1/8	1 1/8"-7	3 1/2"	(88.9)	5/8"	(15.9)	1 1/4"	(31.7)	194	(88.0)
B3134W-1 1/4	1 1/4"-7	3 1/2"	(88.9)	3/4"	(19.0)	1 3/8"	(35.8)	230	(104.3)
B3134W-1 1/2	1 1/2"-6	3 1/2"	(88.9)	3/4"	(19.0)	1 5/8"	(41.2)	240	(108.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 4A - Pipe clamp for sway bracing

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: 4" (100mm) thru 8" (200mm) pipe.
For sizes smaller than 4" (100mm) use B3140.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance.

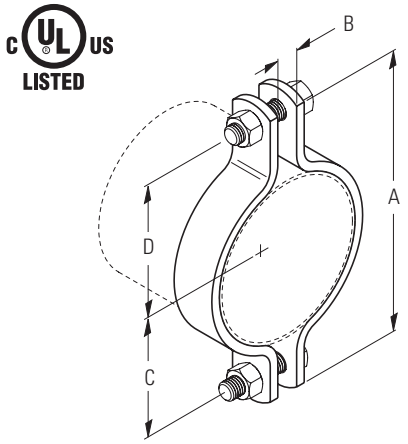
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** 4" (100mm) thru 8" (200mm). Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**.

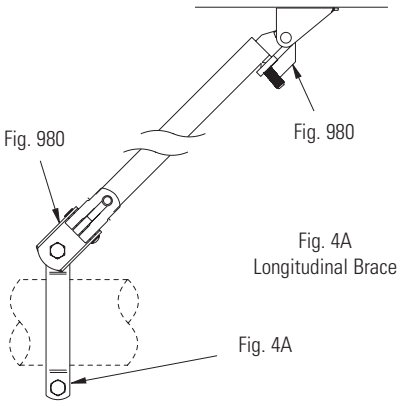
Installation Instructions: The Fig. 4A is the "braced pipe" attachment component of a longitudinal, lateral or riser brace assembly. It is intended to be combined with the "bracing pipe" and B-Line series TOLCO transitional and structural attachment component(s) to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

To Install: Place the Fig. 4A over the pipe to be braced. Attach TOLCO transitional fitting, either Fig. 980, 910 or 909, to the clamp ears. Tighten bolts and nuts; torque requirement is a minimum of 50 ft./lbs. (68Nm). Transitional fitting attachment can pivot for adjustment to proper brace angle.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish





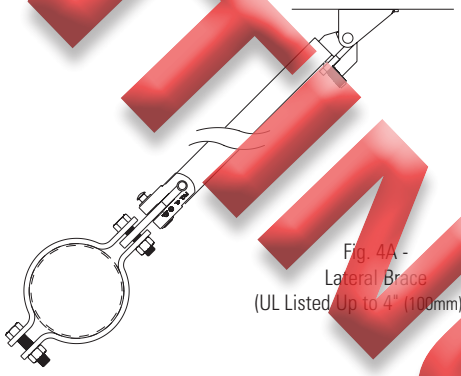


Fig. 4A -
Lateral Brace
(UL Listed Up to 4" (100mm) IPS)

Part No.	Pipe Size in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Bolt Size	Max. Horizontal Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
4A-4	4" (100)	8 1/2" (215.9)	9/16" (14.3)	3 3/8" (85.7)	3 11/16" (93.7)	1/2"-13	2015 (8.96)	221 (100.2)
4A-5	5" (125)	9 3/4" (247.6)	9/16" (14.3)	3 7/8" (98.4)	4 3/8" (111.1)	1/2"-13	2015 (8.96)	253 (114.7)
4A-6	6" (150)	11 1/2" (292.1)	5/8" (15.9)	5" (127.0)	5 1/8" (130.2)	1/2"-13	2015 (8.96)	513 (232.7)
4A-8	8" (200)	13 1/4" (336.5)	3/4" (19.0)	6 11/16" (169.9)	6 1/8" (155.6)	1/2"-13	2015 (8.96)	601 (272.6)

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

DISCONTINUED

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3140 - Standard Pipe Clamp
B3140F - Standard Pipe Clamp Felt Lined for Copper Tubing
B3140C - Standard Pipe Clamp PVC Coated

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: B3140/B3140C Size 1/2" (15mm) thru 30" (750mm) pipe. B3140F Size 1/2" (15mm) thru 2 1/2" (65mm) copper tubing

Material: Steel

Function: Recommended for the suspension of non-insulated pipe or insulated pipe with B3151 shields. (Use B3200 weldless eye nut, B3210 eye rod or B3211 welded eye rod.) B3140F and B3140C are designed to reduce noise and vibration and/or prevent electrolysis.

Approvals: Underwriters Laboratories Listed in the USA **(UL)**, Canada **(cUL)** 3/4" (20mm) - 12" (300mm), and approved by Factory Mutual Engineering **(FM)**, 3/4" (20mm) - 8" (200mm). Federal Specification WW-H-171E & A-A-1192A, Type 4, and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 4. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the Seismic Restraint Systems Guidelines.

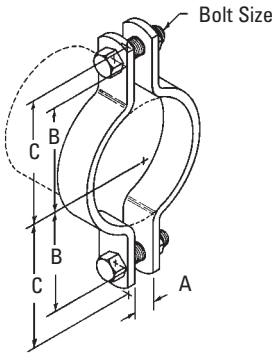
Note: For piping that requires sway bracing refer to Fig. 4A.

Maximum Temperature: — 750°F (399°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish.

Order Note: When ordering B3140F allow for 1/8" (3.2mm) felt on each half of clamp.



B3140

B3140F

B3140C

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3140 - Standard Pipe Clamp
B3140F - Standard Pipe Clamp Felt Lined
B3140C - Standard Pipe Clamp PVC Coated cont.

Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	Bolt Size
B3140-1/2	1/2"	(15)	3/8"	(9.5)	31/32"	(24.6)	1 17/32"	(38.9)	5/16"-18
B3140-3/4	3/4"	(20)	9/16"	(14.3)	1 3/32"	(27.8)	1 21/32"	(42.0)	5/16"-18
B3140-1	1"	(25)	9/16"	(14.3)	1 5/16"	(33.3)	1 7/8"	(47.6)	5/16"-18
B3140-1 1/4	1 1/4"	(32)	17/32"	(13.5)	1 7/16"	(36.5)	2"	(50.8)	5/16"-18
B3140-1 1/2	1 1/2"	(40)	19/32"	(15.1)	1 21/32"	(42.0)	2 7/32"	(56.4)	5/16"-18
B3140-2	2"	(50)	9/16"	(14.3)	2 1/8"	(54.0)	2 3/4"	(69.8)	1/2"-13
B3140-2 1/2	2 1/2"	(65)	5/8"	(15.9)	2 21/32"	(67.5)	3 9/32"	(83.3)	1/2"-13
B3140-3	3"	(75)	5/8"	(15.9)	2 15/16"	(74.6)	3 9/16"	(90.5)	1/2"-13
B3140-3 1/2	3 1/2"	(90)	5/8"	(15.9)	3 5/32"	(80.1)	3 25/32"	(96.0)	1/2"-13
B3140-4	4"	(100)	3/4"	(19.0)	3 9/16"	(90.5)	4 5/16"	(109.5)	5/8"-11
B3140-5	5"	(125)	3/4"	(19.0)	4 1/8"	(104.8)	4 7/8"	(123.8)	5/8"-11
B3140-6	6"	(150)	7/8"	(22.2)	4 15/16"	(125.4)	5 13/16"	(147.6)	3/4"-10
B3140-8	8"	(200)	1"	(25.4)	6 1/16"	(154.0)	6 15/16"	(176.2)	3/4"-10
B3140-10	10"	(250)	1"	(25.4)	7 3/8"	(187.3)	8 11/16"	(220.7)	7/8"-9
B3140-12	12"	(300)	1"	(25.4)	8 7/16"	(214.3)	9 3/4"	(247.6)	7/8"-9
B3140-14	14"	(350)	1 1/8"	(28.6)	9 1/4"	(234.9)	10 5/8"	(269.9)	7/8"-9
B3140-16	16"	(400)	1 1/8"	(28.6)	10 1/4"	(260.3)	11 5/8"	(295.3)	7/8"-9
B3140-18	18"	(450)	1 1/4"	(31.7)	11 7/8"	(301.6)	13 1/4"	(336.5)	1"-8
B3140-20	20"	(500)	1 3/8"	(34.9)	12 3/4"	(323.8)	14 1/8"	(358.8)	1 1/8"-7
B3140-24	24"	(600)	1 5/8"	(41.3)	15 1/4"	(387.3)	16 7/8"	(428.6)	1 1/4"-7
B3140-30	30"	(750)	2 1/4"	(57.1)	18 5/8"	(473.1)	21"	(533.4)	1 1/2"-6

Part No.	Pipe Size in.	(mm)	Max. Design Load 650°F (343°C) lbs.	(kN)	750°F (399°C) lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
B3140-1/2	1/2"	(15)	500	(2.22)	390	(1.73)	30	(13.6)
B3140-3/4	3/4"	(20)	500	(2.22)	390	(1.73)	31	(14.0)
B3140-1	1"	(25)	500	(2.22)	390	(1.73)	33	(14.5)
B3140-1 1/4	1 1/4"	(32)	500	(2.22)	390	(1.73)	39	(17.7)
B3140-1 1/2	1 1/2"	(40)	800	(3.56)	620	(2.76)	41	(18.6)
B3140-2	2"	(50)	1040	(4.62)	810	(3.60)	118	(53.5)
B3140-2 1/2	2 1/2"	(65)	1040	(4.62)	810	(3.60)	130	(58.9)
B3140-3	3"	(75)	1040	(4.62)	810	(3.60)	150	(68.0)
B3140-3 1/2	3 1/2"	(90)	1040	(4.62)	810	(3.60)	158	(71.6)
B3140-4	4"	(100)	1040	(4.62)	810	(3.60)	239	(108.4)
B3140-5	5"	(125)	1040	(4.62)	810	(3.60)	272	(123.4)
B3140-6	6"	(150)	1615	(7.18)	1260	(5.60)	541	(245.4)
B3140-8	8"	(200)	1615	(7.18)	1260	(5.60)	642	(291.2)
B3140-10	10"	(250)	2490	(11.07)	1950	(8.67)	1366	(619.6)
B3140-12	12"	(300)	2490	(11.07)	1950	(8.67)	1543	(699.9)
B3140-14	14"	(350)	2490	(11.07)	1950	(8.67)	2077	(942.1)
B3140-16	16"	(400)	2490	(11.07)	1950	(8.67)	2289	(1038.3)
B3140-18	18"	(450)	3060	(13.61)	2390	(10.63)	3206	(1454.2)
B3140-20	20"	(500)	3060	(13.61)	2390	(10.63)	3616	(1640.2)
B3140-24	24"	(600)	3060	(13.61)	2390	(10.63)	5161	(2341.0)
B3140-30	30"	(750)	3500	(15.57)	2740	(12.14)	10460	(4744.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3141 - A.W.W.A. Pipe Clamp

Size Range: 4" (100mm) thru 24" (600mm) pipe

Material: Steel

Function: Recommended for the suspension of flanged or bell and spigot A.W.W.A. cast iron or ductile iron pipe. The O.D. of the A.W.W.A. iron pipe is shown in the data table. Used with B3200 weldless eye nut, B3210 eye rod or B3211 welded eye rod.

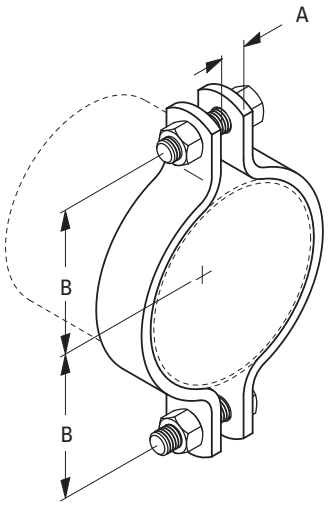
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 4, and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 4.

Maximum Temperature: 650°F (343°C)

Finish: Plain or Electro-Galvanized

Note: Available in HDG finish or Stainless Steel materials.

Order By: Part number, pipe size and finish



Part No.	Pipe O.D. in.	Pipe O.D. (mm)	A in.	A (mm)	B in.	B (mm)	Bolt Size	Max. Recommended Design Load lbs.	Max. Recommended Design Load (kN)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
B3141-4	4.80"	(121.9)	1 1/8"	(28.6)	4 1/16"	(103.2)	5/8"-11	1400	(6.23)	860	(390.1)
B3141-6	6.90"	(175.2)	1 1/8"	(28.6)	5 1/16"	(128.6)	5/8"-11	1400	(6.23)	1060	(480.8)
B3141-8	9.05"	(229.9)	1 1/8"	(28.6)	6 3/16"	(157.2)	5/8"-11	1400	(6.23)	1230	(557.9)
B3141-10	11.10"	(281.9)	1 1/8"	(28.6)	7 1/4"	(184.1)	5/8"-11	1400	(6.23)	1430	(648.6)
B3141-12	13.20″	(335.3)	1 1/8"	(28.6)	8 5/16"	(211.1)	5/8"-11	1400	(6.23)	1630	(739.3)
B3141-14	15.30"	(388.6)	1 3/4"	(44.4)	9 7/8"	(250.7)	3/4"-10	2000	(8.89)	2300	(1043.3)
B3141-16	17.40"	(441.9)	1 3/4"	(44.4)	11 5/16"	(287.3)	7/8"-9	2500	(11.12)	3725	(1689.6)
B3141-18	19.50"	(495.3)	1 7/8"	(47.6)	12 9/16"	(319.1)	1"-8	3000	(13.34)	4200	(1905.1)
B3141-20	21.60"	(548.6)	2"	(50.8)	13 5/8"	(346.1)	1"-8	3100	(13.79)	4575	(2075.2)
B3141-24	25.80"	(655.3)	2"	(50.8)	16 5/16"	(414.3)	1 1/4"-7	4500	(20.01)	6400	(2903.0)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3142 - Heavy Duty Pipe Clamp

Size Range: 3" (80mm) thru 24" (600mm) pipe

Material: Steel

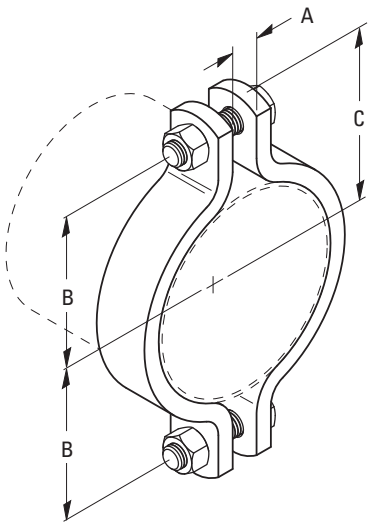
Function: Recommended for the suspension of heavy-duty pipe lines. (Use with B3200 weldless eye nut, B3210 eye rod or B3211 welded eye rod).

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 4, and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 4.

Maximum Temperature: 750°F (399°C)

Finish: Plain or Electro-Galvanized and HDG.

Order By: Part number, pipe size and finish



Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	Bolt Size	Max. Design Load 650°F (343°C) lbs.	(kN)	750°F (399°C) lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
B3142-3	3"	(80)	1"	(25.4)	3"	(76.2)	4 1/8"	(104.8)	3/4"-10	3370	(14.99)	3005	(13.36)	498	(225.9)
B3142-4	4"	(100)	1"	(25.4)	3 11/16"	(93.7)	4 15/16"	(125.4)	7/8"-9	3515	(15.63)	3135	(13.94)	634	(287.6)
B3142-5	5"	(125)	1"	(25.4)	4 5/16"	(109.5)	5 9/16"	(141.3)	7/8"-9	3515	(15.63)	3135	(13.94)	714	(323.9)
B3142-6	6"	(150)	1 1/8"	(28.6)	5 3/16"	(131.8)	6 11/16"	(169.9)	1"-8	4865	(21.64)	4340	(19.30)	1351	(612.8)
B3142-8	8"	(200)	1 1/8"	(28.6)	6 1/4"	(158.7)	7 3/4"	(196.8)	1"-8	4865	(21.64)	4340	(19.30)	1573	(713.5)
B3142-10	10"	(250)	1 1/4"	(31.7)	7 7/8"	(200.0)	9 1/2"	(241.3)	1 1/4"-7	6010	(26.73)	5360	(23.84)	2537	(1150.8)
B3142-12	12"	(300)	1 5/8"	(41.3)	9 1/2"	(241.3)	11 5/8"	(295.3)	1 1/2"-6	8675	(38.58)	7740	(34.43)	4300	(1950.5)
B3142-14	14"	(350)	1 5/8"	(41.3)	10 1/8"	(257.2)	12 1/4"	(311.1)	1 1/2"-6	9120	(40.56)	8135	(36.18)	5228	(2371.4)
B3142-16	16"	(400)	1 5/8"	(41.3)	11 3/16"	(284.2)	13 5/16"	(338.1)	1 1/2"-6	9120	(40.56)	8135	(36.18)	5657	(2566.0)
B3142-18	18"	(450)	1 5/8"	(41.3)	12 3/16"	(309.6)	14 5/16"	(363.5)	1 1/2"-6	9150	(40.70)	8160	(36.29)	6914	(3136.2)
B3142-20	20"	(500)	1 5/8"	(41.3)	13 5/16"	(338.1)	15 7/16"	(392.1)	1 1/2"-6	9150	(40.70)	8160	(36.29)	7468	(3387.5)
B3142-24	24"	(600)	1 3/4"	(44.4)	15 3/8"	(390.5)	17 3/4"	(450.8)	1 1/2"-6	9200	(40.92)	8205	(36.49)	12629	(5728.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3144 - Standard Double Bolt Pipe Clamp

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: — 1/2" (15mm) thru 36" (900mm) pipe.

Material: — Steel

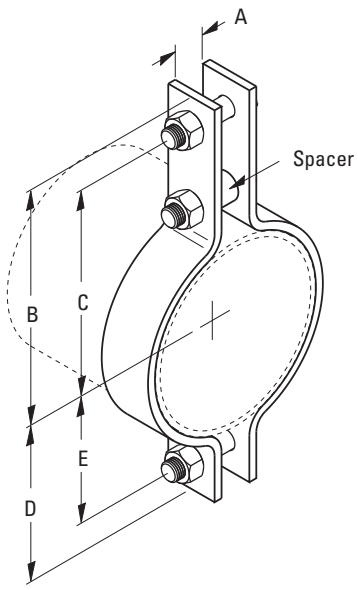
Function: — Recommended for the suspension of pipe requiring up to 4" (101.6mm) of insulation and where flexibility of the clamp may be necessary. Use B3200 weldless eye nut, B3210 eye rod or B3211 welded eye rod. Also recommended for the attachment of sway bracing up to 8" (203.2mm). Refer to B-Line series TOLCO State of California Approved Seismic Restraint Product Manual.

Approvals: — Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 3 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 3. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the B-Line/TOLCO Seismic Restraint Systems Guidelines.

Maximum Temperature: 750°F (399°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

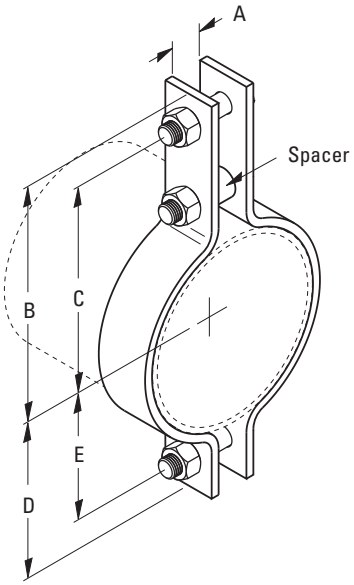
Order By: Part number, pipe size and finish.



Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)	E in.	(mm)
B3144-1/2	1/2"	(15)	3/8"	(9.5)	2 13/16"	(71.4)	2 3/16"	(55.6)	1 1/2"	(38.1)	7/8"	(22.2)
B3144-3/4	3/4"	(20)	5/8"	(15.9)	3"	(76.2)	2 3/8"	(60.2)	1 11/16"	(42.9)	1 1/16"	(27.0)
B3144-1	1"	(25)	5/8"	(15.9)	3 1/4"	(82.5)	2 5/8"	(66.7)	1 15/16"	(49.2)	1 5/16"	(33.3)
B3144-1 1/4	1 1/4"	(32)	5/8"	(15.9)	3 1/2"	(88.9)	2 7/8"	(72.9)	2 3/16"	(58.7)	1 9/16"	(39.7)
B3144-1 1/2	1 1/2"	(40)	1"	(25.4)	5 3/8"	(136.5)	4 1/2"	(114.3)	2 5/8"	(66.7)	1 3/4"	(44.4)
B3144-2	2"	(50)	1"	(25.4)	5 13/16"	(147.6)	4 15/16"	(125.4)	2 15/16"	(74.6)	2 1/16"	(52.4)
B3144-2 1/2	2 1/2"	(65)	1"	(25.4)	6 1/8"	(155.6)	5 1/4"	(133.3)	3 1/4"	(82.5)	2 3/8"	(60.3)
B3144-3	3"	(75)	1"	(25.4)	6 3/4"	(171.4)	5 7/8"	(149.2)	3 5/8"	(92.1)	2 11/16"	(68.3)
B3144-3 1/2	3 1/2"	(90)	1"	(25.4)	7 3/16"	(182.6)	6 5/16"	(160.3)	3 7/8"	(98.4)	3"	(76.2)
B3144-4	4"	(100)	1"	(25.4)	7 3/4"	(196.8)	6 5/8"	(168.3)	4 11/16"	(119.1)	3 9/16"	(90.5)
B3144-5	5"	(125)	1"	(25.4)	8 9/16"	(217.5)	7 7/16"	(189.5)	5 5/16"	(134.9)	4 3/16"	(106.4)
B3144-6	6"	(150)	1 1/2"	(38.1)	9 7/8"	(250.8)	8 1/2"	(215.9)	6 1/8"	(155.6)	4 3/4"	(120.6)
B3144-8	8"	(200)	1 1/2"	(38.1)	11"	(279.4)	9 5/8"	(244.5)	7 5/16"	(185.7)	5 15/16"	(150.8)
B3144-10	10"	(250)	1 1/2"	(38.1)	12"	(304.8)	10 1/2"	(266.7)	8 7/8"	(225.4)	7 5/16"	(185.7)
B3144-12	12"	(300)	1 1/2"	(38.1)	13 1/8"	(333.4)	11 5/8"	(295.3)	9 15/16"	(252.4)	8 7/16"	(214.3)
B3144-14	14"	(350)	2"	(50.8)	14 5/16"	(363.5)	12 9/16"	(319.1)	11 5/16"	(287.3)	9 9/16"	(242.9)
B3144-16	16"	(400)	2"	(50.8)	15 9/16"	(395.3)	13 13/16"	(350.8)	12 5/16"	(312.7)	10 9/16"	(268.3)
B3144-18	18"	(450)	2"	(50.8)	16 7/8"	(428.6)	15 1/8"	(384.2)	13 3/8"	(339.7)	11 5/8"	(295.3)
B3144-20	20"	(500)	2"	(50.8)	18 1/4"	(463.5)	16 3/8"	(415.9)	15 1/8"	(384.2)	13 1/4"	(336.5)
B3144-24	24"	(600)	2"	(50.8)	20 7/16"	(519.7)	18 7/16"	(468.3)	17 5/16"	(439.7)	15 5/16"	(388.9)
B3144-30	30"	(750)	2 1/2"	(63.5)	26"	(660.4)	23"	(584.2)	22"	(558.8)	19"	(482.6)
B3144-36	36"	(900)	2 1/2"	(63.5)	32 3/8"	(822.2)	28 7/8"	(733.4)	25 5/8"	(650.9)	22 1/8"	(562.0)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3144 - Standard Double Bolt Pipe Clamp cont.



Component of State of California OSHPD Approved Seismic Restraints System

Part No.	Pipe Size in.	(mm)	Bolt Size Size	Max. Design Load 650°F (343°C) lbs.	(kN)	750°F (399°C) lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
B3144-1/2	1/2"	(15)	3/8"-16	950	(4.22)	--	(--)	73	(33.1)
B3144-3/4	3/4"	(20)	3/8"-16	950	(4.22)	--	(--)	73	(33.1)
B3144-1	1"	(25)	3/8"-16	950	(4.22)	--	(--)	77	(34.9)
B3144-1 1/4	1 1/4"	(32)	3/8"-16	950	(4.22)	--	(--)	79	(35.8)
B3144-1 1/2	1 1/2"	(40)	5/8"-11	1545	(6.87)	1380	(6.14)	236	(107.0)
B3144-2	2"	(50)	5/8"-11	1545	(6.87)	1380	(6.14)	251	(113.8)
B3144-2 1/2	2 1/2"	(65)	5/8"-11	1545	(6.87)	1380	(6.14)	274	(124.3)
B3144-3	3"	(75)	5/8"-11	1545	(6.87)	1380	(6.14)	289	(131.1)
B3144-3 1/2	3 1/2"	(90)	5/8"-11	1545	(6.87)	1380	(6.14)	315	(142.9)
B3144-4	4"	(100)	3/4"-10	2500	(11.12)	2230	(9.92)	745	(337.9)
B3144-5	5"	(125)	3/4"-10	2500	(11.12)	2230	(9.92)	828	(375.6)
B3144-6	6"	(150)	7/8"-9	2865	(12.74)	2555	(11.36)	1261	(572.0)
B3144-8	8"	(200)	7/8"-9	2865	(12.74)	2555	(11.36)	1535	(696.3)
B3144-10	10"	(250)	1"-8	3240	(14.41)	2890	(12.85)	2173	(985.7)
B3144-12	12"	(300)	1"-8	3240	(14.41)	2890	(12.85)	2404	(1090.4)
B3144-14	14"	(350)	1 1/4"-7	4300	(19.12)	3835	(17.06)	4002	(1815.3)
B3144-16	16"	(400)	1 1/4"-7	4300	(19.12)	3835	(17.06)	4362	(1978.6)
B3144-18	18"	(450)	1 1/4"-7	4300	(19.12)	3835	(17.06)	4935	(2238.5)
B3144-20	20"	(500)	1 3/8"-6	5490	(24.42)	4900	(21.79)	6570	(2980.1)
B3144-24	24"	(600)	1 3/8"-6	4500	(20.01)	4015	(17.86)	7524	(3412.9)
B3144-30	30"	(750)	1 3/8"-6	7500	(33.36)	--	(--)	19502	(8846.1)
B3144-36	36"	(900)	1 3/4"-5	10500	(46.70)	--	(--)	23488	(10654.1)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3146 - Heavy Duty Double Bolt Pipe Clamp

Size Range: 6" (150mm) thru 36" (900mm) pipe.

Material: Steel

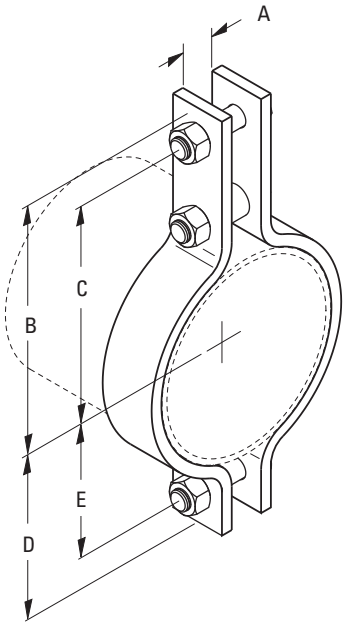
Function: Recommended for the suspension of heavy duty high temperature pipe runs requiring up to 4" (101.6mm) of insulation and where flexibility of the clamp may be necessary. Use with B3200 weldless eye nut, B3210 eye rod or B3211 welded eye rod.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 3 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 3.

Maximum Temperature: 750°F (399°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish.



Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	E in.	E (mm)
B3146-6	6"	(150)	1 3/4"	(44.4)	10 3/16"	(258.8)	8 15/16"	(227.0)	6"	(152.4)	4 3/4"	(120.6)
B3146-8	8"	(200)	2"	(50.8)	11 3/8"	(288.9)	10 1/8"	(257.2)	7 1/4"	(184.1)	6"	(152.4)
B3146-10	10"	(350)	2 1/4"	(57.1)	13 1/8"	(333.4)	11 3/8"	(288.9)	9"	(228.6)	7 1/4"	(184.1)
B3146-12	12"	(300)	2 1/2"	(63.5)	14 5/16"	(363.5)	12 9/16"	(319.1)	10 3/8"	(263.5)	8 5/8"	(219.1)
B3146-14	14"	(450)	2 1/2"	(63.5)	15 1/2"	(393.7)	13 1/2"	(342.9)	11 5/8"	(295.3)	9 5/8"	(244.5)
B3146-16	16"	(400)	3"	(76.2)	17 1/8"	(435.0)	14 7/8"	(377.7)	13 1/8"	(333.4)	10 7/8"	(276.2)
B3146-18	18"	(550)	3 1/2"	(88.9)	18 1/4"	(463.5)	16 1/4"	(412.7)	14 1/2"	(368.3)	12 1/2"	(317.5)
B3146-20	20"	(500)	3 1/2"	(88.9)	19 3/4"	(501.6)	17 1/4"	(438.1)	16"	(406.4)	13 1/2"	(342.9)
B3146-24	24"	(600)	3 1/2"	(88.9)	22 3/8"	(568.3)	19 5/16"	(490.5)	18 1/2"	(469.9)	15 1/2"	(393.7)
B3146-30	30"	(750)	4 1/4"	(107.9)	32 3/4"	(831.8)	28 1/4"	(717.5)	24 3/8"	(619.1)	19 7/8"	(504.8)
B3146-36	36"	(900)	4 1/2"	(107.9)	40 1/4"	(1022.3)	34 3/4"	(882.6)	30 1/8"	(765.2)	22 5/8"	(574.7)

Part No.	Bolt Size in.	Bolt Size (mm)	Maximum Design Load For Service Temperature 650°F (343°C) Lbs.	650°F (343°C) (kN)	750°F (399°C) Lbs.	750°F (399°C) (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3146-6	1"	(25.4)	3500	(15.57)	3125	(13.90)	1200	(544.3)
B3146-8	1 1/8"	(28.6)	4800	(21.35)	4285	(19.06)	1850	(839.1)
B3146-10	1 1/4"	(31.7)	5500	(24.46)	4910	(21.84)	3030	(1374.4)
B3146-12	1 3/8"	(34.9)	7000	(31.13)	6250	(27.80)	4200	(1905.1)
B3146-14	1 1/2"	(38.1)	9500	(42.25)	8485	(37.74)	6000	(2721.6)
B3146-16	1 3/4"	(44.4)	10000	(44.48)	8930	(39.72)	8000	(3628.8)
B3146-18	2"	(50.8)	13800	(61.38)	12325	(54.82)	11500	(5216.4)
B3146-20	2"	(50.8)	15300	(68.05)	13665	(60.78)	14000	(6350.4)
B3146-24	2"	(50.8)	16300	(72.50)	14555	(64.74)	19000	(8618.4)
B3146-30	2 1/4"	(57.1)	20500	(91.18)	--	(--)	40600	(18416.1)
B3146-36	2 3/4"	(69.8)	28000	(124.54)	--	(--)	67800	(30754.1)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 4B - Pipe Clamp for Sway Bracing

Size Range: 3/4" (20mm) to 8" (200mm) pipe

Material: Steel

Function: For bracing pipe against sway and seismic disturbance

Approvals: Included in the Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. Underwriters Laboratories Listed in the USA **(UL)**, Canada **(cUL)** 2" (50mm) - 8" (200mm)

Standard Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

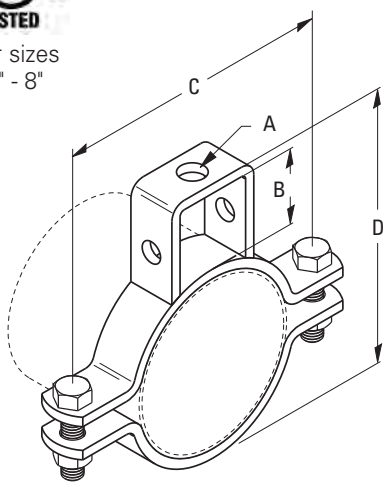
Order By: Part number and finish.

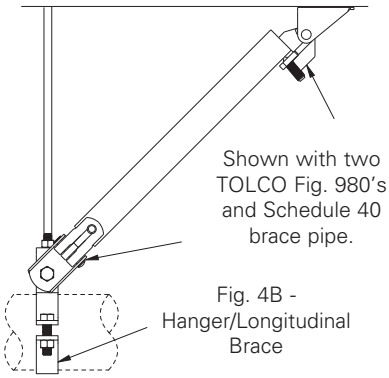
Installation Instructions: Fig. 4B is the "braced pipe" attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and transitional and structural attachment component(s) to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

To Install: Place the Fig. 4B over the pipe to be braced. Attach other transitional fitting, Fig. 909, 910, or 980. Tighten bolts and nuts. Transitional fitting attachment can pivot for adjustment to proper brace angle.

Component of State of California OSHPD Approved Seismic Restraints System

For sizes 2" - 8"





Shown with two TOLCO Fig. 980's and Schedule 40 brace pipe.

Fig. 4B - Hanger/Longitudinal Brace

Part No.	Pipe Size in.	Pipe Size (mm)	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	Bolt Size	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
4B-3/4	3/4"	(20)	3/8"-16	1"	(25.4)	2 7/8"	(73.0)	2 5/8"	(66.7)	5/16"-18	330	(1.47)	56	(3.6)
4B-1	1"	(25)	3/8"-16	1"	(25.4)	3 1/4"	(82.5)	2 15/16"	(74.6)	5/16"-18	330	(1.47)	60	(3.6)
4B-1 1/4	1 1/4"	(32)	3/8"-16	1"	(25.4)	3 9/16"	(90.6)	3 1/4"	(82.5)	5/16"-18	330	(1.47)	74	(4.5)
4B-1 1/2	1 1/2"	(40)	3/8"-16	1"	(25.4)	3 13/16"	(96.8)	3 7/16"	(87.3)	5/16"-18	330	(1.47)	79	(5.0)
4B-2	2"	(50)	3/8"-16	1 1/2"	(38.1)	5 1/8"	(130.2)	4 5/8"	(117.5)	5/16"-18	440	(1.78)	156	(5.0)
4B-2 1/2	2 1/2"	(65)	1/2"-13	1 3/4"	(44.4)	5 5/8"	(142.9)	5 3/8"	(136.5)	3/8"-16	440	(1.78)	176	(5.4)
4B-3	3"	(80)	1/2"-13	1 7/8"	(47.6)	6 3/4"	(171.4)	6 1/8"	(155.5)	3/8"-16	660	(2.93)	198	(6.3)
4B-3 1/2	3 1/2"	(90)	1/2"-13	2"	(50.8)	7 1/4"	(184.1)	6 3/4"	(171.4)	3/8"-16	660	(2.93)	219	(7.2)
4B-4	4"	(100)	5/8"-11	2"	(50.8)	8 5/8"	(219.1)	7 1/4"	(184.1)	1/2"-13	800	(3.56)	288	(8.1)
4B-5	5"	(125)	5/8"-11	2"	(50.8)	9 7/8"	(250.8)	8 5/16"	(211.1)	5/8"-11	980	(4.36)	390	(8.1)
4B-6	6"	(150)	3/4"-10	2 1/8"	(54.0)	10 15/16"	(277.8)	9 1/2"	(241.3)	5/8"-11	980	(4.36)	448	(8.1)
4B-8	8"	(200)	7/8"-9	2 1/8"	(54.0)	13 7/16"	(341.2)	11 1/2"	(292.1)	3/4"-10	1200	(5.34)	691	(8.1)

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3148 - Offset Pipe Clamp

Size Range: 1/2" (15mm) thru 12" (300mm) pipe

Material: Steel

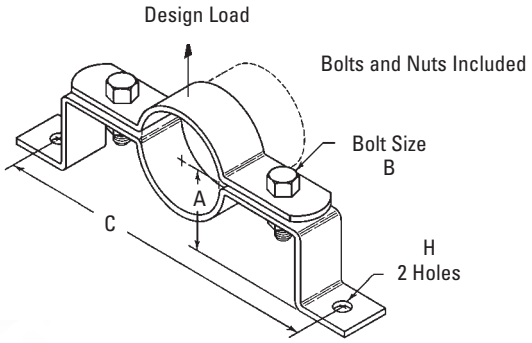
Function: Recommended for support of pipe lines running at a definite distance from the wall or floor of a building or structure.

Maximum Temperature: — 650°F (343°C)

Finish: Plain or Electro-Galvanized.
Contact customer service for alternative finishes and materials.

Note: Special "A" dimensions available on request, consult factory.

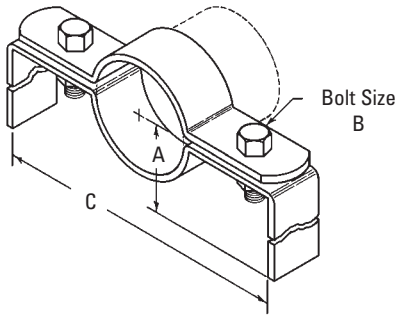
Order By: Part number, pipe size and finish



Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	Bolt Size B	C in.	C (mm)	H in.	H (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3148-1/2	1/2"	(15)	2 7/16"	(61.9)	3/8"-16	5 13/16"	(147.6)	7/16"	(11.1)	190	(.84)	107	(48.5)
B3148-3/4	3/4"	(20)	2 1/2"	(63.5)	3/8"-16	5 15/16"	(150.8)	7/16"	(11.1)	190	(.84)	109	(49.4)
B3148-1	1"	(25)	2 5/8"	(66.7)	3/8"-16	6 1/4"	(158.7)	7/16"	(11.1)	190	(.84)	116	(52.6)
B3148-1 1/4	1 1/4"	(32)	2 3/4"	(69.8)	3/8"-16	6 11/16"	(169.9)	7/16"	(11.1)	190	(.84)	126	(57.1)
B3148-1 1/2	1 1/2"	(40)	3"	(76.2)	3/8"-16	6 15/16"	(176.2)	7/16"	(11.1)	190	(.84)	134	(60.8)
B3148-2	2"	(50)	3 3/16"	(81.0)	3/8"-16	8 5/16"	(211.1)	7/16"	(11.1)	420	(1.87)	191	(86.6)
B3148-2 1/2	2 1/2"	(65)	3 7/16"	(87.3)	3/8"-16	8 7/8"	(225.4)	7/16"	(11.1)	420	(1.87)	209	(94.8)
B3148-3	3"	(80)	3 3/4"	(95.2)	3/8"-16	9 1/2"	(241.3)	7/16"	(11.1)	420	(1.87)	232	(105.3)
B3148-3 1/2	3 1/2"	(90)	4"	(101.6)	3/8"-16	10 1/16"	(255.6)	7/16"	(11.1)	420	(1.87)	250	(113.4)
B3148-4	4"	(100)	4 1/4"	(107.9)	1/2"-13	10 9/16"	(268.3)	9/16"	(14.3)	610	(2.71)	370	(167.8)
B3148-6	6"	(150)	5 5/16"	(134.9)	1/2"-13	14 3/8"	(365.1)	9/16"	(14.3)	870	(3.87)	650	(294.8)
B3148-8	8"	(200)	6 5/16"	(160.3)	1/2"-13	16 7/16"	(417.5)	9/16"	(14.3)	870	(3.87)	787	(357.0)
B3148-10	10"	(250)	7 3/8"	(187.3)	3/4"-10	21 1/2"	(546.1)	13/16"	(20.6)	925	(4.11)	1238	(561.5)
B3148-12	12"	(300)	8 3/8"	(212.7)	3/4"-10	24 7/8"	(631.8)	13/16"	(20.6)	1225	(5.45)	2100	(952.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3149 - Extended Pipe Clamp



Size Range: 3/4" (20mm) thru 8" (200mm) pipe

Material: Steel

Function: For suspending or supporting piping runs where the pipe cannot be determined until installation. Field modify to suit conditions.

Maximum Temperature: 650°F (343°C)

Finish: Plain or Electro-Galvanized.
Contact customer service for alternative finishes and materials.

Note: Special "A" dimensions available on request, consult factory.

Order By: Part number, pipe size and finish

Part No.	Pipe Size in.	(mm)	A in.	(mm)	Bolt Size B	C in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3149-3/4	3/4"	(20)	12"	(304.8)	3/8"-16"	4 7/16"	(112.7)	225	(102.0)
B3149-1	1"	(25)	12"	(304.8)	3/8"-16"	4 11/16"	(119.1)	230	(104.3)
B3149-1 1/4	1 1/4"	(32)	12"	(304.8)	3/8"-16"	5"	(127.0)	235	(106.6)
B3149-1 1/2	1 1/2"	(40)	12"	(304.8)	3/8"-16"	5 1/4"	(133.3)	240	(108.8)
B3149-2	2"	(50)	12"	(304.8)	1/2"-13"	6"	(152.4)	345	(156.5)
B3149-2 1/2	2 1/2"	(65)	12"	(304.8)	1/2"-13"	7 1/4"	(184.1)	360	(163.3)
B3149-3	3"	(75)	12"	(304.8)	1/2"-13"	7 7/8"	(200.0)	375	(170.1)
B3149-3 1/2	3 1/2"	(90)	12"	(304.8)	1/2"-13"	8 3/8"	(212.7)	390	(176.9)
B3149-4	4"	(100)	12"	(304.8)	1/2"-13"	9 1/4"	(234.9)	500	(226.8)
B3149-5	5"	(125)	12"	(304.8)	1/2"-13"	10 1/2"	(266.7)	545	(247.2)
B3149-6	6"	(150)	12"	(304.8)	5/8"-11"	12 1/2"	(317.5)	870	(394.6)
B3149-8	8"	(200)	12"	(304.8)	5/8"-11"	14 5/8"	(371.5)	980	(444.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3180FL - Flush mount pipe strap

Size Range: 1/2" (15mm) thru 8" (200mm) pipe

Material: Steel

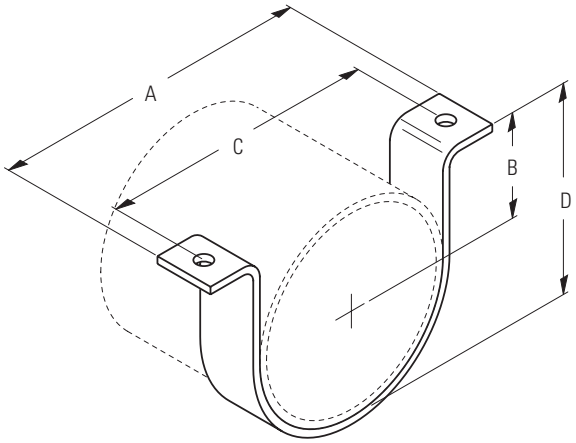
Function: Recommended for supporting pipe with fittings vertically or horizontally to walls or ceiling. Supports pipe flush with the mounting surface.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 26 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 26.

Finish: Plain

Note: Available in Electro-Galvanized and HDG finish or Stainless Steel materials.

Order By: Part number, pipe size and material/finish



Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)	Hole Size in.	(mm)	Max. Rec. Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3180FL-1/2	1/2"	(15)	4 1/8"	(104.8)	5/16"	(7.9)	2 7/8"	(73.0)	3/4"	(19.0)	7/16	(11.1)	410	(1.82)	21	(9.5)
B3180FL-3/4	3/4"	(20)	4 5/16"	(109.5)	7/16"	(11.1)	3 1/16"	(76.2)	15/16"	(23.8)	7/16"	(11.1)	410	(1.82)	24	(10.9)
B3180FL-1	1"	(25)	4 11/16"	(115.9)	9/16"	(14.3)	3 3/8"	(85.7)	1 1/8"	(28.6)	7/16"	(11.1)	410	(1.82)	26	(11.8)
B3180FL-1 1/4	1 1/4"	(32)	4 15/16"	(125.4)	11/16"	(17.5)	3 11/16"	(95.2)	1 1/2"	(38.1)	7/16"	(11.1)	410	(1.82)	30	(13.6)
B3180FL-1 1/2	1 1/2"	(40)	5 9/16"	(131.8)	13/16"	(20.6)	4 1/4"	(107.9)	1 5/8"	(41.3)	7/16"	(11.1)	410	(1.82)	33	(14.9)
B3180FL-2	2"	(50)	5 3/4"	(146.0)	1 1/16"	(27.0)	4 1/2"	(120.6)	2 1/4"	(57.1)	7/16"	(11.1)	410	(1.82)	38	(17.2)
B3180FL-2 1/2	2 1/2"	(65)	6 1/4"	(158.7)	1 9/16"	(39.7)	5"	(133.3)	2 3/4"	(69.8)	7/16"	(11.1)	610	(2.71)	102	(46.2)
B3180FL-3	3"	(75)	7 1/8"	(174.6)	1 5/8"	(41.3)	5 7/8"	(149.2)	3 3/8"	(85.7)	7/16"	(11.1)	610	(2.71)	118	(53.5)
B3180FL-3 1/2	3 1/2"	(90)	7 3/8"	(187.3)	1 7/8"	(47.6)	6 1/8"	(161.9)	3 7/8"	(98.3)	7/16"	(11.1)	610	(2.71)	130	(58.9)
B3180FL-4	4"	(100)	8 3/8"	(212.7)	2 1/8"	(53.9)	7 1/8"	(177.8)	4 3/8"	(111.1)	9/16"	(14.3)	725	(3.22)	159	(72.1)
B3180FL-5	5"	(125)	9 7/16"	(239.7)	2 5/8"	(66.7)	8 3/16"	(200.0)	5 3/8"	(136.5)	9/16"	(14.3)	725	(3.22)	191	(86.6)
B3180FL-6	6"	(150)	10 1/2"	(266.7)	3 3/16"	(80.9)	9 1/4"	(225.4)	6 7/16"	(163.5)	9/16"	(14.3)	725	(3.22)	234	(106.1)
B3180FL-8	8"	(200)	14"	(355.6)	4 1/4"	(107.9)	11 1/2"	(292.1)	8 3/8"	(212.7)	11/16"	(17.5)	900	(4.00)	446	(202.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3180 - Standard pipe strap

Size Range: 1/2" (15mm) thru 8" (200mm) pipe

Material: Steel

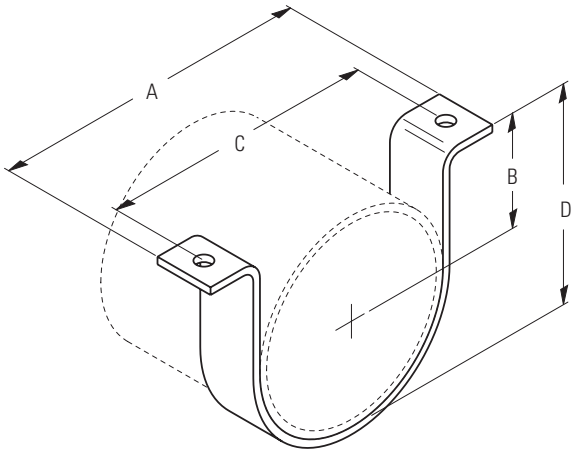
Function: Recommended for supporting pipe with fittings vertically or horizontally to walls or ceiling.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 26 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 26.

Finish: Plain

Note: Available in Electro-Galvanized and HDG finish or Stainless Steel materials.

Order By: Part number, pipe size and material/finish



Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)	Hole Size in.	(mm)	Max. Rec. Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3180-1/2	1/2"	(15)	3 7/8"	(98.4)	3/4"	(19.0)	2 5/8"	(77.8)	15/32"	(11.9)	7/16	(11.1)	410	(1.82)	16	(7.2)
B3180-3/4	3/4"	(20)	4 3/8"	(101.6)	13/16"	(20.6)	3 1/8"	(79.4)	1 5/16"	(33.3)	7/16"	(11.1)	410	(1.82)	21	(9.5)
B3180-1	1"	(25)	4 9/16"	(115.9)	7/8"	(22.2)	3 5/16"	(85.7)	1 1/2"	(38.1)	7/16"	(11.1)	410	(1.82)	26	(11.8)
B3180-1 1/4	1 1/4"	(32)	5"	(125.4)	1"	(25.4)	3 3/4"	(95.2)	1 7/8"	(47.6)	7/16"	(11.1)	410	(1.82)	30	(13.6)
B3180-1 1/2	1 1/2"	(40)	5 9/16"	(131.8)	1 3/16"	(30.2)	4 1/4"	(107.9)	2 1/8"	(54.6)	7/16"	(11.1)	410	(1.82)	33	(14.9)
B3180-2	2"	(50)	5 3/4"	(146.0)	1 7/16"	(36.5)	4 1/2"	(120.6)	2 5/8"	(66.7)	7/16"	(11.1)	410	(1.82)	38	(17.2)
B3180-2 1/2	2 1/2"	(65)	6 1/2"	(158.7)	1 11/16"	(42.9)	5 1/4"	(133.3)	3 1/8"	(79.4)	7/16"	(11.1)	610	(2.71)	102	(46.2)
B3180-3	3"	(75)	7 1/4"	(174.6)	2"	(50.8)	5 7/8"	(149.2)	3 3/4"	(95.2)	7/16"	(11.1)	610	(2.71)	118	(53.5)
B3180-3 1/2	3 1/2"	(90)	7 3/8"	(187.3)	2 1/4"	(57.1)	6 1/8"	(161.9)	4 1/4"	(107.9)	7/16"	(11.1)	610	(2.71)	130	(58.9)
B3180-4	4"	(100)	8 3/8"	(212.7)	2 1/2"	(63.5)	7 1/8"	(177.8)	4 3/4"	(120.6)	9/16"	(14.3)	725	(3.22)	159	(72.1)
B3180-5	5"	(125)	9 7/16"	(239.7)	3 1/16"	(77.8)	8 3/16"	(200.0)	5 13/16"	(147.6)	9/16"	(14.3)	725	(3.22)	191	(86.6)
B3180-6	6"	(150)	10 1/2"	(266.7)	3 5/8"	(92.1)	9 1/4"	(225.4)	6 7/8"	(174.6)	9/16"	(14.3)	725	(3.22)	234	(106.1)
B3180-8	8"	(200)	14"	(355.6)	4 5/8"	(117.5)	11 1/2"	(292.1)	9"	(228.6)	11/16"	(17.5)	900	(4.00)	446	(202.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B2400 - Standard pipe strap

Size Range: 1/2" (15mm) thru 24" (600mm) pipe

Material: Steel

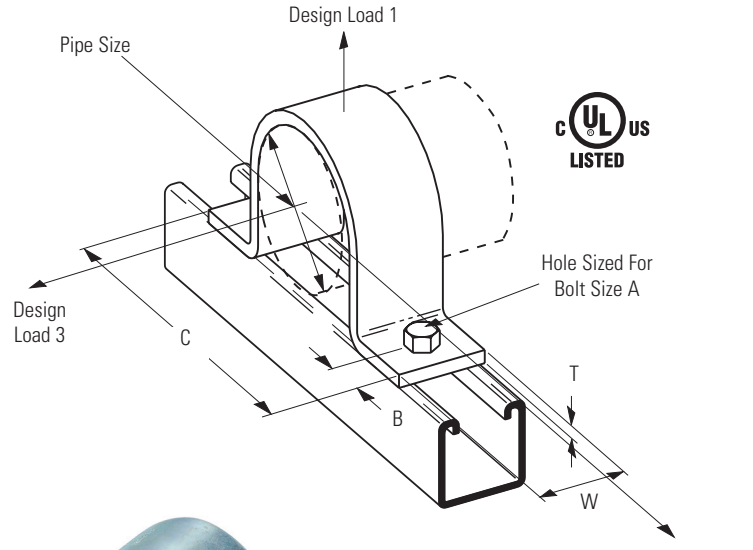
Function: Designed for supporting pipe runs from strut supports.

Approvals: Underwriters Laboratories Listed for B2400-3/4" thru B2400-8" for Design Load 1 only. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 26 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 26.

Finish: Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish

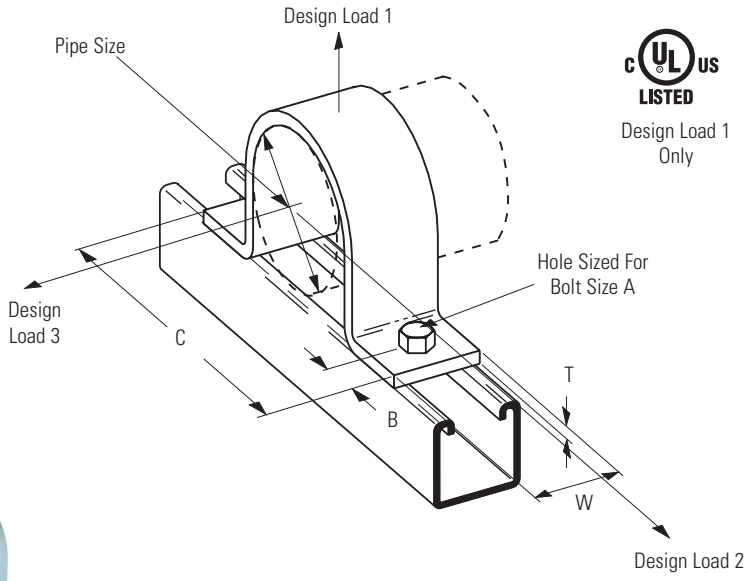
Note: Ductile iron sizes available.
Special "B" dimensions available on request, consult factory.



Part No.	Pipe Size in.	(mm)	Bolt Size A	B in.	(mm)	C in.	(mm)	T in.	(mm)	W in.	(mm)
B2400-1/2	1/2"	(15)	1/4"	7/16"	(11.1)	2 13/16"	(71.4)	10 Ga.	(3.4)	1 5/8"	(41.3)
B2400-3/4	3/4"	(20)	1/4"	7/16"	(11.1)	3"	(76.2)	10 Ga.	(3.4)	1 5/8"	(41.3)
B2400-1	1"	(25)	1/4"	7/16"	(11.1)	3 17/32"	(89.7)	10 Ga.	(3.4)	1 5/8"	(41.3)
B2400-1 1/4	1 1/4"	(32)	1/4"	7/16"	(11.1)	3 3/4"	(95.2)	10 Ga.	(3.4)	1 5/8"	(41.3)
B2400-1 1/2	1 1/2"	(40)	1/4"	7/16"	(11.1)	4 1/16"	(103.2)	10 Ga.	(3.4)	1 5/8"	(41.3)
B2400-2	2"	(50)	3/8"	11/16"	(17.4)	5 21/32"	(143.6)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-2 1/2	2 1/2"	(65)	3/8"	11/16"	(17.4)	6 5/32"	(156.3)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-3	3"	(80)	3/8"	11/16"	(17.4)	6 25/32"	(172.2)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-3 1/2	3 1/2"	(90)	3/8"	11/16"	(17.4)	7 9/32"	(184.9)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-4	4"	(100)	1/2"	11/16"	(17.4)	7 25/32"	(197.6)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-5	5"	(125)	1/2"	11/16"	(17.4)	8 7/8"	(225.4)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-6	6"	(150)	1/2"	11/16"	(17.4)	9 15/16"	(252.4)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-8	8"	(200)	1/2"	11/16"	(17.4)	11 31/32"	(304.0)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-10	10"	(250)	1/2"	11/16"	(17.4)	14"	(355.6)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-12	12"	(300)	1/2"	11/16"	(17.4)	16"	(406.4)	1/4"	(6.3)	1 5/8"	(41.3)
B2400-14	14"	(350)	7/8"	1 5/16"	(33.3)	20 3/8"	(517.5)	3/8"	(9.5)	1 3/4"	(44.4)
B2400-16	16"	(400)	7/8"	1 5/16"	(33.3)	22 3/8"	(568.3)	3/8"	(9.5)	1 3/4"	(44.4)
B2400-18	18"	(450)	7/8"	1 5/16"	(33.3)	26 1/8"	(663.6)	1/2"	(12.7)	1 3/4"	(44.4)
B2400-20	20"	(500)	7/8"	1 5/16"	(33.3)	28 1/8"	(714.4)	1/2"	(12.7)	1 3/4"	(44.4)
B2400-24	24"	(600)	7/8"	1 5/16"	(33.3)	32 1/8"	(816.0)	1/2"	(12.7)	1 3/4"	(44.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

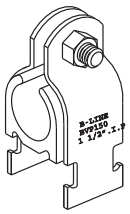
w - Standard Pipe Strap cont.

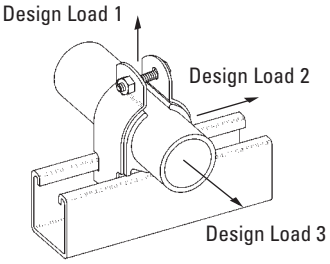


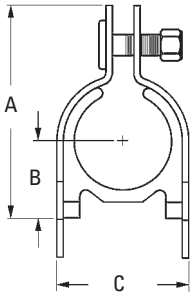
Part No.	Design Load 1 Lbs.	(kN)	Design Load 2 Lbs.	(kN)	Design Load 3 Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B2400-1/2	600	(2.67)	150	(.67)	105	(.47)	23	(10.4)
B2400-3/4	600	(2.67)	150	(.67)	105	(.47)	26	(11.8)
B2400-1	600	(2.67)	150	(.67)	120	(.53)	31	(14.0)
B2400-1 1/4	600	(2.67)	150	(.67)	120	(.53)	36	(16.3)
B2400-1 1/2	600	(2.67)	150	(.67)	120	(.53)	39	(17.7)
B2400-2	1200	(5.34)	480	(2.14)	180	(.80)	93	(42.2)
B2400-2 1/2	1200	(5.34)	480	(2.14)	180	(.80)	106	(48.1)
B2400-3	1200	(5.34)	480	(2.14)	300	(1.33)	132	(59.9)
B2400-3 1/2	1200	(5.34)	480	(2.14)	300	(1.33)	151	(68.5)
B2400-4	1500	(6.67)	600	(2.67)	450	(2.00)	160	(72.6)
B2400-5	1500	(6.67)	600	(2.67)	450	(2.00)	192	(87.1)
B2400-6	1500	(6.67)	600	(2.67)	450	(2.00)	219	(99.3)
B2400-8	2000	(8.90)	800	(3.56)	600	(2.67)	297	(134.7)
B2400-10	2000	(8.90)	800	(3.56)	600	(2.67)	465	(210.9)
B2400-12	2000	(8.90)	800	(3.56)	600	(2.67)	560	(254.0)
B2400-14	2000	(8.90)	800	(3.56)	600	(2.67)	761	(345.2)
B2400-16	2000	(8.90)	800	(3.56)	600	(2.67)	861	(390.5)
B2400-18	2000	(8.90)	800	(3.56)	600	(2.67)	1297	(588.3)
B2400-20	2000	(8.90)	800	(3.56)	600	(2.67)	1426	(646.8)
B2400-24	2000	(8.90)	800	(3.56)	600	(2.67)	1682	(762.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

BVT Series - Vibra-Clamp™







- Easy one tool installation.
- Temperature Range: -40°F (-40°C) to +300°F (148.9°C)
- Dampens vibration and noise.
- Eliminates galvanic corrosion due to metal to metal contact.
- Resists most industrial oils and solvents.
- Secures tubing firmly to strut channel.

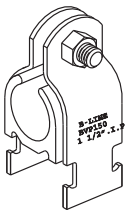
Part No.	O.D. Size in.	(mm)	Pipe Size in.	(mm)	Dimensions A in.	(mm)	B in.	(mm)	C in.	(mm)	Wt. Each Lbs.	(kg)
BVT025	1/4"	(6.3)	1/8"	(3)	1.22"	(30.9)	0.19"	(4.8)	0.49"	(12.4)	.11	(.05)
BVT037	3/8"	(9.5)	1/4"	(6)	1.36"	(34.5)	0.25"	(6.3)	0.61"	(15.5)	.12	(.05)
BVT050	1/2"	(12.7)	3/8"	(10)	1.49"	(37.8)	0.31"	(7.8)	0.74"	(18.8)	.14	(.06)
BVT062	5/8"	(15.9)	1/2"	(15)	1.62"	(41.1)	0.38"	(9.6)	0.86"	(21.8)	.15	(.07)
BVT075	3/4"	(19.0)	5/8"	(17)	1.87"	(47.4)	0.50"	(12.7)	1.15"	(29.2)	.19	(.08)
BVT087	7/8"	(22.2)	3/4"	(20)	2.00"	(50.8)	0.56"	(14.2)	1.27"	(32.2)	.21	(.09)
BVT112	1 1/8"	(28.6)	1"	(25)	2.25"	(57.1)	0.69"	(17.5)	1.52"	(38.6)	.26	(.12)
BVT137	1 3/8"	(34.9)	1 1/4"	(32)	2.51"	(63.7)	0.81"	(20.6)	1.78"	(45.2)	.38	(.17)
BVT162	1 5/8"	(41.3)	1 1/2"	(40)	3.00"	(76.2)	1.00"	(25.4)	2.20"	(55.9)	.40	(.18)
BVT212	2 1/8"	(54.0)	2"	(50)	3.52"	(89.4)	1.25"	(31.7)	2.70"	(68.6)	.55	(.25)
BVT262	2 5/8"	(66.6)	2 1/2"	(65)	4.02"	(102.1)	1.50"	(38.1)	3.20"	(81.3)	.55	(.25)
BVT312	3 1/8"	(79.4)	3"	(80)	4.53"	(115.0)	1.75"	(44.4)	3.70"	(93.9)	.64	(.29)
BVT362	3 5/8"	(92.1)	3 1/2"	(90)	5.05"	(128.2)	2.00"	(50.8)	4.23"	(107.4)	.76	(.34)
BVT412	4 1/8"	(104.8)	4"	(100)	5.55"	(140.9)	2.25"	(57.1)	4.73"	(120.1)	.93	(.42)
BVT612	6 1/8"	(155.5)	6"	(150)	7.62"	(193.5)	3.25"	(82.5)	6.74"	(171.1)	1.36	(.61)

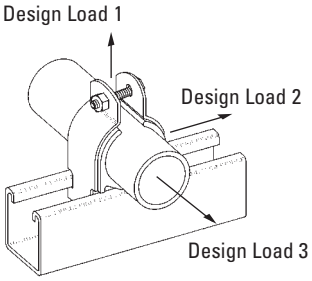
Part No.	Design Load 1 Lbs.	(kN)	Design Load 2 Lbs.	(kN)	Design Load 3 Lbs.	(kN)
BVT025	400	(1.78)	50	(0.22)	50	(0.22)
BVT037	400	(1.78)	50	(0.22)	50	(0.22)
BVT050	400	(1.78)	50	(0.22)	50	(0.22)
BVT062	400	(1.78)	50	(0.22)	50	(0.22)
BVT075	600	(2.67)	75	(0.33)	75	(0.33)
BVT087	600	(2.67)	75	(0.33)	75	(0.33)
BVT112	600	(2.67)	75	(0.33)	75	(0.33)
BVT137	600	(2.67)	75	(0.33)	75	(0.33)
BVT162	800	(3.56)	125	(0.55)	125	(0.55)
BVT212	800	(3.56)	125	(0.55)	125	(0.55)
BVT262	800	(3.56)	125	(0.55)	125	(0.55)
BVT312	800	(3.56)	125	(0.55)	125	(0.55)
BVT362	1000	(4.45)	200	(0.89)	150	(0.67)
BVT412	1000	(4.45)	200	(0.89)	150	(0.67)
BVT612	1000	(4.45)	200	(0.89)	150	(0.67)

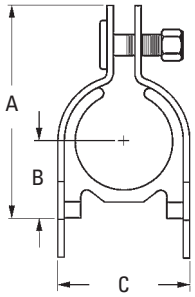
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

BVP Series - Vibra-Clamp™

- Easy one tool installation.
- Temperature Range: -40°F (-40°C) to +300°F (148.9°C)
- Dampens vibration and noise.
- Eliminates galvanic corrosion due to metal to metal contact.
- Resists most industrial oils and solvents.
- Secures pipe firmly to strut channel.







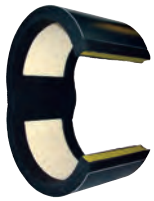
Part No.	O.D. Size in.	(mm)	Pipe Size in.	(mm)	Dimensions A in.	(mm)	B in.	(mm)	C in.	(mm)	Wt. Each Lbs.	(kg)
BVP025	0.540"	(13.7)	1/4"	(6)	1.61"	(39.9)	0.37"	(9.4)	0.87"	(22.1)	.15	(.07)
BVP037	0.675"	(17.1)	3/8"	(10)	1.86"	(47.2)	0.50"	(12.7)	1.15"	(29.2)	.18	(.08)
BVP050	0.875"	(22.2)	1/2"	(15)	1.99"	(50.5)	0.56"	(14.2)	1.27"	(32.3)	.20	(.09)
BVP075	1.050"	(26.7)	3/4"	(20)	2.25"	(57.1)	0.69"	(17.5)	1.52"	(38.6)	.21	(.09)
BVP100	1.312"	(33.3)	1"	(25)	2.51"	(63.8)	0.81"	(20.6)	1.77"	(45.0)	.20	(.09)
BVP125	1.660"	(42.2)	1 1/4"	(32)	3.00"	(76.2)	1.00"	(25.4)	2.21"	(56.1)	.36	(.16)
BVP150	1.900"	(48.3)	1 1/2"	(40)	3.21"	(81.5)	1.12"	(28.4)	2.41"	(61.2)	.40	(.18)
BVP200	2.375"	(60.3)	2"	(50)	3.77"	(95.8)	1.37"	(34.8)	2.96"	(75.2)	.45	(.20)
BVP250	2.875"	(73.0)	2 1/2"	(65)	4.28"	(108.7)	1.62"	(41.1)	3.46"	(87.9)	.54	(.24)
BVP300	3.500"	(88.9)	3"	(80)	5.05"	(128.3)	2.00"	(50.8)	4.24"	(107.7)	.81	(.37)
BVP350	4.000"	(101.6)	3 1/2"	(90)	5.55"	(140.9)	2.25"	(57.1)	4.74"	(120.3)	.87	(.39)
BVP400	4.500"	(114.3)	4"	(100)	6.05"	(153.7)	2.50"	(63.5)	5.24"	(133.1)	1.09	(.49)
BVP500	5.563"	(141.3)	5"	(125)	6.84"	(173.7)	3.00"	(76.2)	6.24"	(158.4)	1.36	(.61)
BVP600	6.625"	(168.3)	6"	(150)	8.24"	(209.3)	3.56"	(90.4)	7.36"	(186.9)	1.63	(.74)

Part No.	Design Load 1 Lbs.	(kN)	Design Load 2 Lbs.	(kN)	Design Load 3 Lbs.	(kN)
BVP025	400	(1.78)	50	(0.22)	50	(0.22)
BVP037	600	(2.67)	75	(0.33)	75	(0.33)
BVP050	600	(2.67)	75	(0.33)	75	(0.33)
BVP075	600	(2.67)	75	(0.33)	75	(0.33)
BVP100	600	(2.67)	75	(0.33)	75	(0.33)
BVP125	800	(3.56)	125	(0.55)	125	(0.55)
BVP150	800	(3.56)	125	(0.55)	125	(0.55)
BVP200	800	(3.56)	125	(0.55)	125	(0.55)
BVP250	800	(3.56)	125	(0.55)	125	(0.55)
BVP300	1000	(4.45)	200	(0.89)	150	(0.67)
BVP350	1000	(4.45)	200	(0.89)	150	(0.67)
BVP400	1000	(4.45)	200	(0.89)	150	(0.67)
BVP500	1000	(4.45)	200	(0.89)	150	(0.67)
BVP600	1000	(4.45)	200	(0.89)	150	(0.67)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Armafix®† IPH Series
Inserts Only - Inserts with Clamps

- Engineered load-bearing inserts prevents insulation compression
- Innovative insulated pipe support
- Desirable "Foam-to-Foam" Bond
- Slip Data: 45 lbs. (0.20 kN) max
- Recommended Clamp Torque: 12-15 in-lbs. (1.3-1.7 Nm)
- Service Temperature Range
  -58°F (-50°C) to +220°F (+105°C)



Insert Only

Assembly
Insert & Clamp

1/2" Wall Insulation Thickness

Assembly Part No.	Insert Only Part No.	Pipe/Copper/OD Size	Hanger Size*
IPH03812	IPH03812WO	3/8" O.D.	1 1/4"
IPH01212	IPH01212WO	1/2" O.D.	1 1/4"
IPH05812	IPH05812WO	5/8" O.D.	1 1/2"
IPH07812	IPH07812WO	3/4" O.D. & 7/8" O.D.	2"
IPH11812	IPH11812WO	3/4" IPS & 1 1/8" O.D.	2"
IPH13812	IPH13812WO	1 3/8" O.D.	2 1/2"
IPH15812	IPH15812WO	1 5/8" O.D.	2 1/2"
IPH11012	IPH11012WO	1 1/2" IPS & 1 7/8" O.D.	3"
IPH21812	IPH21812WO	2 1/8" O.D.	3"
IPH25812	IPH25812WO	2 5/8" O.D.	3 1/2"
IPH31812	IPH31812WO	3 1/8" O.D.	4"
IPH35812	IPH35812WO	3 5/8" O.D.	5"
IPH41812	IPH41812WO	4 1/8" O.D.	6"
IPH40012	IPH40012WO	4" IPS	6"
IPH50012	IPH50012WO	5" IPS	8"
IPH60012	IPH60012WO	6" IPS	8"

* Recommended pipe hanger size for insulation thickness shown. (Order hanger separately)

3/4" Wall Insulation Thickness

Assembly Part No.	Insert Only Part No.	Pipe/Copper/OD Size	Hanger Size*
IPH03834	IPH03834WO	3/8" O.D.	2"
IPH01234	IPH01234WO	1/2" O.D.	2"
IPH05834	IPH05834WO	5/8" O.D.	2"
IPH07834	IPH07834WO	3/4" O.D. & 7/8" O.D.	2 1/2"
IPH11834	IPH11834WO	3/4" IPS & 1 1/8" O.D.	2 1/2"
IPH13834	IPH13834WO	1 3/8" O.D.	3"
IPH15834	IPH15834WO	1 5/8" O.D.	3 1/2"
IPH11034	IPH11034WO	1 1/2" IPS & 1 7/8" O.D.	3 1/2"
IPH21834	IPH21834WO	2 1/8" O.D.	4"
IPH25834	IPH25834WO	2 5/8" O.D.	5"
IPH31834	IPH31834WO	3 1/8" O.D.	5"
IPH35834	IPH35834WO	3 5/8" O.D.	6"
IPH41834	IPH41834WO	4 1/8" O.D.	6"
IPH40034	IPH40034WO	4" IPS	6"
IPH50034	IPH50034WO	5" IPS	8"
IPH60034	IPH60034WO	6" IPS	10"
IPH80034	IPH80034WO	8" IPS	12"

* Recommended pipe hanger size for insulation thickness shown. (Order hanger separately)

1" Wall Insulation Thickness

Assembly Part No.	Insert Only Part No.	Pipe/Copper/OD Size	Hanger Size*
IPH05810	IPH05810WO	5/8" O.D.	2 1/2"
IPH07810	IPH07810WO	3/4" O.D. & 7/8" O.D.	3"
IPH11810	IPH11810WO	3/4" IPS & 1 1/8" O.D.	3"
IPH13810	IPH13810WO	1 3/8" O.D.	3 1/2"
IPH15810	IPH15810WO	1 5/8" O.D.	3 1/2"
IPH11010	IPH11010WO	1 1/2" IPS & 1 7/8" O.D.	4"
IPH21810	IPH21810WO	2 1/8" O.D.	4"
IPH25810	IPH25810WO	2 5/8" O.D.	5"
IPH31810	IPH31810WO	3 1/8" O.D.	5"
IPH35810	IPH35810WO	3 5/8" O.D.	6"
IPH41810	IPH41810WO	4 1/8" O.D.	6"
IPH40010	IPH40010WO	4" IPS	8"
IPH50010	IPH50010WO	5" IPS	8"
IPH60010	IPH60010WO	6" IPS	10"
IPH80010	IPH80010WO	8" IPS	12"

* Recommended pipe hanger size for insulation thickness shown. (Order hanger separately)

IPH18230
ARMAFLEX®† Insulation Tape

- 30 ft. (9.14 M) roll

†Armafix® and Armaflex® is a registered trademark of Armacell.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

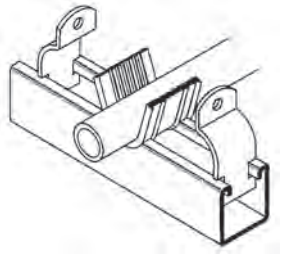
B1999 - Vibra-Cushion™

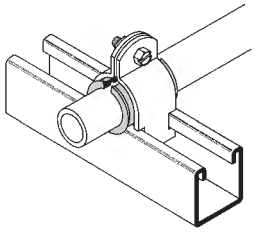
- Ideal Isolation Material
- Inhibits Galvanic Corrosion
- Dampens Sound and Vibration
- Service Temperature Range
  -75° F (-60°C) to +375°F (+190°C)
- Packaged - 20 Ft. (6.09m) per carton

Vibra Cushion is designed for use with refrigeration lines, HVAC, copper tubing, glass pipe and hydraulic lines. It provides an energy-absorption barrier between the lines and the mounting material and remains flexible thru its entire service range of -75°F (-60°C) to +375°F (+190°C).

This elastomer allows for expansion and contraction within the mounting system and prevents galvanic reaction between dissimilar metals.

Note: See Strut Catalog for sizing information.



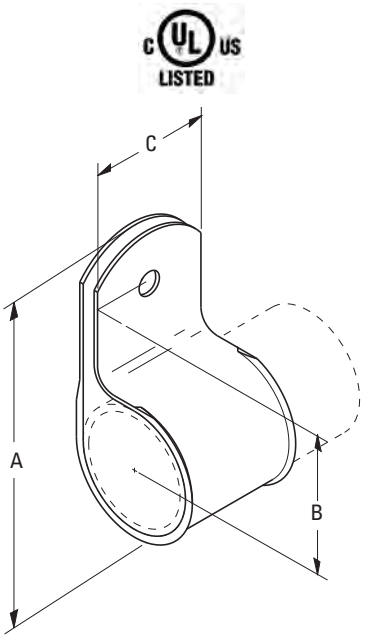


ISO - ISO-PIPE™

- Non-adhesive rubber tape
- Fuses to itself
- Water resistant
- Prevents galvanic reaction caused by dissimilar metal contact
- Service Temperature Range
  -140° F (-95°C) to +395°F (+200°C)
- 1" (25.4mm) wide x 0.02" (0.5mm) thick
- Packaged - 36 Ft. (10.97m) per carton

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 22 - Hanger for CPVC Plastic Pipe Single Fastener Strap



Size Range: 3/4" (20mm) thru 2" (50mm) CPVC pipe

Material: Pre-Galvanized Steel

Function: Intended to perform as a hanger to support CPVC piping used in automatic fire sprinkler systems. The product acts as a hanger when tab is upward and the fastener screw is in the horizontal position. Fig. 22 can be installed on the top of a beam, but in this situation acts as a guide to the piping which is supported by the beam itself. It is not intended to support CPVC pipe from under a flat horizontal surface, such as a ceiling.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** to support fire sprinkler piping. May be installed in wood using fasteners supplied with product, or into minimum 20 gauge (0.9mm) steel using (1) 1/4" x 1" tek type screw. Meets and exceeds the requirements of NFPA 13, 13R and 13D.

Features: Fig. 22 incorporates features which protect the pipe and ease installation. The flared edge design protects CPVC pipe from any rough surface. It is easily attached to the building structure using the special UL Listed hex head self threading screw* furnished with the product. It is recommended that rechargeable electric drills fitted with a hex socket attachment to be used as installation tools. No impact tools (such as a hammer) are allowed. Damage has been known to result from installations using impact type tools. No pre-drilling of a pilot hole in wood is required.

Finish: Pre-Galvanized

Order By: Part number and CPVC pipe size.

* Hardened hex head self threading screw is furnished with the product and is the minimum fastener size acceptable.

Part No.	CPVC Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	Max. Hanger Spacing Ft.	(m)	Fastener Hex Head Size in.	(mm)	Approx. Wt./100 Lbs.	(kg)
22-3/4	3/4"	(20)	2 7/16"	(61.9)	1 5/16"	(33.3)	1 3/16"	(30.2)	5 1/2	(1.67)	5/16"	(7.9)	9	(4.1)
22-1	1"	(25)	2 11/16"	(68.3)	1 7/16"	(36.5)	1 3/16"	(30.2)	6	(1,83)	5/16"	(7.9)	9	(4.1)
22-1 1/4	1 1/4"	(32)	3 1/16"	(77.8)	1 5/8"	(42.3)	1 3/16"	(30.2)	6 1/2	(1.98)	5/16"	(7.9)	11	(5.0)
22-1 1/2	1 1/2"	(40)	3 5/16"	(84.1)	1 3/4"	(44.4)	1 3/16"	(30.2)	7	(2.13)	5/16"	(7.9)	12	(5.4)
22-2	2"	(50)	3 3/4"	(95.2)	2 1/8"	(54.6)	1 3/16"	(30.2)	8	(2.44)	5/16"	(7.9)	15	(6.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 22L2 - One Hole Hanger/Restrainer for CPVC & Steel Pipe

Size Range: 3/4" (20mm) thru 2" (50mm) CPVC & steel pipe

Material: Pre-Galvanized Steel

Function: cULus Listed to perform as a hanger and restrainer for CPVC or IPS piping systems. The innovative design also allows for a preferred installation location close to a CPVC fitting without applying damaging compression forces on the pipe which could result in serious Mechanical ESC (Environmental Stress Cracking).

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** to support fire sprinkler piping. May be installed in wood using fasteners supplied with product, or into minimum 20 gauge (0.9mm) steel using (1) 1/4" x 1" tek type screw. Meets and exceeds the requirements of NFPA 13, 13R and 13D.

Installation Note: Comes in open position for easier installation. Because of multi – structural installation possibilities, specific fastener not included; see notes below for various applications.

For Concrete Installation — UL requires a minimum test load of 340 lbs. (1.5kN) for CPVC hangers and 750 lbs. (3.3kN) for steel pipe hangers; verify anchors meet or exceed these requirements.

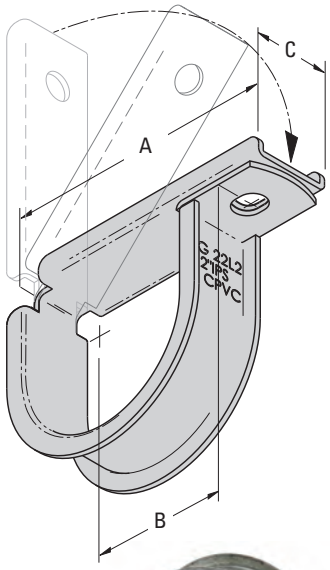
For Wood Installation — Test results have shown that #14 x 1 1/2" wood screws will support the required load for c UL us.

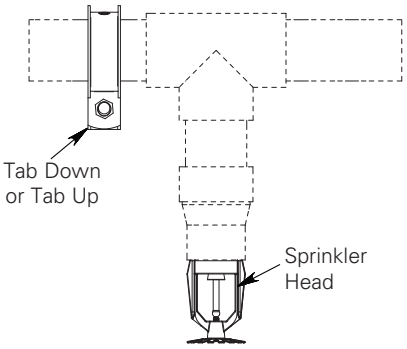
For Steel Installation — Test results have shown that 1/4" x 1" (min. 20ga steel) Tek type screw will support required UL load.

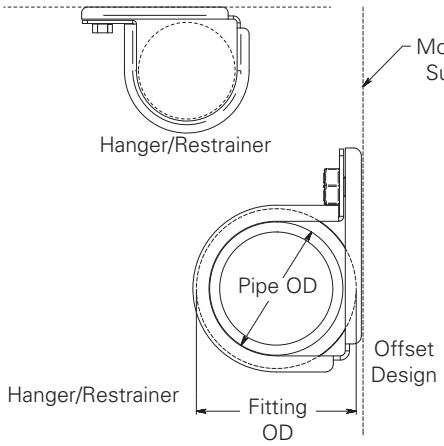
Finish: Pre-Galvanized

Order By: Part number

Patent Pending







Part No.	CPVC or Steel Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	Max. Hanger Spacing - CPVC Ft.	(m)	Max. Hanger Spacing - Steel in.	(mm)	Approx. Wt./100 Lbs.	(kg)
22L2-3/4	3/4"	(20)	2 3/16"	(55.6)	15/16"	(23.8)	3/4"	(19.0)	5 1/2	(1.67)	NA	(NA)	9	(4.1)
22L2-1	1"	(25)	2 1/2"	(63.5)	1 1/8"	(28.6)	3/4"	(19.0)	6	(1,83)	12	(3.66)	9	(4.1)
22L2-1 1/4	1 1/4"	(32)	2 13/16"	(71.4)	1 1/4"	(31.7)	3/4"	(19.0)	6 1/2	(1.98)	12	(3.66)	11	(5.0)
22L2-1 1/2	1 1/2"	(40)	3 1/8"	(79.4)	1 7/16"	(36.5)	3/4"	(19.0)	7	(2.13)	15	(4.57)	12	(5.4)
22L2-2	2"	(50)	3 9/16"	(90.5)	1 5/8"	(41.3)	3/4"	(19.0)	8	(2.44)	15	(4.57)	15	(6.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 23 - Hanger for CPVC Plastic Pipe Double Fastener Strap

Size Range: 3/4" (20mm) thru 3" (80mm) CPVC pipe

Material: Pre-Galvanized Steel

Function: Intended to perform as a hanger to support CPVC piping used in automatic fire sprinkler systems. Fig. 23 can be installed on the top, bottom or side of a beam.

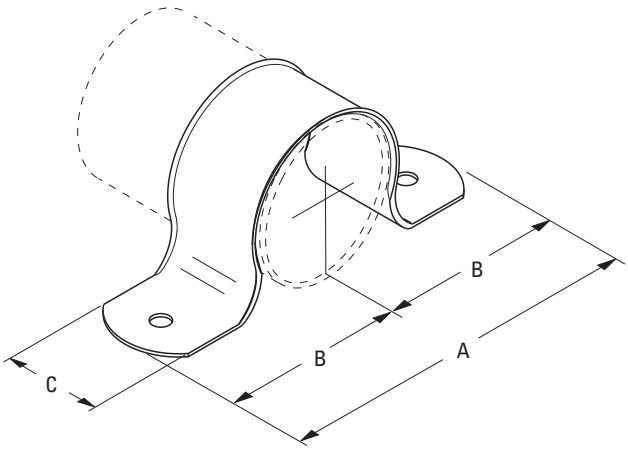
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** sizes 3/4" (20mm) thru 2" (50mm) to support fire sprinkler piping. May be installed in wood using fasteners supplied with product, or into minimum 20 gauge (0.9mm) steel using (2) 1/4" x 1" tek type screw. Meets and exceeds the requirements of NFPA 13, 13R and 13D.

Features: Fig. 23 incorporates features which protect the pipe and ease installation. The flared edge design protects the CPVC pipe from any rough surface. It also incorporates snap restrainers allowing easier and faster installation. Easily attaches to the building structure using the two UL Listed hex head self threading screws* furnished with the product. It is recommended that rechargeable electric drills fitted with a hex socket attachment be used as installation tools. No impact tools (such as a hammer) are allowed. Damage has been known to result from installations using impact type tools. No pre-drilling of a pilot hole in wood is required.

Finish: Pre-Galvanized

Order By: Part number and pipe size

* Hardened hex head self threading screw is furnished with the product and is the minimum fastener size acceptable.



Part No.	CPVC Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	Max. Hanger Spacing Ft.	(m)	Fastener Hex Head Size in.	(mm)	Approx. Wt./100 Lbs.	(kg)
23-3/4	3/4"	(20)	3 1/8"	(79.4)	1 9/16"	(39.7)	1 3/16"	(30.2)	5 1/2	(1.67)	5/16"	(7.9)	9	(4.1)
23-1	1"	(25)	3 3/8"	(85.7)	1 11/16"	(42.9)	1 3/16"	(30.2)	6	(1,83)	5/16"	(7.9)	9	(4.1)
23-1 1/4	1 1/4"	(32)	4 3/16"	(106.4)	2 3/32"	(53.1)	1 3/16"	(30.2)	6 1/2	(1.98)	5/16"	(7.9)	11	(5.0)
23-1 1/2	1 1/2"	(40)	4 7/16"	(112.7)	2 7/32"	(56.3)	1 3/16"	(30.2)	7	(2.13)	5/16"	(7.9)	12	(5.4)
23-2	2"	(50)	4 7/8"	(123.8)	2 7/16"	(61.9)	1 3/16"	(30.2)	8	(2.44)	5/16"	(7.9)	15	(6.8)
23-2 1/2	2 1/2"	(65)	5 3/8"	(136.5)	2 11/16"	(68.3)	1 3/16"	(30.2)	Consult Factory		5/16"	(7.9)	22	(10.0)
23-3	3"	(80)	6"	(152.4)	3"	(76.2)	1 3/16"	(30.2)	Consult Factory		5/16"	(7.9)	25	(11.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 24 - Hanger for CPVC Plastic Pipe Double Fastener Strap Side Mounted

Size Range: 3/4" (20mm) thru 2" (50mm) CPVC pipe

Material: Pre-Galvanized Steel

Function: Intended to perform as a hanger to support CPVC piping used in automatic fire sprinkler systems. Can be installed on the top or on the bottom of a beam.

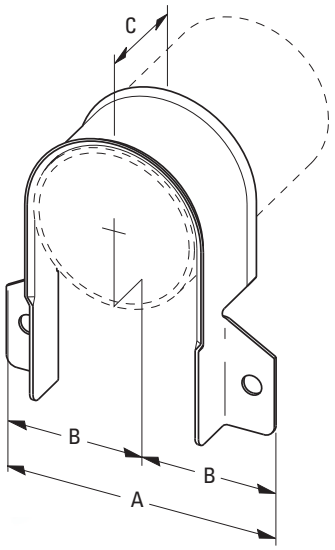
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** to support fire sprinkler piping. May be installed in wood using fasteners supplied with product, or into minimum 20 gauge (0.912mm) steel using (2) 1/4" x 1" tek type screws. Meets and exceeds the requirements of NFPA 13, 13R and 13D.

Features: Fig. 24 incorporates features which protect the pipe and ease installation. The flared edge design protects the CPVC pipe from any rough surface. Easily attaches to the building structure using the two UL Listed hex head self threading screws* furnished with the product. It is recommended that rechargeable electric drills fitted with a hex socket attachment be used as installation tools. No impact tools (such as a hammer) are allowed. Damage has been known to result from installations using impact type tools. No pre-drilling of a pilot hole in wood is required.

Finish: Pre-Galvanized

Order By: Part number and pipe size

* Hardened hex head self threading screw is furnished with the product and is the minimum fastener size acceptable.



Part No.	CPVC Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	Max. Hanger Spacing Ft.	(m)	Fastener Hex Head Size in.	(mm)	Approx. Wt./100 Lbs.	(kg)
24-3/4	3/4"	(20)	2 5/16"	(58.7)	1 5/32"	(27.8)	1 3/16"	(30.2)	5 1/2	(1.67)	5/16"	(7.9)	9	(4.1)
24-1	1"	(25)	2 5/8"	(66.7)	1 5/16"	(33.3)	1 3/16"	(30.2)	6	(1,83)	5/16"	(7.9)	9	(4.1)
24-1 1/4	1 1/4"	(32)	3"	(76.2)	1 1/2"	(38.1)	1 3/16"	(30.2)	6 1/2	(1.98)	5/16"	(7.9)	11	(5.0)
24-1 1/2	1 1/2"	(40)	3 1/4"	(82.5)	1 5/8"	(42.3)	1 3/16"	(30.2)	7	(2.13)	5/16"	(7.9)	12	(5.4)
24-2	2"	(50)	3 11/16"	(93.7)	1 27/32"	(43.6)	1 3/16"	(30.2)	8	(2.44)	5/16"	(7.9)	15	(6.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 25 - Surge Restrainer

Size Range: — One size fits 3/4" (20mm) thru 2" (40mm) pipe.

Material: — Pre-Galvanized Steel

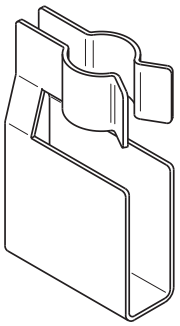
Function: — Designed to be used in conjunction with Fig. 200 band hangers to restrict the upward movement of piping as it occurs during sprinkler head activation or earthquake type activity. The surge restrainer is easily and efficiently installed by snapping into a locking position on the band hanger. This product is intended to satisfy the requirements as indicated in the National Fire Protection Association NFPA 13, 2010 edition, 9.2.3.4.4.1 and 9.2.3.4.4.4 Can be used to restrain either steel pipe or CPVC plastic Pipe.

Approvals: — Underwriters Laboratories Listed only when used with band hanger Fig. 200, in the USA **(UL)** and Canada **(cUL)**.

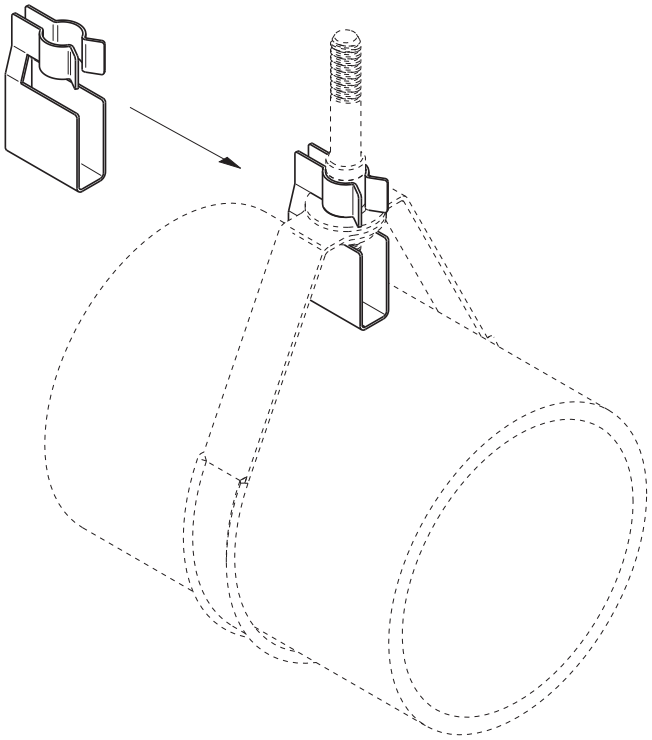
Finish: Pre-Galvanized

Order By: Part number and band hanger, size from 3/4" (20mm) thru 2" (40mm).

Patent #5,344,108



Part No.	Approx. Wt./100 lbs.	(kg)
25	4.8	(2.2)



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

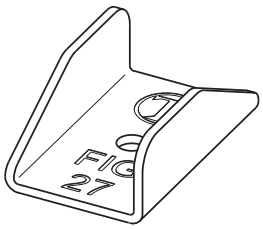
TOLCO™ Fig. 27B - Speed Nut

Size Range: — Fits screws supplied with all CPVC hangers.

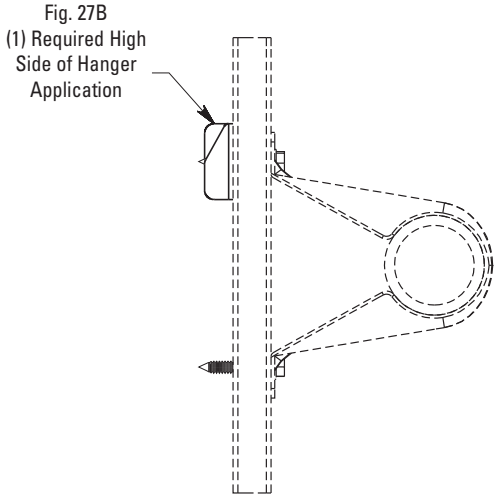
Material: — Pre-Galvanized Steel

Finish: — Pre-Galvanized

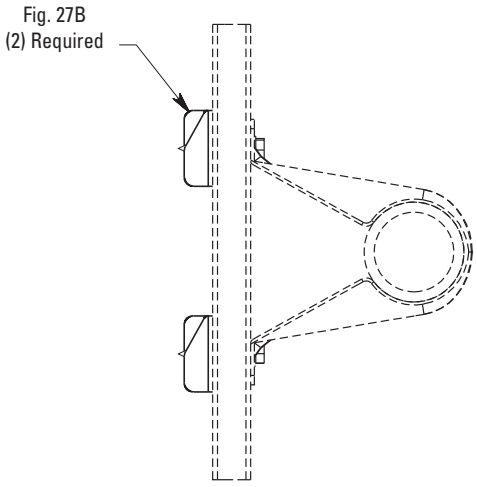
Function: — To be used anywhere a screw cannot achieve full embedment due to thickness of wood structural material when installed. Fig. 27B allows full pull out load capacity of screws when installed to the standard screws supplied with all CPVC hangers (Fig. 22, 23, 24, 28, 28M, 29, and B3184).



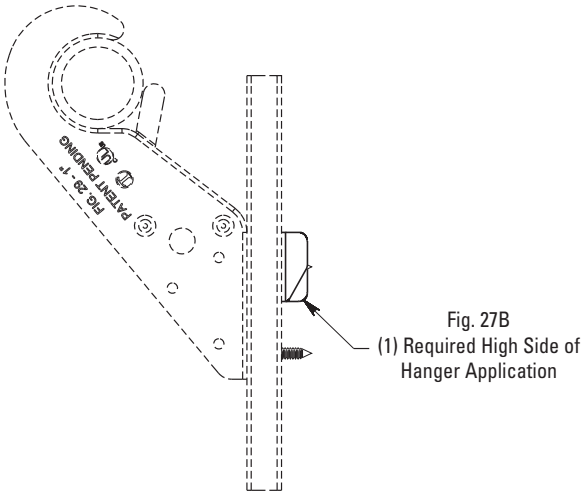
Part No.	Approx. Wt./100 lbs.	(kg)
27B	1.2	(0.5)



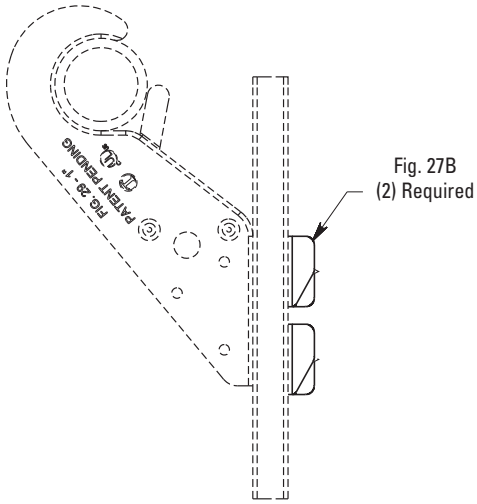
Hanger Application



Hanger and Restraint Application



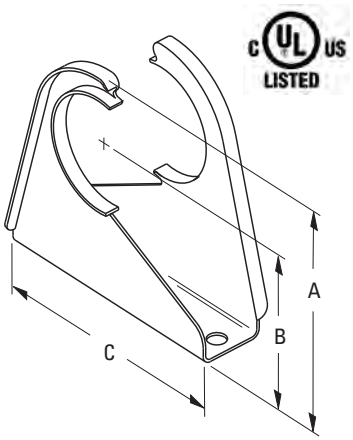
Hanger Application



Hanger and Restraint Application

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 28 - "Stand-Off" Hanger & Restrainer for CPVC Plastic Pipe



Size Range: — 3/4" (20mm) through 2" (50mm)

Material: — Steel, Pre-Galvanized

Function: — Designed to be used as a hanger and restrainer for CPVC piping where the "stand-off" design will ease installation by eliminating the need for wood blocking.

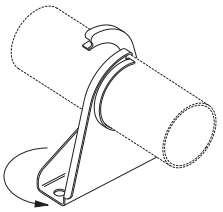
Features:

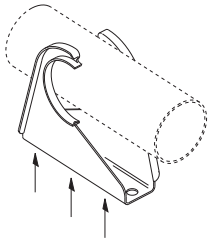
- Flared edge design protects CPVC pipe from any rough or abrasive surfaces.
- Unique twist and lock design holds pipe firmly in place and allows retrofit type of installation.
- The "Stand-Off" design eliminates the need for wood block extension.
- Can be installed on horizontal or vertical piping regardless of mounting surface orientation.
- Attaches easily to wood structure with two hex head self-threading screws furnished with product.
- Installs easily using rechargeable electrical driver with 5/16" (7.9mm) extension socket eliminating impact tool damage to pipe.
- Attaches easily to steel, minimum 18 gauge (1.024mm) with (2) 1/4" x 1" tek type self drilling tapping screws.
- UL Listed as a hanger and a restrainer for fire sprinkler piping.

Approvals: — Underwriters Laboratory Listed in the USA **(UL)** and Canada **(cUL)** to support automatic fire sprinkler systems. May be installed into wood using fasteners supplied with product, or into minimum 18 gauge steel using (2) 1/4" x 1" tek type screws. Meets and exceeds the requirements of NFPA 13, 13R and 13D. Fig. 28 satisfies the UL vertical restraint requirement where needed. UL Listed as a hanger and vertical restraint when installed on 3/8" (9.5mm) composite wood material. Use two Fig. 27B Speed Nuts when used as a hanger and restraint. Use one Fig. 27B Speed Nut on the upper installed screw when used as a hanger only.

Order by: — Part number and pipe size.

Pat. # 7,455,268, Pat. # 7,832,248





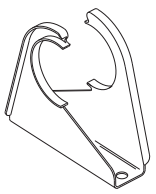
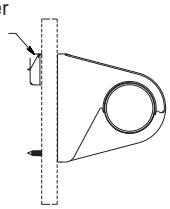
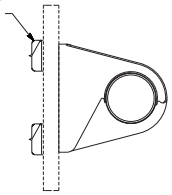


Fig. 27B
(1) Required High Side of Hanger Application

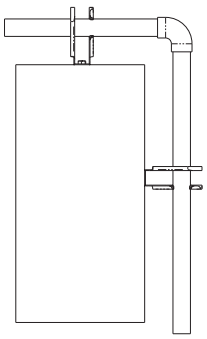


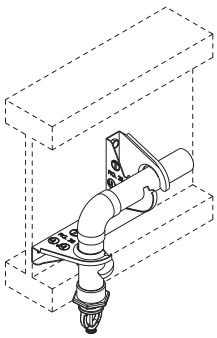
Hanger Application

Fig. 27B
(2) Required



Hanger and Restraint Application





Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
28-3/4	3/4"	(20)	3 1/32"	(77.0)	2"	(50.8)	3 1/2"	(88.9)	18	(8.1)
28-1	1"	(25)	3 5/16"	(84.1)	2 3/16"	(55.6)	3 1/2"	(88.9)	21	(9.5)
28-1 1/4	1 1/4"	(32)	3 5/8"	(92.1)	2 3/8"	(60.3)	3 1/2"	(88.9)	23	(10.4)
28-1 1/2	1 1/2"	(40)	4"	(101.6)	2 1/2"	(63.5)	3 1/2"	(88.9)	31	(14.0)
28-2	2"	(50)	4 1/2"	(114.3)	2 11/16"	(68.3)	3 5/8"	(92.1)	34	(15.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 28M - Offset Hanger & Restrainer for CPVC Plastic Pipe

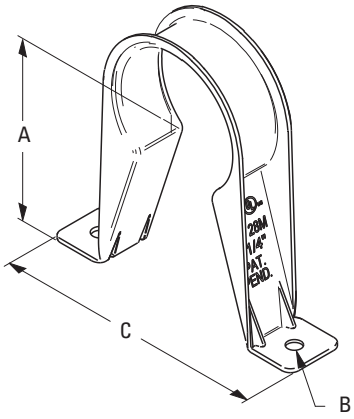
Size Range: 3/4" (20mm) thru 2" (32mm)

Material: Steel, Pre-Galvanized

Function: Designed to be used as a hanger and restrainer for CPVC piping where the "stand-off" design will ease installation by eliminating the need for wood blocking.

Features:

- Flared edge design protects CPVC pipe from any rough or abrasive surfaces
- Unique snap-on design holds pipe firmly in place and allows retrofit type of installation
- The "Stand-Off" design eliminates the need for wood block extension
- Can be installed on horizontal or vertical piping regardless of mounting surface orientation
- Attaches easily to wood structure with two hex head self-threading screws furnished with product
- Installs easily using rechargeable electrical driver with 5/16" (7.9mm) extension socket eliminating impact tool damage to pipe
- Attaches easily to steel, minimum 18 gauge (1.024mm) with (2) 1/4" x 1" tek type self drilling tapping screws
- **cULus** Listed as a hanger and a restrainer for fire sprinkler piping



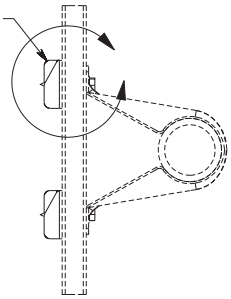
Installation Note: When installed in wood structural members and threads from the #10 x 1" screws are exposed, use Fig. 27B speed nut to secure

Approvals: Underwriters Laboratory Listed in the USA **(UL)** and Canada **(cUL)** to support automatic fire sprinkler systems.
May be installed into wood using fasteners screws.
Meets and exceeds the requirements of NFPA 13, 13R and 13D. Fig. 28M satisfies the UL vertical restraint requirements where needed.

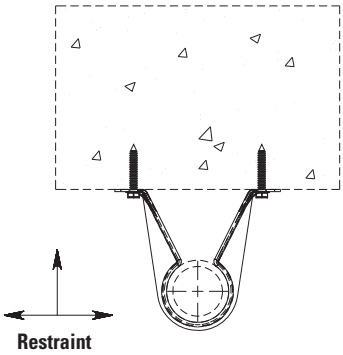
Order By: Part number and pipe size

Patent #7,744,042

Fig. 27B
(2) Required



Hanger and Restraint Application



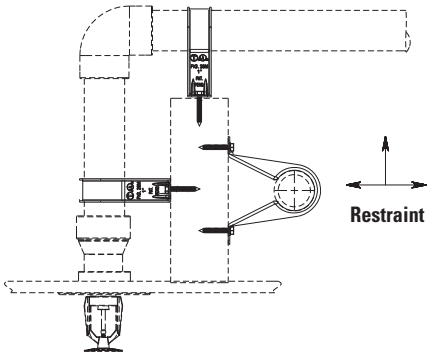
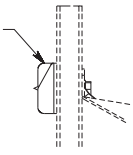


Fig. 27B
(1) Required
High Side of Hanger



Detail A
Hanger Application

Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	Hole Dia. B in.	Hole Dia. B (mm)	C in.	C (mm)	Max Spacing* in.	Max Spacing* (mm)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
28M-3/4	3/4"	(20)	2"	(50.8)	3/16"	(4.8)	3 5/16"	(84.1)	5'-6"	(1676)	9	(4.1)
28M-1	1"	(25)	2 1/8"	(54.0)	3/16"	(4.8)	3 1/2"	(88.9)	6'-0"	(1829)	12	(5.4)
28M-1 1/4	1 1/4"	(32)	2 5/16"	(58.7)	3/16"	(4.8)	3 1/2"	(88.9)	6'-6"	(1981)	13	(5.9)
28M-1 1/2	1 1/2"	(49)	2 7/16"	(61.9)	3/16"	(4.8)	3 7/8"	(98.4)	7'-0"	(2133)	14	(6.3)
28M-2	2"	(50)	2 5/8"	(66.7)	3/16"	(4.8)	4 7/16"	(112.7)	8'-0"	(2438)	15	(6.8)

* Required per NFPA 13 for CPVC plastic pipe

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 29 - Double Offset Hanger & Restrainer for CPVC Plastic Pipe

Size Range: Available in 3/4" (20mm) and 1" (25mm) pipe sizes

Material: Pre-Galvanized Steel

Function: Intended to perform as a hanger and restrainer for CPVC, plastic fire sprinkler pipe. Provides double offset 1 1/2" (20mm) x 1 1/2" (20mm) from mounting surface. This design will ease installation by eliminating the need for wood block extension and allow retro-fit attachment of hanger to sprinkler pipe.

Features:

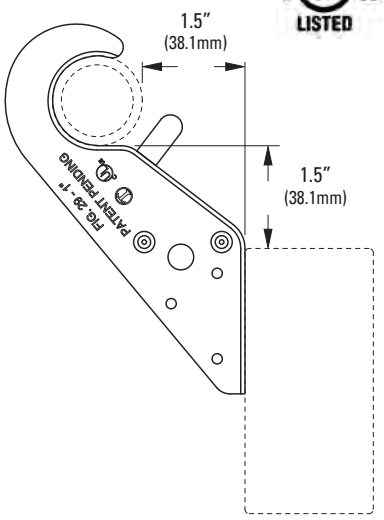
- Thumb tab provides protection to restrain pipe in rough job site conditions. Tab is not required to be bent for listed installation.
- Offset edge eliminates abrasion.
- Attaches easily to wood structure with two special #10 x 1" hex head self-threading screws furnished with product.
- Can be used as a single offset hanger by aligning "dimples" with top of mounting surface and utilizing two fasteners in two of the three holes provided.

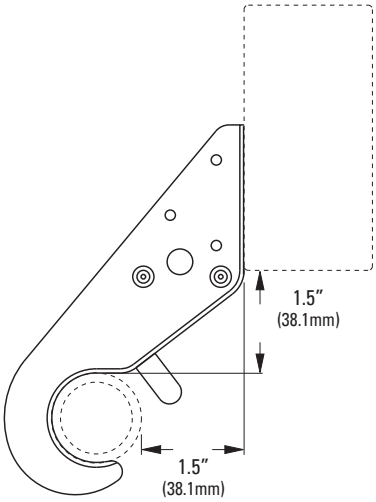
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** as a hanger and restrainer to support fire sprinkler systems. Meets and exceeds requirements of NFPA 13, 13R and 13D.

Finish: Pre-Galvanized

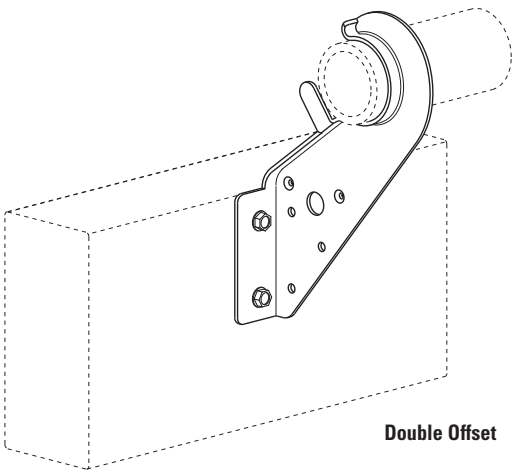
Order By: Part number and pipe size.

Patent # US2008/0129040A1

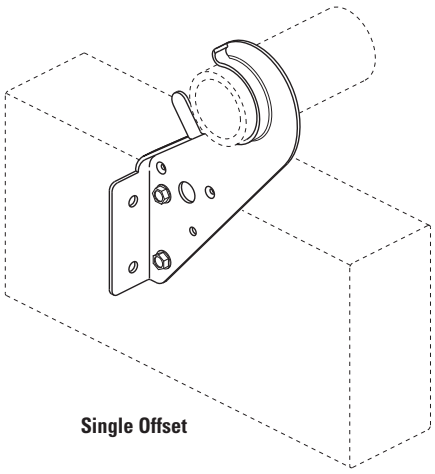




Part No.	Pipe Size in.	(mm)	Approx. Wt./100 lbs.	(kg)
29-3/4	3/4"	(20)	17.0	(7.7)
29-1	1"	(25)	18.6	(8.4)



Double Offset



Single Offset

Install using a rechargeable electric drill fitted with a 5/16" (7.9mm) socket attachment with the special hex head self-tapping screws provided. Install screws until they bottom out. Pipe can be "snapped" into hanger before or after installation of the screws to the mounting surface. "Thumb tab" may be bent up to provide additional protection to the pipe, but is not required for performance of the hanger / restrainer function.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3184 - Offset Hanger for CPVC Plastic Pipe and IPS Pipe

Size Range: 3/4" (20mm) thru 2" (32mm)

Material: Pre-Galvanized Steel

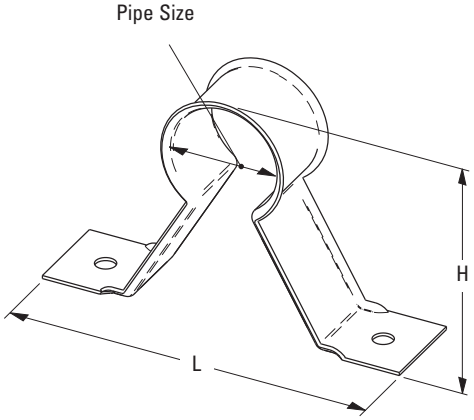
Function: Designed to be used as a hanger for CPVC piping or steel piping where the "stand-off" design will ease installation by eliminating the need for wood blocking.

Features:

- Flared edge design protects CPVC pipe from any rough or abrasive surfaces
- The "Stand-Off" design eliminates the need for wood block extension
- Can be installed on horizontal or vertical piping regardless of mounting surface orientation
- Attaches easily to wood structure with two hex head self-threading screws furnished with product

Installation Note: When installed in wood structural members and threads from the #10 x 1" screws are exposed, use Fig. 27B speed nut to secure

Order By: Part number and pipe size



Part No.	CPVC Pipe Size in.	(mm)	H Overall in.	(mm)	L Overall in.	(mm)	Max. Hanger Spacing ft.	(m)	Fastener Hex Head Size in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3184-3/4	3/4"	(20)	2 9/16"	(65.1)	4 1/4"	(107.9)	5 1/2	(1.67)	5/16"	(7.9)	9.0	(4.1)
B3184-1	1"	(25)	2 13/16"	(71.4)	4 1/2"	(114.3)	6	(1,83)	5/16"	(7.9)	10.0	(4.5)
B3184-1 1/4	1 1/4"	(32)	3 3/16"	(81.0)	4 5/8"	(117.5)	6 1/2	(1.98)	5/16"	(7.9)	12.0	(5.4)
B3184-1 1/2	1 1/2"	(40)	3 7/16"	(87.3)	5"	(127.0)	7	(2.13)	5/16"	(7.9)	12.0	(5.4)
B3184-2	2"	(50)	3 7/8"	(98.4)	5"	(127.0)	8	(2.44)	5/16"	(7.9)	15.0	(6.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KWIK-CLIP™ Series

Size Range:
1/2" (15mm) thru 2" (50mm) Copper Tubing or CPVC pipe sizes
3/8" (9.5mm) thru 2 1/8" (54mm) O.D. Tubing sizes

Material: Plastic - Black

Features:
- One piece design greatly reduces installation time.
- No tools required to install.
- Non-metallic design eliminates metal-to-metal contact; preventing galvanic corrosion.
- Easily snaps into channel or onto 3/8"-16 all thread rod.
- Meets UL2043 requirements for plenum rating; and UL94 HB flame rating.
- Working temperature range of -40°F (-40°C) to +275°F (135°C).
- BPIC and BPSC clips can be used with insulation, maintaining an unbroken barrier seal and eliminating sweating.
- BPRC rod clip can be snapped onto 3/8"-16 all thread rod at any location.

Order By: Part number.

Rod Mount Clips

BPRC Series

Part Number	Copper/CPVC Pipe in.	(mm)	O.D. Tubing in.	(mm)	Sch.40 Pipe in.	(mm)	Approx. Wt./100 lbs.	(kg)
BPRC062	1/2"	(15)	5/8"	(15.9)	--	(--)	1.2	(0.54)
BPRC075	5/8"	(16)	3/4"	(19.0)	--	(--)	1.3	(0.59)
BPRC087	3/4"	(20)	7/8"	(22.2)	1/2"	(12.7)	1.4	(0.63)
BPRC100	--	(--)	1"	(25.4)	3/4"	(19.0)	1.5	(0.68)
BPRC112	1"	(25)	1 1/8"	(28.6)	--	(--)	1.6	(0.72)
BPRC125	--	(--)	1 1/4"	(31.7)	1"	(25.4)	1.7	(0.77)
BPRC137	1 1/4"	(32)	1 3/8"	(34.9)	--	(--)	1.8	(0.81)
BPRC150	--	(--)	1 1/2"	(38.1)	--	(--)	2.1	(0.95)
BPRC162	1 1/2"	(40)	1 5/8"	(41.3)	--	(--)	2.3	(1.04)
BPRC200	--	(--)	2"	(50.8)	--	(--)	2.5	(1.13)
BPRC212	2"	(50)	2 1/8"	(54.0)	--	(--)	2.7	(1.22)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KWIK-CLIP™ Series - cont.

Channel Mount Clips

BPIC Series BPSC Series

Part Number	Copper/CPVC Pipe in.	(mm)	O.D. Tubing in.	(mm)	Sch.40 Pipe in.	(mm)	Approx. Wt./100 lbs.	(kg)
BPSC037	1/4″	(6)	3/8″	(9.5)	--	(--)	2.3	(1.0)
BPSC050	3/8″	(10)	1/2″	(12.7)	--	(--)	2.6	(1.2)
BPSC062	1/2″	(15)	5/8″	(15.9)	--	(--)	2.8	(1.3)
BPSC075	5/8″	(16)	3/4″	(19.0)	--	(--)	3.3	(1.5)
BPSC087	3/4″	(20)	7/8″	(22.2)	1/2″	(12.7)	3.9	(1.7)
BPSC112	1″	(25)	1 1/8″	(28.6)	--	(--)	4.5	(2.0)
BPSC137	1 1/4″	(32)	1 3/8″	(34.9)	--	(--)	5.0	(2.2)
BPSC162	1 1/2″	(40)	1 5/8″	(41.3)	--	(--)	5.5	(12.5)

Part Number	Copper/CPVC Pipe in.	(mm)	O.D. Tubing in.	(mm)	Sch.40 Pipe in.	(mm)	Approx. Wt./100 lbs.	(kg)
BPIC062	1/2″	(15)	5/8″	(15.9)	--	(--)	2.9	(1.3)
BPIC075	5/8″	(16)	3/4″	(19.0)	--	(--)	2.9	(1.3)
BPIC087	3/4″	(20)	7/8″	(22.2)	1/2″	(12.7)	3.0	(1.4)
BPIC100	--	(--)	1″	(25.4)	3/4″	(19.0)	3.2	(1.4)
BPIC112	1″	(25)	1 1/8″	(28.6)	--	(--)	3.3	(1.5)
BPIC125	--	(--)	1 1/4″	(31.7)	1″	(25.4)	3.4	(1.5)
BPIC137	1 1/4″	(32)	1 3/8″	(34.9)	--	(--)	3.5	(1.6)
BPIC150	--	(--)	1 1/2″	(38.1)	--	(--)	3.8	(1.7)
BPIC162	1 1/2″	(40)	1 5/8″	(41.3)	--	(--)	4.0	(1.8)
BPIC200	--	(--)	2″	(50.8)	--	(--)	4.2	(1.9)
BPIC212	2″	(50)	2 1/8″	(54.0)	--	(--)	4.4	(2.0)

Insert in channel.

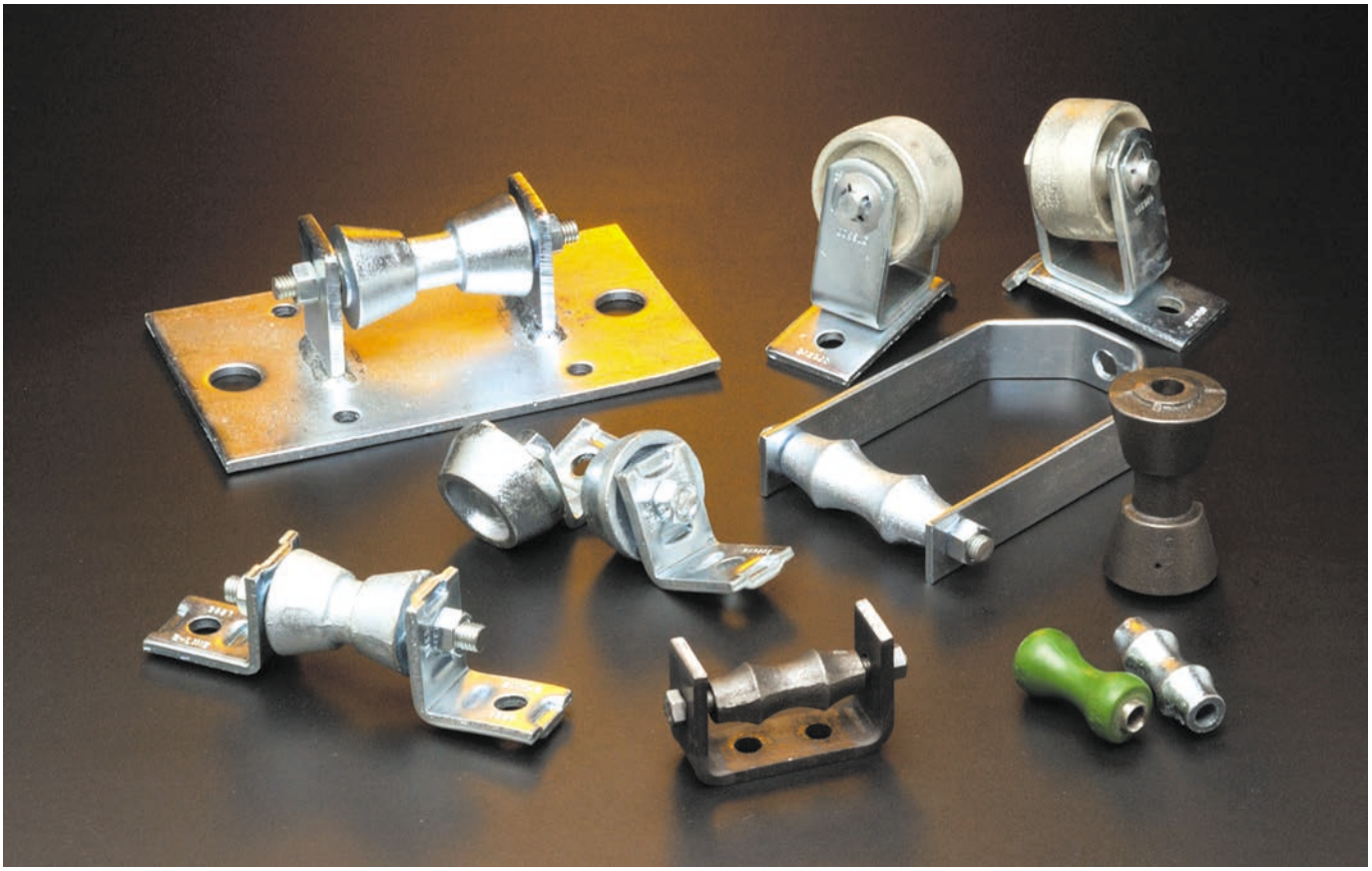
Twist into place.

Lay tubing/pipe into clip.

Snap clip closed.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Pipe Rollers & Roller Supports



Pipe rollers and roller supports offered in this section are designed to compensate for longitudinal movement due to the expansion or contraction of both insulated or non-insulated pipe.

Materials
Carbon Steel with Cast Iron rollers are used in the manufacture of pipe roller supports. Stainless Steel and other materials are available.

Finishes
The standard finishes for mechanical supports are plain steel (oil coated) sometimes referred to as black and Electro-Galvanized Zinc (ASTM B633 SC3). Hot-Dip Galvanized After Fabrication (ASTM A123), Red Primer, Plastic Coating, DURA GREEN™ and other special coatings are available upon request.

Note: Due to the design of some products, (threads, connecting hardware, swivels, etc.) items may or may not be uniformly coated with special finishes. In some cases, the hanger itself may be coated, however, the hardware may be supplied Electro-Plated, Copper plated, or in Stainless Steel.

Approvals (as noted)
Items in this section comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 SP-58.

B3110 - Adjustable Steel Yoke Pipe Roll

Size Range: 2" (65mm) thru 24" (600mm) pipe

Material: Cast iron roller and steel axle/hanger
(Non-metallic polyurethane rollers are available)

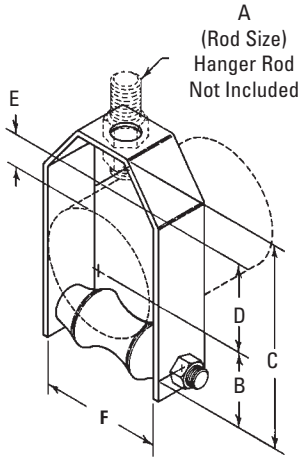
Function: For supporting pipe where movement may occur due to thermal expansion.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 44, 1" (25mm) thru 20" (500mm), and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 43.

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish



B
Center of axle to center of pipe.

C
Center of axle to top of hanger steel.

D
Rod Take-Out
Center of pipe to bottom of hanger rod.

E
Adjustment
Top of pipe to bottom of hanger rod nut.

Note: Not for continuous cycling applications.

Part No.	Pipe Size in.	Pipe Size (mm)	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	E in.	E (mm)
B3110-2	2"	(50)	3/8"-16	1 9/16"	(39.7)	4 3/4"	(120.6)	2 3/8"	(60.3)	1 7/16"	(36.5)
B3110-2 1/2	2 1/2"	(65)	1/2"-13	1 7/8"	(47.6)	6"	(152.4)	3 3/16"	(81.0)	2"	(50.8)
B3110-3	3"	(80)	1/2"-13	2 3/16"	(55.6)	6 5/8"	(168.3)	3 1/2"	(88.9)	2"	(50.8)
B3110-3 1/2	3 1/2"	(90)	1/2"-13	2 1/2"	(63.5)	7 1/4"	(184.1)	3 3/4"	(95.2)	2"	(50.8)
B3110-4	4"	(100)	5/8"-11	2 3/4"	(69.8)	7 7/8"	(200.0)	4"	(101.6)	2"	(50.8)
B3110-5	5"	(125)	5/8"-11	3 3/8"	(85.7)	9 3/16"	(233.4)	4 9/16"	(115.9)	2"	(50.8)
B3110-6	6"	(150)	3/4"-10	3 15/16"	(100.0)	10 3/8"	(263.5)	5 1/16"	(128.6)	2"	(50.8)
B3110-8	8"	(200)	3/4"-10	5 1/16"	(128.6)	12 5/8"	(320.7)	6 1/16"	(154.0)	2"	(50.8)
B3110-10	10"	(250)	7/8"-9	6 1/4"	(158.7)	14 15/16"	(379.4)	7 3/16"	(182.6)	2 1/16"	(52.4)
B3110-12	12"	(300)	7/8"-9	7 3/8"	(187.3)	17 3/8"	(441.3)	8 3/8"	(212.7)	2 1/4"	(57.1)
B3110-14	14"	(350)	1"-8	8 1/4"	(209.5)	19"	(482.6)	8 3/4"	(222.2)	2 1/4"	(57.1)
B3110-16	16"	(400)	1"-8	9 1/4"	(234.9)	20 3/4"	(527.0)	9 3/4"	(247.6)	2"	(50.8)
B3110-18	18"	(450)	1"-8	10 3/8"	(263.5)	23 11/16"	(601.7)	11 7/16"	(290.5)	2 11/16"	(68.3)
B3110-20	20"	(500)	1 1/4"-7	11 1/2"	(292.1)	25 7/8"	(657.2)	12 1/4"	(311.1)	2 1/2"	(63.5)
B3110-24	24"	(600)	1 1/2"-6	13 13/16"	(350.8)	31 9/16"	(801.7)	15"	(381.0)	3 1/2"	(88.9)

Part No.	F in.	F (mm)	Maximum O.D. Covering in.	Maximum O.D. Covering (mm)	Design Load lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3110-2	2 7/8"	(73.0)	2 5/8"	(66.7)	150	(.67)	123	(55.8)
B3110-2 1/2	3 1/4"	(82.5)	3"	(76.2)	225	(1.00)	178	(80.7)
B3110-3	3 7/8"	(98.4)	3 5/8"	(92.1)	310	(1.38)	206	(93.4)
B3110-3 1/2	4 3/8"	(111.1)	4 1/8"	(104.8)	390	(1.73)	267	(121.1)
B3110-4	4 7/8"	(123.8)	4 11/16"	(119.1)	475	(2.11)	344	(156.0)
B3110-5	5 15/16"	(150.8)	5 3/4"	(146.0)	685	(3.04)	600	(272.1)
B3110-6	7"	(177.8)	6 3/4"	(171.4)	780	(3.47)	800	(362.9)
B3110-8	9"	(228.6)	8 3/4"	(222.2)	780	(3.47)	1300	(589.7)
B3110-10	11 1/8"	(282.6)	10 3/4"	(273.0)	965	(4.29)	1600	(725.7)
B3110-12	13 3/8"	(339.7)	13"	(330.2)	1200	(5.34)	2600	(1179.3)
B3110-14	14 1/2"	(368.3)	14 1/4"	(361.9)	1200	(5.34)	3400	(1542.2)
B3110-16	16 3/8"	(415.9)	16 1/8"	(409.6)	1200	(5.34)	3900	(1769.0)
B3110-18	18 3/8"	(466.7)	18 1/8"	(460.4)	1400	(6.23)	4900	(2222.6)
B3110-20	20 3/8"	(517.5)	20 1/8"	(511.2)	1600	(7.11)	6686	(3032.7)
B3110-24	24 5/8"	(625.5)	24 3/8"	(619.1)	1800	(8.00)	11630	(5275.3)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with stainless steel yoke and hardware are available for most sizes (B3110NM-Pipe Size). Contact Eaton Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3114 - Pipe Roll with Sockets

Size Range: 2" (25mm) thru 30" (750mm) pipe

Material: Cast iron roller and steel axle
(Non-metallic polyurethane rollers are available)

Function: For supporting pipe where expansion may occur due to thermal movement. Double rod design provides support for greater loads.

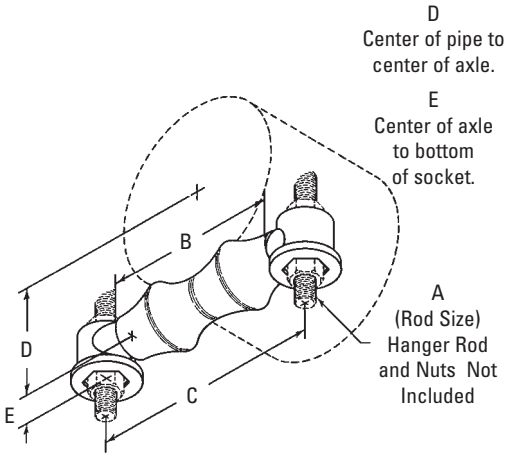
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 42, 2" (50mm) thru 24" (600mm), and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 41

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish

Note: Not for continuous cycling applications.



Part No.	Pipe Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)	D in.	(mm)
B3114-2	2"	(50)	3/8"-16	2 5/8"	(66.7)	4 1/8"	(104.8)	1 9/16"	(39.7)
B3114-2 1/2	2 1/2"	(65)	1/2"-13	3 1/8"	(79.4)	4 7/8"	(123.8)	1 7/8"	(47.6)
B3114-3	3"	(80)	1/2"-13	3 3/4"	(95.2)	5 1/2"	(139.7)	2 3/16"	(55.6)
B3114-3 1/2	3 1/2"	(90)	1/2"-13	4 1/4"	(107.9)	6 1/8"	(155.6)	2 1/2"	(63.5)
B3114-4	4"	(100)	5/8"-11	4 3/4"	(120.6)	6 3/4"	(171.4)	2 3/4"	(69.8)
B3114-5	5"	(125)	5/8"-11	5 13/16"	(147.6)	8 1/16"	(204.8)	3 3/8"	(85.7)
B3114-6	6"	(150)	3/4"-10	6 7/8"	(174.6)	9 9/16"	(242.9)	3 15/16"	(100.0)
B3114-8	8"	(200)	7/8"-9	8 7/8"	(225.4)	11 15/16"	(303.2)	5 1/16"	(128.6)
B3114-10	10"	(250)	7/8"-9	11"	(279.4)	14 1/16"	(357.2)	6 1/4"	(158.7)
B3114-12	12"	(300)	7/8"-9	13"	(330.2)	15 13/16"	(401.6)	7 3/8"	(187.3)
B3114-14	14"	(350)	1"-8	14 1/4"	(361.9)	17 3/4"	(450.8)	8 1/4"	(209.5)
B3114-16	16"	(400)	1"-8	16 1/4"	(412.7)	19 3/4"	(501.6)	9 1/4"	(234.9)
B3114-18	18"	(450)	1"-8	18 1/4"	(463.5)	21 7/8"	(555.6)	10 3/8"	(263.5)
B3114-20	20"	(500)	1 1/4"-7	20 1/4"	(514.3)	24 1/4"	(615.9)	11 1/2"	(292.1)
B3114-24	24"	(600)	1 1/2"-6	24 1/4"	(615.9)	28 7/8"	(733.4)	13 13/16"	(350.8)
B3114-30	30"	(750)	1 1/2"-6	30 1/4"	(768.3)	35 1/2"	(901.7)	17 1/4"	(438.1)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with hot-dip galvanized sockets and stainless steel hardware are available for most sizes (B3114NM-Pipe Size). Contact Eaton Engineering for more information.

Part No.	E in.	(mm)	Max. O.D. Covering in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3114-2	3/4"	(19.0)	3 3/4"	(82.5)	600	(2.67)	119	(54.0)
B3114-2 1/2	3/4"	(19.0)	3 3/4"	(95.2)	660	(2.93)	140	(63.5)
B3114-3	3/4"	(19.0)	4 1/2"	(114.3)	700	(3.11)	158	(71.6)
B3114-3 1/2	3/4"	(19.0)	5"	(127.0)	750	(3.33)	170	(77.1)
B3114-4	3/4"	(19.0)	5 7/8"	(149.2)	750	(3.33)	188	(85.3)
B3114-5	3/4"	(19.0)	7"	(177.8)	750	(3.33)	246	(111.6)
B3114-6	1 1/8"	(28.6)	8 1/4"	(209.5)	1070	(4.76)	504	(228.6)
B3114-8	1 1/8"	(28.6)	10 1/2"	(266.7)	1350	(6.00)	658	(298.4)
B3114-10	1 1/8"	(28.6)	12 3/4"	(323.8)	1730	(7.69)	849	(385.1)
B3114-12	1 1/8"	(28.6)	14 3/4"	(374.6)	2400	(10.67)	1200	(544.3)
B3114-14	1 1/2"	(38.1)	16 1/4"	(412.7)	3130	(13.92)	2289	(1038.3)
B3114-16	1 1/2"	(38.1)	18"	(457.2)	3970	(17.66)	2497	(1132.6)
B3114-18	1 1/2"	(38.1)	20 1/4"	(514.3)	4200	(18.68)	2899	(1315.0)
B3114-20	1 1/2"	(38.1)	22 1/2"	(571.5)	4550	(20.24)	3637	(1649.7)
B3114-24	2"	(50.8)	26 1/2"	(673.1)	6160	(27.40)	5664	(2569.2)
B3114-30	2"	(50.8)	32 1/2"	(825.5)	7290	(32.42)	9437	(4280.6)

36" (900) available upon request.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3122 - Adjustable Roller Support

Size Range: 2" (25mm) thru 24" (750mm) pipe

Material: Cast iron roller and steel axle
(Non-metallic polyurethane rollers are available)

Function: Designed for suspending pipe where longitudinal movement and vertical adjustment is required.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 42, 2" (50mm) thru 24" (600mm), and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 41

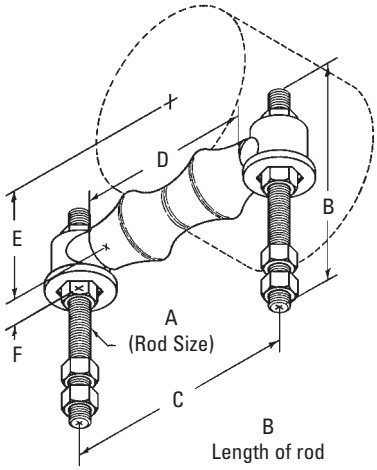
Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Finish: Plain. Contact customer service for alternative finishes and materials.

Furnished With: B3114 Roller, two support rods and eight HN Hex Nuts — not assembled.

Order By: Part number, pipe size and finish

Note: Not for continuous cycling applications.



B
Length of rod

C
Center to center distance of rod.

D
Length of Roller

E
Center of axle to center of pipe.

F
Center of axle to bottom of socket.

Part No.	Pipe Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)	D in.	(mm)
B3122-2	2"	(50)	3/8"-16	12"	(304.8)	4 1/8"	(104.8)	2 5/8"	(66.7)
B3122-2 1/2	2 1/2"	(65)	1/2"-13	12"	(304.8)	4 7/8"	(123.8)	3 1/8"	(79.4)
B3122-3	3"	(80)	1/2"-13	12"	(304.8)	5 1/2"	(139.7)	3 3/4"	(95.2)
B3122-3 1/2	3 1/2"	(90)	1/2"-13	12"	(304.8)	6 1/8"	(155.6)	4 1/4"	(107.9)
B3122-4	4"	(100)	5/8"-11	12"	(304.8)	6 3/4"	(171.4)	4 3/4"	(120.6)
B3122-5	5"	(125)	5/8"-11	12"	(304.8)	8 1/16"	(204.8)	5 13/16"	(147.6)
B3122-6	6"	(150)	3/4"-10	12"	(304.8)	9 9/16"	(242.9)	6 7/8"	(174.6)
B3122-8	8"	(200)	7/8"-9	12"	(304.8)	11 15/16"	(303.2)	8 7/8"	(225.4)
B3122-10	10"	(250)	7/8"-9	12"	(304.8)	14 1/16"	(357.2)	11"	(279.4)
B3122-12	12"	(300)	7/8"-9	12"	(304.8)	15 13/16"	(401.6)	13"	(330.2)
B3122-14	14"	(350)	1"-8	12"	(304.8)	17 3/4"	(450.8)	14 1/4"	(361.9)
B3122-16	16"	(400)	1"-8	18"	(457.2)	19 3/4"	(501.6)	16 1/4"	(412.7)
B3122-18	18"	(450)	1"-8	18"	(457.2)	21 7/8"	(555.6)	18 1/4"	(463.5)
B3122-20	20"	(500)	1 1/4"-7	18"	(457.2)	24 1/4"	(615.9)	20 1/4"	(514.3)
B3122-24	24"	(600)	1 1/2"-6	24"	(609.6)	28 7/8"	(733.4)	24 1/4"	(615.9)

Part No.	E in.	(mm)	F in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3122-2	1 9/16"	(39.7)	3/4"	(19.0)	600	(2.67)	194	(88.0)
B3122-2 1/2	1 7/8"	(47.6)	3/4"	(19.0)	660	(2.93)	284	(128.8)
B3122-3	2 3/16"	(55.6)	3/4"	(19.0)	700	(3.11)	302	(137.0)
B3122-3 1/2	2 1/2"	(63.5)	3/4"	(19.0)	750	(3.33)	314	(142.4)
B3122-4	2 3/4"	(69.8)	3/4"	(19.0)	750	(3.33)	438	(198.7)
B3122-5	3 3/8"	(85.7)	3/4"	(19.0)	750	(3.33)	495	(224.5)
B3122-6	3 15/16"	(100.0)	1 1/8"	(28.6)	1070	(4.76)	867	(393.3)
B3122-8	5 1/16"	(128.6)	1 1/8"	(28.6)	1350	(6.00)	1176	(533.4)
B3122-10	6 1/4"	(158.7)	1 1/8"	(28.6)	1730	(7.69)	1368	(620.5)
B3122-12	7 3/8"	(187.3)	1 1/8"	(28.6)	2400	(10.67)	1861	(844.1)
B3122-14	8 1/4"	(209.5)	1 1/2"	(38.1)	3130	(13.92)	3116	(1413.4)
B3122-16	9 7/16"	(239.7)	1 1/2"	(38.1)	3970	(17.66)	3550	(1610.3)
B3122-18	10 1/2"	(266.7)	1 1/2"	(38.1)	4200	(18.68)	4328	(1963.2)
B3122-20	11 1/2"	(292.1)	1 1/2"	(38.1)	4550	(20.24)	5241	(2377.3)
B3122-24	13 13/16"	(350.8)	2"	(50.8)	6160	(27.40)	7773	(3525.8)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with hot-dip galvanized sockets and stainless steel hardware are available for most sizes (B3122NM-Pipe Size). Contact Eaton Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3122A - Adjustable Double Roller Guide

Size Range: 2" (50mm) thru 24" (600mm) pipe

Material: Cast iron roller and steel axle
(Non-metallic polyurethane rollers are available)

Function: Designed for supporting and guiding pipe where longitudinal movement and vertical adjustment are required.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 42, 2" (50mm) thru 24" (600mm), and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 41

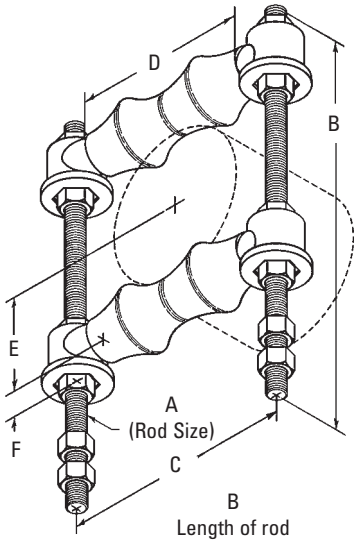
Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Finish: Plain. Contact customer service for alternative finishes and materials.

Furnished With: B3114 Roller, two support rods and twelve HN Hex Nuts — not assembled.

Order By: Part number, pipe size and finish

Note: Not for continuous cycling applications.



B
Length of rod

C
Center to center distance of rod.

D
Length of Roller

E
Center of axle to center of pipe.

F
Center of axle to bottom of socket.

Part No.	Pipe Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)	D in.	(mm)
B3122A-2	2"	(50)	3/8"-16	12"	(304.8)	4 1/8"	(104.8)	2 5/8"	(66.7)
B3122A-2 1/2	2 1/2"	(65)	1/2"-13	14"	(355.6)	4 7/8"	(123.8)	3 1/8"	(79.4)
B3122A-3	3"	(80)	1/2"-13	14"	(355.6)	5 1/2"	(139.7)	3 3/4"	(95.2)
B3122A-3 1/2	3 1/2"	(90)	1/2"-13	14"	(355.6)	6 1/8"	(155.6)	4 1/4"	(107.9)
B3122A-4	4"	(100)	5/8"-11	18"	(457.2)	6 3/4"	(171.4)	4 3/4"	(120.6)
B3122A-5	5"	(125)	5/8"-11	18"	(457.2)	8 1/16"	(204.8)	5 13/16"	(147.6)
B3122A-6	6"	(150)	3/4"-10	24"	(609.6)	9 9/16"	(242.9)	6 7/8"	(174.6)
B3122A-8	8"	(200)	7/8"-9	24"	(609.6)	11 15/16"	(303.2)	8 7/8"	(225.4)
B3122A-10	10"	(250)	7/8"-9	30"	(762.0)	14 1/16"	(357.2)	11"	(279.4)
B3122A-12	12"	(300)	7/8"-9	30"	(762.0)	15 13/16"	(401.6)	13"	(330.2)
B3122A-14	14"	(350)	1"-8	36"	(914.4)	17 3/4"	(450.8)	14 1/4"	(361.9)
B3122A-16	16"	(400)	1"-8	36"	(914.4)	19 3/4"	(501.6)	16 1/4"	(412.7)
B3122A-18	18"	(450)	1"-8	42"	(1066.8)	21 7/8"	(555.6)	18 1/4"	(463.5)
B3122A-20	20"	(500)	1 1/4"-7	42"	(1066.8)	24 1/4"	(615.9)	20 1/4"	(514.3)
B3122A-24	24"	(600)	1 1/2"-6	48"	(1219.2)	28 7/8"	(733.4)	24 1/4"	(615.9)

Part No.	E in.	(mm)	F in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3122A-2	1 9/16"	(39.7)	3/4"	(19.0)	600	(2.67)	323	(146.5)
B3122A-2 1/2	1 7/8"	(47.6)	3/4"	(19.0)	660	(2.93)	465	(210.9)
B3122A-3	2 3/16"	(55.6)	3/4"	(19.0)	700	(3.11)	501	(227.2)
B3122A-3 1/2	2 1/2"	(63.5)	3/4"	(19.0)	750	(3.33)	525	(238.1)
B3122A-4	2 3/4"	(69.8)	3/4"	(19.0)	750	(3.33)	757	(343.4)
B3122A-5	3 3/8"	(85.7)	3/4"	(19.0)	750	(3.33)	872	(395.5)
B3122A-6	3 15/16"	(100.0)	1 1/8"	(28.6)	1070	(4.76)	1687	(765.2)
B3122A-8	5 1/16"	(128.6)	1 1/8"	(28.6)	1350	(6.00)	2277	(1032.8)
B3122A-10	6 1/4"	(158.7)	1 1/8"	(28.6)	1730	(7.69)	2830	(1283.7)
B3122A-12	7 3/8"	(187.3)	1 1/8"	(28.6)	2400	(10.67)	3817	(1731.4)
B3122A-14	8 1/4"	(209.5)	1 1/2"	(38.1)	3130	(13.92)	6513	(2954.3)
B3122A-16	9 7/16"	(242.9)	1 1/2"	(38.1)	3970	(17.66)	6759	(3065.9)
B3122A-18	10 1/2"	(266.7)	1 1/2"	(38.1)	4200	(18.68)	7518	(3410.1)
B3122A-20	11 1/2"	(292.1)	1 1/2"	(38.1)	4550	(20.24)	11222	(5090.3)
B3122A-24	13 13/16"	(350.8)	2"	(50.8)	6160	(27.40)	17666	(8013.3)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with hot-dip galvanized sockets and stainless steel hardware are available for most sizes (B3122ANM-Pipe Size). Contact Eaton Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3120 - Roller Chair

Size Range: 2" (50mm) thru 24" (600mm) pipe

Material: Cast iron roller and steel axle/base
(Non-metallic polyurethane rollers are available)

Function: For supporting pipe where movement may occur due to thermal expansion. Used when ceiling suspension is impractical.

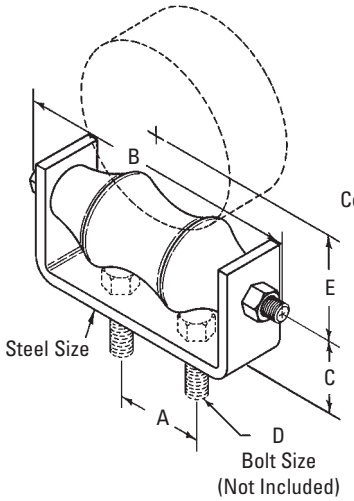
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 45 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 44.

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order by: Part number, pipe size and finish

Note: Not for continuous cycling applications.



A
Center to center of mounting holes

B
Overall Bolt Length

C
Center of axle to bottom of steel strap.

E
Center of axle to center of pipe.

Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	Recommended Bolt Size D (Not Included)
B3120-2	2"	(50)	1 1/4"	(31.7)	4 5/8"	(117.5)	1 1/2"	(38.1)	3/8"-16 x 1 1/2"
B3120-2 1/2	2 1/2"	(65)	1 1/4"	(31.7)	5 3/8"	(136.5)	1 5/8"	(41.3)	3/8"-16 x 1 1/2"
B3120-3	3"	(80)	2"	(50.8)	6"	(152.4)	1 3/4"	(44.4)	3/8"-16 x 1 1/2"
B3120-3 1/2	3 1/2"	(90)	2"	(50.8)	6 3/4"	(171.4)	2 1/16"	(52.4)	3/8"-16 x 1 1/2"
B3120-4	4"	(100)	2"	(50.8)	7 1/4"	(184.1)	2 5/16"	(58.7)	1/2"-13 x 1 1/2"
B3120-5	5"	(125)	3"	(76.2)	8 7/16"	(214.3)	2 1/2"	(63.5)	1/2"-13 x 1 1/2"
B3120-6	6"	(150)	3 1/8"	(79.4)	9 3/4"	(247.6)	2 3/4"	(69.8)	1/2"-13 x 1 1/2"
B3120-8	8"	(200)	3 3/8"	(85.7)	12"	(304.8)	3"	(76.2)	5/8"-11 x 1 1/2"
B3120-10	10"	(250)	5 1/4"	(133.3)	14 7/16"	(366.7)	3 5/8"	(92.1)	5/8"-11 x 2"
B3120-12	12"	(300)	5 1/2"	(139.7)	16 5/8"	(422.3)	4 1/8"	(104.8)	5/8"-11 x 2"
B3120-14	14"	(350)	6"	(152.4)	18 1/4"	(463.5)	4 5/8"	(117.5)	5/8"-11 x 2"
B3120-16	16"	(400)	8"	(203.2)	21"	(533.4)	5"	(127.0)	5/8"-11 x 2 1/2"
B3120-18	18"	(450)	9"	(228.6)	23"	(584.2)	5 1/4"	(133.3)	5/8"-11 x 2 1/2"
B3120-20	20"	(500)	10"	(254.0)	25"	(635.0)	5 3/4"	(146.0)	3/4"-10 x 3"
B3120-24	24"	(600)	12"	(304.8)	30"	(762.0)	7"	(177.8)	3/4"-10 x 3"

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with stainless steel chair and hardware are available for most sizes (B3120NM-Pipe Size). Contact Eaton Engineering for more information.

Part No.	E in.	(mm)	Steel Size in.	(mm)	Design Load lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
B3120-2	1 9/16"	(39.7)	1/4" x 1 1/4"	(6.3 x 31.7)	600	(2.67)	119	(54.0)
B3120-2 1/2	1 7/8"	(47.6)	1/4" x 1 1/4"	(6.3 x 31.7)	660	(2.93)	146	(66.2)
B3120-3	2 3/16"	(55.6)	1/4" x 1 1/4"	(6.3 x 31.7)	700	(3.11)	172	(78.0)
B3120-3 1/2	2 1/2"	(63.5)	3/8" x 1 1/2"	(9.5 x 38.1)	750	(3.33)	264	(119.7)
B3120-4	2 3/4"	(69.8)	3/8" x 1 1/2"	(9.5 x 38.1)	750	(3.33)	303	(137.4)
B3120-5	3 3/8"	(85.7)	3/8" x 1 1/2"	(9.5 x 38.1)	750	(3.33)	401	(181.9)
B3120-6	3 15/16"	(100.0)	3/8" x 2"	(9.5 x 50.8)	1070	(4.76)	620	(281.2)
B3120-8	5 1/16"	(128.6)	3/8" x 2"	(9.5 x 50.8)	1350	(6.00)	874	(396.4)
B3120-10	6 1/4"	(158.7)	1/2" x 2"	(12.7 x 50.8)	1730	(7.69)	1270	(576.1)
B3120-12	7 3/8"	(187.3)	1/2" x 2"	(12.7 x 50.8)	2400	(10.67)	1918	(870.0)
B3120-14	8 1/4"	(209.5)	1/2" x 2"	(12.7 x 50.8)	3130	(13.92)	2629	(1192.5)
B3120-16	9 1/4"	(234.9)	5/8" x 2 1/2"	(15.9 x 63.5)	3970	(17.66)	3248	(1473.3)
B3120-18	10 3/8"	(263.5)	5/8" x 2 1/2"	(15.9 x 63.5)	4200	(18.68)	4120	(1868.8)
B3120-20	11 1/2"	(292.1)	5/8" x 3"	(15.9 x 76.2)	4550	(20.24)	5630	(3553.7)
B3120-24	13 3/4"	(349.2)	3/4" x 3"	(19.0 x 76.2)	6160	(27.40)	7702	(3493.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3124 - Roller Support

Size Range: 2" (50mm) thru 20" (500mm) pipe

Material: Cast iron roller and steel axle/base
(Non-metallic polyurethane rollers are available)

Function: Designed for supporting pipe where longitudinal movement and vertical adjustment are required.

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish

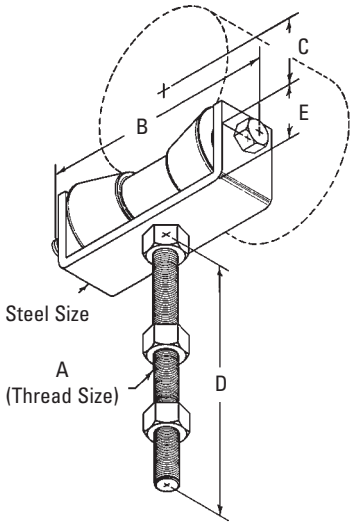
Note: Not for continuous cycling applications.

B
Overall Bolt Length

C
Center of axle to center of pipe.

D
Overall Stud Height

E
Center of roller to bottom of chair.



Part No.	Pipe Size in.	(mm)	Thread Size A	B in.	(mm)	C in.	(mm)	D in.	(mm)
B3124-2 to 3 1/2	2"	(50)	5/8"-11	4 3/4"	(120.6)	1 3/4"	(44.4)	5"	(127.0)
	2 1/2"	(65)	5/8"-11	4 3/4"	(120.6)	2 1/8"	(54.0)	5"	(127.0)
	3"	(80)	5/8"-11	4 3/4"	(120.6)	2 3/8"	(60.3)	5"	(127.0)
	3 1/2"	(90)	5/8"-11	4 3/4"	(120.6)	2 5/8"	(66.7)	5"	(127.0)
B3124-4 to 6	4"	(100)	3/4"-10	5 7/8"	(149.2)	2 3/4"	(69.8)	6"	(152.4)
	5"	(125)	3/4"-10	5 7/8"	(149.2)	3 3/8"	(85.7)	6"	(152.4)
	6"	(150)	3/4"-10	5 7/8"	(149.2)	4"	(101.6)	6"	(152.4)
B3124-8 to 10	8"	(200)	7/8"-9	8 3/4"	(222.2)	5 1/4"	(133.3)	6"	(152.4)
	10"	(250)	7/8"-9	8 3/4"	(222.2)	6 3/8"	(161.9)	6"	(152.4)
B3124-12 to 14	12"	(300)	1"-8	11 1/4"	(285.7)	7 1/2"	(190.5)	7"	(177.8)
	14"	(350)	1"-8	11 1/4"	(285.7)	8 1/8"	(206.4)	7"	(177.8)
B3124-16 to 20	16"	(400)	1 1/8"-7	12 1/2"	(317.5)	9 3/8"	(238.1)	8"	(203.2)
	18"	(450)	1 1/8"-7	12 1/2"	(317.5)	10 3/8"	(263.5)	8"	(203.2)
	20"	(500)	1 1/8"-7	12 1/2"	(317.5)	11 3/8"	(288.9)	8"	(203.2)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with stainless steel chair and hardware are available for most sizes (B3124NM-Pipe Size). Contact Eaton Engineering for more information.

Part No.	E in.	(mm)	Length of Roller in.	(mm)	Steel Size in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3124-2 to 3 1/2	1 13/16"	(46.0)	2 3/4"	(69.8)	3/16" x 1 1/2"	(4.8 x 38.1)	390	(1.73)	233	(105.7)
B3124-4 to 6	2"	(50.8)	3 3/4"	(95.2)	1/4" x 2"	(6.3 x 50.8)	600	(2.67)	368	(166.9)
B3124-8 to 10	2 11/16"	(68.3)	6"	(152.4)	3/8" x 2"	(9.5 x 50.8)	800	(3.56)	919	(416.8)
B3124-12 to 14	3 1/4"	(82.5)	8"	(203.2)	1/2" x 2"	(12.7 x 50.8)	1300	(5.78)	1660	(753.0)
B3124-16 to 20	3 1/2"	(88.9)	9"	(228.6)	1/2" x 2"	(12.7 x 50.8)	2300	(10.23)	2250	(1020.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3126 Roller Support

Size Range: 2" (50mm) thru 20" (500mm) pipe

Material: Steel with Cast Iron Roller
(Non-metallic polyurethane rollers are available)

Function: Designed to mount on strut (metal framing) for the support of pipe with longitudinal movement.

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Finish: Plain. Contact customer service for alternative finishes and materials.

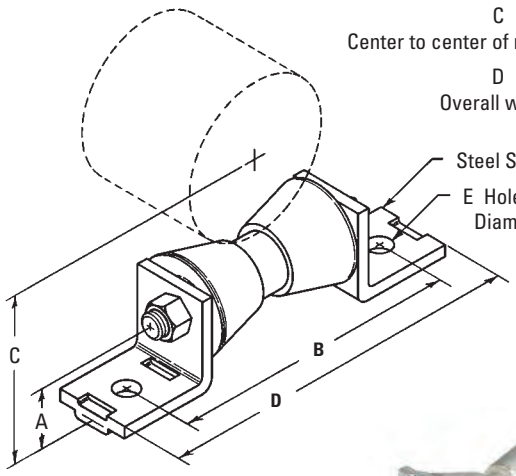
Order By: Part number, pipe size and finish

A
Center of axle to bottom of plate.

B
Center of axle to bottom of plate.

C
Center to center of mounting holes.

D
Overall width.



Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)
B3126-2 to 3 1/2	2"	(50)	1 7/16"	(36.5)	6"	(152.4)	3 11/64"	(80.6)	7 5/8"	(193.7)
	2 1/2"	(65)	1 7/16"	(36.5)	6"	(152.4)	3 27/64"	(86.9)	7 5/8"	(193.7)
	3"	(80)	1 7/16"	(36.5)	6"	(152.4)	3 47/64"	(94.8)	7 5/8"	(193.7)
	3 1/2"	(90)	1 7/16"	(36.5)	6"	(152.4)	3 63/64"	(101.2)	7 5/8"	(193.7)
B3126-4 to 6	4"	(100)	1 7/16"	(36.5)	7"	(177.8)	4 13/64"	(106.8)	8 5/8"	(219.1)
	5"	(125)	1 7/16"	(36.5)	7"	(177.8)	4 47/64"	(120.2)	8 5/8"	(219.1)
	6"	(150)	1 7/16"	(36.5)	7"	(177.8)	5 17/64"	(133.8)	8 5/8"	(219.1)
B3126-8 to 10	8"	(200)	1 13/16"	(46.0)	8 3/4"	(222.3)	7"	(177.8)	10 3/8"	(263.5)
	10"	(250)	1 13/16"	(46.0)	8 3/4"	(222.3)	8 1/16"	(204.8)	10 3/8"	(263.5)
B3126-12 to 14	12"	(300)	2 7/16"	(61.9)	12 1/8"	(308.0)	9 27/32"	(250.1)	14 3/8"	(365.1)
	14"	(350)	2 7/16"	(61.9)	12 1/8"	(308.0)	10 15/32"	(265.9)	14 3/8"	(365.1)
B3126-16 to 20	16"	(400)	2 5/8"	(66.7)	13 1/8"	(333.4)	11 7/8"	(301.6)	15 3/8"	(390.5)
	18"	(450)	2 5/8"	(66.7)	13 1/8"	(333.4)	12 7/8"	(327.1)	15 3/8"	(390.5)
	20"	(500)	2 5/8"	(66.7)	13 1/8"	(333.4)	13 7/8"	(352.4)	15 3/8"	(390.5)

Part No.	E in.	E (mm)	Steel Size in.	Steel Size (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3126-2 to 3 1/2	9/16"	(14.3)	1/4" x 1 5/8"	(6.3 x 41.3)	390	(1.73)	177	(80.3)
B3126-4 to 6	9/16"	(14.3)	1/4" x 1 5/8"	(6.3 x 41.3)	600	(2.67)	231	(104.8)
B3126-8 to 10	9/16"	(14.3)	1/4" x 1 5/8"	(6.3 x 41.3)	800	(3.56)	542	(245.8)
B3126-12 to 14	13/16"	(20.6)	3/8" x 2"	(9.5 x 50.8)	1300	(5.78)	1040	(471.7)
B3126-16 to 20	13/16"	(20.6)	3/8" x 2"	(9.5 x 50.8)	2300	(10.23)	1508	(684.0)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with stainless steel chair and hardware are available for most sizes (B3126NM-Pipe Size). Contact Eaton Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B218 Pipe Rollers-1/2" (15mm) to 8" (200mm) Pipe

Size Range: 1/2" (15mm) thru 8" (200mm) pipe

Material: Steel with Malleable Iron Roller

Function: Designed to mount on strut (metal framing) for the support of pipe with longitudinal movement.

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Finish: Electro-Galvanized

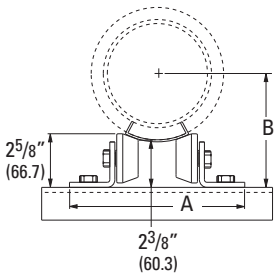
Order By: Part number, pipe size and finish

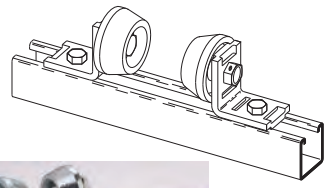
Design Load: 500 Lbs. (2.22kN)

Weight: Approx. weight per 100 - 256.0 Lbs. (116.1kg))

Note: If using D.I. pipe refer to page 321 for sizing. Not for continuous cycling applications.

Channel and mounting hardware not included.





Reference Chart - A Dimension in. (mm)

Pipe Size	Insulation Thickness 0" (0.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
1/2" (15)	7 1/4" (184.1)	-- --	-- --	-- --	-- --	-- --	-- --
3/4" (20)	7 1/4" (184.1)	7 1/4" (184.1)	7 5/8" (193.7)	8" (203.2)	-- --	-- --	-- --
1" (25)	7 1/4" (184.1)	7 1/4" (184.1)	7 5/8" (193.7)	8 1/4" (209.5)	-- --	-- --	-- --
1 1/4" (32)	7 1/4" (184.1)	7 1/4" (184.1)	8" (203.2)	8 1/4" (209.5)	-- --	-- --	-- --
1 1/2" (40)	7 1/4" (184.1)	7 5/8" (193.7)	8" (203.2)	8 1/2" (215.9)	9" (228.6)	-- --	-- --
2" (50)	7 1/4" (184.1)	7 5/8" (193.7)	8 1/2" (215.9)	8 1/2" (215.9)	9" (228.6)	-- --	-- --
2 1/2" (65)	7 1/4" (184.1)	8" (203.2)	8 1/2" (215.9)	9" (228.6)	10" (254.0)	-- --	-- --
3" (80)	7 1/4" (184.1)	8 1/2" (215.9)	9" (228.6)	9" (228.6)	10" (254.0)	10" (254.0)	-- --
3 1/2" (90)	7 1/4" (184.1)	8 1/2" (215.9)	9" (228.6)	10" (254.0)	10" (254.0)	10" (254.0)	-- --
4" (100)	7 5/8" (193.7)	9" (228.6)	9" (228.6)	10" (254.0)	10" (254.0)	10" (254.0)	-- --
5" (125)	8 1/2" (215.9)	9" (228.6)	10" (254.0)	10" (254.0)	11" (279.4)	11" (279.4)	12" (304.8)
6" (150)	9" (228.6)	10" (254.0)	10" (254.0)	11" (279.4)	11" (279.4)	11" (279.4)	12" (304.8)
8" (200)	10" (254.0)	11" (279.4)	11" (279.4)	11" (279.4)	12" (304.8)	-- --	-- --

Reference Chart - B Dimension in. (mm)

Pipe Size	Insulation Thickness 0" (0.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
1/2" (15)	1 11/16" (68.3)	-- --	-- --	-- --	-- --	-- --	-- --
3/4" (20)	2 13/16" (71.4)	3 7/8" (98.4)	4 3/8" (111.1)	4 7/8" (123.8)	-- --	-- --	-- --
1" (25)	2 15/16" (74.6)	4 3/16" (106.4)	4 11/16" (119.1)	5 1/16" (128.6)	-- --	-- --	-- --
1 1/4" (32)	3 1/8" (79.4)	4 3/16" (106.4)	4 5/8" (117.5)	5 1/8" (130.2)	-- --	-- --	-- --
1 1/2" (40)	3 1/4" (82.5)	4 3/8" (111.1)	4 7/8" (123.8)	5 5/16" (134.9)	5 3/4" (146.0)	-- --	-- --
2" (50)	3 9/16" (90.5)	4 11/16" (119.1)	5 1/16" (128.6)	5 5/8" (142.9)	6 1/16" (154.0)	-- --	-- --
2 1/2" (65)	3 13/16" (96.8)	4 7/8" (123.8)	5 5/16" (134.9)	6" (152.4)	6 3/8" (161.9)	-- --	-- --
3" (80)	4 1/8" (104.8)	5 1/16" (128.6)	5 9/16" (141.3)	6 1/8" (155.6)	6 7/16" (163.5)	7" (177.8)	-- --
3 1/2" (90)	4 3/8" (111.1)	5 5/16" (134.9)	5 13/16" (147.6)	6 1/4" (158.7)	6 11/16" (169.9)	7 1/4" (184.1)	-- --
4" (100)	4 5/8" (117.5)	5 9/16" (141.3)	6 1/16" (154.0)	6 7/16" (163.5)	6 15/16" (176.2)	7 3/8" (187.3)	-- --
5" (125)	5 1/2" (127.0)	6 1/16" (154.0)	6 7/16" (163.5)	7" (177.8)	7 3/8" (187.3)	7 7/8" (200.0)	8 13/16" (223.8)
6" (150)	5 1/2" (139.7)	6 7/16" (163.5)	6 15/16" (176.2)	7 3/8" (187.3)	7 15/16" (201.6)	8 1/2" (215.9)	9 1/2" (241.3)
8" (200)	6 15/16" (160.3)	7 3/8" (187.3)	7 15/16" (201.6)	8 7/16" (214.3)	8 15/16" (227.0)	-- --	-- --

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B219 Pipe Rollers 3/4" (15mm) to 12" (300mm) Pipe

Size Range: 1/2" (20mm) thru 12" (300mm) pipe

Material: Steel with Malleable Iron Roller

Function: Designed to mount on strut (metal framing) for the support of pipe with longitudinal movement.

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

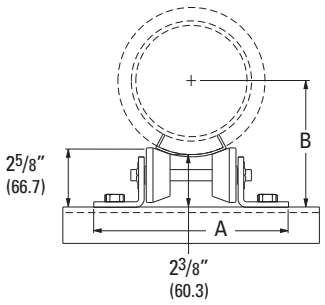
Finish: Electro-Galvanized

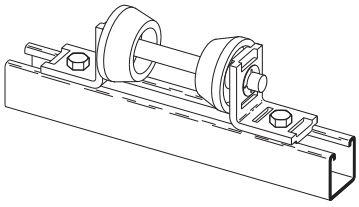
Order By: Part number, pipe size and finish

Design Load: 750 Lbs. (3.33kN)

Note: If using D.I. pipe refer to page 321 for sizing. Not for continuous cycling applications.

Channel and mounting hardware not included.





B219 Sizing Chart

Pipe Size	Insulation Thickness in. (mm) 0" (0.0)	1" (25.4)	1 1/2" (38.1)	2" (50.8)	2 1/2" (63.5)	3" (76.2)	4" (101.6)
1/2" (15)	B219	--	--	--	--	--	--
3/4" (20)	B219	B219	B219	B219-1	--	--	--
1" (25)	B219	B219	B219-1	B219-1	--	--	--
1 1/4" (32)	B219	B219	B219-1	B219-1	--	--	--
1 1/2" (40)	B219	B219	B219-1	B219-2	B219-2	--	--
2" (50)	B219	B219-1	B219-1	B219-2	B219-2	--	--
2 1/2" (65)	B219	B219-1	B219-2	B219-2	B219-3	--	--
3" (80)	B219	B219-1	B219-2	B219-2	B219-3	B219-3	--
3 1/2" (90)	B219-1	B219-2	B219-2	B219-3	B219-3	B219-4	--
4" (100)	B219-1	B219-2	B219-2	B219-3	B219-3	B219-4	--
5" (125)	B219-1	B219-2	B219-3	B219-3	B219-4	B219-4	B219-5
6" (150)	B219-2	B219-3	B219-3	B219-4	B219-4	B219-5	B219-5
8" (200)	B219-3	B219-4	B219-4	B219-5	B219-5	--	--
10" (250)	B219-4	B219-5	--	--	--	--	--
12" (300)	B219-5	--	--	--	--	--	--

Reference Chart - A Dimension

Part No.	A in.	A (mm)	Wt./100 Lbs.	Wt./100 (kg)
B219	7 1/4"	(184.1)	253	(114.7)
B219-1	8"	(203.2)	258	(117.0)
B219-2	9"	(228.6)	263	(119.3)
B219-3	10"	(254.0)	269	(122.0)
B219-4	10 7/8"	(276.2)	274	(124.8)
B219-5	11 5/8"	(295.3)	279	(126.5)

Reference Chart - B Dimension in. (mm)

Pipe Size	Insulation Thickness 0" (0.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
1/2" (15)	2 11/16" (68.3)	-- --	-- --	-- --	-- --	-- --	-- --
3/4" (20)	2 13/16" (71.4)	3 7/8" (98.4)	4 1/2" (114.3)	4 7/8" (123.8)	-- --	-- --	-- --
1" (25)	2 15/16" (74.6)	4 3/16" (106.4)	4 5/8" (117.5)	5 1/16" (128.6)	-- --	-- --	-- --
1 1/4" (32)	3 1/8" (79.4)	4 3/16" (106.4)	4 5/8" (117.5)	5 1/8" (130.2)	-- --	-- --	-- --
1 1/2" (40)	3 1/4" (82.5)	4 7/16" (112.7)	4 7/8" (123.8)	5 1/4" (133.3)	5 3/8" (146.0)	-- --	-- --
2" (50)	3 9/16" (90.5)	4 5/8" (117.5)	5 3/16" (131.8)	5 1/2" (139.7)	6 1/16" (154.0)	-- --	-- --
2 1/2" (65)	3 3/4" (95.2)	4 7/8" (123.8)	5 1/4" (133.3)	6" (152.4)	6 3/8" (161.9)	-- --	-- --
3" (80)	4 1/8" (104.8)	5 1/8" (130.2)	5 9/16" (141.3)	6 1/16" (154.0)	6 7/16" (163.5)	6 15/16" (176.2)	-- --
3 1/2" (90)	4 1/8" (107.9)	5 1/4" (133.3)	5 13/16" (147.6)	6 1/4" (158.7)	6 11/16" (169.9)	7 1/16" (179.4)	-- --
4" (100)	4 9/16" (115.9)	5 1/2" (139.7)	6 1/16" (154.0)	6 7/16" (163.5)	6 15/16" (176.2)	7 3/8" (187.3)	-- --
5" (125)	5 1/16" (128.6)	6 1/16" (154.0)	6 7/16" (163.5)	7" (177.8)	7 3/8" (187.3)	7 7/8" (200.0)	8 15/16" (211.1)
6" (150)	5 7/16" (138.1)	6 7/16" (163.5)	6 15/16" (176.2)	7 3/8" (187.3)	7 7/8" (200.0)	8 15/16" (211.1)	9 9/16" (242.9)
8" (200)	6 3/8" (161.9)	7 7/16" (188.9)	7 15/16" (201.6)	8 3/8" (212.7)	9" (228.6)	-- --	-- --
10" (250)	7 5/16" (185.7)	8 3/16" (208.0)	-- --	-- --	-- --	-- --	-- --
12" (300)	8 1/4" (209.5)	-- --	-- --	-- --	-- --	-- --	-- --

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B379 Pipe Roller - 6" (150mm) to 18" (450mm) Pipe

Size Range: 6" (150mm) thru 18" (450mm) pipe

Material: Steel with Malleable Iron Roller

Function: Designed to mount on strut (metal framing) for the support of pipe with longitudinal movement.

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

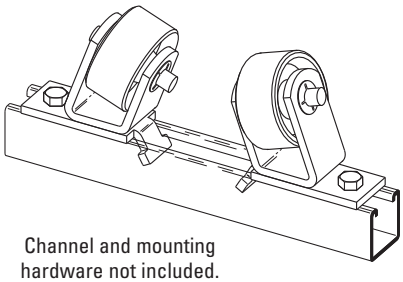
Finish: Electro-Galvanized

Order By: Part number, pipe size and finish

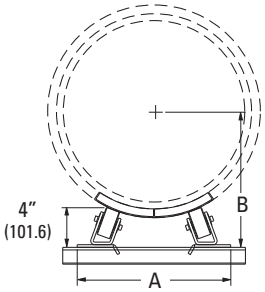
Design Load: 1500 Lbs. (6.67kN)

Weight: Approx. weight per 100 - 558.0 Lbs. (253.1kg))

Note: If using D.I. pipe refer to page 321 for sizing.
Not for continuous cycling applications.



Channel and mounting hardware not included.



Reference Chart - A Dimension in. (mm)

Pipe Size	Insulation Thickness 0" (0.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
6" (150)	9 9/16" (242.9)	10 3/16" (258.8)	10 5/8" (269.9)	11" (279.4)	11 3/8" (288.9)	11 3/4" (298.4)	12 1/2" (317.5)
8" (200)	10 1/4" (260.3)	11 1/16" (281.0)	11 3/8" (288.9)	11 3/4" (298.4)	12 3/16" (309.6)	12 1/2" (317.5)	13 1/4" (336.5)
10" (250)	11" (279.4)	11 3/4" (298.4)	12 1/8" (308.0)	12 1/2" (317.5)	12 13/16" (325.4)	13 1/8" (333.4)	13 7/8" (352.4)
12" (300)	11 11/16" (296.9)	12 9/16" (319.1)	12 7/8" (327.0)	13 1/4" (336.5)	13 9/16" (344.5)	13 7/8" (352.4)	14 5/8" (371.5)
14" (350)	12 1/16" (306.4)	12 7/8" (327.0)	13 3/16" (335.0)	13 9/16" (344.5)	13 7/8" (352.4)	14 1/4" (361.9)	14 7/8" (377.8)
16" (400)	12 3/4" (323.8)	13 1/2" (342.9)	13 7/8" (352.4)	14 13/16" (360.4)	14 1/2" (368.3)	14 7/8" (377.8)	15 1/2" (393.7)
18" (450)	13 1/2" (342.9)	14 1/4" (361.9)	14 5/8" (371.5)	15" (381.0)	15 5/16" (388.9)	15 5/8" (396.9)	16 5/16" (414.3)

Reference Chart - B Dimension in. (mm)

Pipe Size	Insulation Thickness 0" (0.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
6" (150)	6 7/8" (174.6)	7 7/8" (200.0)	8 3/8" (212.7)	8 7/8" (225.4)	9 3/8" (238.1)	9 7/8" (250.8)	10 15/16" (277.8)
8" (200)	7 13/16" (198.4)	8 7/8" (225.4)	9 3/8" (238.1)	9 7/8" (250.8)	10 7/16" (265.1)	10 15/16" (277.8)	11 7/8" (301.6)
10" (250)	8 13/16" (223.8)	9 7/8" (250.8)	10 7/16" (265.1)	10 15/16" (277.8)	11 3/8" (288.9)	11 7/8" (301.6)	12 13/16" (325.4)
12" (300)	9 3/4" (247.6)	10 15/16" (277.8)	11 3/8" (288.9)	11 7/8" (301.6)	12 5/16" (312.7)	12 13/16" (325.4)	13 3/4" (349.2)
14" (350)	10 5/16" (261.9)	11 3/8" (288.9)	11 7/8" (301.6)	12 5/16" (312.7)	12 13/16" (325.4)	13 1/4" (336.5)	14 1/4" (361.9)
16" (400)	11 5/16" (287.3)	12 5/16" (312.7)	12 13/16" (325.4)	13 1/4" (336.5)	13 3/4" (349.2)	14 1/4" (361.9)	15 1/8" (384.2)
18" (450)	12 1/4" (311.1)	13 1/4" (336.5)	13 3/4" (349.2)	14 3/16" (360.4)	14 11/16" (373.1)	15 1/8" (384.2)	16 1/16" (408.0)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B479 Pipe Roller - 16" (400mm) to 30" (750mm) Pipe

Size Range: 16" (400mm) thru 30" (750mm) pipe

Material: Steel with Malleable Iron Roller

Function: Designed to mount on strut (metal framing) for the support of pipe with longitudinal movement.

Note: When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

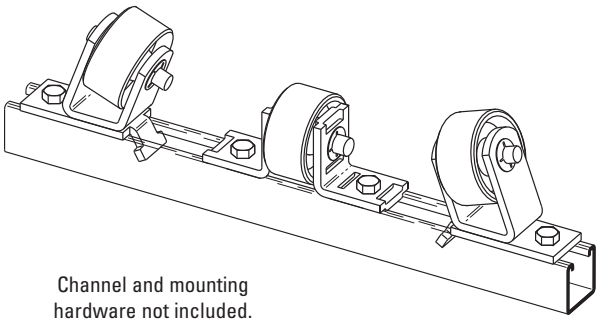
Finish: Electro-Galvanized

Order By: Part number, pipe size and finish

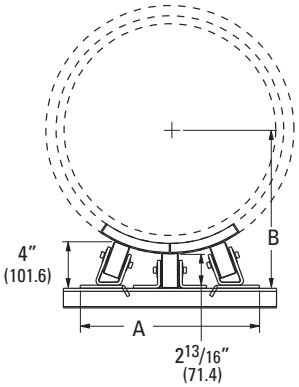
Design Load: 2000 Lbs. (8.89kN)

Weight: Approx. weight per 100 - 889.0 Lbs. (403.2kg)

Note: If using D.I. pipe refer to page 321 for sizing. Not for continuous cycling applications.



Channel and mounting hardware not included.



Reference Chart - A Dimension in. (mm)

	Insulation Thickness						
Pipe Size	0" (0.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
16" (400)	15 3/16" (385.8)	15 5/8" (396.9)	15 7/8" (403.2)	16" (406.4)	16 1/4" (412.7)	16 1/2" (419.1)	17" (431.8)
18" (450)	15 1/2" (393.7)	16" (406.4)	16 3/16" (411.2)	16 3/8" (415.9)	16 9/16" (420.7)	16 3/4" (425.4)	17 3/16" (436.6)
20" (500)	16" (406.4)	16 3/8" (415.9)	16 9/16" (420.7)	16 7/8" (428.6)	16 15/16" (430.2)	17 3/16" (436.6)	17 1/2" (444.5)
24" (600)	16 13/16" (427.0)	17 5/16" (439.7)	17 1/2" (444.5)	17 1/2" (444.5)	17 11/16" (449.3)	17 7/8" (454.0)	18 1/8" (460.4)
30" (750)	17 13/16" (452.4)	18 1/4" (463.5)	18 3/8" (466.7)	18 9/16" (471.5)	18 7/8" (476.2)	18 7/8" (476.2)	19 1/4" (488.9)

Reference Chart - B Dimension in. (mm)

	Insulation Thickness						
Pipe Size	0" (0.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
16" (400)	10 13/16" (274.6)	11 15/16" (303.2)	12 3/8" (314.3)	12 15/16" (328.6)	13 3/8" (339.7)	13 15/16" (354.0)	14 15/16" (379.4)
18" (450)	11 7/8" (301.6)	12 15/16" (328.6)	13 7/16" (341.3)	13 15/16" (354.0)	14 7/16" (366.7)	14 15/16" (379.4)	15 15/16" (404.8)
20" (500)	12 3/16" (325.4)	13 15/16" (354.0)	14 7/16" (366.7)	14 7/8" (377.8)	15 7/16" (392.1)	15 7/8" (403.2)	16 15/16" (430.2)
24" (600)	14 13/16" (376.2)	15 7/8" (403.2)	16 3/8" (415.9)	16 7/8" (428.6)	17 3/8" (441.3)	17 7/8" (454.0)	18 7/8" (479.4)
30" (750)	17 13/16" (452.4)	18 7/8" (476.2)	19 3/8" (492.1)	19 7/8" (504.8)	20 3/8" (517.5)	20 5/16" (531.8)	21 15/16" (557.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3117SL Steel Roller Stand

Size Range: 2" (50mm) thru 42" (1067mm)

Material: Cast Iron Roller and Steel Base
(Non-metallic polyurethane rollers are available)

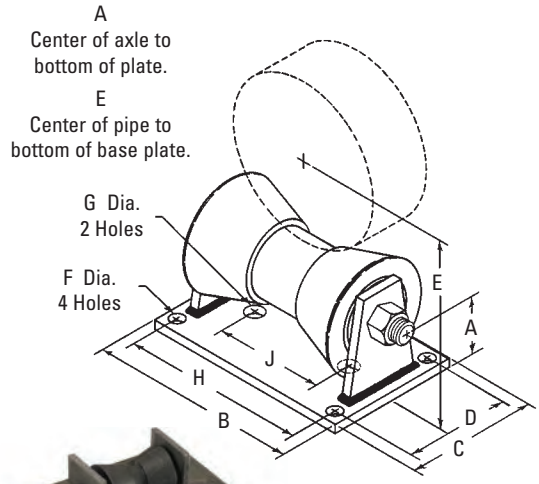
Function: Designed to support pipe where movement may occur due to thermal expansion. When used with insulated pipe, see B3160-B3165 pipe covering protection saddle charts for proper sizing on pages 158 thru 163.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 45 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 44.

Standard Finish: Plain, Available in Electro-Galvanized and HDG finish or Stainless Steel material

Order By: Part number and finish.

Note: Not for continuous cycling applications.



Typical for 8 to 42 Roller Stand

Typical for 2 to 6 Roller Stand

Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	E in.	E (mm)	F in.	F (mm)
B3117SL-2 to 3 1/2	2"	(50)	1 3/4"	(44.4)	8 3/8"	(212.7)	6"	(152.4)	4"	(101.6)	3 11/16"	(93.7)	1/2"	(12.7)
	2 1/2"	(65)	1 3/4"	(44.4)	8 3/8"	(212.7)	6"	(152.4)	4"	(101.6)	3 15/16"	(100.0)	1/2"	(12.7)
	3"	(80)	1 3/4"	(44.4)	8 3/8"	(212.7)	6"	(152.4)	4"	(101.6)	4 1/4"	(107.9)	1/2"	(12.7)
	3 1/2"	(90)	1 3/4"	(44.4)	8 3/8"	(212.7)	6"	(152.4)	4"	(101.6)	4 1/2"	(114.3)	1/2"	(12.7)
B3117SL-4 to 6	4"	(100)	2 1/16"	(52.4)	9 7/8"	(250.8)	6"	(152.4)	4 1/4"	(107.9)	5"	(127.0)	1/2"	(12.7)
	5"	(125)	2 1/16"	(52.4)	9 7/8"	(250.8)	6"	(152.4)	4 1/4"	(107.9)	5 9/16"	(141.3)	1/2"	(12.7)
	6"	(150)	2 1/16"	(52.4)	9 7/8"	(250.8)	6"	(152.4)	4 1/4"	(107.9)	6 1/16"	(154.0)	1/2"	(12.7)
B3117SL-8 to 10	8"	(200)	3 7/16"	(87.3)	8 5/8"	(219.1)	8"	(203.2)	5"	(127.0)	8 13/16"	(223.8)	5/8"	(15.9)
	10"	(250)	3 7/16"	(87.3)	8 5/8"	(219.1)	8"	(203.2)	5"	(127.0)	9 7/8"	(250.8)	5/8"	(15.9)
B3117SL-12 to 14	12"	(300)	3 7/8"	(98.4)	10 15/16"	(277.8)	8"	(203.2)	6"	(152.4)	11 7/16"	(290.5)	5/8"	(15.9)
	14"	(350)	3 7/8"	(98.4)	10 15/16"	(277.8)	8"	(203.2)	6"	(152.4)	12 1/16"	(306.4)	5/8"	(15.9)
B3117SL-16 to 20	16"	(400)	4 1/4"	(107.9)	12 3/8"	(314.3)	10"	(254.0)	6 1/2"	(165.1)	13 5/8"	(346.1)	13/16"	(20.6)
	18"	(450)	4 1/4"	(107.9)	12 3/8"	(314.3)	10"	(254.0)	6 1/2"	(165.1)	14 11/16"	(373.1)	13/16"	(20.6)
	20"	(500)	4 1/4"	(107.9)	12 3/8"	(314.3)	10"	(254.0)	6 1/2"	(165.1)	15 11/16"	(398.5)	13/16"	(20.6)
B3117SL-24	24"	(600)	4 3/8"	(111.1)	13 1/2"	(342.9)	10 3/4"	(273.0)	6 1/2"	(165.1)	17 11/16"	(449.3)	13/16"	(20.6)
B3117SL-30	30"	(750)	5 1/8"	(130.2)	17"	(431.8)	10 3/4"	(273.0)	8"	(203.2)	21 3/4"	(552.4)	1 1/16"	(27.0)
B3117SL-36 to 42	36"	(900)	5 3/4"	(146.0)	20"	(508.0)	12"	(304.8)	9"	(203.2)	25 5/16"	(642.9)	1 3/16"	(30.2)
	42"	(1050)	5 3/4"	(146.0)	20"	(508.0)	12"	(304.8)	9"	(203.2)	28 5/16"	(719.1)	1 3/16"	(30.2)

Part No.	Dia. G in.	Dia. G (mm)	H in.	H (mm)	J in.	J (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3117SL-2 to 3 1/2	1"	(25.4)	3 7/16"	(87.3)	6 3/8"	(161.9)	390	(1.73)	508	(230.4)
B3117SL-4 to 6	1"	(25.4)	4 11/16"	(119.1)	7 7/8"	(200.0)	950	(4.22)	631	(286.2)
B3117SL-8 to 10	1"	(25.4)	7"	(177.8)	4"	(101.6)	2100	(9.34)	1271	(576.5)
B3117SL-12 to 14	1"	(25.4)	9 1/16"	(230.2)	5 3/4"	(146.0)	3075	(13.68)	1994	(904.5)
B3117SL-16 to 20	1"	(25.4)	10 1/4"	(260.3)	6 3/4"	(171.4)	4980	(22.15)	3423	(1552.7)
B3117SL-24	1"	(25.4)	11 3/8"	(288.9)	7 1/2"	(190.5)	6100	(27.13)	4710	(2136.4)
B3117SL-30	1"	(25.4)	14 1/4"	(361.9)	10"	(254.0)	7500	(33.36)	7132	(3235.1)
B3117SL-36 to 42	1"	(25.4)	17"	(431.8)	12"	(304.8)	12000	(53.37)	10386	(4711.1)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with stainless steel bases are available for most sizes (B3117SLNM-Pipe Size). Contact Eaton Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3118SL Adjustable Roller Stand with Base Plate

Size Range: 2" (50mm) thru 30" (750mm)

Material: Cast Iron Roller and Steel Base
(Non-metallic polyurethane rollers are available)

Function: Designed to support pipe where movement may occur due to thermal expansion. Set screws allow for vertical adjustment. When used with insulated pipe, see B3160-B3165 pipe covering protection saddle charts for proper sizing on pages 158 thru 163.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 47 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 46.

Finish: Plain, Available in Electro-Galvanized and HDG finish or Stainless Steel material

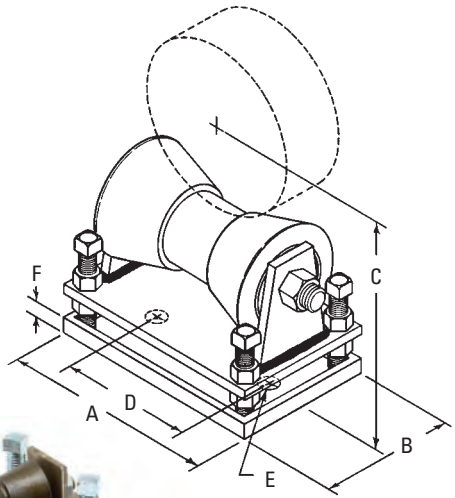
Order by: Part number and finish.

Note: Not for continuous cycling applications.

C
Center of pipe to bottom of base plate.

D
Center to center of mounting holes in bottom plate.

E Dia.
Mounting holes in bottom plate.



Typical for 2 to 6 Roller Stand

Typical for 8 to 30 Roller Stand

Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C Minimum in.	C Minimum (mm)	C Maximum in.	C Maximum (mm)	D in.	D (mm)
B3118SL-2 to 3 1/2	2"	(50)	6 7/8"	(174.6)	6"	(152.4)	4 3/4"	(120.6)	5 5/8"	(142.9)	3 7/8"	(98.4)
	2 1/2"	(65)	6 7/8"	(174.6)	6"	(152.4)	5"	(127.0)	5 7/8"	(142.9)	3 7/8"	(98.4)
	3"	(80)	6 7/8"	(174.6)	6"	(152.4)	5 5/16"	(134.9)	6 3/16"	(157.2)	3 7/8"	(98.4)
	3 1/2"	(90)	6 7/8"	(174.6)	6"	(152.4)	5 9/16"	(141.3)	6 7/16"	(163.5)	3 7/8"	(98.4)
B3118SL-4 to 6	4"	(100)	8 1/8"	(206.4)	6"	(152.4)	6 3/16"	(157.2)	7 7/16"	(188.9)	5 1/8"	(130.2)
	5"	(125)	8 1/8"	(206.4)	6"	(152.4)	6 3/4"	(171.4)	8"	(203.2)	5 1/8"	(130.2)
	6"	(150)	8 1/8"	(206.4)	6"	(152.4)	7 1/4"	(184.1)	8 1/2"	(215.9)	5 1/8"	(130.2)
B3118SL-8 to 10	8"	(200)	10 5/8"	(269.9)	8"	(203.2)	10 1/8"	(257.2)	11 11/16"	(296.9)	7 3/8"	(187.3)
	10"	(250)	10 5/8"	(269.9)	8"	(203.2)	11 3/16"	(284.2)	12 3/4"	(323.8)	7 3/8"	(187.3)
B3118SL-12 to 14	12"	(300)	13"	(330.2)	8"	(203.2)	12 3/4"	(323.8)	14 1/8"	(358.8)	9 1/2"	(241.3)
	14"	(350)	13"	(330.2)	8"	(203.2)	13 3/8"	(339.7)	14 3/8"	(365.1)	9 1/2"	(241.3)
B3118SL-16 to 20	16"	(400)	14 5/8"	(371.5)	10"	(254.0)	15 3/8"	(390.5)	17 1/4"	(438.1)	11 1/8"	(282.6)
	18"	(450)	14 5/8"	(371.5)	10"	(254.0)	16 3/8"	(415.9)	18 1/4"	(463.5)	11 1/8"	(282.6)
	20"	(500)	14 5/8"	(371.5)	10"	(254.0)	17 3/8"	(441.3)	19 1/4"	(488.9)	11 1/8"	(282.6)
B3118SL-24	24"	(600)	15 3/4"	(400.0)	10"	(254.0)	19 1/4"	(488.9)	21 1/4"	(539.7)	12 1/4"	(311.1)
B3118SL-30	30"	(750)	19 1/4"	(488.9)	10 1/2"	(266.7)	24 7/16"	(620.7)	26 11/16"	(677.9)	15 3/4"	(400.0)

Part No.	E in.	E (mm)	F in.	F (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3118SL-2 to 3 1/2	1"	(25.4)	1"	(25.4)	390	(1.73)	1100	(498.9)
B3118SL-4 to 6	1"	(25.4)	1"	(25.4)	950	(4.22)	1310	(594.2)
B3118SL-8 to 10	1"	(25.4)	1 1/8"	(28.6)	2100	(9.34)	2725	(1236.0)
B3118SL-12 to 14	1"	(25.4)	1 1/8"	(28.6)	3075	(13.68)	3612	(1638.4)
B3118SL-16 to 20	1"	(25.4)	1 1/4"	(31.7)	4980	(22.15)	6384	(2895.8)
B3118SL-24	1"	(25.4)	1 3/8"	(34.9)	6100	(27.13)	8437	(3827.0)
B3118SL-30	1"	(25.4)	1 3/8"	(34.9)	7500	(33.36)	12528	(5682.7)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with stainless steel bases are available for most sizes (B3118LNM-Pipe Size). Contact Eaton Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3119SL Roller with Steel Base Plate

Size Range: — 2" (50mm) thru 30" (750mm) pipe

Material: — Steel with Cast Iron Roller
(Non-metallic polyurethane rollers are available)

Function: — Designed for the support of pipe with longitudinal movement.

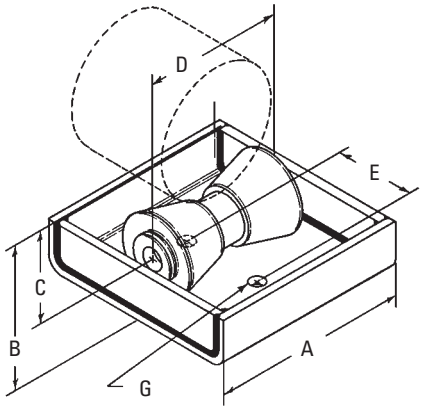
Note: — When pipe line is insulated, total outside diameter of pipe and covering should be used to determine size of hanger; also see B3160 to B3165 on pages 158 thru 163.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 46 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 45.

Finish: — Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish

Note: Not for continuous cycling applications.



B
Center of pipe to bottom of plate.

C
Center of pipe to center of roller.

D
Length of Roller

E
Center to center of mounting holes in bottom plate.

F
Roller Travel

G Dia.
1 hole for sizes 2 thru 6
2 holes for sizes 8 thru 30

4 to 6 Roller Stand shown

Part No.	Pipe Size in.	(mm)	Structural Channel Size	A in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)	E in.	(mm)
B3119SL-2 to 3 1/2	2"	(50)	C4 x 5.4	4 3/4"	(120.6)	3 1/16"	(77.8)	1 15/16"	(49.2)	2 3/4"	(69.8)	-	-
	2 1/2"	(65)		4 3/4"	(120.6)	3 5/16"	(84.1)	2 3/16"	(55.6)	2 3/4"	(69.8)	-	-
	3"	(80)		4 3/4"	(120.6)	3 5/8"	(92.1)	2 1/2"	(63.5)	2 3/4"	(69.8)	-	-
	3 1/2"	(90)		4 3/4"	(120.6)	3 7/8"	(98.4)	2 3/4"	(69.8)	2 3/4"	(69.8)	-	-
B3119SL-4 to 6	4"	(100)	C5 x 6.7	5 3/4"	(146.0)	4 1/8"	(104.8)	2 15/16"	(74.6)	3 3/4"	(95.2)	-	-
	5"	(125)		5 3/4"	(146.0)	4 11/16"	(119.1)	3 1/2"	(88.9)	3 3/4"	(95.2)	-	-
	6"	(150)		5 3/4"	(146.0)	5 3/16"	(131.8)	4"	(101.6)	3 3/4"	(95.2)	-	-
B3119SL-8 to 10	8"	(200)	C6 x 8.2	8"	(203.2)	7 3/16"	(182.6)	5 3/8"	(136.5)	6"	(152.4)	3"	(76.2)
	10"	(250)		8"	(203.2)	8 1/4"	(209.5)	6 7/16"	(163.5)	6"	(152.4)	3"	(76.2)
B3119SL-12 to 14	12"	(300)	C8 x 11.5	10"	(254.0)	9 13/16"	(249.2)	7 9/16"	(192.1)	8"	(203.2)	4"	(101.6)
	14"	(350)		10"	(254.0)	10 7/16"	(265.1)	8 3/16"	(208.0)	8"	(203.2)	4"	(101.6))
B3119SL-16 to 20	16"	(400)	C8 x 11.5	11"	(279.4)	11 7/8"	(301.6)	9 3/8"	(238.1)	9"	(228.6)	4"	(101.6)
	18"	(450)		11"	(279.4)	12 15/16"	(328.6)	10 7/16"	(265.1)	9"	(228.6)	4"	(101.6)
	20"	(500)		11"	(279.4)	13 15/16"	(354.0)	11 7/16"	(290.5)	9"	(228.6)	4"	(101.6)
B3119SL-24	24"	(600)	C8 x 11.5	12"	(304.8)	15 13/16"	(401.6)	13 5/16"	(338.1)	10"	(254.0)	4"	(101.6)
B3119SL-30	30"	(750)	C10 x 15.3	14 1/2"	(368.3)	19 5/8"	(498.5)	16 5/8"	(422.3)	12 1/2"	(317.5)	6"	(152.4)

Part No.	F in.	(mm)	Dia. G in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3119SL-2 to 3 1/2	1 3/4"	(44.4)	9/16"	(14.3)	390	(1.73)	314	(142.3)
B3119SL-4 to 6	2 1/2"	(63.5)	11/16"	(17.5)	950	(4.22)	489	(225.9)
B3119SL-8 to 10	2 1/2"	(63.5)	13/16"	(20.6)	2100	(9.34)	950	(430.9)
B3119SL-12 to 14	3 5/8"	(92.1)	13/16"	(20.6)	3075	(13.68)	1741	(789.7)
B3119SL-16 to 20	3 1/8"	(79.4)	13/16"	(20.6)	4980	(22.15)	2018	(915.3)
B3119SL-24	3 1/8"	(79.4)	13/16"	(20.6)	6100	(27.13)	2175	(986.6)
B3119SL-30	4 1/8"	(104.8)	13/16"	(20.6)	7500	(33.36)	3510	(1592.1)

Note: If using D.I. pipe refer to page 321 for sizing. Non-metallic rollers with stainless steel bases are available for most sizes (B3119LNM-Pipe Size). Contact Eaton Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3264 - Spring Cushion Hanger

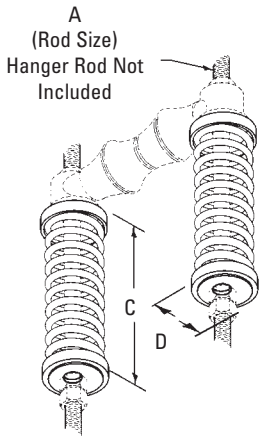
Size Range: 2" (50mm) thru 30" (750mm) pipe

Material: Steel

Function: Designed for use with B3114 as a cushion spring for a piping system where vertical movement does not exceed $1\frac{1}{4}$" (31.7mm).

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 50 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 49.

Order By: Part number



Includes:
2 Springs
4 Cup Washers

Part No.	Rod Size A	Free Height C in.	Free Height C (mm)	D in.	D (mm)	Spring Deflection Per Spring Lbs./In.	Spring Deflection Per Spring (kg/mm)	Maximum Load at 1" (25.4mm) Deflection - 2 Springs Lbs.	Maximum Load at 1" (25.4mm) Deflection - 2 Springs (kN)	Approx. Wt./100 Pair Lbs.	Approx. Wt./100 Pair (kg)
B3264-1	$\frac{3}{8}$"-16	3"	(76.2)	$1\frac{11}{16}$"	(42.8)	30	(0.5)	78	(.34)	100	(45.3)
B3264-5	$\frac{3}{4}$"-10	$4\frac{5}{8}$"	(117.5)	$2\frac{5}{16}$"	(58.7)	707	(12.6)	1500	(6.67)	400	(181.4)
B3264-6	1"-8	$4\frac{7}{8}$"	(123.8)	$3\frac{1}{4}$"	(82.5)	1600	(28.6)	3200	(14.23)	700	(317.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3114R Long Pattern Pipe Roller Only

Size Range: 2" (50mm) thru 30" (750mm) pipe

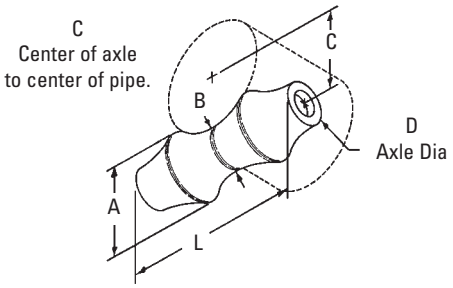
Material: Cast Iron
(Non-metallic polyurethane rollers are available)

Function: Designed for supporting pipe runs with longitudinal movement. Use with steel axle rod.

Finish: Plain

Order By: Part number and finish.

Notes: If using D.I. pipe refer to page 321 for sizing.
Non-metallic roller with stainless steel axle sleeve are available for most sizes (BFP3114R-Pipe Size). Contact Eaton Engineering for more information.



Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	Axle Dia. D in.	(mm)	L in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3114R-2	2"	(50)	1 1/16"	(27.0)	3/4"	(19.0)	1 9/16"	(39.7)	3/8"	(9.5)	2 5/8"	(66.7)	29	(13.1)
B3114R-2 1/2	2 1/2"	(65)	1 1/4"	(31.7)	7/8"	(22.2)	1 7/8"	(47.6)	1/2"	(12.7)	3 1/8"	(79.4)	47	(21.3)
B3114R-3	3"	(80)	1 3/8"	(34.9)	7/8"	(22.2)	2 3/16"	(55.6)	1/2"	(12.7)	3 3/4"	(95.2)	62	(28.1)
B3114R-3 1/2	3 1/2"	(90)	1 1/2"	(38.1)	1"	(25.4)	2 1/2"	(63.5)	1/2"	(12.7)	4 1/4"	(107.9)	71	(32.2)
B3114R-4	4"	(100)	1 19/32"	(40.5)	1"	(25.4)	2 3/4"	(69.8)	1/2"	(12.7)	4 3/4"	(120.6)	96	(43.5)
B3114R-5	5"	(125)	1 7/8"	(47.6)	1 1/8"	(28.6)	3 3/8"	(85.7)	5/8"	(15.9)	5 13/16"	(147.6)	131	(59.4)
B3114R-6	6"	(150)	2 1/8"	(54.0)	1 1/4"	(31.7)	3 15/16"	(100.0)	3/4"	(19.0)	6 7/8"	(174.6)	207	(93.9)
B3114R-8	8"	(200)	2 5/8"	(66.7)	1 1/2"	(38.1)	5 1/16"	(128.6)	7/8"	(22.2)	8 7/8"	(225.4)	323	(146.5)
B3114R-10	10"	(250)	3 3/16"	(81.0)	1 3/4"	(44.4)	6 1/4"	(158.7)	7/8"	(22.2)	11"	(279.4)	482	(218.6)
B3114R-12	12"	(300)	3 3/4"	(95.2)	2"	(50.8)	7 3/8"	(187.3)	1"	(25.4)	13"	(330.2)	854	(387.4)
B3114R-14	14"	(350)	4 3/8"	(111.1)	2 1/2"	(63.5)	8 1/4"	(209.5)	1 1/8"	(28.6)	14 1/4"	(361.9)	1150	(521.6)
B3114R-16	16"	(400)	4 5/8"	(117.5)	2 1/2"	(63.5)	9 1/4"	(234.9)	1 1/4"	(31.7)	16 1/4"	(412.7)	1200	(544.3)
B3114R-18	18"	(450)	5 1/8"	(130.2)	2 3/4"	(69.8)	10 3/8"	(263.5)	1 1/4"	(31.7)	18 1/4"	(463.5)	1550	(703.1)
B3114R-20	20"	(500)	5 5/8"	(142.9)	3"	(76.2)	11 1/2"	(292.1)	1 3/8"	(34.9)	20 1/4"	(514.3)	2080	(943.5)
B3114R-24	24"	(600)	6 3/4"	(171.4)	3 5/8"	(92.1)	13 13/16"	(350.8)	1 1/2"	(38.1)	24 1/4"	(615.9)	3300	(1496.9)
B3114R-30	30"	(750)	8 1/2"	(215.9)	4 1/2"	(114.3)	17 1/4"	(438.1)	1 3/4"	(44.4)	30 1/4"	(768.3)	6200	(2812.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3117R - Short Pattern Pipe Roller Only

Size Range: 2" (50mm) thru 42" (1050mm) pipe

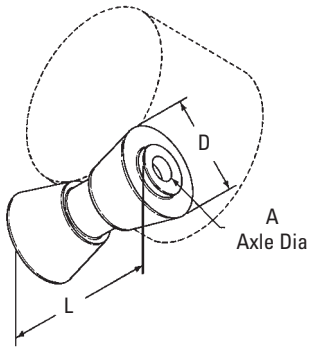
Material: Cast Iron
(Non-metallic polyurethane rollers are available)

Function: Designed for supporting pipe runs with longitudinal movement. Use with steel axle rod.

Finish: Plain

Order By: Part number and finish.

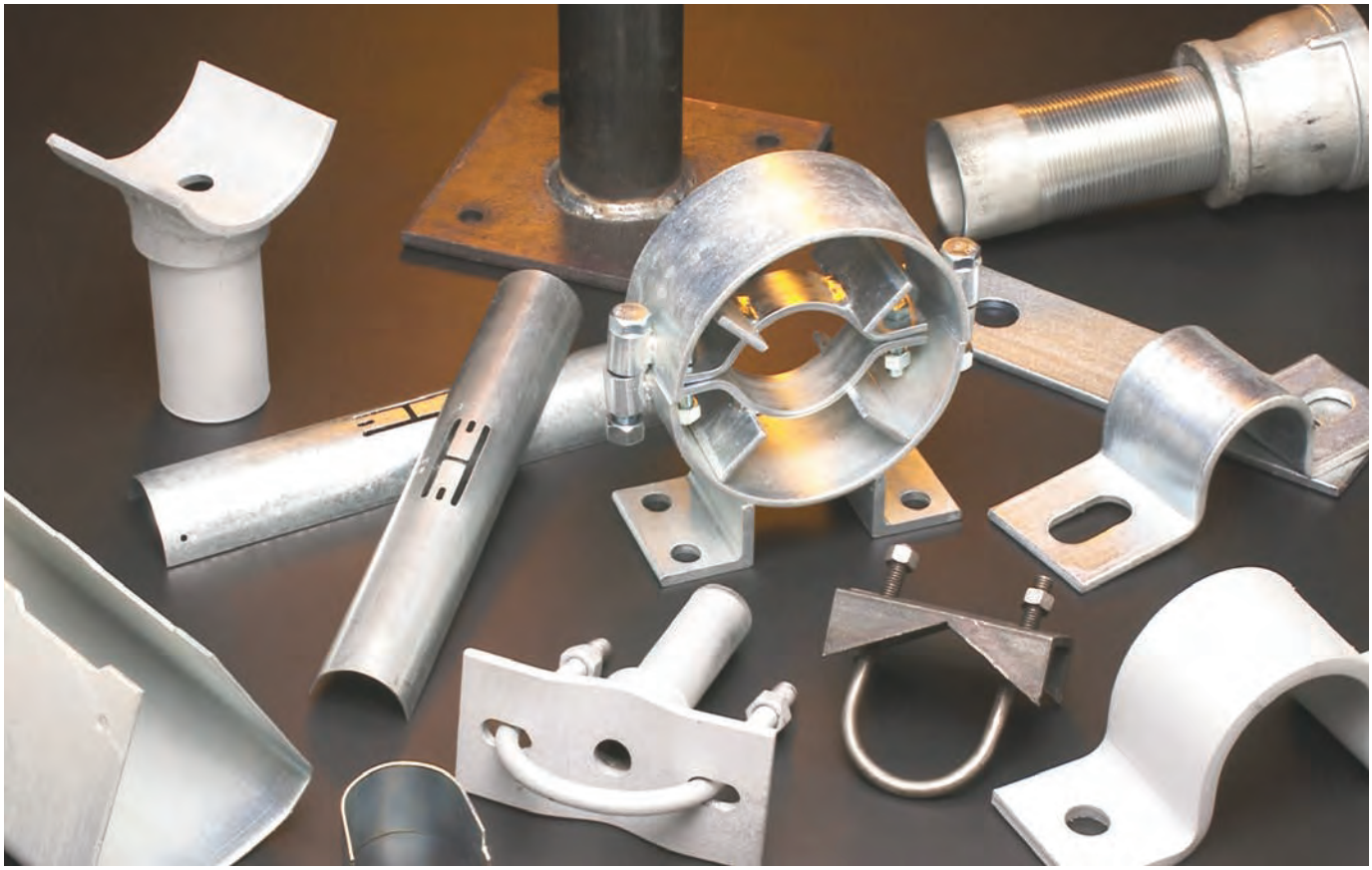
Notes: If using D.I. pipe refer to page 321 for sizing.
Non-metallic roller with stainless steel axle sleeve are available for most sizes (BFP3117R-Pipe Size). Contact Eaton Engineering for more information.



Part No.	Pipe Size in.	Pipe Size (mm)	Axle Dia. A in.	Axle Dia. A (mm)	D in.	D (mm)	L in.	L (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3117R-2 to 3 1/2	2" to 3 1/2"	(50 to 90)	1/2"	(12.7)	1 7/8"	(47.6)	2 3/4"	(69.8)	70	(31.7)
B3117R-4 to 6	4" to 6"	(100 to 150)	1/2"	(12.7)	2 1/16"	(52.4)	3 3/4"	(95.2)	114	(51.7)
B3117R-8 to 10	8", 10"	(200 to 250)	3/4"	(19.0)	3 1/4"	(82.5)	6"	(152.4)	329	(149.2)
B3117R-12 to 14	12", 14"	(300 to 350)	7/8"	(22.2)	4"	(101.6)	8"	(203.2)	600	(272.1)
B3117R-16 to 20	16" to 20"	(400 to 500)	1 1/8"	(28.6)	4 1/2"	(114.3)	9"	(228.6)	781	(354.2)
B3117R-24	24"	(600)	1 1/4"	(31.7)	4 7/16"	(112.7)	10"	(254.0)	842	(381.9)
B3117R-30	30"	(750)	1 3/4"	(44.4)	5 1/2"	(139.7)	12 1/2"	(317.5)	1385	(628.2)
B3117R-36 to 42	36" to 42"	(900 to 1050)	2"	(50.8)	6"	(152.4)	14 7/8"	(377.8)	1585	(718.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Pipe Supports, Guides, Shields & Saddles



Pipe supports offered in this section are designed to support pipe from a base structure where vertical adjustment may be required. Pipe guides and slides are designed to allow longitudinal movement due to thermal expansion and contraction of pipe. Protection shields and saddles are designed to prevent damage to pipe insulation.

Materials
Carbon Steel is used in the manufacturing of pipe supports, guides, shields and saddles. Stainless Steel and other materials are available.

Finishes
The standard finishes for mechanical supports are plain steel (oil coated) sometimes referred to as black and Electro-Plated Zinc (ASTM B633 SC3). Hot-Dip Galvanized After Fabrication (ASTM A123), Red Primer, DURA GREEN™ and other special coatings are available upon request.

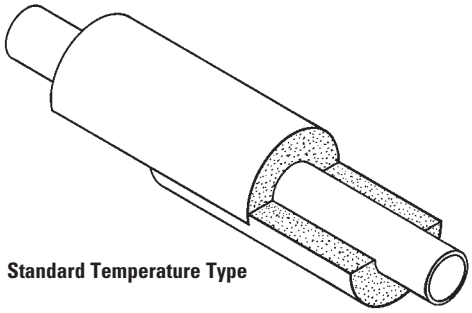
Note: Due to the design of some products, (threads, connecting hardware, swivels, etc.) items may or may not be uniformly coated with special finishes. In some cases, the hanger itself may be coated, however, the hardware may be supplied Electro-Plated, Copper plated, or in Stainless Steel.

Approvals (as noted)
Items in this section comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58.

All pipe supports in this section are sized to fit schedule 40/80 pipe unless otherwise noted. Some steel items may be specially fabricated to fit other pipe diameters i.e. ductile iron, cast iron, etc. See pipe data charts on pages 321 thru 325 for proper size selection.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3380 thru B3387
360° Calcium Silicate Shield
Pre-Insulated Support



Standard Temperature Type

Size Range: Up to 24" (600mm)

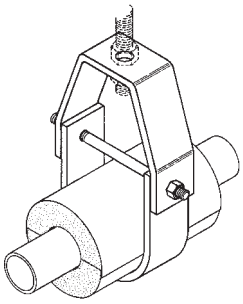
Material: Asbestos-free, Hydrous Calcium Silicate Insulation with Pre-Galvanized steel jacket

Function: Designed to provide a crush resistant insulation insert at pipe support points. Can be used with hangers or straps.
Standard type has functionality for both chilled water and hot water.

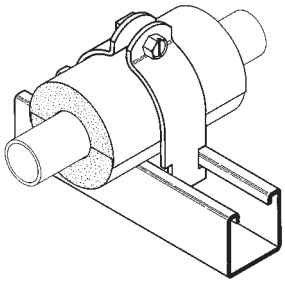
Miscellaneous Information: Flame retardant, water and rot resistant, temperature range from -20°F (-29°C) to 1200°F (649°C). Easily installed in a pipe hanger or mounted to strut.

Order By: Part number.
(See part number legend below.)
For additional information, contact factory.

Applications



Pipe Hanger



Strut Mounted

B338 0 CT - 3

Prefix	Insulation Thickness	Pipe Type	Pipe Size
B338 Commercial Duty, All Purpose Support * * Other models available Consult Factory	0 = 1/2" (13mm) 2 = 1" (25mm) 3 = 1 1/2" (38mm) 4 = 2" (51mm) 6 = 3" (76mm) 7 = 4" (101mm)	CT = Copper Tubing Sizes Blank = Std. Sch. 40 Steel	Nominal Pipe or Copper Tubing Size **Note:** Up to 24" (600mm) pipe size

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3088 - Base Stand

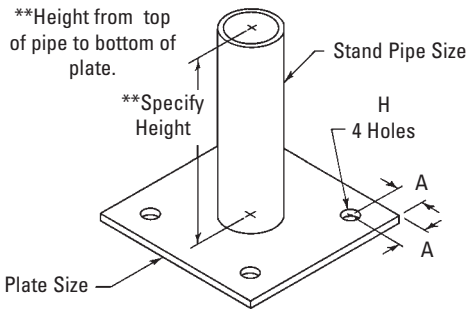
Size Range: 3/4" (20mm) thru 6" (150mm) pipe

Material: Steel

Function: Designed as an unthreaded base stand for pipe supports B3090, B3094, B3095, B3096, B3097 and B3098.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number, height and finish.



Note: Match B3088 part number with dimension 'D' from B3090, B3094, B3095, B3096, B3097 or B3098 charts.

Part No.	Plate Size in.	Plate Size (mm)	Stand Pipe Size in.	Stand Pipe Size (mm)	A in.	A (mm)	Dia. H in.	Dia. H (mm)	Approx. Wt./100* Lbs.	Approx. Wt./100* (kg)
B3088-3/4	1/4" x 6" x 6"	(6.3 x 152.4 x 152.4)	3/4"	(20)	7/8"	(22.2)	3/4"	(14.3)	420	(190.5)
B3088-1	1/4" x 6" x 6"	(6.3 x 152.4 x 152.4)	1"	(25)	7/8"	(22.2)	3/4"	(14.3)	480	(216.0)
B3088-1 1/4	1/4" x 6" x 6"	(6.3 x 152.4 x 152.4)	1 1/4"	(32)	7/8"	(22.2)	3/4"	(14.3)	590	(267.6)
B3088-1 1/2	1/4" x 6" x 6"	(6.3 x 152.4 x 152.4)	1 1/2"	(40)	7/8"	(22.2)	3/4"	(14.3)	655	(297.1)
B3088-2	1/4" x 6" x 6"	(6.3 x 152.4 x 152.4)	2"	(50)	7/8"	(22.2)	3/4"	(14.3)	1211	(549.3)
B3088-2 1/2	3/8" x 8" x 8"	(9.5 x 203.2 x 203.2)	2 1/2"	(65)	1 1/4"	(31.7)	13/16"	(14.3)	2376	(1077.7)
B3088-3	3/8" x 12" x 12"	(9.5 x 203.2 x 203.2)	3"	(80)	1 1/2"	(38.1)	13/16"	(20.6)	3137	(1422.9)
B3088-4	1/2" x 12" x 12"	(12.7 x 304.8 x 304.8)	4"	(100)	1 1/2"	(38.1)	15/16"	(23.8)	4338	(1967.7)
B3088-6	1/2" x 18" x 18"	(12.7 x 304.8 x 304.8)	6"	(150)	1 1/2"	(38.1)	1 1/8"	(28.6)	7378	(3346.6)

*Based on a height of 18" (457.2mm).

B3088T - Threaded Base Stand

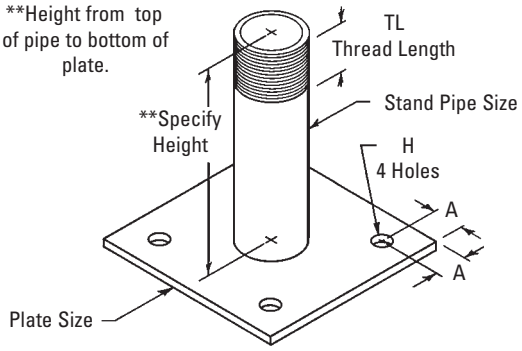
Size Range: 1" (25mm) thru 4" (100mm) pipe

Material: Steel

Function: Designed as a threaded base stand where vertical adjustment is required for pipe supports B3089, B3092, and B3093.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number, height and finish.



Note: Match B3088T part number with dimension 'D' from B3089, B3092, and B3093 charts.

Part No.	Plate Size in.	Plate Size (mm)	Stand Pipe Size in.	Stand Pipe Size (mm)	A in.	A (mm)	Dia. H in.	Dia. H (mm)	TL in.	TL (mm)	Approx. Wt./100* Lbs.	Approx. Wt./100* (kg)
B3088T-1	1/4"x 6"x 6"	(6.3 x 152.4 x 152.4)	1"	(25)	7/8"	(22.2)	3/4"	(19.0)	1 1/2"	(38.1)	495	(224.5)
B3088T-1 1/4	1/4"x 6"x 6"	(6.3 x 152.4 x 152.4)	1 1/4"	(32)	7/8"	(22.2)	3/4"	(19.0)	1 1/2"	(38.1)	583	(264.4)
B3088T-1 1/2	1/4"x 6"x 6"	(6.3 x 152.4 x 152.4)	1 1/2"	(40)	7/8"	(22.2)	3/4"	(19.0)	1 1/2"	(38.1)	649	(294.4)
B3088T-2	1/4"x 6"x 6"	(6.3 x 152.4 x 152.4)	2"	(50)	7/8"	(22.2)	3/4"	(19.0)	1 1/2"	(38.1)	785	(356.1)
B3088T-2 1/2	3/8"x 8"x 8"	(9.5 x 203.2 x 203.2)	2 1/2"	(65)	1 1/4"	(31.7)	13/16"	(20.6)	1 1/2"	(38.1)	1524	(691.3)
B3088T-3	3/8"x 12"x 12"	(9.5 x 304.8 x 304.8)	3"	(80)	1 1/2"	(38.1)	13/16"	(20.6)	1 1/2"	(38.1)	2624	(1190.2)
B3088T-4	1/2"x 12"x 12"	(12.7 x 304.8 x 304.8)	4"	(100)	1 1/2"	(38.1)	15/16"	(23.8)	2"	(50.8)	3594	(1630.2)

B3988T-1 and B3088T-1 1/4 can not be used with B3089, B3092 , and B3093.
*Based on a height of 18" (457.2mm).

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3088S - Seismic base stand

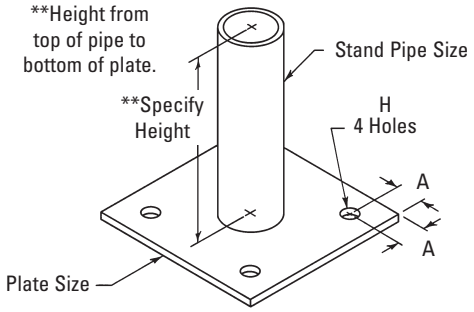
Size Range: 3/4" (20mm) thru 4" (100mm) pipe

Material: Steel

Function: Designed as an unthreaded base stand for pipe supports, B3090, B3094, B3095, B3096, B3097 and B3098, to meet requirements of 12X anchor diameter hole spacing for seismic applications. The standard B3088-3 & B3088-6 already meet this requirement.

Finish: Plain or Electro-Galvanized**.** Contact customer service for alternative finishes and materials.

Order By: Part number, height and finish.



Note: Match B3088S part number with dimension 'D' from B3090, B3094, B3095, B3096, B3097 or B3098 charts.

Part No.	Plate Size in.	Plate Size (mm)	Stand Pipe Size in.	Stand Pipe Size (mm)	A in.	A (mm)	Dia. H in.	Dia. H (mm)	Approx. Wt./100* Lbs.	Approx. Wt./100* (kg)
B3088S-3/4	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	3/4"	(20)	1"	(25.4)	9/16"	(14.3)	618	(280.3)
B3088S-1	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	1"	(25)	1"	(25.4)	9/16"	(14.3)	708	(321.1)
B3088S-1 1/4	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	1 1/4"	(20)	1"	(25.4)	9/16"	(14.3)	798	(362.0)
B3088S-1 1/2	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	1 1/2"	(32)	1"	(25.4)	9/16"	(14.3)	858	(389.2)
B3088S-2	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	2"	(50)	1"	(25.4)	9/16"	(14.3)	993	(450.4)
B3088S-2 1/2	3/8" x 8 1/2" x 8 1/2"	(9.5 x 215.9 x 215.9)	2 1/2"	(65)	1 1/4"	(31.7)	9/16"	(14.3)	1638	(743.0)
B3088S-4	1/2" x 13 1/2" x 13 1/2"	(12.7 x 342.9 x 342.9)	4"	(100)	1 1/2"	(38.1)	15/16"	(23.8)	4202	(1906.0)

*Based on a height of 18" (457.2mm).

B3088ST - Threaded seismic base stand

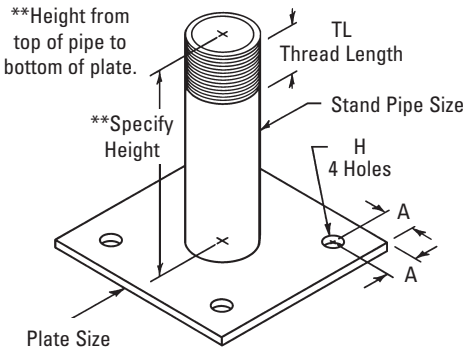
Size Range: 1" (25mm) thru 4" (100mm) pipe

Material: Steel

Function: Designed as a threaded base stand where vertical adjustment is required for pipe supports B3089, B3092, and B3093, to meet requirements of 12X anchor diameter hole spacing for seismic applications. The standard B3088T-3 already meets this requirement.

Finish: Plain or Electro-Galvanized**.** Contact customer service for alternative finishes and materials.

Order By: Part number, height and finish.



Note: Match B3088ST part number with dimension 'D' from B3089, B3092, and B3093 charts.

Part No.	Plate Size in.	Plate Size (mm)	Stand Pipe Size in.	Stand Pipe Size (mm)	A in.	A (mm)	Dia. H in.	Dia. H (mm)	TL in.	TL (mm)	Approx. Wt./100* Lbs.	Approx. Wt./100* (kg)
B3088ST-1	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	1"	(25)	1"	(25.4)	9/16"	(14.3)	1 1/2"	(38.1)	708	(321.1)
B3088ST-1 1/4	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	1 1/4"	(32)	1"	(25.4)	9/16"	(14.3)	1 1/2"	(38.1)	798	(362.0)
B3088ST-1 1/2	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	1 1/2"	(40)	1"	(25.4)	9/16"	(14.3)	1 1/2"	(38.1)	858	(389.2)
B3088ST-2	1/4" x 8" x 8"	(6.3 x 203.2 x 203.2)	2"	(50)	1"	(25.4)	9/16"	(14.3)	1 1/2"	(38.1)	993	(450.4)
B3088ST-2 1/2	3/8" x 8 1/2" x 8 1/2"	(9.5 x 215.9 x 215.9)	2 1/2"	(65)	1 1/4"	(31.7)	9/16"	(14.3)	1 1/2"	(38.1)	1638	(743.0)
B3088ST-4	1/2" x 13 1/2" x 13 1/2"	(12.7 x 342.9 x 342.9)	4"	(100)	1 1/2"	(38.1)	15/16"	(23.8)	2"	(50.8)	4202	(1906.0)

*Based on a height of 18" (457.2mm).

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3096 - Adjustable Pipe Saddle Support

Size Range: Size 2" (505mm) thru 12" (300mm) pipe

Material: Steel

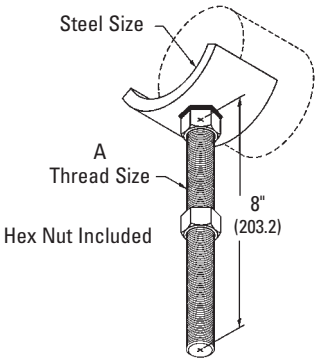
Function: Designed to support horizontal pipe from floor stanchion where vertical adjustment is required.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 39 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 38.

Maximum Temperature: 650°F (343°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish



Shank will fit into Sch. 40
Pipe Size 'D' (not included)

Part No.	Pipe Size in.	(mm)	Max. Pipe O.D. in.	(mm)	Thread Size A	D in.	(mm)	Steel Size in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3096-2	2"	(50)	2 3/8"	(60.3)	7/8"-9	1"	(25)	3/8" x 2"	(9.5 x 50.8)	212	(96.1)
B3096-3	3"	(80)	3 1/2"	(88.9)	7/8"-9	1"	(25)	3/8" x 2"	(9.5 x 50.8)	259	(117.5)
B3096-4	4"	(100)	4 1/2"	(114.3)	1"-8	1"	(25)	3/8" x 3"	(9.5 x 76.2)	370	(167.8)
B3096-5	5"	(125)	5 9/16"	(141.3)	1"-8	1"	(25)	3/8" x 3"	(9.5 x 76.2)	404	(183.2)
B3096-6	6"	(150)	6 5/8"	(168.3)	1 1/4"-7	1 1/4"	(32)	1/2" x 3 1/2"	(12.7 x 88.9)	714	(323.9)
B3096-8	8"	(200)	8 5/8"	(219.1)	1 1/4"-7	1 1/4"	(32)	1/2" x 3 1/2"	(12.7 x 88.9)	819	(371.5)
B3096-10	10"	(250)	10 3/4"	(273.0)	1 1/2"-6	1 1/2"	(40)	1/2" x 4"	(12.7 x 101.6)	1194	(541.6)
B3096-12	12"	(300)	12 3/4"	(323.8)	1 1/2"-6	1 1/2"	(40)	1/2" x 4"	(12.7 x 101.6)	1315	(596.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3089 - Pipe Adjuster

Size Range: For use with 1½" (40mm) thru 36" (900mm) pipe

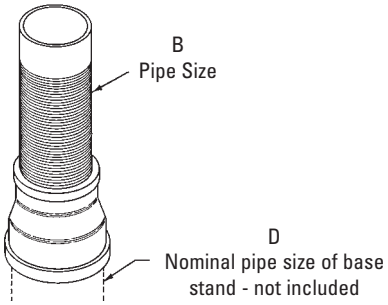
Material: Steel

Function: Straight threaded shank that permits adjustment after installation

Maximum Temperature: 650°F (343°C)

Finish: Plain. Contact B-Line for alternative finishes and materials.

Order By: Part number and finish



Note:
If combining a Figure B3089 (Pipe adjuster) with a Figure B3090 (Pipe Support - pages 132 & 133) the catalog number will become a Figure B3092 (see pages 136 & 137).

If combining a Figure B3089 (Pipe adjuster) with a Figure B3095 (Pipe Support Saddle - pages 134 & 135) the catalog number will become a Figure B3093 (see pages 138 & 139).

Part No.	To Support Pipe Size in.	(mm)	B in.	(mm)	D in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3089-3/4	1 1/2" - 2"	(40 - 50)	3/4"	(20)	1 1/2"	(40)	140	(63.5)
B3089-1 1/2	2 1/2" - 3 1/2"	(65 - 90)	1 1/2"	(40)	2 1/2"	(65)	400	(181.4)
B3089-2 1/2	4" - 12"	(100 - 300)	2 1/2"	(65)	3"	(80)	700	(317.5)
B3089-3	14" - 16"	(350 - 400)	3"	(80)	4"	(100)	1000	(453.6)
B3089-4	18" - 36"	(450 - 900)	4"	(100)	6"	(150)	2200	(997.9)

When determining base stand height, add 6" (152.4mm) to the "C" dimension of the support being utilized on B3090, B3095, B3097, and B3094 pipe and flange supports.
This will provide a vertical adjustment capability of 2 1/4" (57.1mm) each direction.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3090 - Pipe Support with U-Bolt

Size Range: 3/4" (20mm) thru 36" (900mm) pipe

Material: Steel

Function: Designed to support horizontal pipe from floor stanchion. U-bolts and hex nuts are provided to hold pipe securely to saddle. To complete floor stanchion, use with B3088 pipe stand.

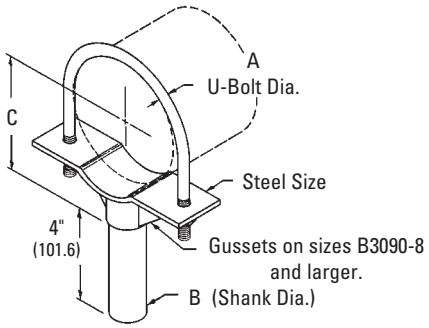
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 38 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 37

Maximum Temperature: 750°F (399°)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

Note: For vertical adjustment see Figure B3092 (pages 136 & 137)



C
Center of pipe to bottom lip of support.

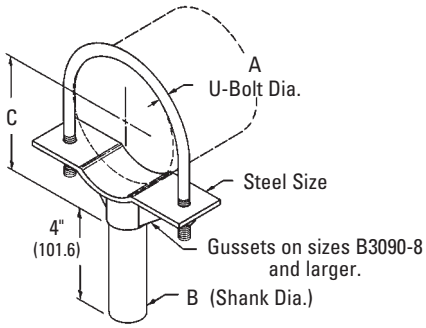
* Shank will fit into nominal Schedule 40 pipe size 'D' of Base Stand Figure B3088 (not included).

Part No.	Pipe Size in.	(mm)	Max. O.D. of Pipe in.	(mm)	Steel Size in.	(mm)	A in.	(mm)
B3090-3/4	3/4"	(20)	1 3/8"	(34.9)	1/4" x 1 1/2"	(6.3 x 38.1)	1/4"	(6.4)
B3090-1	1"	(25)	1 3/8"	(34.9)	1/4" x 1 1/2"	(6.3 x 38.1)	1/4"	(6.4)
B3090-1 1/4	1 1/4"	(32)	1 11/16"	(42.9)	1/4" x 2"	(6.3 x 50.8)	3/8"	(9.5)
B3090-1 1/2	1 1/2"	(40)	2"	(50.8)	1/4" x 2"	(6.3 x 50.8)	3/8"	(9.5)
B3090-2	2"	(50)	2 7/16"	(61.9)	1/4" x 2"	(6.3 x 50.8)	3/8"	(9.5)
B3090-2 1/2	2 1/2"	(65)	2 7/8"	(73.0)	1/4" x 3"	(6.3 x 76.2)	1/2"	(12.7)
B3090-3	3"	(80)	3 1/2"	(88.9)	1/4" x 3"	(6.3 x 76.2)	1/2"	(12.7)
B3090-3 1/2	3 1/2"	(90)	4"	(101.6)	1/4" x 3"	(6.3 x 76.2)	1/2"	(12.7)
B3090-4	4"	(100)	4 7/8"	(123.8)	3/8" x 3 1/2"	(9.5 x 88.9)	1/2"	(12.7)
B3090-5	5"	(125)	5 5/8"	(142.9)	3/8" x 3 1/2"	(9.5 x 88.9)	1/2"	(12.7)
B3090-6	6"	(150)	6 29/32"	(175.4)	1/2" x 3 1/2"	(12.7 x 88.9)	5/8"	(15.9)
B3090-8	8"	(200)	9 1/8"	(231.8)	1/2" x 3 1/2"	(12.7 x 88.9)	5/8"	(15.9)
B3090-10	10"	(250)	11 3/32"	(281.8)	1/2" x 3 1/2"	(12.7 x 88.9)	3/4"	(19.0)
B3090-12	12"	(300)	13 3/16"	(335.0)	1/2" x 3 1/2"	(12.7 x 88.9)	7/8"	(22.2)
B3090-14	14"	(350)	14"	(355.6)	5/8" x 4"	(19.0 x 101.6)	7/8"	(22.2)
B3090-16	16"	(400)	16"	(406.4)	5/8" x 4"	(19.0 x 101.6)	7/8"	(22.2)
B3090-18	18"	(450)	18"	(457.2)	3/4" x 5"	(19.0 x 127.0)	1"	(25.4)
B3090-20	20"	(500)	20"	(508.0)	3/4" x 5"	(19.0 x 127.0)	1"	(25.4)
B3090-24	24"	(600)	24"	(609.6)	1" x 5"	(25.4 x 127.0)	1"	(25.4)
B3090-30	30"	(750)	30"	(762.0)	1" x 5"	(25.4 x 127.0)	1"	(25.4)
B3090-36	36"	(900)	36"	(914.4)	1" x 5"	(25.4 x 127.0)	1"	(25.4)

Note:
4" (100) thru 12" (300) fits both steel and ductile iron pipe.
For other ductile iron pipe sizes specify B3090DI - size.
3" (80) ductile iron uses B3090-3 1/2
Not available for 36" (900) ductile iron pipe size

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3090 - Pipe Support with U-Bolt cont.



C
Center of pipe to bottom lip of support.

* Shank will fit into nominal Schedule 40 pipe size 'D' of Base Stand Figure B3088 (not included).

Note: For vertical adjustment see Figure B3092 (pages 136 & 137)

	B		C		D *		Approx. Wt./100	
Part No.	in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kg)
B3090-3/4	3/4"	(19.0)	2"	(50.8)	3/4"	(19)	107	(48.5)
B3090-1	3/4"	(19.0)	2 5/32"	(54.8)	3/4"	(19)	117	(53.1)
B3090-1 1/4	3/4"	(19.0)	2 21/64"	(59.1)	3/4"	(19)	149	(67.6)
B3090-1 1/2	3/4"	(19.0)	2 1/2"	(63.5)	3/4"	(19)	166	(75.3)
B3090-2	3/4"	(19.0)	2 11/16"	(68.3)	3/4"	(19)	186	(84.4)
B3090-2 1/2	1 5/16"	(33.3)	3 1/8"	(79.4)	1 1/2"	(40)	251	(113.8)
B3090-3	1 5/16"	(33.3)	3 7/16"	(87.3)	1 1/2"	(40)	316	(143.3)
B3090-3 1/2	1 5/16"	(33.3)	3 11/16"	(93.7)	1 1/2"	(40)	317	(143.8)
B3090-4	2 3/8"	(60.3)	4 1/16"	(103.2)	2 1/2"	(65)	586	(265.8)
B3090-5	2 3/8"	(60.3)	4 17/32"	(115.1)	2 1/2"	(65)	621	(281.7)
B3090-6	2 3/8"	(60.3)	5 5/16"	(134.9)	2 1/2"	(65)	895	(406.0)
B3090-8	2 3/8"	(60.3)	6 3/4"	(171.4)	2 1/2"	(65)	1115	(505.7)
B3090-10	2 3/8"	(60.3)	7 13/16"	(198.4)	2 1/2"	(65)	1423	(645.5)
B3090-12	2 3/8"	(60.3)	8 13/16"	(223.8)	2 1/2"	(65)	1846	(837.3)
B3090-14	2 7/8"	(73.0)	10 9/16"	(268.3)	3"	(80)	2593	(1176.2)
B3090-16	2 7/8"	(73.0)	11 9/16"	(293.7)	3"	(80)	2825	(1281.4)
B3090-18	4"	(101.6)	13 9/16"	(344.5)	4"	(100)	4843	(2196.8)
B3090-20	4"	(101.6)	14 9/16"	(369.9)	4"	(100)	5225	(2370.0)
B3090-24	4"	(101.6)	16 9/16"	(420.7)	4"	(100)	6970	(3161.6)
B3090-30	4"	(101.6)	20 11/16"	(525.5)	4"	(100)	8587	(3895.0)
B3090-36	4"	(101.6)	23 11/16"	(601.7)	4"	(100)	9977	(4525.5)

Note:
4" (100) thru 12" (300) fits both steel and ductile iron pipe.
For other ductile iron pipe sizes specify B3090DI - size.
3" (80) ductile iron uses B3090-3 1/2
Not available for 36" (900) ductile iron pipe size

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3095 - Pipe Saddle Support

Size Range: 1½" (40mm) thru 36" (900mm) pipe

Material: Steel

Function: Designed to support horizontal pipe from floor stanchion. To complete floor stanchion, use with B3088 pipe stand.

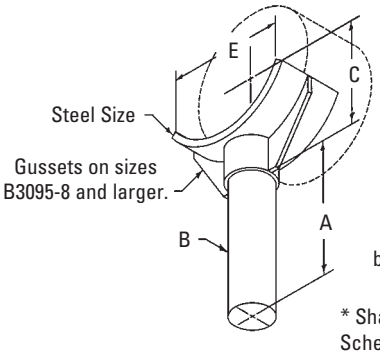
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 37 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 36

Maximum Temperature: 750°F (399°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

Note: For vertical adjustment see Figure B3093 (pages 138 & 139)



A
Shank Length

B
Shank Diameter

C
Center of pipe to bottom lip of support.

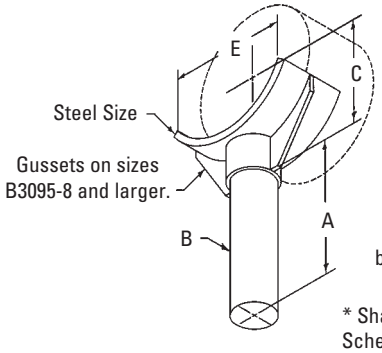
* Shank will fit into nominal Schedule 40 pipe size 'D' of Base Stand Figure B3088 (not included).

Part No.	Pipe Size in.	(mm)	Max. O.D. of Pipe in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)
B3095-1	1"	(25)	1 5/16"	(33.3)	3"	(76.2)	3/4"	(19.0)	1 29/32"	(48.4)
B3095-1 1/4	1 1/4"	(32)	1 11/16"	(42.9)	3"	(76.2)	3/4"	(19.0)	2 5/64"	(52.8)
B3095-1 1/2	1 1/2"	(40)	1 15/16"	(49.2)	3"	(76.2)	3/4"	(19.0)	2 13/64"	(55.9)
B3095-2	2"	(50)	2 3/8"	(60.3)	3"	(76.2)	3/4"	(19.0)	2 7/16"	(61.9)
B3095-2 1/2	2 1/2"	(65)	2 7/8"	(73.0)	4"	(101.6)	1 5/16"	(33.3)	2 9/16"	(65.1)
B3095-3	3"	(80)	3 1/2"	(88.9)	4"	(101.6)	1 5/16"	(33.3)	3"	(76.2)
B3095-3 1/2	3 1/2"	(90)	4"	(101.6)	4"	(101.6)	1 5/16"	(33.3)	3 1/4"	(82.5)
B3095-4	4"	(100)	4 7/8"	(123.8)	4"	(101.6)	2 3/8"	(60.3)	3 1/2"	(88.9)
B3095-5	5"	(125)	5 5/8"	(142.9)	4"	(101.6)	2 3/8"	(60.3)	4 1/32"	(102.4)
B3095-6	6"	(150)	7"	(177.8)	4"	(101.6)	2 3/8"	(60.3)	4 11/16"	(119.1)
B3095-8	8"	(200)	9 1/8"	(231.8)	4"	(101.6)	2 3/8"	(60.3)	6 1/16"	(154.0)
B3095-10	10"	(250)	11 1/8"	(282.6)	4"	(101.6)	2 3/8"	(60.3)	7 3/4"	(196.8)
B3095-12	12"	(300)	13 1/2"	(342.9)	4"	(101.6)	2 3/8"	(60.3)	8 3/4"	(222.2)
B3095-14	14"	(350)	14"	(355.6)	4"	(101.6)	2 7/8"	(72.9)	10 3/4"	(273.0)
B3095-16	16"	(400)	16"	(406.4)	4"	(101.6)	2 7/8"	(72.9)	11 3/4"	(298.4)
B3095-18	18"	(450)	18"	(457.2)	4"	(101.6)	4"	(101.6)	14 1/2"	(368.3)
B3095-20	20"	(500)	20"	(508.0)	4"	(101.6)	4"	(101.6)	14 1/2"	(368.3)
B3095-24	24"	(600)	24"	(609.6)	4"	(101.6)	4"	(101.6)	17 3/4"	(450.8)
B3095-30	30"	(750)	30"	(762.0)	4"	(101.6)	4"	(101.6)	21 1/4"	(539.7)
B3095-36	36"	(900)	36"	(914.4)	4"	(101.6)	4"	(101.6)	24 1/4"	(615.9)

Note:
4" (100) thru 12" (300) fits both steel and ductile iron pipe.
For other ductile iron pipe sizes specify B3095DI - size.
3" (80) ductile iron uses B3095-3 1/2
Not available for 36" (900) ductile iron pipe size

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3095 - Pipe Saddle Support cont.



A
Shank Length

B
Shank Diameter

C
Center of pipe to
bottom lip of support.

* Shank will fit into nominal Schedule 40 pipe size 'D' of Base Stand Figure B3088 (not included).

Note: For vertical adjustment see Figure B3093 (pages 138 & 139)

Part No.	D * in.	D * (mm)	E in.	E (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3095-1	3/4"	(20)	1 1/8"	(28.6)	49	(22.2)
B3095-1 1/4	3/4"	(20)	1 7/16"	(36.5)	81	(36.7)
B3095-1 1/2	3/4"	(20)	1 21/32"	(42.0)	88	(39.9)
B3095-2	3/4"	(20)	2 1/16"	(52.4)	94	(42.6)
B3095-2 1/2	1 1/2"	(40)	2 1/2"	(63.5)	167	(75.7)
B3095-3	1 1/2"	(40)	3 1/32"	(77.0)	176	(79.8)
B3095-3 1/2	1 1/2"	(40)	3 7/16"	(87.3)	188	(85.3)
B3095-4	2 1/2"	(65)	4 1/4"	(107.9)	364	(165.1)
B3095-5	2 1/2"	(65)	4 13/16"	(122.2)	381	(172.8)
B3095-6	2 1/2"	(65)	6 1/16"	(154.0)	534	(242.2)
B3095-8	2 1/2"	(65)	7 15/16"	(201.5)	796	(361.0)
B3095-10	2 1/2"	(65)	9 5/8"	(244.5)	914	(414.6)
B3095-12	2 1/2"	(65)	11 11/16"	(296.9)	1068	(484.4)
B3095-14	3"	(80)	12 1/8"	(308.0)	1654	(750.2)
B3095-16	3"	(80)	13 7/8"	(352.4)	1817	(824.2)
B3095-18	4"	(100)	15 19/32"	(396.1)	2798	(1269.2)
B3095-20	4"	(100)	17 5/16"	(439.7)	3018	(1368.9)
B3095-24	4"	(100)	20 25/32"	(527.8)	3018	(1368.9)
B3095-30	4"	(100)	26"	(660.4)	7624	(3458.2)
B3095-36	4"	(100)	31 3/16"	(792.2)	8877	(4026.6)

Note:
4" (100) thru 12" (300) fits both steel and ductile iron pipe.
For other ductile iron pipe sizes specify B3095DI - size.
3" (80) ductile iron uses B3095-3 1/2
Not available for 36" (900) ductile iron pipe size

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3092 - Adjustable Pipe Saddle Support with Yoke

Size Range: 3/4" (20mm) thru 36" (900mm) pipe

Material: Steel with cast iron reducer

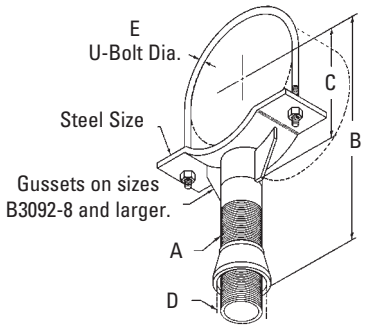
Function: Designed to support horizontal pipe from floor stanchion where vertical adjustment is required. U-bolt and hex nuts are provided to hold pipe securely to saddle. To complete floor stanchion, use with B3088T threaded pipe stand.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 38 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 37.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

Notes: Order with B3088T (page 128) for complete stanchion support.
4" (100) thru 12" (300) fits both steel and ductile iron pipe. For other ductile iron pipe sizes specify B3092DI - size. 3" (80) Ductile Iron uses B3092-3 1/2
Not available for 36" (900) ductile iron pipe size



A
Schedule 40 Pipe Size

B
Center of pipe to bottom of pipe reducer.

C
Center of pipe to bottom lip of support.

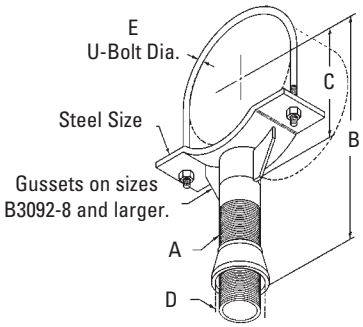
D
Nominal pipe size of base stand - Figure B3088T, not included.

E
U-Bolt Dia.

	Pipe Size		Maximum		A		B Minimum		B Maximum	
Part No.	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
B3092-3/4	3/4"	(19)	1 3/8"	(34.9)	3/4"	(19)	5 3/4"	(146.0)	10 1/4"	(260.3)
B3092-1	1"	(25)	1 3/8"	(34.9)	3/4"	(19)	5 29/32"	(150.0)	10 13/32"	(264.3)
B3092-1 1/4	1 1/4"	(32)	1 11/16"	(42.9)	3/4"	(19)	6 5/64"	(154.4)	10 37/64"	(268.7)
B3092-1 1/2	1 1/2"	(38)	2"	(50.8)	3/4"	(19)	6 1/4"	(158.7)	10 3/4"	(273.0)
B3092-2	2"	(50)	2 7/16"	(61.9)	3/4"	(19)	6 7/16"	(163.5)	10 15/16"	(277.8)
B3092-2 1/2	2 1/2"	(65)	2 7/8"	(73.0)	1 1/2"	(40)	6 7/8"	(174.6)	11 3/8"	(288.9)
B3092-3	3"	(80)	3 1/2"	(88.9)	1 1/2"	(40)	7 3/16"	(182.6)	11 11/16"	(296.9)
B3092-3 1/2	3 1/2"	(90)	4"	(101.6)	1 1/2"	(40)	7 7/16"	(188.9)	11 15/16"	(303.2)
B3092-4	4"	(100)	4 7/8"	(123.8)	2 1/2"	(65)	7 13/16"	(198.4)	12 5/16"	(312.7)
B3092-5	5"	(125)	5 5/8"	(142.9)	2 1/2"	(65)	8 9/32"	(210.3)	12 25/32"	(324.6)
B3092-6	6"	(150)	6 29/32"	(175.4)	2 1/2"	(65)	9 1/16"	(230.2)	13 9/16"	(344.5)
B3092-8	8"	(200)	9 1/8"	(231.8)	2 1/2"	(65)	10 1/2"	(266.7)	15"	(381.0)
B3092-10	10"	(250)	11 3/32"	(281.8)	2 1/2"	(65)	11 9/16"	(293.7)	16 1/16"	(408.0)
B3092-12	12"	(300)	13 3/16"	(334.9)	2 1/2"	(65)	12 9/16"	(319.1)	17 1/16"	(433.4)
B3092-14	14"	(350)	14"	(355.6)	3"	(80)	14 5/16"	(363.5)	18 13/16"	(477.8)
B3092-16	16"	(400)	16"	(406.4)	3"	(80)	15 5/16"	(388.9)	19 13/16"	(503.2)
B3092-18	18"	(450)	18"	(457.2)	4"	(100)	17 5/16"	(439.7)	21 13/16"	(554.0)
B3092-20	20"	(500)	20"	(508.0)	4"	(100)	18 5/16"	(465.1)	22 13/16"	(579.4)
B3092-24	24"	(600)	24"	(609.6)	4"	(100)	20 5/16"	(515.9)	24 13/16"	(630.2)
B3092-30	30"	(750)	30"	(762.0)	4"	(100)	24 7/16"	(620.7)	28 15/16"	(735.0)
B3092-36	36"	(900)	36"	(914.4)	4"	(100)	27 7/16"	(696.9)	31 15/16"	(811.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3092 - Adjustable Pipe Saddle Support with Yoke cont.



A
Schedule 40 Pipe Size

B
Center of pipe to bottom of pipe reducer.

C
Center of pipe to bottom lip of support.

D
Nominal pipe size of base stand - Figure B3088T, not included.

E
U-Bolt Dia.

Part No.	C		D		E		Saddle Steel Size		Approx. Wt./100	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kg)
B3092-3/4	2"	(50.8)	1 1/2"	(38)	1/4"	(6.4)	1/4" x 1 1/2"	(6.3 x 38.1)	247	(112.0)
B3092-1	2 5/32"	(54.8)	1 1/2"	(38)	1/4"	(6.4)	1/4" x 1 1/2"	(6.3 x 38.1)	257	(116.6)
B3092-1 1/4	2 21/64"	(59.1)	1 1/2"	(38)	3/8"	(9.5)	1/4" x 2"	(6.3 x 50.8)	289	(131.1)
B3092-1 1/2	2 1/2"	(63.5)	1 1/2"	(38)	3/8"	(9.5)	1/4" x 2"	(6.3 x 50.8)	306	(138.8)
B3092-2	2 11/16"	(68.3)	1 1/2"	(38)	3/8"	(9.5)	1/4" x 2"	(6.3 x 50.8)	326	(147.9)
B3092-2 1/2	3 1/8"	(79.4)	2 1/2"	(65)	1/2"	(12.7)	1/4" x 3"	(6.3 x 76.2)	651	(295.3)
B3092-3	3 7/16"	(87.3)	2 1/2"	(65)	1/2"	(12.7)	1/4" x 3"	(6.3 x 76.2)	716	(324.8)
B3092-3 1/2	3 11/16"	(93.7)	2 1/2"	(65)	1/2"	(12.7)	1/4" x 3"	(6.3 x 76.2)	717	(325.2)
B3092-4	4 1/4"	(107.9)	3"	(80)	1/2"	(12.7)	3/8" x 3 1/2"	(9.5 x 88.9)	1286	(583.3)
B3092-5	4 9/16"	(115.9)	3"	(80)	1/2"	(12.7)	3/8" x 3 1/2"	(9.5 x 88.9)	1321	(599.2)
B3092-6	5 1/2"	(139.7)	3"	(80)	5/8"	(15.9)	1/2" x 3 1/2"	(12.7 x 88.9)	1595	(723.5)
B3092-8	7"	(177.8)	3"	(80)	5/8"	(15.9)	1/2" x 3 1/2"	(12.7 x 88.9)	1815	(823.3)
B3092-10	8"	(203.2)	3"	(80)	3/4"	(19.0)	1/2" x 3 1/2"	(12.7 x 88.9)	2123	(963.0)
B3092-12	9 3/16"	(233.4)	3"	(80)	7/8"	(22.2)	1/2" x 3 1/2"	(12.7 x 88.9)	2546	(1154.8)
B3092-14	10 9/16"	(268.3)	4"	(100)	7/8"	(22.2)	5/8" x 4"	(15.9 x 101.6)	3593	(1629.8)
B3092-16	11 9/16"	(293.7)	4"	(100)	7/8"	(22.2)	5/8" x 4"	(15.9 x 101.6)	3825	(1735.0)
B3092-18	13 9/16"	(344.5)	6"	(150)	1"	(25.4)	3/4" x 5"	(19.0 x 127.0)	7043	(3194.7)
B3092-20	14 9/16"	(369.9)	6"	(150)	1"	(25.4)	3/4" x 5"	(19.0 x 127.0)	7425	(3368.0)
B3092-24	16 9/16"	(420.7)	6"	(150)	1"	(25.4)	1" x 5"	(25.4 x 127.0)	9170	(4159.5)
B3092-30	20 11/16"	(525.5)	6"	(150)	1"	(25.4)	1" x 5"	(25.4 x 127.0)	10787	(4893.0)
B3092-36	23 11/16"	(601.7)	6"	(150)	1"	(25.4)	1" x 5"	(25.4 x 127.0)	12177	(5523.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3093 - Adjustable Pipe Saddle Support

Size Range: 1" (25mm) thru 36" (900mm) pipe

Material: Steel with cast iron reducer

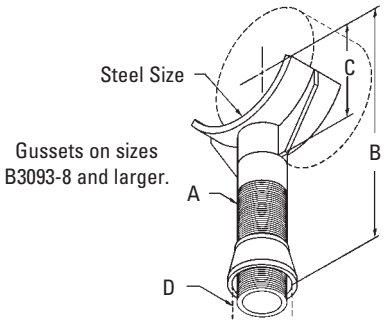
Function: Designed to support horizontal pipe from floor stanchion where vertical adjustment is required. U-bolt and hex nuts are provided to hold pipe securely to saddle. To complete floor stanchion, use with B3088T threaded pipe stand.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 39 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 38.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

Note: Order with B3088T (page 128) for complete stanchion support.



A
Schedule 40 Pipe Size

B
Center of pipe to bottom of pipe reducer.

C
Center of pipe to bottom lip of support.

D
Nominal pipe size of base stand - Figure B3088T, not included.

Plain

Part No.	Pipe Size in.	(mm)	Maximum in.	(mm)	A in.	(mm)	B Minimum in.	(mm)	B Maximum in.	(mm)	C in.	(mm)
B3093-1	1"	(25)	1 5/16"	(33.3)	3/4"	(20)	5 21/32"	(143.6)	10 5/32"	(257.9)	1 29/32"	(48.4)
B3093-1 1/4	1 1/4"	(32)	1 11/16"	(42.9)	3/4"	(20)	5 53/64"	(148.0)	10 21/64"	(2262.3)	2 5/64"	(52.8)
B3093-1 1/2	1 1/2"	(40)	1 29/32"	(48.4)	3/4"	(20)	6"	(152.4)	10 1/2"	(266.7)	2 1/4"	(58.1)
B3093-2	2"	(50)	2 3/8"	(60.3)	3/4"	(20)	6 3/16"	(157.2)	10 11/16"	(271.5)	2 7/16"	(61.9)
B3093-2 1/2	2 1/2"	(65)	2 7/8"	(73.0)	1 1/2"	(40)	6 5/16"	(160.3)	10 13/16"	(274.6)	2 9/16"	(65.1)
B3093-3	3"	(80)	3 1/2"	(88.9)	1 1/2"	(40)	6 5/8"	(168.3)	11 1/8"	(282.6)	2 7/8"	(73.0)
B3093-3 1/2	3 1/2"	(90)	4"	(101.6)	1 1/2"	(40)	6 7/8"	(174.6)	11 3/8"	(288.9)	3 1/8"	(79.4)
B3093-4	4"	(100)	4 7/8"	(123.8)	2 1/2"	(65)	7 1/4"	(184.1)	11 3/4"	(298.4)	3 1/2"	(88.9)
B3093-5	5"	(125)	5 9/16"	(141.3)	2 1/2"	(65)	7 25/32"	(197.6)	12 9/32"	(311.9)	4 1/32"	(102.4)
B3093-6	6"	(150)	7"	(177.8)	2 1/2"	(65)	8 7/16"	(214.3)	12 15/16"	(328.6)	4 11/16"	(119.1)
B3093-8	8"	(200)	9 1/8"	(231.8)	2 1/2"	(65)	10 1/4"	(260.3)	14 3/4"	(374.6)	6 1/2"	(165.1)
B3093-10	10"	(250)	11 1/8"	(282.6)	2 1/2"	(65)	11 5/16"	(287.3)	15 13/16"	(401.6)	7 9/16"	(192.1)
B3093-12	12"	(300)	13 1/2"	(342.9)	2 1/2"	(65)	12 1/8"	(308.0)	16 5/8"	(422.3)	8 3/8"	(212.7)
B3093-14	14"	(350)	14"	(355.6)	3"	(80)	14 1/2"	(368.3)	19"	(482.6)	10 3/4"	(273.0)
B3093-16	16"	(400)	16"	(406.4)	3"	(80)	15 1/2"	(393.7)	20"	(508.0)	11 3/4"	(298.4)
B3093-18	18"	(450)	18"	(457.2)	4"	(100)	17 1/4"	(438.1)	21 3/4"	(552.4)	13 1/2"	(342.9)
B3093-20	20"	(500)	20"	(508.0)	4"	(100)	18 1/4"	(463.5)	22 3/4"	(577.8)	14 1/2"	(368.3)
B3093-24	24"	(600)	24"	(609.6)	4"	(100)	21 1/2"	(546.1)	26"	(660.4)	17 3/4"	(450.8)
B3093-30	30"	(750)	30"	(762.0)	4"	(100)	24 5/8"	(625.5)	29 1/8"	(739.8)	20 7/8"	(530.2)
B3093-36	36"	(900)	36"	(914.4)	4"	(100)	27 5/8"	(701.7)	32 1/8"	(816.0)	23 7/8"	(606.4)

Note:
4" (100) thru 12" (300) fits both steel and ductile iron pipe.
For other ductile iron pipe sizes specify B3093DI - size.
3" (80) ductile iron uses B3093-3 1/2
Not available for 36" (900) ductile iron pipe size

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3093 - Adjustable Pipe Saddle Support cont.

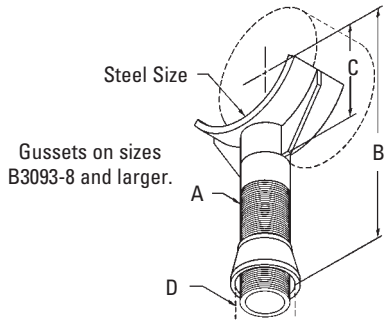
Electro-Galvanized

A
Schedule 40 Pipe Size

B
Center of pipe to bottom of pipe reducer.

C
Center of pipe to bottom lip of support.

D
Nominal pipe size of base stand - Figure B3088T, not included.



Part No.	D in.	D (mm)	Saddle Steel Size in.	Saddle Steel Size (mm)	Approx. Wt./100 Complete Lbs.	Complete (kg)	Saddle Only Lbs.	Saddle Only (kg)
B3093-1	1 1/2"	(40)	1/4" x 1 3/4"	(6.3 x 44.4)	189	(85.7)	49	(22.2)
B3093-1 1/4	1 1/2"	(40)	1/4" x 1 3/4"	(6.3 x 44.4)	221	(100.2)	81	(36.7)
B3093-1 1/2	1 1/2"	(40)	1/4" x 1 3/4"	(6.3 x 44.4)	228	(103.4)	88	(39.9)
B3093-2	1 1/2"	(40)	1/4" x 1 3/4"	(6.3 x 44.4)	234	(106.1)	94	(42.6)
B3093-2 1/2	2 1/2"	(65)	1/4" x 3"	(6.3 x 76.2)	567	(257.2)	167	(75.8)
B3093-3	2 1/2"	(65)	1/4" x 3"	(6.3 x 76.2)	576	(261.3)	176	(79.9)
B3093-3 1/2	2 1/2"	(65)	1/4" x 3"	(6.3 x 76.2)	588	(266.7)	188	(85.3)
B3093-4	3"	(80)	1/4" x 4"	(6.3 x 101.6)	1064	(482.6)	364	(165.1)
B3093-5	3"	(80)	1/4" x 4"	(6.3 x 101.6)	1081	(490.3)	381	(172.8)
B3093-6	3"	(80)	3/8" x 4"	(9.5 x 101.6)	1234	(559.7)	534	(242.2)
B3093-8	3"	(80)	3/8" x 4"	(9.5 x 101.6)	1496	(678.6)	796	(361.1)
B3093-10	3"	(80)	3/8" x 4"	(9.5 x 101.6)	1614	(732.1)	914	(414.6)
B3093-12	3"	(80)	3/8" x 4"	(9.5 x 101.6)	1768	(801.9)	1068	(484.4)
B3093-14	4"	(100)	3/8" x 5"	(9.5 x 127.0)	2654	(1203.8)	1654	(750.2)
B3093-16	4"	(100)	3/8" x 5"	(9.5 x 127.0)	2817	(1277.8)	1817	(824.2)
B3093-18	6"	(150)	1/2" x 5"	(12.7 x 127.0)	4998	(2267.1)	2798	(1269.1)
B3093-20	6"	(150)	1/2" x 5"	(12.7 x 127.0)	5218	(2366.8)	3018	(1368.9)
B3093-24	6"	(150)	1/2" x 6"	(12.7 x 152.4)	6346	(2878.5)	4146	(1880.6)
B3093-30	6"	(150)	1" x 6"	(25.4 x 152.4)	9824	(4456.1)	7624	(3458.2)
B3093-36	6"	(150)	1" x 6"	(25.4 x 152.4)	11077	(5024.4)	8877	(4026.5)

Note:
4" (100) thru 12" (300) fits both steel and ductile iron pipe.
For other ductile iron pipe sizes specify B3093DI - size.
3" (80) ductile iron uses B3093-3 1/2
Not available for 36" (900) ductile iron pipe size

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3097 - Pipe Saddle Support With Strap

Size Range: Size 4" (100mm) thru 36" (900mm) pipe

Material: Steel

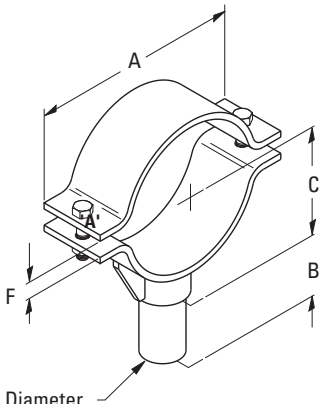
Function: Designed to support horizontal pipe from floor stanchion. Top clamp holds pipe securely to saddle. To complete floor stanchion use with B3088 pipe stand.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 38 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 37.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, pipe size and finish

Note: For vertical adjustment use with Figure B3089 (Pipe Adjuster - page 131) and Figure B3088T (Threaded Pipe Stand - page 128).

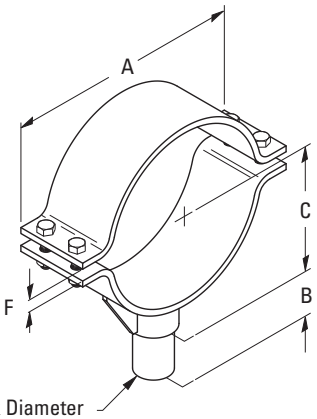


Gussets on sizes B3097-8 and larger.

'E' Shank Diameter

* Shank will fit into nominal Schedule 40 pipe size 'D' of Base Stand Figure B3088 (not included).

Sizes 4" (100mm) thru 12" (300mm)



'D' Shank Diameter

* Shank will fit into nominal Schedule 40 pipe size 'E' of Base Stand Figure B3088 (not included).

Sizes 14" (350mm) thru 36" (900mm)

Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	D * in.	(mm)	E in.	(mm)	F in.	(mm)	Bolt Size	Approx. Wt./100 Lbs.	(kg)
B3097-4	4"	(100)	7"	(123.8)	2"	(50.8)	3 3/16"	(65)	2 1/2"	(63.5)	2 3/8"	(60.3)	3/4"	(19.0)	1/2"-13	1050	(476.4)
B3097-5	5"	(125)	8 5/8"	(141.3)	2"	(50.8)	4 3/16"	(65)	2 1/2"	(63.5)	2 3/8"	(60.3)	3/4"	(19.0)	1/2"-13	1162	(527.1)
B3097-6	6"	(150)	11"	(177.8)	2"	(50.8)	4 7/8"	(65)	2 1/2"	(63.5)	2 3/8"	(60.3)	7/8"	(22.2)	5/8"-11	1371	(622.0)
B3097-8	8"	(200)	12 7/8"	(231.8)	2"	(50.8)	6 15/16"	(65)	2 1/2"	(63.5)	2 3/8"	(60.3)	1"	(25.4)	5/8"-11	1751	(794.4)
B3097-10	10"	(250)	16 1/4"	(282.6)	2"	(50.8)	7 15/16"	(65)	2 1/2"	(63.5)	2 3/8"	(60.3)	1"	(25.4)	3/4"-10	2174	(986.3)
B3097-12	12"	(300)	18 1/4"	(342.9)	3"	(76.2)	9 1/8"	(65)	2 1/2"	(63.5)	2 3/8"	(60.3)	1"	(25.4)	3/4"-10	2496	(1132.2)
B3097-14	14"	(350)	19 3/4"	(355.6)	3"	(76.2)	10 1/2"	(80)	3"	(76.2)	2 7/8"	(73.0)	1 1/8"	(28.6)	3/4"-10	5220	(2367.8)
B3097-16	16"	(400)	22 3/4"	(406.4)	3"	(76.2)	11 1/2"	(80)	3"	(76.2)	2 7/8"	(73.0)	1 1/8"	(28.6)	3/4"-10	5965	(2705.6)
B3097-18	18"	(450)	25 7/8"	(457.2)	4"	(101.6)	13 1/2"	(100)	4"	(101.6)	3 3/4"	(95.2)	1 1/4"	(31.7)	3/4"-10	7265	(3295.3)
B3097-20	20"	(500)	27 3/4"	(508.0)	4"	(101.6)	14 1/2"	(100)	4"	(101.6)	3 3/4"	(95.2)	1 3/8"	(34.9)	3/4"-10	7722	(3502.8)
B3097-22	22"	(550)	29 3/4"	(609.6)	4"	(101.6)	15 1/2"	(100)	4"	(101.6)	3 3/4"	(95.2)	1 3/8"	(34.9)	3/4"-10	8336	(3781.3)
B3097-24	24"	(600)	33"	(609.6)	4"	(101.6)	17 1/2"	(100)	4"	(101.6)	3 3/4"	(95.2)	1 5/8"	(41.3)	7/8"-9	9583	(4346.8)
B3097-26	26"	(650)	35"	(762.0)	4"	(101.6)	18 1/2"	(100)	4"	(101.6)	3 3/4"	(95.2)	2"	(50.8)	7/8"-9	9913	(4496.4)
B3097-30	30"	(750)	41 3/8"	(762.0)	4"	(101.6)	20 5/8"	(100)	4"	(101.6)	3 3/4"	(95.2)	2"	(50.8)	7/8"-9	13778	(6249.6)
B3097-32	32"	(800)	43 3/8"	(762.0)	4"	(101.6)	21 5/8"	(100)	4"	(101.6)	3 3/4"	(95.2)	2"	(50.8)	7/8"-9	14481	(6568.6)
B3097-36	36"	(900)	47 3/8"	(1203.2)	4"	(101.6)	23 5/8"	(600.1)	4"	(101.6)	3 3/4"	(95.2)	2"	(50.8)	7/8"-9	15767	(7151.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3098 - Adjustable Pipe Support With U-Bolt

Size Range: 2" (50mm) thru 12" (300mm) pipe

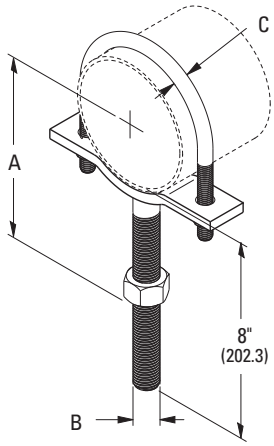
Material: Steel

Function: Designed to support horizontal pipe from floor stanchion where vertical adjustment is required. U-bolt and hex nuts are provided to hold pipe securely to saddle.

Maximum Temperature: 650°F (343°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish



Part No.	Pipe Size in.	(mm)	Max. Pipe O.D. in.	(mm)	A in.	(mm)	Bolt Size B	C in.	(mm)	Use With B3088 Pipe Stand	Approx. Wt./100 Lbs.	(kg)
B3098-2	2"	(50)	2 3/4"	(69.8)	6"	(152.4)	7/8"-9	3/8"	(9.5)	1"	210	(95.2)
B3098-2 1/2	2 1/2"	(650)	3 1/4"	(82.5)	6 1/2"	(165.1)	7/8"-9	3/8"	(9.5)	1"	219	(99.3)
B3098-3	3"	(80)	3 1/2"	(88.9)	6 3/4"	(171.4)	7/8"-9	1/2"	(12.7)	1"	240	(108.8)
B3098-3 1/2	3 1/2"	(90)	4"	(101.6)	6 3/4"	(171.4)	7/8"-9	1/2"	(12.7)	1"	240	(108.8)
B3098-4	4"	(100)	4 7/8"	(123.8)	7 1/2"	(190.5)	1"-8	1/2"	(12.7)	1"	340	(154.2)
B3098-5	5"	(125)	5 5/8"	(142.9)	7 3/4"	(196.8)	1"-8	1/2"	(12.7)	1"	360	(163.3)
B3098-6	6"	(150)	7"	(177.8)	8 3/8"	(212.7)	1 1/4"-7	5/8"	(15.9)	1 1/4"	580	(263.1)
B3098-8	8"	(200)	9 1/8"	(231.8)	9 1/2"	(241.2)	1 1/4"-7	5/8"	(15.9)	1 1/4"	640	(290.3)
B3098-10	10"	(250)	11 1/8"	(282.6)	10"	(254.0)	1 1/4"-7	3/4"	(19.0)	1 1/4"	1060	(480.8)
B3098-12	12"	(300)	13 1/2"	(342.9)	11 1/4"	(285.7)	1 1/4"-7	7/8"	(22.2)	1 1/4"	1060	(480.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3094 - Flange Support

Size Range: 4" (100mm) thru 36" (900mm) pipe

Material: Steel

Function: Designed to support 125 lb. cast iron and 150 lb. forged steel flanged connections. (Consult factory for other flanged bolt patterns). To complete floor stanchion, use B3088 pipe stand.

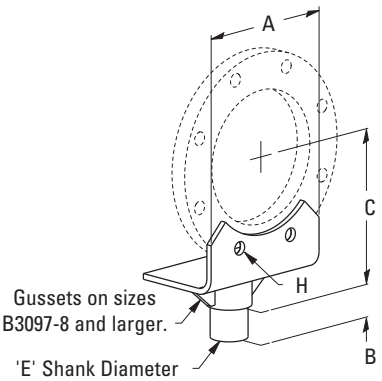
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 38 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 37.

Maximum Temperature: 750°F (399°C)

Finish: Plain
Note: Available in Electro-Galvanized, and Hot Dip Galvanized finish or Stainless Steel materials.

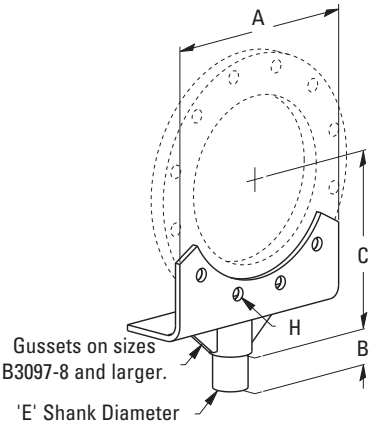
Order By: Part number and finish

Note: For vertical adjustment use with Figure B3089 (Pipe Adjuster - page 131) and Figure B3088T (Threaded Pipe Stand - page 128).



* Shank will fit into nominal Schedule 40 pipe size 'D' of Base Stand Figure B3088 (not included).

Sizes 4" (100mm) thru 12" (300mm)



* Shank will fit into nominal Schedule 40 pipe size 'D' of Base Stand Figure B3088 (not included).

Sizes 14" (350mm) thru 36" (900mm)

Part No.	Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	D * in.	(mm)	E in.	(mm)	H Dia. in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3094-4	4"	(100)	6 3/8"	(161.9)	2"	(50.8)	6 7/8"	(174.5)	2 1/2"	(63.5)	2 3/8"	(60.3)	3/4"	(19.0)	707	(320.7)
B3094-5	5"	(125)	7 1/16"	(179.4)	2"	(50.8)	7 3/8"	(187.3)	2 1/2"	(63.5)	2 3/8"	(60.3)	7/8"	(22.2)	775	(351.5)
B3094-6	6"	(150)	7 3/4"	(196.8)	2"	(50.8)	7 3/8"	(187.3)	2 1/2"	(63.5)	2 3/8"	(60.3)	7/8"	(22.2)	844	(382.8)
B3094-8	8"	(200)	9 9/16"	(242.9)	2"	(50.8)	10 1/8"	(257.2)	2 1/2"	(63.5)	2 3/8"	(60.3)	7/8"	(22.2)	1429	(648.2)
B3094-10	10"	(250)	8"	(203.2)	2"	(50.8)	11 3/8"	(288.8)	2 1/2"	(63.5)	2 3/8"	(60.3)	1"	(25.4)	1250	(567.0)
B3094-12	12"	(300)	9 1/2"	(241.3)	3"	(76.2)	12 7/8"	(327.0)	2 1/2"	(63.5)	2 3/8"	(60.3)	1"	(25.4)	1446	(655.9)
B3094-14	14"	(350)	18 3/16"	(462.0)	3"	(76.2)	15"	(381.0)	3"	(76.2)	2 7/8"	(73.0)	1 1/8"	(28.6)	3149	(1429.4)
B3094-16	16"	(400)	16 5/8"	(422.3)	3"	(76.2)	16 1/4"	(412.7)	3"	(76.2)	2 7/8"	(73.0)	1 1/8"	(28.6)	3068	(1391.6)
B3094-18	18"	(450)	17 11/16"	(449.3)	4"	(101.6)	18"	(457.2)	4"	(101.6)	3 3/4"	(95.2)	1 1/4"	(31.7)	3339	(1514.6)
B3094-20	20"	(500)	15 3/4"	(400.0)	4"	(101.6)	19 1/4"	(488.9)	4"	(101.6)	3 3/4"	(95.2)	1 1/4"	(31.7)	2994	(1358.1)
B3094-24	24"	(600)	18 3/8"	(466.7)	4"	(101.6)	22 1/2"	(571.5)	4"	(101.6)	3 3/4"	(95.2)	1 3/8"	(34.9)	4255	(1930.0)
B3094-30	30"	(750)	16 3/8"	(415.9)	4"	(101.6)	25 7/8"	(657.2)	4"	(101.6)	3 3/4"	(95.2)	1 3/8"	(34.9)	5210	(2363.2)
B3094-36	36"	(900)	17 1/2"	(444.5)	4"	(101.6)	29 1/2"	(749.3)	4"	(101.6)	3 3/4"	(95.2)	1 5/8"	(41.3)	5382	(2441.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3195 - I.P.S. Isolator
B3195CT - Copper Tubing Isolator

Size Range:
B3195 - 3/8" (10mm) thru 8" (200mm) pipe
B3195CT - 3/8" (10mm) thru 4" (100mm) pipe

Material: Pre-Galvanized steel and felt

Function: A non-conductive felt lining serves to dampen sound vibration and prevent transmission of sound to the building structure.

Finish: Pre-Galvanized

Standard Steel Pipe Hangers for use with Isolators:
B3100 clevis hanger, B3690 J-hanger and B2000 Series rigid or O.D. pipe clamps

Order By: Part number and finish

Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	Hanger Size in.	Hanger Size (mm)	Strut Clamp in. (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3195-3/8	3/8"	(10)	1 1/8"	(28.6)	1 1/4"	(31.7)	2 1/4"	(57.1)	1"	(25)	1" (25) Rigid	4	(1.8)
B3195-1/2	1/2"	(15)	1 3/8"	(34.9)	1 1/4"	(31.7)	2 1/4"	(57.1)	1"	(25)	1" (25) Rigid	4	(1.8)
B3195-3/4	3/4"	(20)	1 1/2"	(38.1)	1 1/4"	(31.7)	2 1/4"	(57.1)	1 1/4"	(32)	1 1/4" (32) O.D.	6	(2.7)
B3195-1	1"	(25)	1 13/16"	(46.0)	1 1/4"	(31.7)	2 1/4"	(57.1)	1 1/2"	(40)	1 1/2" (38) O.D.	10	(4.5)
B3195-1 1/4	1 1/4"	(32)	2 1/8"	(54.0)	1 1/4"	(31.7)	2 1/4"	(57.1)	2"	(50)	2" (51) O.D.	10	(4.5)
B3195-1 1/2	1 1/2"	(40)	2 3/8"	(60.3)	1 1/4"	(31.7)	2 1/4"	(57.1)	2"	(50)	2" (50) Rigid	12	(5.4)
B3195-2	2"	(50)	2 7/8"	(73.0)	1 1/4"	(31.7)	2 1/4"	(57.1)	2 1/2"	(65)	2 1/2" (65) Rigid	14	(6.3)
B3195-2 1/2	2 1/2"	(65)	3 3/8"	(85.7)	1 1/4"	(31.7)	3"	(76.2)	3"	(80)	3" (76) O.D.	20	(9.1)
B3195-3	3"	(80)	4"	(101.6)	1 1/4"	(31.7)	3"	(76.2)	3 1/2"	(90)	3 1/2" (90) Rigid	25	(11.3)
B3195-3 1/2	3 1/2"	(90)	4 1/2"	(114.3)	1 1/4"	(31.7)	3"	(76.2)	4"	(100)	4" (100) Rigid	36	(16.3)
B3195-4	4"	(100)	5 1/2"	(139.7)	1 1/4"	(31.7)	3 1/2"	(88.9)	5"	(125)	5" (125) Rigid	65	(29.5)
B3195-5	5"	(125)	6 1/2"	(165.1)	1 1/4"	(31.7)	4"	(101.6)	6"	(150)	6" (150) Rigid	67	(30.4)
B3195-6	6"	(150)	7 5/8"	(193.7)	2 1/8"	(54.0)	5 1/2"	(139.7)	8"	(200)	7 5/8" (193) O.D.	196	(88.9)
B3195-8	8"	(200)	9 5/8"	(244.5)	2 1/8"	(54.0)	5 1/2"	(139.7)	10"	(250)	9 5/8" (244) O.D.	210	(95.2)

Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	Hanger Size in.	Hanger Size (mm)	Strut Clamp in. (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3195CT-3/8	3/8"	(10)	1"	(25.4)	1 1/4"	(31.7)	2 1/4"	(57.1)	3/4"	(20)	1 1/8" (28) O.D.	4	(1.8)
B3195CT-1/2	1/2"	(15)	1 1/8"	(28.6)	1 1/4"	(31.7)	2 1/4"	(57.1)	3/4"	(20)	1 1/8" (28) O.D.	4	(1.8)
B3195CT-3/4	3/4"	(20)	1 3/8"	(34.9)	1 1/4"	(31.7)	2 1/4"	(57.1)	1"	(25)	1" (25) Rigid	4	(1.8)
B3195CT-1	1"	(25)	1 5/8"	(41.3)	1 1/4"	(31.7)	2 1/4"	(57.1)	1 1/4"	(32)	1 1/2" (38) O.D.	6	(2.7)
B3195CT-1 1/4	1 1/4"	(32)	1 7/8"	(47.6)	1 1/4"	(31.7)	2 1/4"	(57.1)	1 1/2"	(40)	1 3/4" (44) O.D.	10	(4.5)
B3195CT-1 1/2	1 1/2"	(40)	2 1/8"	(54.0)	1 1/4"	(31.7)	2 1/4"	(57.1)	2"	(50)	2 1/8" (54) O.D.	10	(4.5)
B3195CT-2	2"	(50)	2 5/8"	(66.7)	1 1/4"	(31.7)	2 1/4"	(57.1)	2 1/2"	(65)	2 5/8" (66) O.D.	12	(5.4)
B3195CT-2 1/2	2 1/2"	(65)	3 1/8"	(79.4)	1 1/4"	(31.7)	2 1/4"	(57.1)	3"	(80)	3 1/8" (79) O.D.	13	(5.9)
B3195CT-3	3"	(80)	3 5/8"	(92.1)	1 1/4"	(31.7)	2 1/4"	(57.1)	3"	(80)	3" (80) Rigid	15	(6.8)
B3195CT-3 1/2	3 1/2"	(90)	4 1/8"	(104.8)	1 1/4"	(31.7)	3 1/2"	(88.9)	3 1/2"	(90)	3 1/2" (90) Rigid	28	(12.7)
B3195CT-4	4"	(100)	5 1/8"	(130.2)	1 1/4"	(31.7)	3 1/2"	(88.9)	5"	(125)	5" (127) O.D.	44	(19.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3281 thru B3287 - Pipe Alignment Guide

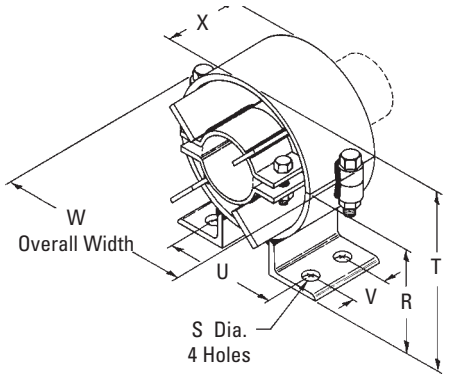
Size Range: For use with ½" (15mm) thru 24" (600mm) pipe

Material: Steel

Finish: Black Primer, HDG

Function: Designed for use in directing thermal expansion of insulated or non-insulated pipe in the direction permitted by expansion joints or loops. The use of two or more guides on both sides of an expansion joint or loop is recommended. Pipe lines should be supported with hangers or rollers so that when properly installed, the guides will not be supporting any pipe loads. Maximum operating temperature should not exceed 750°F (399°C).

Order By: Part number and finish. For use with copper tubing, add CT suffix to the part number.



Body Size	R in.	R (mm)	S in.	S (mm)	T in.	T (mm)	U in.	U (mm)	V in.	V (mm)
001	3 1/2"	(88.9)	5/8"	(15.9)	5 7/8"	(149.2)	4 1/8"	(104.8)	1 3/4"	(44.4)
002	4"	(101.6)	5/8"	(15.9)	6 3/4"	(171.4)	4 3/8"	(111.1)	1 3/4"	(44.4)
003	4 3/8"	(111.1)	5/8"	(15.9)	7 5/8"	(193.7)	5 1/8"	(130.2)	1 3/4"	(44.4)
004	5 1/4"	(133.3)	5/8"	(15.9)	9 1/4"	(234.9)	6 1/8"	(155.6)	1 3/4"	(44.4)
005	6 1/4"	(158.7)	5/8"	(15.9)	11 5/8"	(295.3)	7"	(177.8)	2 3/4"	(69.8)
006	7"	(177.8)	5/8"	(15.9)	13 3/8"	(339.7)	8 1/4"	(209.5)	2 3/4"	(69.8)
007	7 7/8"	(200.0)	3/4"	(19.0)	15 1/8"	(384.2)	9 7/8"	(250.8)	4"	(101.6)
008	8 7/8"	(225.4)	3/4"	(19.0)	17"	(431.8)	10 7/8"	(276.2)	4"	(101.6)
009	9 3/4"	(247.6)	3/4"	(19.0)	18 3/4"	(476.2)	11 7/8"	(301.6)	4"	(101.6)
010	10 7/8"	(276.2)	3/4"	(19.0)	21"	(533.4)	11 3/4"	(298.4)	6"	(152.4)
011	12 1/8"	(308.0)	7/8"	(22.2)	23 1/8"	(587.4)	14 1/2"	(368.3)	6"	(152.4)
012	13"	(330.2)	7/8"	(22.2)	25"	(635.0)	15 1/2"	(393.7)	6"	(152.4)
013	14 3/4"	(374.6)	1 1/8"	(28.6)	27 3/4"	(704.8)	17 1/8"	(435.0)	6"	(152.4)
014	16 1/2"	(419.1)	1 1/8"	(28.6)	31 1/2"	(800.1)	19 1/4"	(488.9)	6"	(152.4)

Body Size	W in.	W (mm)	X in.	X (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
001	6 1/8"	(155.6)	3"	(76.2)	700	(317.5)
002	7 1/8"	(181.0)	3"	(76.2)	800	(362.9)
003	8 1/8"	(206.4)	3"	(76.2)	900	(408.2)
004	10 1/8"	(257.2)	3"	(76.2)	1100	(498.9)
005	12 1/8"	(308.0)	4"	(101.6)	1700	(771.1)
006	14 1/8"	(358.8)	4"	(101.6)	2000	(907.2)
007	16 1/8"	(409.6)	6"	(152.4)	4000	(1814.4)
008	18 1/8"	(460.4)	6"	(152.4)	4800	(2177.3)
009	20 1/8"	(511.2)	6"	(152.4)	5400	(2449.4)
010	22 1/8"	(562.0)	8"	(203.2)	6100	(2766.9)
011	24 1/8"	(612.8)	8"	(203.2)	8900	(4037.0)
012	26 1/8"	(663.6)	8"	(203.2)	10200	(4626.7)
013	28 1/8"	(714.4)	8"	(203.2)	11000	(4989.6)
014	32 1/8"	(816.0)	8"	(203.2)	15000	(6804.0)

Note: CT sizes have lead shims between the steel clamp and the copper tubing.

Guides with greater allowable movement available, Contact Eaton Engineering for more information.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3281 thru B3287 - Pipe Alignment Guide cont.

Pipe Size	Insulation Thickness											
	1" (25.4mm)			1 1/2" (38.1mm)			2" (50.8mm)			2 1/2" (63.5mm)		
	Part No.	BS*	SAM**	Part No.	BS*	SAM**	Part No.	BS*	SAM**	Part No.	BS*	SAM**
1/2" (15)	B3281-1/2	001	4" (101.6)	B3281-1/2	001	4" (101.6)	B3283-1/2	002	4" (101.6)	B3284-1/2	003	4" (101.6)
3/4" (20)	B3281-3/4	001	4" (101.6)	B3282-3/4	002	4" (101.6)	B3283-3/4	003	4" (101.6)	B3284-3/4	004	4" (101.6)
1" (25)	B3281-1	001	4" (101.6)	B3282-1	002	4" (101.6)	B3283-1	003	4" (101.6)	B3284-1	004	4" (101.6)
1 1/4" (32)	B3281-1 1/4	001	4" (101.6)	B3282-1 1/4	002	4" (101.6)	B3283-1 1/4	003	4" (101.6)	B3284-1 1/4	004	4" (101.6)
1 1/2" (40)	B3281-1 1/2	002	4" (101.6)	B3281-1 1/2	002	4" (101.6)	B3283-1 1/2	003	4" (101.6)	B3284-1 1/2	004	4" (101.6)
2" (50)	B3281-2	002	4" (101.6)	B3282-2	003	4" (101.6)	B3283-2	004	4" (101.6)	B3283-2	004	4" (101.6)
2 1/2" (65)	B3281-2 1/2	003	4" (101.6)	B3281-2 1/2	003	4" (101.6)	B3283-2 1/2	004	4" (101.6)	B3283-2 1/2	004	4" (101.6)
3" (80)	B3281-3	003	4" (101.6)	B3282-3	004	4" ((101.6)	B3283-3	004	4" (101.6)	B3284-3	005	4" (101.6)
4" (100)	B3281-4	004	4" (101.6)	B3281-4	004	4" (101.6)	B3283-4	005	4" (101.6)	B3284-4	005	4" (101.6)
5" (125)	B3281-5	005	4" (101.6)	B3281-5	005	4" (101.6)	B3281-5	005	4" (101.6)	B3284-5	006	4" (101.6)
6" (150)	B3281-6	005	4" (101.6)	B3281-6	005	4" (101.6)	B3283-6	006	4" (101.6)	B3283-6	006	4" (101.6)
8" (200)	B3281-8	006	4" (101.6)	B3281-8	006	4" (101.6)	B3283-8	007	6" (152.4)	B3284-8	008	6" (152.4)
10" (250)	B3281-10	008	6" (152.4)	B3281-10	008	6" (152.4)	B3281-10	008	6" (152.4)	B3284-10	009	6" (152.4)
12" (300)	B3281-12	009	6" (152.4)	B3281-12	009	6" (152.4)	B3281-12	009	6" (152.4)	B3284-12	010	6" (152.4)
14" (350)	B3281-14	010	6" (152.4)	B3281-14	010	6" (152.4)	B3281-14	010	6" (152.4)	B3281-14	010	6" (152.4)
16" (400)	B3281-16	011	8" (203.2)	B3281-16	011	8" (203.2)	B3281-16	011	8" (203.2)	B3281-16	011	8" (203.2)
18" (450)	B3281-18	012	8" (203.2)	B3281-18	012	8" (203.2)	B3281-18	012	8" (203.2)	B3281-18	012	8" (203.2)
20" (500)	B3281-20	013	8" (203.2)	B3281-20	013	8" (203.2)	B3281-20	013	8" (203.2)	B3281-20	013	8" (203.2)
24" (600)	B3281-24	014	8" (203.2)	B3281-24	014	8" (203.2)	B3281-24	014	8" (203.2)	B3281-24	014	8" (203.2)

Nominal Pipe Size	Insulation Thickness								
	3" (76.2)			3 1/2" (88.9)			4" (101.6)		
	Part No.	BS*	SAM**	Part No.	BS*	SAM**	Part No.	BS*	SAM**
1/2" (15)	B3285-1/2	004	4" (101.6)	B3285-1/2	004	4" (101.6)	B3287-1/2	005	4" (101.6)
3/4" (20)	B3284-3/4	004	4" (101.6)	B3286-3/4	005	4" (101.6)	B3286-3/4	005	4" (101.6)
1" (25)	B3284-1	004	4" (101.6)	B3286-1	005	4" (101.6)	B3286-1	005	4" (101.6)
1 1/4" (32)	B3284-1 1/4	004	4" (101.6)	B3286-1 1/4	005	4" (101.6)	B3286-1 1/4	005	4" (101.6)
1 1/2" (40)	B3284-1 1/2	004	4" (101.6)	B3286-1 1/2	005	4" (101.6)	B3286-1 1/2	005	4" (101.6)
2" (50)	B3285-2	005	4" (101.6)	B3285-2	005	4" (101.6)	B3287-2	006	4" (101.6)
2 1/2" (65)	B3285-2 1/2	005	4" (101.6)	B3285-2 1/2	005	4" (101.6)	B3287-2 1/2	006	4" (101.6)
3" (80)	B3284-3	005	4" (101.6)	B3286-3	006	4" (101.6)	B3286-3	006	4" (101.6)
4" (100)	B3285-4	006	4" (101.6)	B3286-4	006	4" (101.6)	B3287-4	007	6" (152.4)
5" (125)	B3284-5	006	4" (101.6)	B3286-5	007	6" (152.4)	B3287-5	008	6" (152.4)
6" (150)	B3285-6	007	6" (152.4)	B3286-6	008	6" (152.4)	B3286-6	008	6" (152.4)
8" (200)	B3284-8	008	6" (152.4)	B3286-8	009	6" (152.4)	B3286-8	009	6" (152.4)
10" (250)	B3284-10	009	6" (152.4)	B3286-10	010	6" (152.4)	B3286-10	010	6" (152.4)
12" (300)	B3284-12	010	6" (152.4)	B3286-12	011	6" (152.4)	B3286-12	011	6" (152.4)
14" (350)	B3285-14	011	8" (203.2)	B3285-14	011	8" (203.2)	B3287-14	012	8" (203.2)
16" (400)	B3285-16	012	8" (203.2)	B3285-16	012	8" (203.2)	B3287-16	013	8" (203.2)
18" (450)	B3285-18	013	8" (203.2)	B3285-18	013	8" (203.2)	B3287-18	014	8" (203.2)
20" (500)	B3285-20	014	8" (203.2)	B3285-20	014	8" (203.2)	B3285-20	014	8" (203.2)
24" (600)	---	---	--- ---	---	---	--- ---	---	---	--- ---

BS* = Body Size

SAM** = Standard Allowable Movement

Note: Use 1" (25.4mm) insulation thickness column when no insulation is present.

Installation: Attach outer housing of the first pipe guide to the structure a maximum of four pipe diameters from an expansion joint. The second pipe guide should be located a maximum of 14 pipe diameters from the first pipe guide. The spider pipe clamp should be offset at a minimum of half the distance in the opposite direction of the axial expansion. See chart for Standard Allowable Movement (SAM).

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

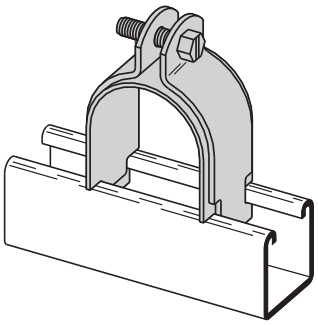
B2417 - Strut Mounted Pipe Guide

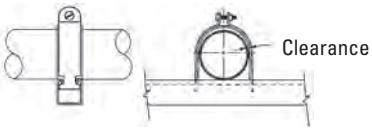
Material: Steel

Finish: Electro-Galvanized

Function: Designed as a guide to permit longitudinal movement of pipe.

Order By: Part number and finish. (Includes guide and pipe clamp).





Part No.	Pipe Size in.	(mm)	Min. Radial Clearance in.	(mm)	Includes	Approx. Wt./100 Lbs.	(kg)
B2417-1/2	1/2"	(15)	1/16"	(1.6)	B2009	22	(10.0)
B2417-3/4	3/4"	(20)	1/16"	(1.6)	B2010	25	(11.3)
B2417-1	1"	(25)	3/32"	(2.3)	B2034	30	(13.6)
B2417-1 1/4	1 1/4"	(32)	3/32"	(2.3)	B2037	47	(21.8)
B2417-1 1/2	1 1/2"	(40)	3/32"	(2.3)	B2039	51	(23.1)
B2417-2	2"	(50)	1/8"	(3.2)	B2043	62	(28.1)
B2417-2 1/2	2 1/2"	(65)	1/8"	(3.2)	B2047	69	(31.3)
B2417-3	3"	(80)	5/32"	(3.9)	B2016	108	(49.0)
B2417-3 1/2	3 1/2"	(90)	5/32"	(3.9)	B2017	118	(53.5)
B2417-4	4"	(100)	5/32"	(3.9)	B2018	128	(58.0)

Note: Strut Mounted Pipe Guides are available for copper tubing: B2417CT-Size

B3147A & B3147B - Pipe Anchor

(dimensional charts on following page)

Size Range: For use with 1/2" (15mm) thru 24" (600mm) pipe

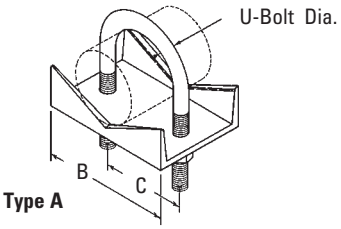
Material: Steel

Function: Recommended for anchoring pipe to structure.

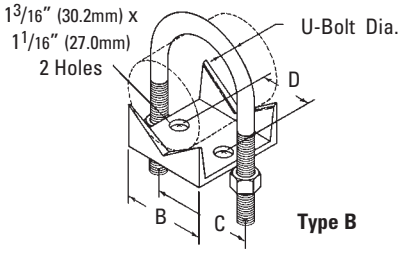
Finish: Plain

Note: 1/2" (15mm) thru 4" (100mm), use U-bolt to fasten chair to support; 5" (125mm) thru 24" (600mm) U-bolt attaches directly to support structure.
Holes are provided in chair for fastening to support if required.
Available in Electro-Galvanized and Hot Dip Galvanized finish or Stainless Steel materials.

Order By: Part number and pipe size



A
Center of pipe to bottom of base plate.



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3147A & B3147B - Pipe Anchor cont.

Type A

Type B

Part No.	Pipe Size		U-Bolt Dia.		A		B		C		D		Approx. Wt./100		
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kg)	
B3147A-1/2	1/2"	(15)	1/4"	(6.3)	15/16"	(23.8)	2 3/16"	(55.5)	1 3/16"	(30.2)	--	(--)	80	(36.3)	Type A
B3147A-3/4	3/4"	(20)	1/4"	(6.3)	1 1/16"	(27.0)	2 3/8"	(60.3)	1 3/8"	(34.9)	--	(--)	88	(39.9)	
B3147A-1	1"	(25)	1/4"	(6.3)	1 3/16"	(30.2)	2 5/8"	(66.7)	1 5/8"	(41.3)	--	(--)	96	(43.5)	
B3147A-1 1/4	1 1/4"	(32)	3/8"	(9.4)	1 3/8"	(34.9)	2 7/8"	(73.0)	2 1/16"	(52.4)	--	(--)	107	(48.5)	
B3147A-1 1/2	1 1/2"	(40)	3/8"	(9.4)	1 9/16"	(39.7)	3 1/4"	(82.5)	2 3/8"	(60.3)	--	(--)	118	(53.5)	
B3147A-2	2"	(50)	3/8"	(9.4)	1 3/4"	(44.4)	3 5/8"	(92.1)	2 3/4"	(69.8)	--	(--)	132	(59.9)	
B3147A-2 1/2	2 1/2"	(65)	1/2"	(12.7)	2"	(50.8)	4 15/16"	(125.4)	3 7/16"	(87.3)	--	(--)	175	(79.4)	
B3147A-3	3"	(80)	1/2"	(12.7)	2 3/8"	(60.3)	5 9/16"	(141.3)	4 1/16"	(103.2)	--	(--)	215	(97.5)	
B3147A-3 1/2	3 1/2"	(90)	1/2"	(12.7)	2 3/8"	(60.3)	6 1/16"	(154.0)	4 9/16"	(115.9)	--	(--)	240	(108.8)	
B3147A-4	4"	(100)	1/2"	(12.7)	2 7/8"	(73.0)	6 9/16"	(166.7)	5 1/16"	(128.6)	--	(--)	265	(120.2)	
B3147B-5	5"	(125)	1/2"	(12.7)	3 7/16"	(87.3)	4"	(101.6)	6 5/32"	(156.3)	2 1/4"	(57.1)	290	(131.5)	Type B
B3147B-6	6"	(150)	5/8"	(15.9)	4"	(101.6)	5"	(127.0)	7 3/8"	(187.3)	3"	(76.2)	315	(142.9)	
B3147B-8	8"	(200)	5/8"	(15.9)	5 1/4"	(133.3)	7"	(177.9)	9 3/8"	(138.0)	5 1/2"	(139.7)	885	(401.4)	
B3147B-10	10"	(250)	3/4"	(19.0)	6 7/16"	(164.1)	8"	(203.2)	11 5/8"	(295.2)	5 1/2"	(139.7)	1050	(476.3)	
B3147B-12	12"	(300)	7/8"	(22.2)	7 1/2"	(190.5)	9"	(228.6)	13 3/4"	(349.2)	6"	(152.4)	1210	(548.8)	
B3147B-14	14"	(350)	7/8"	(22.2)	8 3/16"	(208.0)	10"	(254.0)	15"	(381.0)	7"	(177.9)	1480	(671.3)	
B3147B-16	16"	(400)	7/8"	(22.2)	9 1/4"	(234.9)	10"	(254.0)	17"	(431.8)	7"	(177.9)	1735	(787.0)	
B3147B-18	18"	(450)	1"	(25.4)	10 3/8"	(263.5)	11"	(279.4)	19 1/8"	(485.8)	7"	(177.9)	2011	(912.2)	
B3147B-20	20"	(500)	1"	(25.4)	11 3/8"	(288.9)	12"	(304.8)	21 1/8"	(536.6)	7"	(177.9)	2332	(1057.8)	
B3147B-24	24"	(600)	1"	(25.4)	13 5/8"	(346.1)	12"	(304.8)	25 1/8"	(638.2)	8"	(203.2)	2550	(1156.7)	

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3256 Hold-Down Anchor Clamp

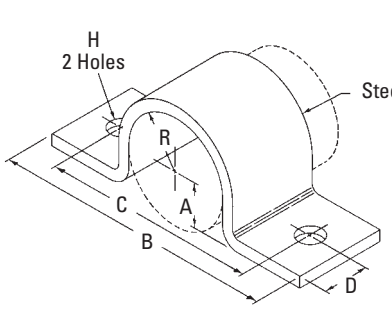
Size Range: 2" (50mm) thru 30" (750mm) pipe

Material: Steel

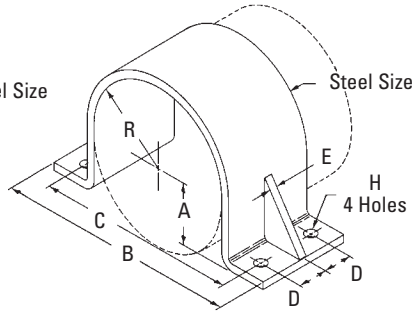
Function: Designed to prevent longitudinal or lateral movement of pipe where pipe is anchored to concrete piers or other supporting structures.

Finish: Plain or Electro-Galvanized

Order By: Part number and finish.



B3256-2 thru B3256-8



B3256-10 thru B3256-30

Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	E in.	E (mm)
B3256-2	2"	(50)	15/16"	(23.8)	8 1/8"	(206.4)	5 7/8"	(149.2)	1 1/2"	(38.1)	-	-
B3256-2 1/2	2 1/2"	(65)	1 3/16"	(30.2)	8 5/8"	(219.1)	6 3/8"	(161.9)	1 1/2"	(38.1)	-	-
B3256-3	3"	(50)	1 1/2"	(38.1)	9 1/4"	(234.9)	7"	(177.8)	1 1/2"	(38.1)	-	-
B3256-3 1/2	3 1/2"	(80)	1 3/4"	(44.4)	9 3/4"	(247.6)	7 1/2"	(190.5)	1 1/2"	(38.1)	-	-
B3256-4	4"	(90)	2"	(50.8)	10 1/4"	(260.3)	8"	(203.2)	1 1/2"	(38.1)	-	-
B3256-5	5"	(100)	2 9/16"	(65.1)	11 5/16"	(287.3)	9 1/16"	(230.2)	1 1/2"	(38.1)	-	-
B3256-6	6"	(150)	3 1/16"	(77.8)	13 9/16"	(346.1)	10 5/8"	(269.9)	3"	(76.2)	-	-
B3256-8	8"	(200)	4 1/16"	(103.2)	15 3/4"	(396.9)	12 5/8"	(320.7)	3"	(76.2)	-	-
B3256-10	10"	(250)	5 1/8"	(130.2)	18 3/4"	(476.2)	15 1/4"	(387.3)	2 1/2"	(63.5)	1/2"	(12.7)
B3256-12	12"	(300)	6 1/8"	(155.6)	20 3/4"	(527.0)	17 1/4"	(438.1)	2 1/2"	(63.5)	1/2"	(12.7)
B3256-14	14"	(350)	6 3/4"	(171.4)	22"	(558.8)	18 1/2"	(469.9)	3"	(76.2)	1/2"	(12.7)
B3256-16	16"	(400)	7 3/4"	(196.8)	24"	(609.6)	20 1/2"	(520.7)	3"	(76.2)	1/2"	(12.7)
B3256-18	18"	(450)	8 3/4"	(222.2)	26"	(660.4)	22 1/2"	(571.2)	3 1/2"	(88.9)	1/2"	(12.7)
B3256-20	20"	(500)	9 3/4"	(247.6)	28"	(711.2)	24 1/2"	(622.3)	3 1/2"	(88.9)	1/2"	(12.7)
B3256-24	24"	(600)	11 3/4"	(298.4)	32"	(812.8)	28 1/2"	(723.9)	3 1/2"	(88.9)	1/2"	(12.7)
B3256-30	30"	(750)	14 3/4"	(374.6)	38"	(965.2)	34 1/2"	(876.3)	3 1/2"	(88.9)	1/2"	(12.7)

Part No.	H in.	H (mm)	R in.	R (mm)	Steel Size in.	Steel Size (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3256-2	7/8"	(22.2)	1 3/16"	(30.2)	3/8" x 3"	(9.5 x 76.2)	342	(155.1)
B3256-2 1/2	7/8"	(22.2)	1 7/16"	(36.5)	3/8" x 3"	(9.5 x 76.2)	386	(175.1)
B3256-3	7/8"	(22.2)	1 3/4"	(44.4)	3/8" x 3"	(9.5 x 76.2)	434	(196.8)
B3256-3 1/2	7/8"	(22.2)	2"	(50.8)	3/8" x 3"	(9.5 x 76.2)	478	(216.8)
B3256-4	7/8"	(22.2)	2 1/4"	(57.1)	3/8" x 3"	(9.5 x 76.2)	518	(234.9)
B3256-5	7/8"	(22.2)	2 13/16"	(71.4)	3/8" x 3"	(9.5 x 76.2)	610	(276.7)
B3256-6	1"	(25.4)	3 5/16"	(84.1)	1/2" x 6"	(12.7 x 152.4)	1961	(889.5)
B3256-8	1"	(25.4)	4 5/16"	(109.5)	1/2" x 6"	(12.7 x 152.4)	2397	(1087.3)
B3256-10	1 1/8"	(28.6)	5 3/8"	(136.5)	1/2" x 8"	(12.7 x 203.2)	4155	(1884.7)
B3256-12	1 1/8"	(28.6)	6 3/8"	(161.9)	1/2" x 8"	(12.7 x 203.2)	4789	(2172.3)
B3256-14	1 1/8"	(28.6)	7"	(177.8)	1/2" x 10"	(12.7 x 254.0)	6421	(2912.5)
B3256-16	1 1/8"	(28.6)	8"	(203.2)	1/2" x 10"	(12.7 x 254.0)	7210	(3270.4)
B3256-18	1 1/8"	(28.6)	9"	(228.6)	1/2" x 12"	(12.7 x 304.8)	9509	(4313.3)
B3256-20	1 1/8"	(28.6)	10"	(254.0)	1/2" x 12"	(12.7 x 304.8)	10434	(4732.8)
B3256-24	1 1/8"	(28.6)	12"	(304.8)	1/2" x 12"	(12.7 x 304.8)	12295	(5577.0)
B3256-30	1 1/8"	(28.6)	15"	(381.0)	1/2" x 12"	(12.7 x 304.8)	15082	(6841.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3257 - Base Plate

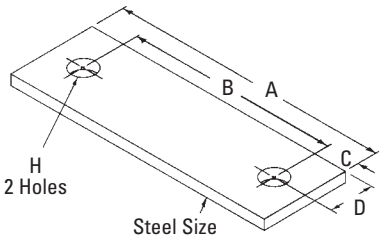
Size Range: 2" (50mm) thru 30" (750mm) pipe

Material: Steel

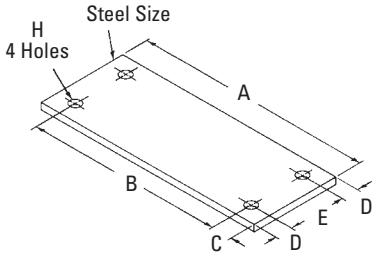
Function: Designed as a base plate for B3256 pipe anchor.

Finish: Plain or Electro-Galvanized

Order By: Part number and finish.



B3257-2 thru B3257-8



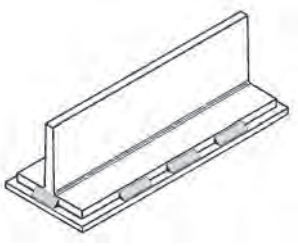
B3257-10 thru B3257-30

Part No.	Pipe Size in.	Pipe Size (mm)	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)
B3257-2	2"	(50)	8 1/8"	(206.4)	5 7/8"	(149.2)	1 1/8"	(28.6)	1 1/2"	(38.1)
B3257-2 1/2	2 1/2"	(65)	8 5/8"	(219.1)	6 3/8"	(161.9)	1 1/8"	(28.6)	1 1/2"	(38.1)
B3257-3	3"	(80)	9 1/4"	(234.9)	7"	(177.8)	1 1/8"	(28.6)	1 1/2"	(38.1)
B3257-3 1/2	3 1/2"	(90)	9 3/4"	(247.6)	7 1/2"	(190.5)	1 1/8"	(28.6)	1 1/2"	(38.1)
B3257-4	4"	(100)	10 1/4"	(260.3)	8"	(203.2)	1 1/8"	(28.6)	1 1/2"	(38.1)
B3257-5	5"	(125)	11 5/16"	(287.3)	9 1/16"	(230.2)	1 1/8"	(28.6)	1 1/2"	(38.1)
B3257-6	6"	(150)	13 5/8"	(346.1)	10 5/8"	(269.9)	1 1/2"	(38.1)	3"	(76.2)
B3257-8	8"	(200)	15 5/8"	(396.9)	12 5/8"	(320.7)	1 1/2"	(38.1)	3"	(76.2)
B3257-10	10"	(250)	18 3/4"	(476.2)	15 1/4"	(387.3)	1 3/4"	(44.4)	1 1/2"	(38.1)
B3257-12	12"	(300)	20 3/4"	(527.0)	17 1/4"	(438.1)	1 3/4"	(44.4)	1 1/2"	(38.1)
B3257-14	14"	(350)	22"	(558.8)	18 1/2"	(469.9)	1 3/4"	(44.4)	2"	(50.8)
B3257-16	16"	(400)	24"	(609.6)	20 1/2"	(520.7)	1 3/4"	(44.4)	2"	(50.8)
B3257-18	18"	(450)	26"	(660.4)	22 1/2"	(571.5)	1 3/4"	(44.4)	2 1/2"	(63.5)
B3257-20	20"	(500)	28"	(711.2)	24 1/2"	(622.3)	1 3/4"	(44.4)	2 1/2"	(63.5)
B3257-24	24"	(600)	32"	(812.8)	28 1/2"	(723.9)	1 3/4"	(44.4)	2 1/2"	(63.5)
B3257-30	30"	(750)	38"	(965.2)	34 1/2"	(876.3)	1 3/4"	(44.4)	2 1/2"	(63.5)

Part No.	E in.	E (mm)	H in.	H (mm)	Steel Size in.	Steel Size (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3257-2	-	-	7/8"	(22.2)	3/8" x 3"	(9.5 x 76.2)	246	(111.6)
B3257-2 1/2	-	-	7/8"	(22.2)	3/8" x 3"	(9.5 x 76.2)	262	(118.8)
B3257-3	-	-	7/8"	(22.2)	3/8" x 3"	(9.5 x 76.2)	282	(127.9)
B3257-3 1/2	-	-	7/8"	(22.2)	3/8" x 3"	(9.5 x 76.2)	298	(135.2)
B3257-4	-	-	7/8"	(22.2)	3/8" x 3"	(9.5 x 76.2)	314	(142.4)
B3257-5	-	-	7/8"	(22.2)	3/8" x 3"	(9.5 x 76.2)	348	(157.8)
B3257-6	-	-	1"	(25.4)	1/2" x 6"	(12.7 x 152.4)	1137	(515.7)
B3257-8	-	-	1"	(25.4)	1/2" x 6"	(12.7 x 152.4)	1307	(592.8)
B3257-10	5"	(127.0)	1 1/8"	(28.6)	1/2" x 8"	(12.7 x 203.2)	2071	(939.4)
B3257-12	5"	(127.0)	1 1/8"	(28.6)	1/2" x 8"	(12.7 x 203.2)	2298	(1042.4)
B3257-14	6"	(152.4)	1 1/8"	(28.6)	1/2" x 8"	(12.7 x 254.0)	3064	(1389.8)
B3257-16	6"	(152.4)	1 1/8"	(28.6)	1/2" x 8"	(12.7 x 254.0)	3347	(1518.2)
B3257-18	7"	(177.8)	1 1/8"	(28.6)	1/2" x 12"	(12.7 x 304.8)	4368	(1981.3)
B3257-20	7"	(177.8)	1 1/8"	(28.6)	1/2" x 12"	(12.7 x 304.8)	4709	(2136.0)
B3257-24	7"	(177.8)	1 1/8"	(28.6)	1/2" x 12"	(12.7 x 304.8)	5389	(2444.4)
B3257-30	7"	(177.8)	1 1/8"	(28.6)	1/2" x 12"	(12.7 x 304.8)	6410	(2907.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3891 - B3897 Pipe Slide Assembly Series



Material: Tee - Steel;
Facing Plate - Stainless Steel Type 304;
Base - Steel with 3/32" (2.4mm) thick Teflon®† slide pads.

Finish: Black paint.

Service: Designed to support pipe where horizontal movement from expansion and contraction is present. Fits up to 3" (76.2mm) insulation thickness.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 35.

Operating Temperature Rating:
400°F (204°C) maximum

Loading: Capable of supporting constant loads up to 2000 Psi at 70°F (21°C).

† Mark shown in this document is the property of its respective owner.

B3891 - 10 - CL

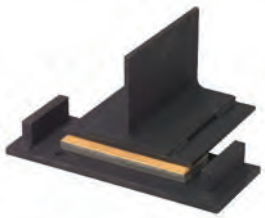
Base Style	Travel	Options
1	04" (101) (except B3897)	Standard Slide = Blank
2	10" (254) (except B3897)	W/ End Plates = EP - Pipe Size
3	2 1/2" (63) (B3897 only)	W/ B3140 Clamps = CL - Pipe Size
4		
5		
6		
7		

B3891

B3892

B3893

B3894



B3895

B3896

B3897

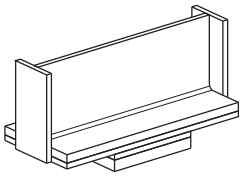
Notes:

B3891, B3892 and B3893 are designed for longitudinal movement only.

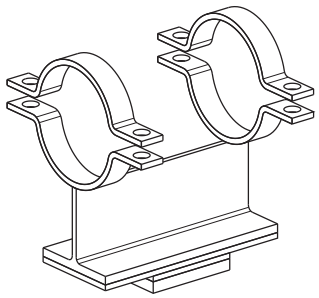
B3894, B3895 and B3896 are designed for longitudinal and limited transverse movement.

B3897 is designed for up to 5 inches (127mm) of horizontal movement in any direction, depending on the installed position.

Options:



End Plates



Pipe Clamps

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3891 - B3897 - Pipe Slide Assembly Series

Pipe Size	Travel In. (mm)	Part No.	Height H In. (mm)	Length L In. (mm)	Depth B In. (mm)	Diameter D In. (mm)
1" to 24" (25 to 600)	2 1/2" (63.5)	B3897	5 5/16" (134.9)	9 1/2" (241.3)	5" (127.0)	4" (101.6)
	4" (127.0)	B3891	4 5/8" (117.5)	6" (152.4)	2" (50.8)	N/A (N/A)
		B3892	5 1/8" (130.2)	6" (152.4)	4" (101.6)	N/A (N/A)
		B3893	5 1/8" (130.2)	6" (152.4)	4" (101.6)	N/A (N/A)
		B3894	4 5/8" (117.5)	6" (152.4)	2" (50.8)	N/A (N/A)
		B3895	5 1/8" (130.2)	6" (152.4)	4" (101.6)	N/A (N/A)
		B3896	5 1/8" (130.2)	6" (152.4)	4" (101.6)	N/A (N/A)
	10" (254.0)	B3891	4 5/8" (117.5)	12" (304.8)	2" (50.8)	N/A (N/A)
		B3892	5 1/8" (130.2)	12" (304.8)	4" (101.6)	N/A (N/A)
		B3893	5 1/8" (130.2)	12" (304.8)	4" (101.6)	N/A (N/A)
		B3894	4 5/8" (117.5)	12" (304.8)	2" (50.8)	N/A (N/A)
		B3895	5 1/8" (130.2)	12" (304.8)	4" (101.6)	N/A (N/A)
		B3896	5 1/8" (130.2)	12" (304.8)	4" (101.6)	N/A (N/A)

Pipe Size	Travel In. mm	Part No.	Width P In. mm	Width W In. mm	Max Recommended Load Lbs. kN
1" to 24" (25 to 600)	2 1/2" (63.5)	B3897	N/A N/A	9 1/2" (241.3)	16000 (71.2)
	4" (127.0)	B3891	4" (101.6)	N/A N/A	12000 (53.4)
		B3892	4" (101.6)	7" (177.8)	12000 (53.4)
		B3893	4" (101.6)	7" (177.8)	12000 (53.4)
		B3894	N/A N/A	6" (152.4)	12000 (53.4)
		B3895	6" (152.4)	10" (254.0)	24000 (106.8)
		B3896	6" (152.4)	10" (254.0)	24000 (106.8)
	10" (254.0)	B3891	4" (101.6)	N/A N/A	12000 (53.4)
		B3892	4" (101.6)	7" (177.8)	12000 (53.4)
		B3893	4" (101.6)	7" (177.8)	12000 (53.4)
		B3894	N/A N/A	6" (152.4)	12000 (53.4)
		B3895	6" (152.4)	10" (254.0)	24000 (106.8)
		B3896	6" (152.4)	10" (254.0)	24000 (106.8)

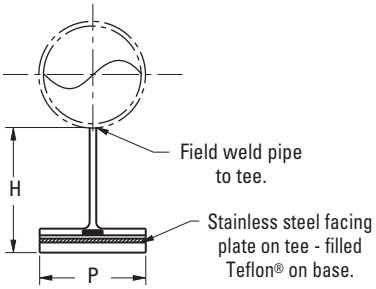
*Based on Teflon®† of 500 psi.

† Mark shown in this document is the property of its respective owner.

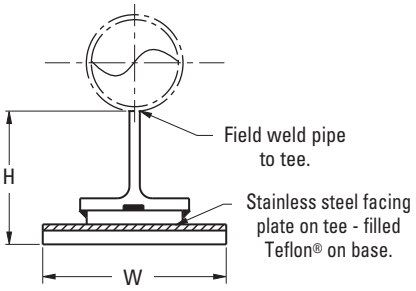
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3891 - B3897 - Pipe Slide Assembly Series

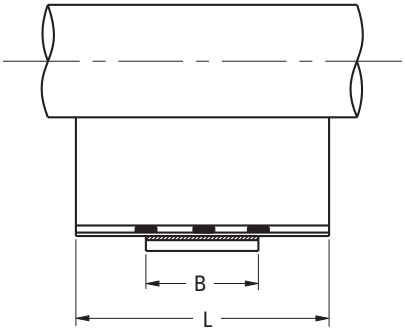
B3891 & B3894 Views



B3891 Front View

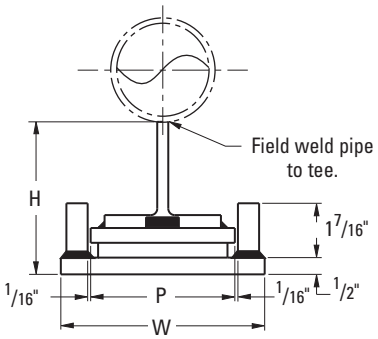


B3894 Front View

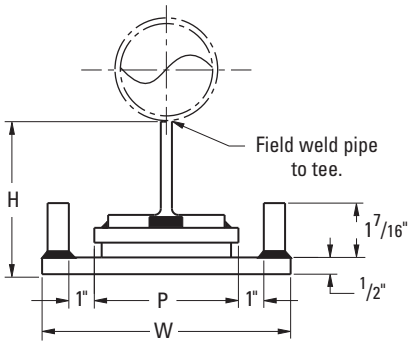


B3891 & B3894 Side View

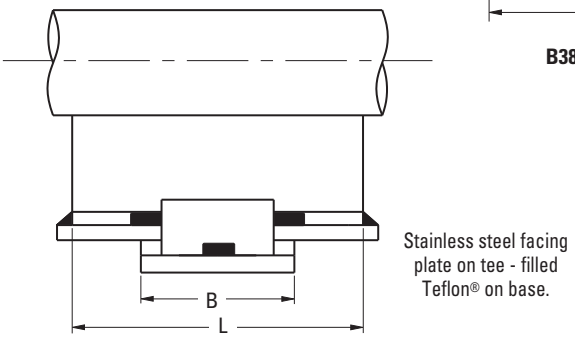
B3892 & B3895 Views



B3892 Front View



B3895 Front View

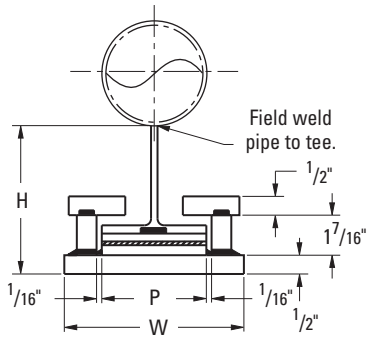


B3892 & B3895 Side View

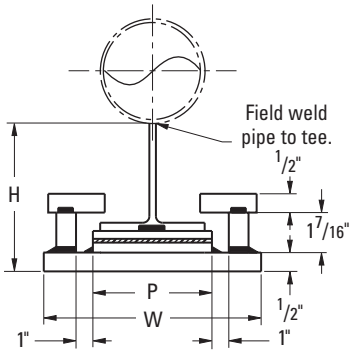
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3891 - B3897 - Pipe Slide Assembly Series

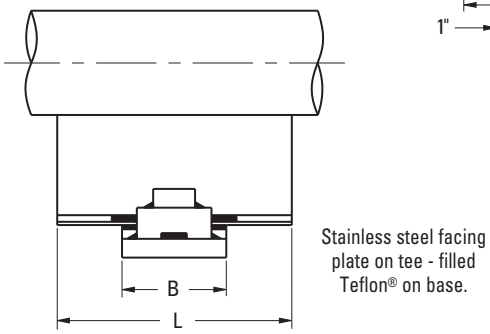
B3893 & B3896 Views



B3893 Front View

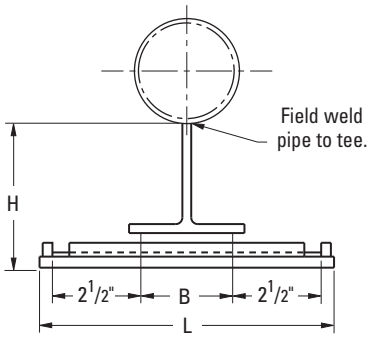


B3896 Front View

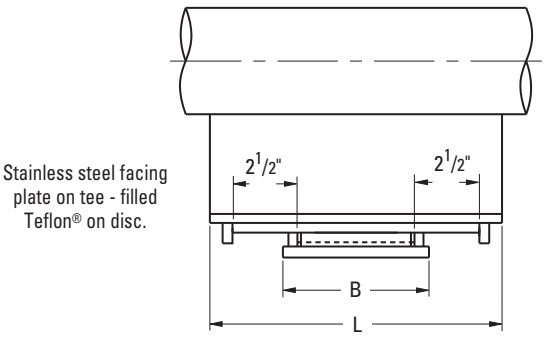


B3893 & B3896 Side View

B3897 Views



B3897 Front View

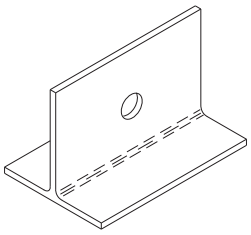


B3897 Side View

† Mark shown in this document is the property of its respective owner.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3991 - B3993B
Pipe Slide Assembly Series



Material: Tee & H Slides - Steel with Heat Cured PTFE modified coating at slide plate.
Base - Steel with 3/32" (2.4mm) thick Teflon®† slide pads.

Finish: Black paint.

Service: Designed to support pipe where horizontal movement from expansion and contraction is present.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 35.

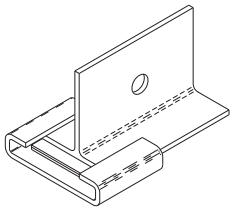
Operating Temperature Rating:
400°F (204°C) maximum at base

Loading: Capable of supporting constant loads up to 2000 Psi at 70°F (21°C)

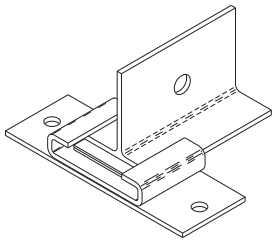
† Mark shown in this document is the property of its respective owner.

B3993 - 5 - 04 - CL

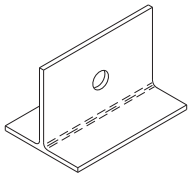
Base Style	Pipe Size	Travel	Options
1	5 = 1" (25) - 8" (200)	04 = 4" (100)	Standard Slide = Blank
3	10 = 10" (250) - 24" (600)	10 = 10" (250)	W/ End Plates = EP - Pipe Size
3B			W/ B3140 Clamps = CL - Pipe Size



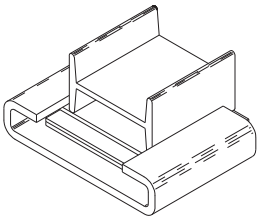
B3993-5



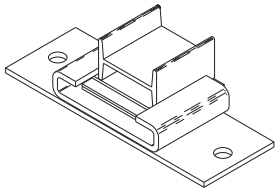
B3993B-5



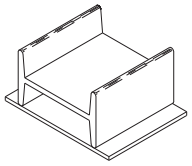
T-Slide
B3991-5



B3993-10

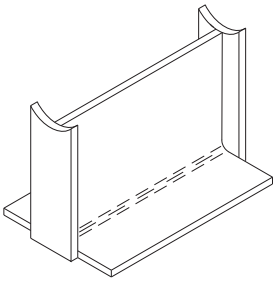


B3993B-10

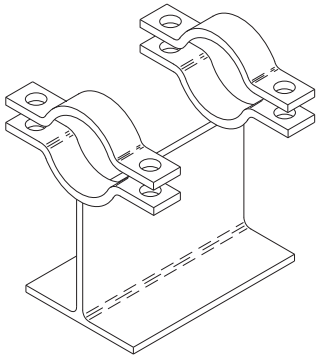


H-Slide
B3991-10

Options:



EP (standard slide with end plates)



CL (standard slide with pipe clamps)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3991 - B3993B - Pipe Slide Assembly Series

Pipe Size	Travel In. (mm)	Part No.	Height H In. (mm)	Length L In. (mm)	Depth B In. (mm)	Width C In. (mm)
1" to 24" (25 to 600)	4" (101.6)	B3991-5	4 7/16" (112.7)	6" (152.4)	3" (76.2)	8 1/2" (215.9)
		B3993-5	4 7/16" (112.7)	6" (152.4)	3" (76.2)	N/A N/A
		B3993B-5	4 11/16" (119.1)	6" (152.4)	3" (76.2)	8 1/2" (215.9)
		B3991-10	4 7/8" (123.8)	6" (152.4)	4" (101.6)	14 1/2" (368.3)
		B3993-10	4 7/8" (123.8)	6" (152.4)	4" (101.6)	N/A N/A
		B3993B-10	5 1/8" (130.2)	6" (152.4)	4" (101.6)	14 1/2" (368.3)
	10" (254.0)	B3991-5	4 7/16" (112.7)	12" (304.8)	3" (76.2)	8 1/2" (215.9)
		B3993-5	4 7/16" (112.7)	12" (304.8)	3" (76.2)	N/A N/A
		B3993B-5	4 11/16" (119.1)	12" (304.8)	3" (76.2)	8 1/2" (215.9)
		B3991-10	4 7/8" (123.8)	12" (304.8)	4" (101.6)	14 1/2" (368.3)
		B3993-10	4 7/8" (123.8)	12" (304.8)	4" (101.6)	N/A N/A
		B3993B-10	5 1/8" (130.2)	12" (304.8)	4" (101.6)	14 1/2" (368.3)

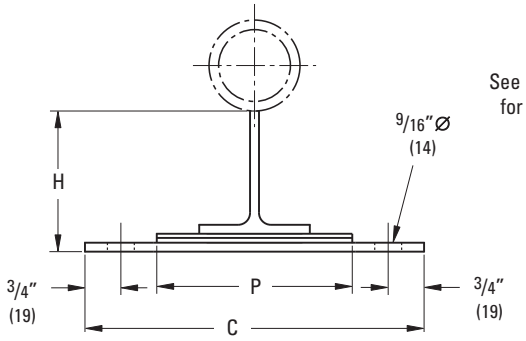
Pipe Size	Travel In. mm	Part No.	Width P In. mm	Width W In. mm	Max Recommended Load Lbs. kN
1" to 24" (25 to 600)	4" (101.6)	B3991-5	6" (152.4)	N/A N/A	16000 (71.2)
		B3993-5	2" (50.8)	4 1/2" (114.3)	12000 (53.4)
		B3993B-5	2" (50.8)	4 1/2" (114.3)	12000 (53.4)
		B3991-10	12" (304.8)	N/A N/A	32000 (142.3)
		B3993-10	6" (152.4)	8 11/16" (220.7)	24000 (106.8)
		B3993B-10	6" (152.4)	8 11/16" (220.7)	24000 (106.8)
	10" (254.0)	B3991-5	6" (152.4)	N/A N/A	16000 (71.2)
		B3993-5	2" (50.8)	4 1/2" (114.3)	12000 (53.4)
		B3993B-5	2" (50.8)	4 1/2" (114.3)	12000 (53.4)
		B3991-10	12" (304.8)	N/A N/A	32000 (142.3)
		B3993-10	6" (152.4)	8 11/16" (220.7)	24000 (106.8)
		B3993B-10	6" (152.4)	8 11/16" (220.7)	24000 (106.8)

***Based on Teflon® † of 2000 psi.**

† Mark shown in this document is the property of its respective owner.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

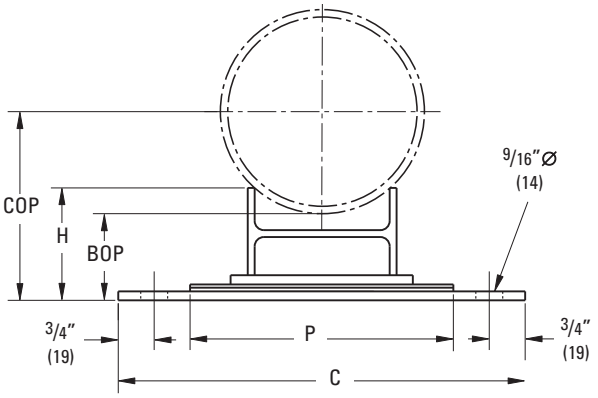
B3991 - Pipe Slide Assembly Series dimensional drawings



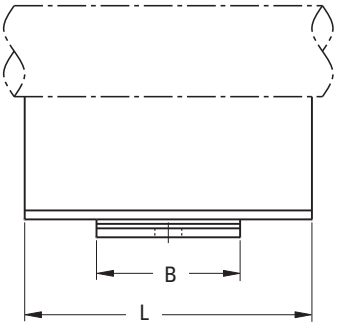
B3991-5 Front View

Pipe to be field welded to T or H slides.

See charts on page 155 for H, L, B, C, P & W dimensions



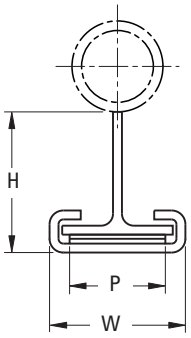
B3991-10 Front View



B3991-5 (shown) & B3991-10 Side View

Pipe Size In.	(mm)	'BOP' In.	(mm)	'COP' In.	(mm)
10"	(250)	4 1/8"	(104.8)	9 1/2"	(241.3)
12"	(300)	4 1/4"	(107.9)	10 5/8"	(269.9)
14"	(350)	4 3/8"	(111.1)	11 3/8"	(288.9)
16"	(400)	4 3/8"	(111.1)	12 3/8"	(314.3)
18"	(450)	4 3/8"	(111.1)	13 3/8"	(339.7)
20"	(500)	4 1/2"	(114.3)	14 1/2"	(368.3)
24"	(600)	4 5/8"	(117.5)	16 5/8"	(422.3)

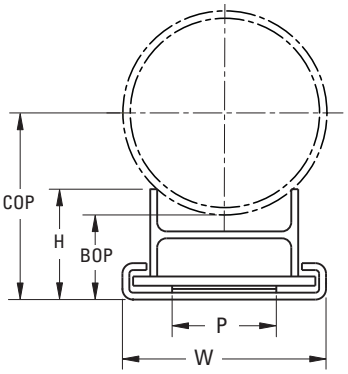
B3993 Pipe Slide Assembly Series dimensional drawings



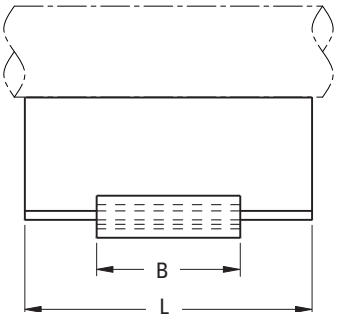
B3993-5 Front View

Pipe to be field welded to T or H slides.

See charts on page 155 for H, L, B, C, P & W dimensions



B3993-10 Front View



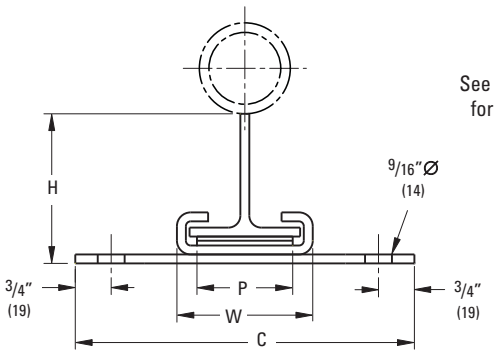
B3993-5 (shown) & B3993-10 Side View

Pipe Size In.	(mm)	'BOP' In.	(mm)	'COP' In.	(mm)
10"	(250)	4 1/8"	(104.8)	9 1/2"	(241.3)
12"	(300)	4 1/4"	(107.9)	10 5/8"	(269.9)
14"	(350)	4 3/8"	(111.1)	11 3/8"	(288.9)
16"	(400)	4 3/8"	(111.1)	12 3/8"	(314.3)
18"	(450)	4 3/8"	(111.1)	13 3/8"	(339.7)
20"	(500)	4 1/2"	(114.3)	14 1/2"	(368.3)
24"	(600)	4 5/8"	(117.5)	16 5/8"	(422.3)

† Mark shown in this document is the property of its respective owner.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

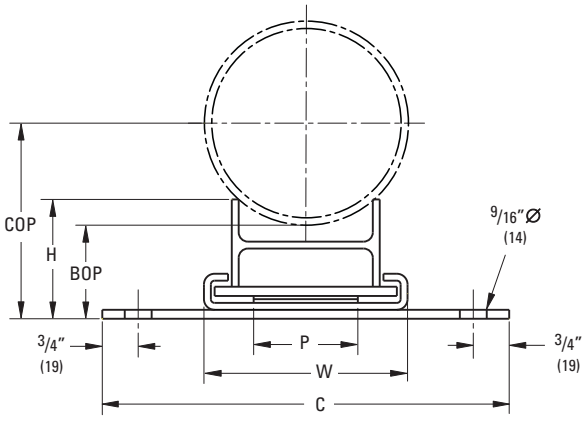
B3993B Pipe Slide Assembly Series dimensional drawings



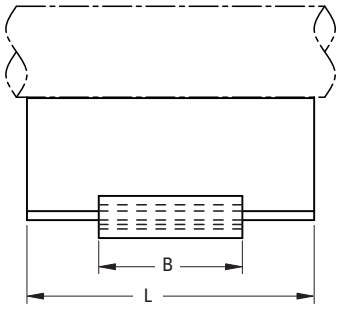
B3993B-5 Front View

Pipe to be field welded to T or H slides.

See charts on page 155 for H, L, B, C, P & W dimensions



B3993B-10 Front View



B3993B-5 (shown) & B3993B-10 Side View

Pipe Size In.	(mm)	'BOP' In.	(mm)	'COP' In.	(mm)
10"	(250)	4 3/8"	(111.1)	9 3/4"	(247.6)
12"	(300)	4 1/2"	(114.3)	10 7/8"	(276.2)
14"	(350)	4 5/8"	(117.5)	11 5/8"	(295.3)
16"	(400)	4 5/8"	(117.5)	12 5/8"	(320.7)
18"	(450)	4 5/8"	(117.5)	13 5/8"	(346.1)
20"	(500)	4 3/4"	(120.6)	14 3/4"	(374.6)
24"	(600)	4 7/8"	(123.8)	16 7/8"	(428.6)

† Mark shown in this document is the property of its respective owner.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3160 thru B3165 - Pipe Covering Protection Saddle

Material: Steel; Stainless Steel available

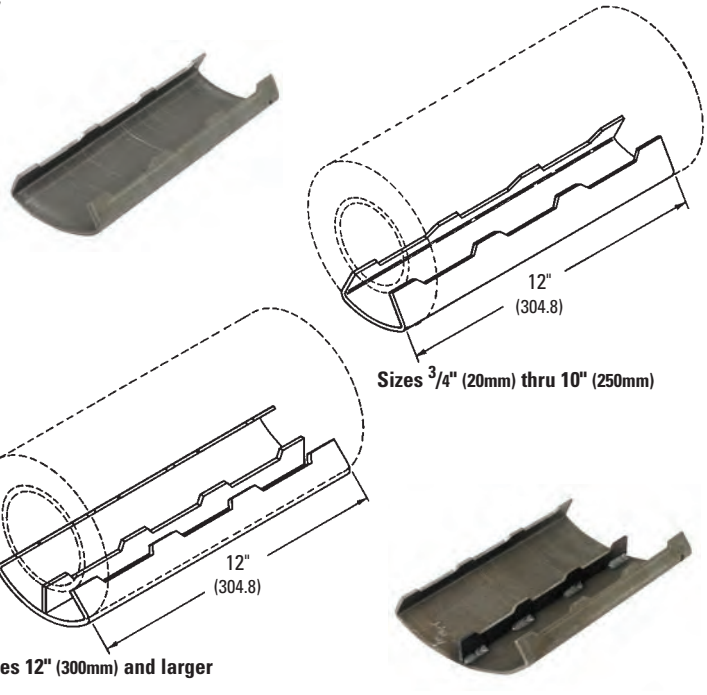
Standard Finish: Plain or Electro-Galvanized

Service: Designed to protect pipe insulation on high temperature pipe lines. Saddles are 12" (304.8mm) long. Center rib is furnished on all saddle sizes 12" (300mm) and above.

Order By: Part number and finish. Select part number by insulation thickness and add nominal pipe size (Ex: B3161-1 1/4 PLN).

Approvals: Complies with Federal Specification WW-H-171E & A-A-1192A Type 40A and Type 40B and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58 Type 39A and Type 39B.

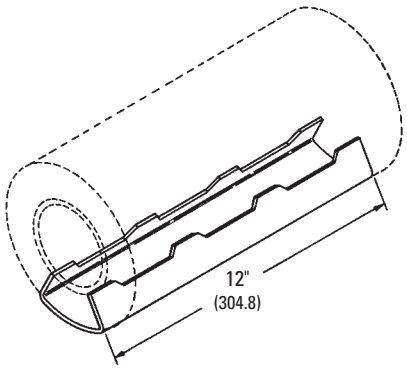
Insulation Thickness		Part Number
1"	(25.4mm)	B3160
1 1/2"	(38.1mm)	B3161
2"	(50.8mm)	B3162
2 1/2"	(63.5mm)	B3163
3"	(76.2mm)	B3164
4"	(101.6mm)	B3165



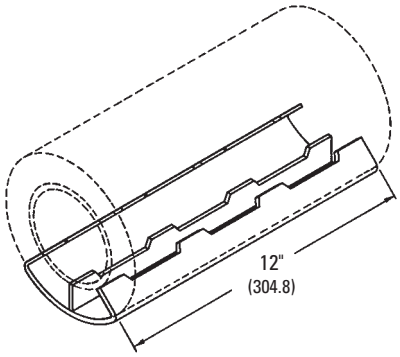
Part No.	Pipe Size in. (mm)	Size For Roller Part Number: B3114 B3120 B3122 B3122A	Size For Roller Part Number: B3117SL B3118SL B3119SL B3124 B3126	Size For Roller Part Number: B3110	Design Load Lbs. (kN)	Approx. Wt./100 Lbs. (kg)
B3160-3/4	3/4" (20)	2	2-3 1/2	2 1/2	1200 (5.34)	122 (55.3)
B3161-3/4		3	2-3 1/2	3 1/2	1200 (5.34)	228 (103.4)
B3162-3/4		4	2-3 1/2	5	1200 (5.34)	297 (134.7)
B3160-1	1" (25)	2 1/2	2-3 1/2	3	1200 (5.34)	156 (70.7)
B3161-1		3	2-3 1/2	4	1200 (5.34)	228 (103.4)
B3162-1		4	2-3 1/2	5	1200 (5.34)	297 (134.7)
B3160-1 1/4	1 1/4" (32)	2 1/2	2-3 1/2	3	1200 (5.34)	156 (70.7)
B3161-1 1/4		3 1/2	2-3 1/2	5	1200 (5.34)	228 (103.4)
B3162-1 1/4		4	2-3 1/2	5	1200 (5.34)	297 (134.7)
B3163-1 1/4		5	4-6	6	1200 (5.34)	342 (155.1)
B3160-1 1/2	1 1/2" (40)	3	2-3 1/2	3 1/2	1200 (5.34)	172 (78.0)
B3161-1 1/2		3 1/2	2-3 1/2	5	1200 (5.34)	239 (108.4)
B3162-1 1/2		5	4-6	6	1800 (8.00)	311 (141.0)
B3163-1 1/2		6	4-6	8	1800 (8.00)	417 (189.1)
B3160-2	2" (50)	3 1/2	2-3 1/2	4	1200 (5.34)	172 (78.0)
B3161-2		4	2-3 1/2	5	1200 (5.34)	239 (108.4)
B3162-2		5	4-6	6	1800 (8.00)	311 (141.0)
B3163-2		6	4-6	8	1800 (8.00)	417 (189.1)
B3164-2		8	4-6	8	1800 (8.00)	441 (200.0)
B3165-2		10	8-10	10	1800 (8.00)	584 (264.9)
B3160-2 1/2	2 1/2" (65)	3 1/2	2-3 1/2	5	1200 (5.34)	210 (95.2)
B3161-2 1/2		5	4-6	6	1200 (5.34)	268 (121.5)
B3162-2 1/2		6	4-6	8	1800 (8.00)	358 (162.4)
B3163-2 1/2		8	4-6	8	1800 (8.00)	417 (189.1)
B3164-2 1/2		8	4-6	10	1800 (8.00)	459 (208.2)
B3165-2 1/2		12	8-10	12	1800 (8.00)	630 (285.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

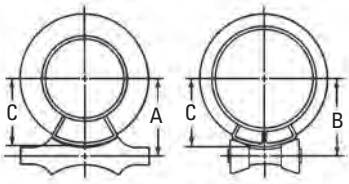
B3160 thru B3165 - Pipe Covering Protection Saddle cont.



Sizes 3/4" (20mm) thru 10" (250mm)



Sizes 12" (300mm) and larger



Insulation Thickness		Part Number
1"	(25.4mm)	B3160
1 1/2"	(38.1mm)	B3161
2"	(50.8mm)	B3162
2 1/2"	(63.5mm)	B3163
3"	(76.2mm)	B3164
4"	(101.6mm)	B3165

Part No.	Pipe Size In.	(mm)	Centerline of Pipe to Centerline of Roll A B3114, B3120, B3122, B3122A In.	(mm)	B B3117SL, B3118SL, B3119SL, B3124, B3126 In.	(mm)	A B3110 In.	(mm)	Centerline of Pipe to Outside of Saddle C In.	(mm)	Thickness of Covering (Per ASTM C 585) In.	(mm)
B3160-3/4	3/4"	(20)	2"	(50.8)	2 1/4"	(57.1)	2"	(50.8)	1 9/16"	(39.7)	7/8"	(22.2)
B3161-3/4			2 7/16"	(61.9)	2 7/8"	(73.0)	2 3/8"	(69.8)	2 3/16"	(55.6)	1 1/2"	(38.1)
B3162-3/4			3 5/16"	(84.1)	3 7/16"	(87.3)	3 3/8"	(85.7)	2 3/4"	(69.8)	1 15/16"	(49.2)
B3160-1	1"	(25)	2 5/16"	(58.7)	2 1/2"	(63.5)	2 5/16"	(58.7)	1 13/16"	(46.0)	1 1/16"	(27.0)
B3161-1			2 7/8"	(73.0)	3"	(76.2)	2 7/8"	(73.0)	2 5/16"	(58.7)	1 9/16"	(39.7)
B3162-1			3 7/16"	(87.3)	3 5/8"	(92.1)	3 1/2"	(88.9)	2 7/8"	(73.0)	2 1/8"	(54.0)
B3160-1 1/4	1 1/4"	(32)	2 9/16"	(65.1)	2 11/16"	(68.3)	2 1/2"	(63.5)	2"	(50.8)	15/16"	(23.8)
B3161-1 1/4			3 1/8"	(79.4)	3 1/4"	(82.5)	3 1/8"	(79.4)	2 9/16"	(65.1)	1 7/16"	(36.5)
B3162-1 1/4			3 11/16"	(93.7)	3 13/16"	(96.8)	3 7/16"	(87.3)	3 1/16"	(77.8)	2 1/8"	(54.0)
B3163-1 1/4			4 1/16"	(103.2)	4 1/8"	(104.8)	4 1/16"	(103.2)	3 7/16"	(87.3)	2 7/16"	(61.9)
B3160-1 1/2	1 1/2"	(40)	2 11/16"	(68.3)	2 7/8"	(73.0)	2 7/16"	(61.9)	2 1/8"	(54.0)	1 1/32"	(26.2)
B3161-1 1/2			3 3/16"	(81.0)	3 5/16"	(84.1)	3 3/16"	(81.0)	2 9/16"	(65.1)	1 17/32"	(38.9)
B3162-1 1/2			3 9/16"	(90.5)	3 13/16"	(96.8)	3 13/16"	(96.8)	3 1/8"	(79.4)	2"	(50.8)
B3163-1 1/2			4 7/16"	(112.7)	4 3/8"	(111.1)	4 1/2"	(114.3)	3 5/8"	(92.1)	2 27/32"	(72.2)
B3160-2	2"	(50)	2 15/16"	(74.6)	3 1/8"	(79.4)	2 15/16"	(74.6)	2 3/8"	(60.3)	1 1/16"	(27.0)
B3161-2			3 7/16"	(87.3)	3 5/8"	(92.1)	3 1/2"	(88.9)	2 7/8"	(73.0)	1 19/32"	(40.5)
B3162-2			4 1/8"	(104.8)	4 1/8"	(104.8)	4 1/16"	(103.2)	3 7/16"	(87.3)	2 1/8"	(54.0)
B3163-2			4 11/16"	(119.1)	4 11/16"	(119.1)	4 3/4"	(120.6)	3 15/16"	(100.0)	2 5/8"	(66.7)
B3164-2			5 1/4"	(133.3)	5 3/16"	(131.8)	5 1/4"	(133.3)	4 1/2"	(114.3)	3 1/8"	(79.4)
B3165-2			6 3/8"	(161.9)	6 1/2"	(165.1)	6 3/8"	(161.9)	5 1/2"	(139.7)	4 3/16"	(106.4)
B3160-2 1/2	2 1/2"	(65)	3 1/4"	(82.5)	3 3/8"	(85.7)	3 1/2"	(82.5)	2 5/8"	(66.7)	1 1/16"	(27.0)
B3161-2 1/2			3 7/8"	(98.4)	3 15/16"	(100.0)	3 7/8"	(98.4)	3 1/4"	(82.5)	1 7/8"	(47.6)
B3162-2 1/2			4 9/16"	(115.9)	4 9/16"	(115.9)	4 5/8"	(117.5)	3 7/8"	(98.4)	2 5/16"	(58.7)
B3163-2 1/2			5 1/8"	(130.2)	5"	(127.0)	5 1/8"	(130.2)	4 1/4"	(107.9)	2 7/8"	(73.0)
B3164-2 1/2			5 7/16"	(138.1)	5 5/16"	(134.9)	5 1/2"	(139.7)	4 9/16"	(115.9)	3 1/16"	(77.8)
B3165-2 1/2			6 15/16"	(176.2)	7"	(177.8)	6 15/16"	(176.2)	5 15/16"	(150.8)	4 7/16"	(112.7)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3160 thru B3165 - Pipe Covering Protection Saddle cont.

Insulation Thickness		Part Number
1"	(25.4mm)	B3160
1 1/2"	(38.1mm)	B3161
2"	(50.8mm)	B3162

Insulation Thickness		Part Number
2 1/2"	(63.5mm)	B3163
3"	(76.2mm)	B3164
4"	(101.6mm)	B3165

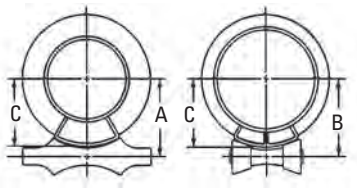
Part No.	Pipe Size In.	(mm)	Size For Roller Part Number B3114 B3120 B3122 B3122A	B3117SL B3118SL B3119SL B3124 B3126	B3110	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3160-3	3"	(80)	4	2-3 1/2	5	1800	(8.00)	210	(95.2)
B3161-3			5	4-6	6	1800	(8.00)	268	(166.9)
B3162-3			6	4-6	8	1800	(8.00)	358	(162.4)
B3163-3			8	4-6	8	1800	(8.00)	417	(189.1)
B3164-3			8	8-10	10	1800	(8.00)	459	(208.2)
B3165-3			12	8-10	12	1800	(8.00)	600	(272.2)
B3160-3 1/2	3 1/2"	(90)	5	4-6	6	1200	(5.34)	226	(102.5)
B3161-3 1/2			6	4-6	8	1800	(8.00)	289	(131.1)
B3162-3 1/2			8	4-6	8	1800	(8.00)	364	(165.1)
B3163-3 1/2			8	8-10	10	1800	(8.00)	422	(191.4)
B3164-3 1/2			10	8-10	10	1800	(8.00)	488	(221.3)
B3160-4	4"	(100)	5	4-6	6	1800	(8.00)	226	(102.5)
B3161-4			6	4-6	8	1800	(8.00)	289	(131.1)
B3162-4			8	8-10	8	1800	(8.00)	364	(165.1)
B3163-4			8	8-10	10	1800	(8.00)	422	(191.4)
B3164-4			10	8-10	10	1800	(8.00)	488	(221.3)
B3165-4			10	8-10	12	1800	(8.00)	616	(279.4)
B3160-5	5"	(125)	6	4-6	8	1800	(8.00)	250	(113.4)
B3161-5			8	4-6	8	1800	(8.00)	289	(131.1)
B3162-5			8	8-10	10	1800	(8.00)	364	(165.1)
B3163-5			10	8-10	10	1800	(8.00)	422	(191.4)
B3164-5			10	8-10	12	1800	(8.00)	488	(221.3)
B3165-5			12	8-10	14	1800	(8.00)	643	(291.6)
B3160-6	6"	(150)	8	8-10	8	1800	(8.00)	387	(175.5)
B3161-6			8	8-10	10	1800	(8.00)	498	(225.9)
B3162-6			10	8-10	10	1800	(8.00)	594	(269.4)
B3163-6			10	8-10	12	1800	(8.00)	694	(314.8)
B3164-6			12	8-10	12	1800	(8.00)	794	(360.1)
B3165-6			14	12-14	16	1800	(8.00)	1009	(457.7)
B3160-8	8"	(200)	10	8-10	12	1800	(8.00)	478	(216.8)
B3161-8			10	8-10	12	1800	(8.00)	554	(251.3)
B3162-8			10	8-10	12	1800	(8.00)	674	(305.7)
B3163-8			12	8-10	14	1800	(8.00)	782	(354.7)
B3164-8			14	12-14	16	1800	(8.00)	893	(405.0)
B3165-8			16	12-14	18	1800	(8.00)	1089	(494.0)
B3160-10	10"	(250)	12	12-14	14	1800	(8.00)	546	(247.6)
B3161-10			12	12-14	14	1800	(8.00)	642	(291.2)
B3162-10			14	16-20	16	1800	(8.00)	750	(340.2)
B3163-10			14	16-20	16	1800	(8.00)	850	(385.5)
B3164-10			16	16-20	18	1800	(8.00)	957	(434.1)
B3165-10			18	16-20	20	1800	(8.00)	1137	(515.7)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3160 thru B3165 - Pipe Covering Protection Saddle cont.

Insulation Thickness		Part Number
1"	(25.4mm)	B3160
1 1/2"	(38.1mm)	B3161
2"	(50.8mm)	B3162

Insulation Thickness		Part Number
2 1/2"	(63.5mm)	B3163
3"	(76.2mm)	B3164
4"	(101.6mm)	B3165



Part No.	Pipe Size In. (mm)	Centerline of Pipe to Centerline of Roll A B3114 B3114, B3120, B3122, B3122A In. (mm)	B B3117ST, B3118SL, B3119SL, B3124, B3126 In. (mm)	A of Saddle B3110 In. (mm)	Centerline of Pipe to Outside C In. (mm)	Thickness of Covering (Per ASTM C 585) In. (mm)
B3160-3	3" (80)	3 3/8" (85.7)	3 1/2" (88.9)	3 5/8" (91.1)	3" (76.2)	1 1/32" (26.2)
B3161-3		4 1/4" (107.9)	4 5/16" (109.5)	4 1/4" (107.9)	3 9/16" (90.5)	1 9/16" (39.7)
B3162-3		4 15/16" (125.4)	4 15/16" (125.4)	4 15/16" (125.4)	4 3/16" (106.4)	2 1/16" (52.4)
B3163-3		5 7/16" (138.1)	5 3/8" (136.5)	5 7/16" (138.1)	4 5/8" (117.5)	2 9/16" (65.1)
B3164-3		5 13/16" (147.6)	6" (152.4)	5 7/8" (149.2)	4 15/16" (125.4)	3 1/16" (77.8)
B3165-3		7" (177.8)	7 1/16" (179.4)	7" (177.8)	6" (152.4)	4 1/8" (104.8)
B3160-3 1/2	3 1/2" (90)	3 13/16" (96.8)	3 7/8" (98.4)	3 13/16" (96.8)	3 3/16" (81.0)	1 1/32" (26.2)
B3161-3 1/2		4 3/8" (111.1)	4 3/8" (111.1)	4 3/8" (111.1)	3 11/16" (93.7)	1 9/16" (39.7)
B3162-3 1/2		5" (127.0)	5" (127.0)	5" (127.0)	4 1/4" (107.9)	2 1/16" (52.4)
B3163-3 1/2		5 1/2" (139.7)	5 11/16" (144.5)	5 9/16" (141.3)	4 5/8" (117.5)	2 25/32" (70.6)
B3164-3 1/2		6 3/16" (157.2)	6 5/16" (160.3)	6 3/16" (157.2)	5 1/4" (133.3)	3 1/16" (77.8)
B3160-4	4" (100)	4 1/8" (104.8)	4 1/8" (104.8)	4 1/8" (104.8)	3 7/16" (87.3)	1 1/16" (27.0)
B3161-4		4 11/16" (119.1)	4 7/16" (112.7)	4 3/4" (120.6)	4" (101.6)	1 9/16" (39.7)
B3162-4		5 5/16" (134.9)	5 1/4" (133.3)	5 5/16" (134.9)	4 1/2" (114.3)	2 1/16" (52.4)
B3163-4		5 13/16" (147.6)	6" (152.4)	5 7/8" (149.2)	4 15/16" (125.4)	2 9/16" (65.1)
B3164-4		6 7/16" (163.5)	6 9/16" (166.7)	6 7/16" (163.5)	5 1/2" (139.7)	3 1/8" (79.4)
B3165-4		7 9/16" (192.1)	7 5/8" (193.7)	7 9/16" (192.1)	6 1/2" (165.1)	4 1/8" (104.8)
B3160-5	5" (125)	4 11/16" (119.1)	4 11/16" (119.1)	4 3/4" (120.6)	3 15/16" (100.0)	1 1/32" (26.2)
B3161-5		5 5/16" (134.9)	5 1/4" (133.3)	5 5/16" (134.9)	4 9/16" (115.9)	1 17/32" (38.9)
B3162-5		5 7/8" (149.2)	6 1/8" (155.6)	6" (152.4)	5 1/8" (130.2)	2 1/32" (51.6)
B3163-5		6 7/16" (163.5)	6 9/16" (166.7)	6 7/16" (163.5)	5 9/16" (141.3)	2 9/16" (65.1)
B3164-5		7" (177.8)	7 3/16" (182.6)	7 1/8" (181.0)	6 1/8" (155.6)	3 3/32" (78.6)
B3165-5		8 3/16" (208.0)	8 3/16" (208.0)	8 3/8" (212.7)	7 1/16" (179.4)	4 5/32" (105.5)
B3160-6	6" (150)	5 1/4" (133.3)	5 1/4" (133.3)	5 1/4" (133.3)	4 1/2" (114.3)	1" (25.4)
B3161-6		5 7/8" (149.2)	6 1/16" (154.0)	5 15/16" (150.8)	5" (127.0)	1 1/2" (38.1)
B3162-6		6 1/2" (165.1)	6 5/8" (168.3)	6 1/2" (165.1)	5 9/16" (141.3)	2 1/16" (52.4)
B3163-6		7 1/16" (179.4)	7 1/8" (181.0)	7 1/8" (181.0)	6 1/16" (154.0)	2 9/16" (65.1)
B3164-6		7 5/8" (193.7)	7 11/16" (195.3)	7 5/8" (193.7)	6 9/16" (166.7)	3 1/16" (77.8)
B3165-6		9 1/16" (230.2)	8 15/16" (227.0)	9" (228.6)	7 3/4" (196.8)	4 3/16" (106.4)
B3160-8	8" (200)	6 1/2" (165.1)	6 5/8" (168.3)	6 9/16" (166.7)	5 9/16" (141.3)	1 1/32" (26.2)
B3161-8		7 1/16" (179.4)	7 1/8" (181.0)	7 1/16" (179.4)	6 1/16" (154.0)	1 9/16" (39.7)
B3162-8		7 9/16" (192.1)	7 5/8" (193.7)	7 5/8" (193.7)	6 9/16" (166.7)	2 1/16" (52.4)
B3163-8		8 5/16" (211.1)	8 5/16" (211.1)	8 1/2" (215.9)	7 3/16" (182.6)	2 11/16" (68.3)
B3164-8		9 1/16" (230.2)	8 15/16" (227.0)	9" (228.6)	7 3/4" (196.8)	3 3/16" (81.0)
B3165-8		10" (254.0)	9 15/16" (252.4)	10 1/16" (255.6)	8 11/16" (220.7)	4 3/16" (106.4)
B3160-10	10" (250)	7 11/16" (195.3)	7 3/4" (196.8)	7 7/8" (200.0)	6 5/8" (168.3)	31/32" (24.6)
B3161-10		8 5/16" (211.1)	8 5/16" (211.1)	8 7/16" (214.3)	7 3/16" (182.6)	1 5/8" (41.3)
B3162-10		9" (228.6)	8 7/8" (225.4)	8 7/8" (225.4)	7 11/16" (195.3)	2 1/8" (54.0)
B3163-10		9 5/8" (244.5)	9 7/16" (239.7)	9 1/2" (241.3)	8 3/16" (208.0)	2 5/8" (66.7)
B3164-10		10 1/8" (257.2)	10 3/16" (258.8)	10 3/16" (258.8)	8 3/4" (222.2)	3 1/8" (79.4)
B3165-10		11 1/4" (285.7)	11 3/16" (284.2)	11 1/4" (285.7)	9 3/4" (247.6)	4 1/8" (104.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3160 thru B3165 - Pipe Covering Protection Saddle cont.

Insulation Thickness		Part Number
1"	(25.4mm)	B3160
1 1/2"	(38.1mm)	B3161
2"	(50.8mm)	B3162

Insulation Thickness		Part Number
2 1/2"	(63.5mm)	B3163
3"	(76.2mm)	B3164
4"	(101.6mm)	B3165

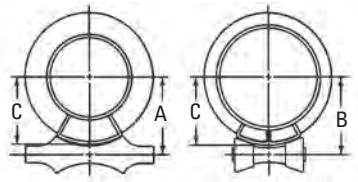
Part No.	Pipe Size In.	(mm)	Size For Roller Part Number B3114 B3114 B3120, B3122 B3122A	B3117SL B3118SL B3119SL B3124, B3126	B3110	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3160-12	12"	(300)	14	12-14	16	5000	(22.24)	688	(312.1)
B3161-12			14	12-14	16	5000	(22.24)	836	(379.2)
B3162-12			16	16-20	18	5000	(22.24)	963	(436.8)
B3163-12			16	16-20	18	5000	(22.24)	1091	(494.9)
B3164-12			18	16-20	20	5000	(22.24)	1218	(552.5)
B3165-12			20	16-20	24	5000	(22.24)	1462	(663.1)
B3161-14	14"	(350)	16	16-20	18	5000	(22.24)	828	(375.6)
B3162-14			16	16-20	18	5000	(22.24)	963	(436.8)
B3163-14			18	16-20	20	5000	(22.24)	1099	(498.5)
B3164-14			18	16-20	20	5000	(22.24)	1230	(557.9)
B3165-14			20	24	24	5000	(22.24)	1486	(674.0)
B3161-16	16"	(400)	18	16-20	20	5000	(22.24)	907	(411.4)
B3162-16			18	16-20	20	5000	(22.24)	1039	(471.3)
B3163-16			20	16-20	24	7200	(32.02)	1163	(527.5)
B3164-16			20	24	24	7200	(32.02)	1298	(588.8)
B3165-16			24	24	24	7200	(32.02)	1554	(704.9)
B3161-18	18"	(450)	20	16-20	24	5000	(22.24)	979	(444.1)
B3162-18			20	24	24	7200	(32.02)	1107	(502.1)
B3163-18			24	24	24	7200	(32.02)	1230	(557.9)
B3164-18			24	24	24	7200	(32.02)	1362	(617.8)
B3165-18			24	24	-	7200	(32.02)	1617	(733.5)
B3161-20	20"	(500)	24	24	24	7200	(32.02)	1043	(473.1)
B3162-20			24	24	24	7200	(32.02)	1171	(531.1)
B3163-20			24	24	-	7200	(32.02)	1294	(586.9)
B3164-20			24	24	-	7200	(32.02)	1430	(648.6)
B3165-20			30	30	-	7200	(32.02)	1689	(766.1)
B3161-24	24"	(600)	30	30	-	7200	(32.02)	1179	(534.8)
B3162-24			30	30	-	7200	(32.02)	1306	(592.4)
B3163-24			30	30	-	7200	(32.02)	1442	(654.1)
B3164-24			30	30	-	7200	(32.02)	1562	(708.5)
B3165-24			30	30	-	7200	(32.02)	1821	(826.0)
B3161-30	30"	(750)	-	36-42	-	7200	(32.02)	1370	(621.4)
B3162-30			-	36-42	-	7200	(32.02)	1502	(681.3)
B3163-30			-	36-42	-	7200	(32.02)	1640	(743.9)
B3164-30			-	36-42	-	7200	(32.02)	1761	(798.8)
B3165-30			-	36-42	-	7200	(32.02)	2008	(910.8)
B3161-36	36"	(900)	-	36-42	-	7200	(32.02)	1574	(713.9)
B3162-36			-	36-42	-	7200	(32.02)	1701	(771.6)
B3163-36			-	36-42	-	7200	(32.02)	1857	(842.3)
B3164-36			-	36-42	-	7200	(32.02)	1961	(889.5)
B3165-36			-	36-42	-	7200	(32.02)	2216	(1005.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3160 thru B3165 - Pipe Covering Protection Saddle cont.

Insulation Thickness		Part Number
1"	(25.4mm)	B3160
1 1/2"	(38.1mm)	B3161
2"	(50.8mm)	B3162

Insulation Thickness		Part Number
2 1/2"	(63.5mm)	B3163
3"	(76.2mm)	B3164
4"	(101.6mm)	B3165



Part No.	Nominal Pipe Size In.	(mm)	Centerline of Pipe to Centerline of Roll A B3114, B3120 B3122, B3122A In.	(mm)	B B3117SL, B3118SL B3119SL B3124, B3126 In.	(mm)	A B3110 In.	(mm)	Centerline of Pipe to Outside of Saddle C In.	(mm)	Thickness of Covering (Per ASTM C 585) In.	(mm)
B3160-12	12"	(300)	8 15/16"	(227.0)	8 13/16"	(223.8)	8 7/8"	(225.4)	7 5/8"	(193.7)	1 1/16"	(27.0)
B3161-12			9 9/16"	(242.9)	9 7/16"	(239.7)	9 1/2"	(241.3)	8 3/16"	(208.0)	1 5/8"	(41.3)
B3162-12			10 1/16"	(255.6)	10 1/8"	(257.2)	10 1/8"	(257.2)	8 3/4"	(222.2)	2 1/8"	(54.0)
B3163-12			10 5/8"	(269.9)	10 5/8"	(269.9)	10 5/8"	(269.9)	9 1/4"	(234.9)	2 5/8"	(66.7)
B3164-12			11 3/16"	(284.2)	11 3/16"	(284.2)	11 1/4"	(285.7)	9 11/16"	(246.1)	3 1/8"	(79.4)
B3165-12			12 5/16"	(312.7)	12 3/16"	(309.6)	12 5/16"	(312.7)	10 3/4"	(273.0)	4 1/8"	(104.8)
B3161-14	14"	(350)	10 1/16"	(255.6)	9 15/16"	(252.4)	10 1/16"	(255.6)	8 11/16"	(220.7)	1 1/2"	(38.1)
B3162-14			10 5/8"	(269.9)	10 5/8"	(269.9)	10 5/8"	(269.9)	9 3/16"	(233.4)	2"	(50.8)
B3163-14			11 3/16"	(284.2)	11 3/16"	(284.2)	11 1/4"	(285.7)	9 3/4"	(247.6)	2 1/2"	(63.5)
B3164-14			11 3/4"	(298.4)	11 11/16"	(296.9)	11 3/4"	(298.4)	10 1/4"	(260.3)	3"	(76.2)
B3165-14			12 7/8"	(327.0)	12 7/16"	(315.9)	12 7/8"	(327.0)	11 3/16"	(284.2)	4"	(101.6)
B3161-16	16"	(400)	11 1/8"	(282.6)	11 1/8"	(282.6)	11 3/16"	(284.2)	9 11/16"	(246.1)	1 1/2"	(38.1)
B3162-16			11 13/16"	(300.0)	11 11/16"	(296.9)	11 3/4"	(298.4)	10 1/4"	(260.3)	2"	(50.8)
B3163-16			12 5/16"	(312.7)	12 1/8"	(308.0)	12 5/16"	(312.7)	10 11/16"	(271.5)	2 1/2"	(63.5)
B3164-16			12 7/8"	(327.0)	12 9/16"	(319.1)	12 7/8"	(327.0)	11 1/4"	(285.7)	3"	(76.2)
B3165-16			13 15/16"	(354.0)	13 9/16"	(344.5)	13 15/16"	(354.0)	12 1/4"	(311.1)	4"	(101.6)
B3161-18	18"	(450)	12 1/4"	(311.1)	12 1/8"	(308.0)	12 1/4"	(311.1)	10 11/16"	(271.5)	1 1/2"	(38.1)
B3162-18			12 7/8"	(327.0)	12 1/2"	(317.5)	12 7/8"	(327.0)	11 1/4"	(285.7)	2"	(50.8)
B3163-18			13 3/8"	(339.7)	13"	(330.2)	13 3/8"	(339.7)	11 11/16"	(296.9)	2 1/2"	(63.5)
B3164-18			13 15/16"	(354.0)	13 9/16"	(344.5)	13 15/16"	(354.0)	12 1/4"	(311.1)	3"	(76.2)
B3165-18			15"	(381.0)	14 9/16"	(369.9)	--	--	13 1/4"	(336.5)	4"	(101.6)
B3161-20	20"	(500)	13 3/8"	(339.7)	13"	(330.2)	13 3/8"	(339.7)	11 11/16"	(296.9)	1 1/2"	(38.1)
B3162-20			13 15/16"	(354.0)	13 1/2"	(342.9)	13 15/16"	(354.0)	12 3/16"	(309.6)	2"	(50.8)
B3163-20			14 7/16"	(366.7)	14"	(355.6)	--	--	12 11/16"	(322.3)	2 1/2"	(63.5)
B3164-20			14 15/16"	(379.4)	14 9/16"	(369.9)	--	--	13 3/16"	(350.8)	3"	(76.2)
B3165-20			16 1/4"	(412.7)	15 7/8"	(403.2)	--	--	14 1/4"	(361.9)	4"	(101.6)
B3161-24	24"	(600)	15 11/16"	(398.5)	15 5/16"	(388.9)	--	--	13 11/16"	(347.7)	1 1/2"	(38.1)
B3162-24			16 1/4"	(412.8)	15 7/8"	(403.2)	--	--	14 3/16"	(360.4)	2"	(50.8)
B3163-24			16 3/4"	(425.4)	16 5/16"	(414.3)	--	--	14 5/8"	(377.8)	2 1/2"	(63.5)
B3164-24			17 3/8"	(441.3)	16 7/8"	(428.6)	--	--	15 1/4"	(387.3)	3"	(76.2)
B3165-24			18 7/16"	(468.3)	17 15/16"	(455.6)	--	--	16 1/4"	(412.7)	4"	(101.6)
B3161-30	30"	(750)	--	--	18 7/8"	(479.4)	--	--	16 11/16"	(423.9)	1 1/2"	(38.1)
B3162-30			--	--	19 3/8"	(492.1)	--	--	17 3/16"	(436.6)	2"	(50.8)
B3163-30			--	--	19 15/16"	(506.4)	--	--	17 11/16"	(449.3)	2 1/2"	(63.5)
B3164-30			--	--	20 1/2"	(520.7)	--	--	18 3/16"	(462.0)	3"	(76.2)
B3165-30			--	--	21 1/2"	(546.1)	--	--	19 3/16"	(487.4)	4"	(101.6)
B3161-36	36"	(900)	--	--	22 1/8"	(562.0)	--	--	19 11/16"	(500.1)	1 1/2"	(38.1)
B3162-36			--	--	22 5/8"	(574.7)	--	--	20 3/16"	(512.8)	2"	(50.8)
B3163-36			--	--	23 3/16"	(589.0)	--	--	20 11/16"	(525.5)	2 1/2"	(63.5)
B3164-36			--	--	23 11/16"	(601.7)	--	--	21 3/16"	(538.2)	3"	(76.2)
B3165-36			--	--	24 11/16"	(627.1)	--	--	22 3/16"	(563.6)	4"	(101.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Insulation Protection Shields

Selection Tables for:

B3151 Insulation Protection Shield (Page 166)
B3153 Insulation Protection Shield with 'Loc' Tabs (Page 166)
B3154 Short Insulation Protection Shield (Page 167)
B3155 Short Insulation Protection Shield with 'Loc' Tabs (Page 167)

Shield Size Selection Table

Nominal Pipe or Tubing Size in. (mm)	Insulation Thickness 1/2" (12.7mm)	3/4" (19.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
1/2" (15)	1X	2X	3X	5X	7X	--	--	--
3/4" (20)	2X	3X	3X	5X	7X	--	--	--
1" (25)	2X	3X	4X	6X	8X	--	--	--
1 1/4" (32)	3X	4X	4X	7X	8X	--	--	--
1 1/2" (40)	3X	4X	5X	7X	9X	--	--	--
2" (50)	4X	5X	6X	8X	9X	10X*	11X*	--
2 1/2" (65)	5X	6X	7X	9X	10X*	11X*	11X*	13Y*
3" (80)	6X	7X	8X	9X	10X*	11X*	12Y*	14Z
3 1/2" (90)	7X	8X	9X	10X*	11X*	12Y*	13Y*	15Z
4" (100)	8X	9X	9X	10X*	11X*	12Y*	13Y*	15Z
5" (125)	--	--	10Y*	11Y*	12Y*	13Y*	14Z	16Z
6" (150)	--	--	11Y*	12Y*	13Y*	14Z	15Z	17Z
8" (200)	--	--	13Y*	14Z	15Z	16Z	17Z	19Z
10" (250)	--	--	15Z	16Z	17Z	18Z	19Z	21Z
12" (300)	--	--	17Z	18Z	19Z	20Z	21Z	23Z
14" (350)	--	--	18Z	19Z	20Z	21Z	22Z	24Z
16" (400)	--	--	20Z	21Z	22Z	23Z	24Z	26Z
18" (450)	--	--	22Z	23Z	24Z	25Z	26Z	28Z
20" (500)	--	--	24Z	25Z	26Z	27Z	28Z	30Z
24" (600)	--	--	28Z	29Z	30Z	31Z	32Z	33Z

*When selecting B3154 or B3155, replace 'X' or 'Y' designation with 'Z'.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Pipe Hanger Size Selection Table

Nominal Pipe or Tubing Size in. (mm)	Insulation Thickness 1/2" (12.7mm)	3/4" (19.0mm)	1" (25.4mm)	1 1/2" (38.1mm)	2" (50.8mm)	2 1/2" (63.5mm)	3" (76.2mm)	4" (101.6mm)
1/2" (15)	1 1/2	2	2 1/2	3 1/2	5	--	--	--
3/4" (20)	2	2 1/2	2 1/2	3 1/2	5	--	--	--
1" (25)	2	2 1/2	3	4	5	--	--	--
1 1/4" (32)	2 1/2	3	3	5	5	--	--	--
1 1/2" (40)	2 1/2	3	3 1/2	5	6	--	--	--
2" (50)	3	3 1/2	4	5	6	8	8	--
2 1/2" (65)	3 1/2	4	5	6	8	8	10	10
3" (80)	4	5	5	6	8	8	10	12
3 1/2" (90)	5	5	6	8	8	10	10	12
4" (100)	5	6	6	8	8	10	10	12
5" (125)	--	--	8	8	10	10	12	14
6" (150)	--	--	8	10	10	12	12	16
8" (200)	--	--	10	12	12	14	16	18
10" (250)	--	--	12	14	16	16	18	20
12" (300)	--	--	14	16	18	18	20	22
14" (350)	--	--	16	18	18	20	20	22
16" (400)	--	--	18	20	20	22	22	24
18" (450)	--	--	20	22	22	24	24	26
20" (500)	--	--	22	24	24	26	26	28
24" (600)	--	--	26	28	28	30	30	32

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3151 - Insulation Protection Shield
B3153 - Insulation Protection Shield with "Loc" Tabs

Material: Steel (Stainless steel available)

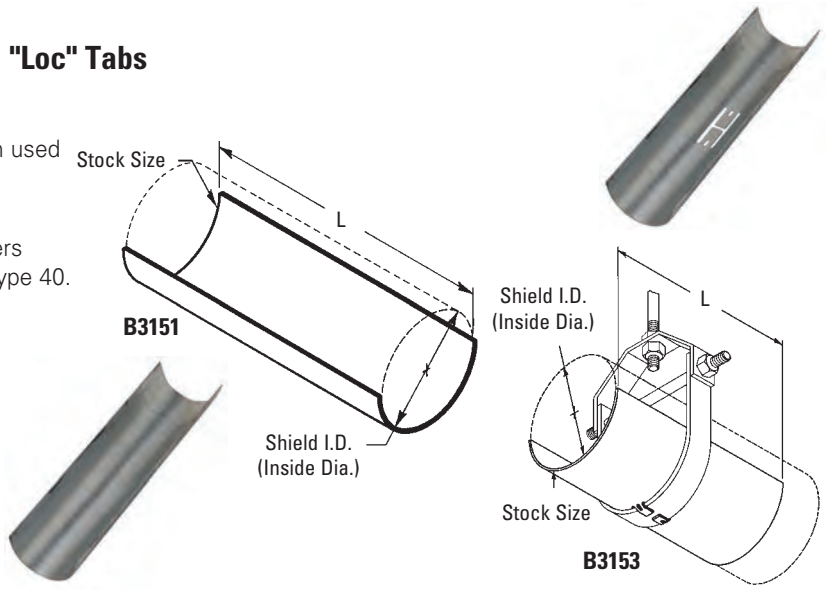
Function: Designed to protect pipe insulation when used with hangers.

Approvals: Complies with Federal Specification WW-H-171E & A-A-1192A Type 41 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58 Type 40.

Finish: Pre-Galvanized

Order By: Part number and finish.

Note: See Selection Tables on page 164 for proper sizing.



B3153 same dimension as B3151, but with bottom tabs for centering and securing the shield to hanger.

Part No.	Part No.	Stock Size in.	(mm)	L in.	(mm)	Shield 'I.D.' in.	(mm)	Approx. Wt./100 Lbs.	(kg)	Pipe Hanger Size in.	(mm)
B3151-1X	B3153-1X	18 Ga.	(1.2)	12"	(304.8)	1.90	(48.2)	50	(22.7)	1 1/2"	(40)
B3151-2X	B3153-2X	18 Ga.	(1.2)	12"	(304.8)	2.38	(60.4)	62	(28.1)	2"	(50)
B3151-3X	B3153-3X	18 Ga.	(1.2)	12"	(304.8)	2.88	(73.1)	75	(34.0)	2 1/2"	(65)
B3151-4X	B3153-4X	18 Ga.	(1.2)	12"	(304.8)	3.50	(88.9)	92	(41.7)	3"	(80)
B3151-5X	B3153-5X	18 Ga.	(1.2)	12"	(304.8)	4.00	(101.6)	104	(47.2)	3 1/2"	(90)
B3151-6X	B3153-6X	18 Ga.	(1.2)	12"	(304.8)	4.50	(114.3)	118	(53.5)	4"	(100)
B3151-7X	B3153-7X	18 Ga.	(1.2)	12"	(304.8)	5.00	(127.0)	129	(58.5)	5"	(125)
B3151-8X	B3153-8X	18 Ga.	(1.2)	12"	(304.8)	5.56	(141.2)	147	(66.7)	5"	(125)
B3151-9X	B3153-9X	16 Ga.	(1.5)	12"	(304.8)	6.64	(168.6)	219	(99.3)	6"	(150)
B3151-10X	B3153-10X	16 Ga.	(1.5)	12"	(304.8)	7.64	(194.0)	253	(114.7)	8"	(200)
B3151-11X	B3153-11X	16 Ga.	(1.5)	12"	(304.8)	8.64	(219.4)	286	(129.7)	8"	(200)
B3151-10Y	--	16 Ga.	(1.5)	18"	(457.2)	7.64	(194.0)	377	(171.0)	8"	(200)
B3151-11Y	--	16 Ga.	(1.5)	18"	(457.2)	8.64	(219.4)	424	(192.3)	8"	(200)
B3151-12Y	--	16 Ga.	(1.5)	18"	(457.2)	9.64	(244.8)	475	(215.4)	10"	(250)
B3151-13Y	--	16 Ga.	(1.5)	18"	(457.2)	10.76	(273.3)	529	(239.9)	10"	(250)
B3151-14Z	--	14 Ga.	(1.9)	24"	(609.6)	11.76	(298.7)	964	(437.3)	12"	(300)
B3151-15Z	--	14 Ga.	(1.9)	24"	(609.6)	12.76	(324.1)	1045	(474.0)	12"	(300)
B3151-16Z	--	14 Ga.	(1.9)	24"	(609.6)	14.00	(355.6)	1146	(519.8)	14"	(350)
B3151-17Z	--	14 Ga.	(1.9)	24"	(609.6)	15.00	(381.0)	1227	(556.5)	16"	(400)
B3151-18Z	--	14 Ga.	(1.9)	24"	(609.6)	16.00	(406.4)	1308	(593.3)	16"	(400)
B3151-19Z	--	14 Ga.	(1.9)	24"	(609.6)	17.00	(431.8)	1393	(631.8)	18"	(450)
B3151-20Z	--	12 Ga.	(2.6)	24"	(609.6)	18.00	(457.2)	2064	(936.2)	18"	(450)
B3151-21Z	--	12 Ga.	(2.6)	24"	(609.6)	19.00	(482.6)	2178	(987.9)	20"	(500)
B3151-22Z	--	12 Ga.	(2.6)	24"	(609.6)	20.00	(508.0)	2292	(1039.6)	20"	(500)
B3151-23Z	--	12 Ga.	(2.6)	24"	(609.6)	21.00	(533.4)	2406	(1091.3)	24"	(600)
B3151-24Z	--	12 Ga.	(2.6)	24"	(609.6)	22.00	(558.8)	2520	(1143.1)	24"	(600)
B3151-25Z	--	12 Ga.	(2.6)	24"	(609.6)	23.00	(584.2)	2634	(1194.8)	24"	(600)
B3151-26Z	--	12 Ga.	(2.6)	24"	(609.6)	24.00	(609.6)	2753	(1248.7)	24"	(600)
B3151-27Z	--	12 Ga.	(2.6)	24"	(609.6)	25.00	(635.0)	2862	(1298.2)	30"	(750)
B3151-28Z	--	12 Ga.	(2.6)	24"	(609.6)	26.00	(660.4)	2980	(1351.7)	30"	(750)
B3151-29Z	--	12 Ga.	(2.6)	24"	(609.6)	27.00	(685.8)	3094	(1403.4)	30"	(750)
B3151-30Z	--	12 Ga.	(2.6)	24"	(609.6)	28.00	(711.2)	3208	(1455.1)	30"	(750)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3154 - Short Insulation Protection Shield
B3155 - Short Insulation Protection Shield with "Loc" Tabs

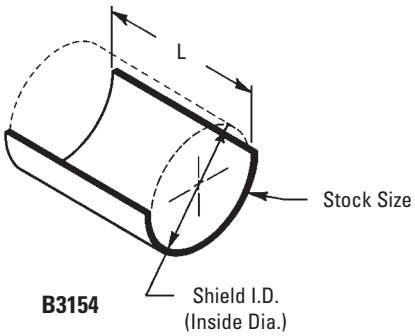
Material: Steel (Stainless steel available)

Function: Designed for protection of foam, fiberglass, or high density insulation when used with pipe hangers.

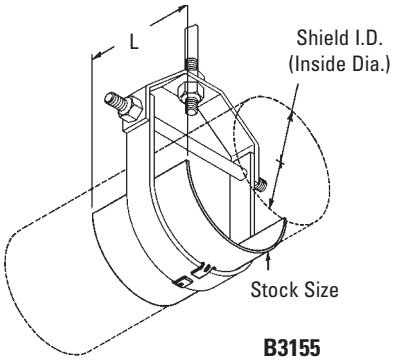
Finish: Pre-Galvanized

Order By: Part number and finish.

Note: See Selection Tables on page 164 for proper sizing.



B3154



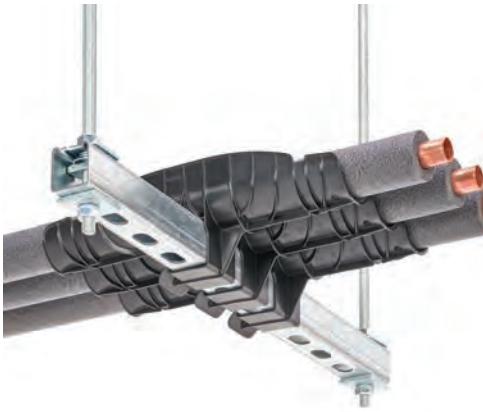
B3155

B3155 same dimension as B3154 but with bottom tabs for centering and securing the shield to hanger.

Part No.	Part No.	Stock Size in.	Stock Size (mm)	L in.	L (mm)	Shield 'I.D.' in.	Shield 'I.D.' (mm)	Approx.Wt./100 Lbs.	Approx.Wt./100 (kg)	Pipe Hanger Size in.	Pipe Hanger Size (mm)
B3154-1X	B3155-1X	18 Ga.	(1.2)	8"	(203.2)	1.90	(48.2)	36	(16.3)	1 1/2"	(40)
B3154-2X	B3155-2X	18 Ga.	(1.2)	8"	(203.2)	2.38	(60.4)	45	(20.4)	2"	(50)
B3154-3X	B3155-3X	18 Ga.	(1.2)	8"	(203.2)	2.88	(73.1)	54	(24.5)	2 1/2"	(65)
B3154-4X	B3155-4X	18 Ga.	(1.2)	8"	(203.2)	3.50	(88.9)	66	(29.9)	3"	(80)
B3154-5X	B3155-5X	18 Ga.	(1.2)	8"	(203.2)	4.00	(101.6)	75	(34.0)	3 1/2"	(90)
B3154-6X	B3155-6X	18 Ga.	(1.2)	8"	(203.2)	4.50	(114.3)	84	(38.1)	4"	(100)
B3154-7X	B3155-7X	18 Ga.	(1.2)	8"	(203.2)	5.00	(127.0)	93	(42.2)	5"	(125)
B3154-8X	B3155-8X	18 Ga.	(1.2)	8"	(203.2)	5.56	(141.2)	105	(47.6)	5"	(125)
B3154-9X	B3155-9X	18 Ga.	(1.2)	8"	(203.2)	6.64	(168.6)	126	(57.1)	6"	(150)
B3154-10Z	B3155-10Z	18 Ga.	(1.2)	12"	(304.8)	7.64	(194.0)	218	(98.9)	8"	(200)
B3154-11Z	B3155-11Z	18 Ga.	(1.2)	12"	(304.8)	8.64	(219.4)	247	(112.0)	8"	(200)
B3154-12Z	B3155-12Z	18 Ga.	(1.2)	12"	(304.8)	9.64	(244.8)	273	(123.8)	10"	(250)
B3154-13Z	B3155-13Z	18 Ga.	(1.2)	12"	(304.8)	10.76	(273.3)	304	(137.9)	10"	(250)
B3154-14Z	B3155-14Z	18 Ga.	(1.2)	12"	(304.8)	11.76	(298.7)	332	(150.6)	12"	(300)
B3154-15Z	B3155-15Z	18 Ga.	(1.2)	12"	(304.8)	12.76	(324.1)	360	(163.3)	12"	(300)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

BPSxxxB - Snap 'N Shield™ for Strut Channel (black)
BPSxxxW - Snap 'N Shield™ for Strut Channel (white)



Material: Prime grade high-impact copolymer polypropylene

Features:

- Fast easy installation – snaps onto strut channel: up to 60% quicker than traditional metal shields
- Horizontal installation attachment feature to minimize the need to lift the pipe during installation
- No tools required for installation
- Tight snap-on fit design helps eliminate shield movement which helps prevent insulation damage
- Tapered end lip design helps protect insulation from damage that can be caused by sharp edge of traditional saddles
- High sidewalls are designed to contain refrigerant liquid lines for efficient system installation
- Designed for side-by-side installation to help minimize costs in high density applications
- Wide mounting flange to allow for optional self-tapping screws
- MSS Standards require 12" (205mm) of surface contact for pipe sizes up to 4" (100mm). All sizes of Snap 'N Shield have 12" (305mm) of surface contact
- Built-in cable tie grooves
- UL Classified for US and Canada
- UV resistant
- Operating temperature: -40°F (-40C°) to 178° (81C°)
- Paintable
- Custom textured interior shield surface to allow for thermal expansion of insulated piping

Applications: Strut or trapeze mounted horizontal pipe runs for refrigeration, air conditioning and plumbing

Certification:

- UL Classified for USA UL723 (ASTM E84)
  Ceiling: FS15 / SD0
  Floor: FS150 / SD250
  UL Classified for Canada per CAN/ULC-S102.2
  FSR 145 / SDC 600
- Material is FDA compliant, RoHS compliant, CA Proposition 65 compliant

Color: Black (B) or White (W)

Order By: Part number

Patent(s) Pending

Black Shield Part No.	White Shield Part No.	Inside Opening		Approx. Wt./100	
		in.	(mm)	lbs.	(kg)
BPS200B	BPS200W	2.35"	(60)	21.5	(9.6)
BPS300B	BPS300W	3.46"	(88)	29.8	(13.5)
BPS400B	BPS400W	4.50"	(114)	38.1	(17.3)
BPS500B	BPS500W	5.52"	(140)	46.4	(21.0)
BPS600B	BPS600W	6.50"	(165)	55.1	(25.0)
BPS800B	BPS800W	8.64"	(220)	75.3	(34.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

BPSxxxB - Snap 'N Shield™ for Strut Channel (black)
BPSxxxW - Snap 'N Shield™ for Strut Channel (white)

Sizing Tables for Strut Channel Attachment

Sch. 40/80 Pipe Size	Insulation Thickness				
	1/2"	3/4"	1"	1 1/2"	2"
1/4"	BPS200_	BPS200_	BPS300_	BPS400_	BPS500_
3/8"	BPS200_	BPS200_	BPS300_	BPS400_	BPS500_
1/2"	BPS200_	BPS200_	BPS300_	BPS400_	BPS500_
3/4"	BPS200_	BPS300_	BPS300_	BPS400_	BPS500_
1"	BPS200_	BPS300_	BPS300_	BPS400_	BPS500_
1 1/4"	BPS300_	BPS300_	BPS400_	BPS500_	BPS600_
1 1/2"	BPS300_	BPS300_	BPS400_	BPS500_	BPS600_
2"	BPS300_	BPS400_	BPS400_	BPS500_	BPS600_
2 1/2"	BPS400_	BPS400_	BPS500_	BPS600_	BPS800_
3"	BPS400_	BPS500_	BPS500_	BPS600_	BPS800_
3 1/2"	BPS500_	BPS500_	BPS600_	BPS800_	BPS800_
4"	BPS500_	BPS600_	BPS600_	BPS800_	BPS800_
5"	BPS800_	BPS800_	BPS800_	BPS800_	--
6"	BPS800_	BPS800_	BPS800_	--	--

_ Insert B for Black or W for White

Copper Tubing Size	Insulation Thickness				
	1/2"	3/4"	1"	1 1/2"	2"
1/4"	BPS200_	BPS200_	BPS300_	BPS300_	BPS400_
3/8"	BPS200_	BPS200_	BPS300_	BPS400_	BPS400_
1/2"	BPS200_	BPS200_	BPS300_	BPS400_	BPS500_
5/8"	BPS200_	BPS200_	BPS300_	BPS400_	BPS500_
3/4"	BPS200_	BPS300_	BPS300_	BPS400_	BPS500_
1"	BPS200_	BPS300_	BPS300_	BPS400_	BPS500_
1 1/4"	BPS300_	BPS300_	BPS300_	BPS400_	BPS500_
1 1/2"	BPS300_	BPS300_	BPS400_	BPS500_	BPS600_
2"	BPS300_	BPS400_	BPS400_	BPS500_	BPS600_
2 1/2"	BPS400_	BPS400_	BPS500_	BPS600_	BPS800_
3"	BPS400_	BPS500_	BPS500_	BPS600_	BPS800_
3 1/2"	BPS500_	BPS500_	BPS600_	BPS800_	BPS800_
4"	BPS500_	BPS600_	BPS600_	BPS800_	BPS800_
5"	BPS600_	BPS800_	BPS800_	BPS800_	--
6"	BPS800_	BPS800_	BPS800_	--	--

_ Insert B for Black or W for White

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

BPCHxxxB - Snap 'N Shield™ for Pipe (Clevis) & Band Hangers (black)
BPCHxxxW - Snap 'N Shield™ for Pipe (Clevis) & Band Hangers (white)

Material: Prime grade high-impact copolymer polypropylene

Features:
- Innovative, one-piece snap-on design for fast, easy installation onto clevis and band hangers
- No tools required for installation
- Helps eliminate shield movement which helps prevent insulation damage
- Tapered end lip design helps protect insulation from damage that can be caused by sharp edge of traditional saddles
- High sidewalls are designed to contain refrigerant liquid lines for efficient system installation
- MSS Standards require 12" (205mm) of surface contact for pipe sizes up to 4" (100mm). All sizes of Snap 'N Shield have 12" (305mm) of surface contact
- Built-in cable tie grooves
- UL Classified for US and Canada
- UV resistant
- Operating temperature: -40°F (-40C°) to 178° (81C°)
- Paintable
- Custom textured interior shield surface to allow for thermal expansion of insulated piping

Applications: Clevis or band hangers used in horizontal pipe runs for refrigeration, air conditioning and plumbing

Certification:
- UL Classified for USA UL723 (ASTM E84)
  Ceiling: FS15 / SD0
  Floor: FS150 / SD250
  UL Classified for Canada per CAN/ULC-S102.2
  FSR 145 / SDC 600
- Material is FDA compliant, RoHS compliant, CA Proposition 65 compliant

Color: Black (B) or White (W)

Order By: Part number

Patent(s) Pending

Black Shield Part No.	White Shield Part No.	Inside Opening		Appropriate Hanger Clevis	Band	Approx. Wt./100	
		in.	(mm)			lbs.	(kg)
BPCH200B	BPCH200W	2.35"	(60)	B3100-2	Fig. 200-2	18.3	(8.3)
BPCH300B	BPCH300W	3.46"	(88)	B3100-3	Fig. 200-3	25.2	(11.4)
BPCH400B	BPCH400W	4.50"	(114)	B3100-4	Fig. 200-4	31.9	(14.5)
BPCH500B	BPCH500W	5.52"	(140)	B3100-5	Fig. 200-5	38.4	(17.4)
BPCH600B	BPCH600W	6.50"	(165)	B3100-6	Fig. 200-6	45.0	(20.4)
BPCH800B	BPCH800W	8.64"	(220)	B3100-8	Fig. 200-8	59.8	(27.1)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

BPCHxxxB - Snap 'N Shield™ for Pipe (Clevis) & Band Hangers (black)
BPCHxxxW - Snap 'N Shield™ for Pipe (Clevis) & Band Hangers (white)

Sizing Tables for Pipe & Band Hanger Attachment

Sch. 40/80 Pipe Size	Insulation Thickness				
	1/2"	3/4"	1"	1 1/2"	2"
1/4"	BPCH200_	BPCH200_	BPCH300_	BPCH400_	BPCH500_
3/8"	BPCH200_	BPCH200_	BPCH300_	BPCH400_	BPCH500_
1/2"	BPCH200_	BPCH200_	BPCH300_	BPCH400_	BPCH500_
3/4"	BPCH200_	BPCH300_	BPCH300_	BPCH400_	BPCH500_
1"	BPCH200_	BPCH300_	BPCH300_	BPCH400_	BPCH500_
1 1/4"	BPCH300_	BPCH300_	BPCH400_	BPCH500_	BPCH600_
1 1/2"	BPCH300_	BPCH300_	BPCH400_	BPCH500_	BPCH600_
2"	BPCH300_	BPCH400_	BPCH400_	BPCH500_	BPCH600_
2 1/2"	BPCH400_	BPCH400_	BPCH500_	BPCH600_	BPCH800_
3"	BPCH400_	BPCH500_	BPCH500_	BPCH600_	BPCH800_
3 1/2"	BPCH500_	BPCH500_	BPCH600_	BPCH800_	BPCH800_
4"	BPCH500_	BPCH600_	BPCH600_	BPCH800_	BPCH800_
5"	BPCH800_	BPCH800_	BPCH800_	BPCH800_	--
6"	BPCH800_	BPCH800_	BPCH800_	--	--

_ Insert B for Black or W for White

Copper Tubing Size	Insulation Thickness				
	1/2"	3/4"	1"	1 1/2"	2"
1/4"	BPCH200_	BPCH200_	BPCH300_	BPCH300_	BPCH400_
3/8"	BPCH200_	BPCH200_	BPCH300_	BPCH400_	BPCH400_
1/2"	BPCH200_	BPCH200_	BPCH300_	BPCH400_	BPCH500_
5/8"	BPCH200_	BPCH200_	BPCH300_	BPCH400_	BPCH500_
3/4"	BPCH200_	BPCH300_	BPCH300_	BPCH400_	BPCH500_
1"	BPCH200_	BPCH300_	BPCH300_	BPCH400_	BPCH500_
1 1/4"	BPCH300_	BPCH300_	BPCH300_	BPCH400_	BPCH500_
1 1/2"	BPCH300_	BPCH300_	BPCH400_	BPCH500_	BPCH600_
2"	BPCH300_	BPCH400_	BPCH400_	BPCH500_	BPCH600_
2 1/2"	BPCH400_	BPCH400_	BPCH500_	BPCH600_	BPCH800_
3"	BPCH400_	BPCH500_	BPCH500_	BPCH600_	BPCH800_
3 1/2"	BPCH500_	BPCH500_	BPCH600_	BPCH800_	BPCH800_
4"	BPCH500_	BPCH600_	BPCH600_	BPCH800_	BPCH800_
5"	BPCH600_	BPCH800_	BPCH800_	BPCH800_	--
6"	BPCH800_	BPCH800_	BPCH800_	--	--

_ Insert B for Black or W for White

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Seismic Bracing

The TOLCO™ seismic bracing solutions, coupled with Eaton B-Line series pipe hangers and strut systems product offering, is the most complete line of bracing components in the industry. The TOLCO brand has a history of over 40 years in seismic bracing of non-structural systems including fire sprinklers, plumbing, mechanical, HVAC and electrical. Our offering includes both rigid and cable bracing systems vibration isolation, and engineering services.

Some of the key features of our seismic products include:

- Visual verification of proper installation
- Universal application
- Multi size adaptable
- OSHPD OPM Approval (OPM-0052-13)
- Underwriters Laboratories Listed
- FM Approved

TOLCO™

In addition to the products shown in this catalog we also offer engineered solutions for any seismic bracing application. Our team of experts can help you design your seismic bracing layout to ensure it meets applicable building codes and standards. Contact SeismicQuotes@Eaton.com for assistance with your next project.

Engineering services include:

- BOM assistance
- Submittal packages
- Engineered design layout
- PE stamp in all 50 states and aCanada
- TOLBrace™ Software for Fire Sprinkler seismic bracing design

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 4A - pipe clamp for sway bracing

Size Range: 2½" (65mm) thru 8" (200mm) pipe. For sizes smaller than 2½" (65mm) use Fig, 4LA.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** 2½" (65mm) thru 8" (200mm).

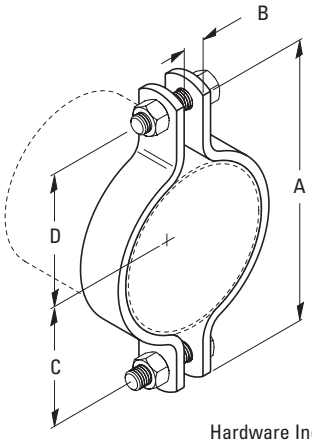
Installation Instructions: Fig. 4A is the "braced pipe" attachment component of a longitudinal, lateral or riser brace assembly. It is intended to be combine with the "bracing pipe" and TOLCO transitional and structural attachment component(s) to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 4A over the pipe to be braced. Attach TOLCO transitional fitting, either Fig. 980, 910 or 909, to the clamp ears. Tighten bolts and nuts; torque requirement is a minimum of 50 ft./lbs. (68Nm). Transitional fitting attachment can pivot for adjustment to proper brace angle.

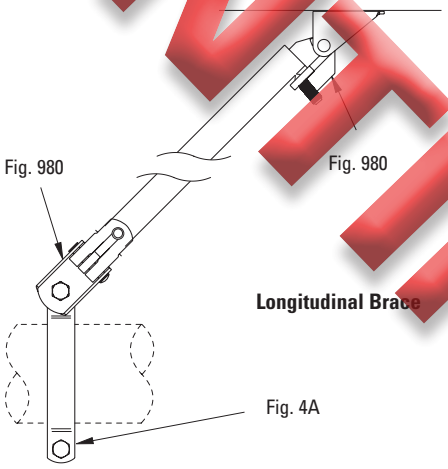
Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number, pipe size and finish

Note: Please refer to Fig. 4LA for longitudinal brace applications for 1" (25mm) - 12" (300mm) pipe sizes.



Hardware Included



For Lateral Brace Refer to 4LA

Longitudinal Brace

Part No.	Pipe Size in. (mm)	A in. (mm)	C in. (mm)	D in. (mm)	Bolt Size	Max. Horizontal Design Load (UL) lbs. (kN)	Approx. Wt./100 lbs. (kg)
4A-2½	2½" (100)	7" (177.8)	2 11/16" (68.3)	3" (76.2)	½"-13	1000 (4.45)	134 (60.8)
4A-3	3" (80)	7½" (190.5)	3" (76.2)	3 5/16" (84.1)	½"-13	1000 (4.45)	150 (69.0)
4A-4	4" (100)	8½" (215.9)	3⅜" (85.7)	3 11/16" (93.7)	½"-13	1600 (7.11)	221 (100.2)
4A-5	5" (125)	9¾" (247.6)	3⅞" (98.4)	4⅜" (111.1)	½"-13	1600 (7.11)	253 (114.7)
4A-6	6" (150)	11½" (292.1)	5" (127.0)	5⅛" (130.2)	½"-13	2015 (8.96)	513 (232.7)
4A-8	8" (200)	13¼" (336.5)	6 11/16" (169.9)	6⅛" (155.6)	½"-13	2015 (8.96)	601 (272.6)

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

DISCONTINUED

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 3-30-21

TOLCO Fig. 4L - sway brace attachment (UL listed)

Size Range: 1" (25mm) through 8" (200mm) IPS. 10" (250mm) and 12" (300mm) not UL listed

Material: Steel and stainless steel.

Function: For bracing pipe against sway and seismic disturbance.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** 1" (25mm) through 8" (200mm) pipe. UL Listed for the following sprinkler type pipes: Sch. 40, Sch. 10, Bull Moose Eddy Flow, Wheatland Mega Flow, DIN 2448, KSD 3562, KSD 3507. Ask the factory for additional information as it may vary by product size. For FM Approval information refer to FM Approved page 175. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

Installation Instructions: Fig. 4L is the "braced pipe" attachment component of a longitudinal and lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO structural attachment component to form a complete bracing assembly. NFPA 13 guidelines should be followed. (For complete detailed instructions see instruction sheet IL309015EN).

To Install: Place the Fig. 4L over the pipe to be braced and tighten bolts. Then engage "bracing pipe" into jaw opening and tighten set bolt until head snaps off. Jaw attachment can pivot for adjustment to proper brace angle.

Finish: Plain, Electrogalvanized, Hot Dib Galvanized or Stainless Steel (only for 4" & 6" sizes).

Order By: Figure number, pipe size and finish.

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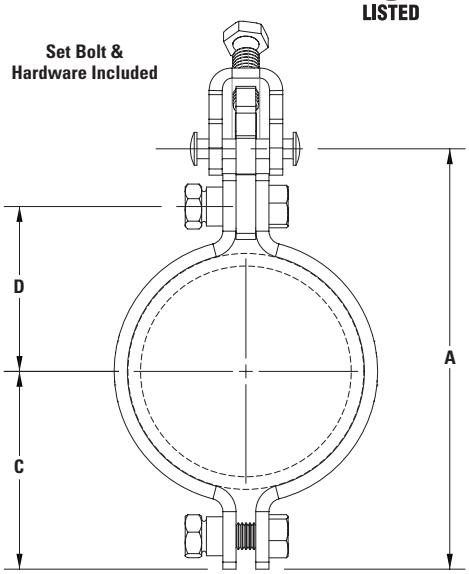
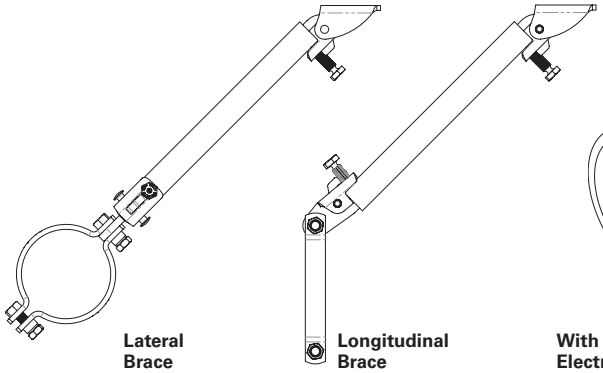




Lateral Brace

Longitudinal Brace

With Plain & Electrogalvanized Finish

With Hot Dip Galvanized & Stainless Steel Finish

Part No.	Nom Pipe Size in.	Nom Pipe Size (mm)	A (Max) in.	C in.	D in.	Bolt Size in.	UL Max. Rec. Load Logitudinal lbs.	UL Max. Rec. Load Lateral lbs.	PLN & EG. Approx. Wt./100 lbs.
4L-1	1	(25)	5	2	1 3/8	1/2-13	1000	1000	176
4L-1 1/4	1 1/4	(32)	5 2/7	2 1/16	1 5/9	1/2-13	1000	1000	182
4L-1 1/2	1 1/2	(40)	5 1/2	2 1/3	1 2/3	1/2-13	1000	1000	187
4L-2	2	(50)	6 2/7	2 2/3	2	1/2-13	1600	1000	204
4L-2 1/2	2 1/2	—	6 7/9	3	2 1/3	1/2-13	2000	1000	217
4L-65mm	—	(65)	6 7/9	3	2 1/3	1/2-13	700	1000	214
4L-3	3	(80)	7 3/7	3 1/4	2 5/8	1/2-13	2000	1000	323
4L-3 1/2	3 1/2	(90)	8	3 1/2	2 7/8	1/2-13	2000	1000	343
4L-4* **	4	(100)	8 3/7	3 3/4	3 1/8	1/2-13	2000**	1000	253
4L-5	5	—	9 5/9	4 3/8	3 5/8	1/2-13	2000**	1600*	314
4L-125mm	—	(125)	9 5/9	4 3/8	3 5/8	1/2-13	1200	1600*	314
4L-6* **	6	—	11 3/7	5 1/3	4 4/7	1/2-13	2000	1600*	540
4L-150mm	—	(150)	11 3/7	5 1/3	4 4/7	1/2-13	1200	1600*	538
4L-8	8	—	13 3/5	6 2/5	5 2/3	1/2-13	2000	2100*	645
4L-200mm	—	(200)	13 3/5	6 2/5	5 2/3	1/2-13	1400	2100*	643
4L-10** **	10	(254)	17 3/5	8 1/4	7 1/4	1/2-13	NA	NA	1349
4L-12** **	12	(300)	19 3/5	9 1/4	8 1/4	1/2-13	NA	NA	1526

* Only UL listed as a lateral brace for use with a 1" (25mm) pipe as the brace member.
** Only UL listed as a longitudinal brace for use with a 1" (25mm) thru 1 1/2" (40mm) pipe as the brace member.
*** Fig 4L-4 and Fig 4L-6 are only sizes available in stainless steel 316.
**** FM approved not UL listed.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 4-7-21

TOLCO Fig. 4L - sway brace attachment (FM approved)

OPM

FM APPROVED

Size Range: 1" (25mm) through 12" (300mm) IPS.

Material: Steel.

Function: For bracing pipe against sway and seismic disturbance.

Approvals: Approved by Factory Mutual Engineering **(FM)**, 1" (25mm) through 12" (300mm) pipe. For UL Listed information refer to UL Listed page 174. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

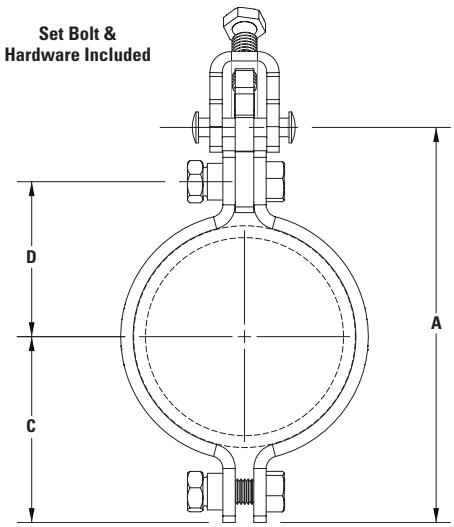
Installation Instructions: Fig. 4L is the "braced pipe" attachment component of a longitudinal and lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO™ structural attachment component to form a complete bracing assembly. NFPA 13 and/or FM guidelines should be followed.

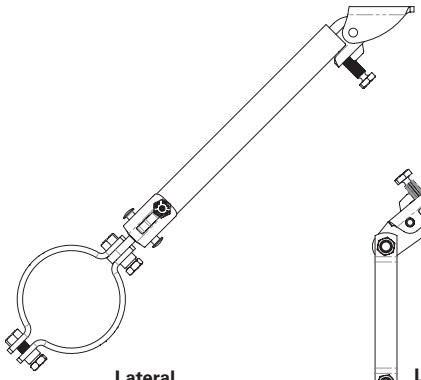
To Install: Place the Fig. 4L over the pipe to be braced and tighten bolts. Then engage "bracing pipe" into jaw opening and tighten set bolt until head snaps off. Jaw attachment can pivot for adjustment to proper brace angle. (For complete detailed instructions see instruction sheet IL309015EN).

Finish: Plain, Electrogalvanized.

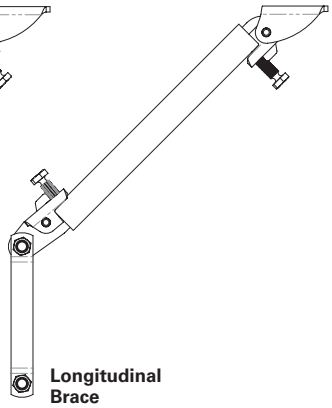
Order By: Figure number, pipe size and finish.

Designed to meet or exceed requirements of FM DS 2-8.

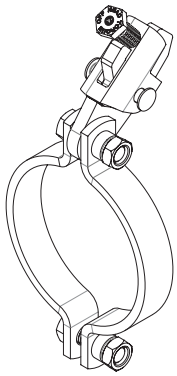




Lateral Brace



Longitudinal Brace



With Plain & Electrogalvanized Finish

Part No.	Nom Pipe Size in.	Nom Pipe Size (mm)	A (Max) in.	C in.	D in.	Bolt Size in.	FM Max. Rec. Load Logitudinal 30°-44° lbs. (kN)	45°-59° lbs. (kN)	60°-74° lbs. (kN)	75°-90° lbs. (kN)	FM Max. Rec. Load Lateral 30°-44° lbs. (kN)	45°-59° lbs. (kN)	60°-74° lbs. (kN)	75°-90° lbs. (kN)	Approx. Wt./100 lbs.
4L-1	1	(25)	5	2	1 3/8	1/2-13	1060 (4.72)	1160 (5.16)	1400 (6.23)	1500 (6.68)	1370 (6.10)	1940 (8.63)	2380 (10.59)	2650 (11.79)	176
4L-1 1/4	1 1/4	(32)	5 2/7	2 1/16	1 5/9	1/2-13	1060 (4.72)	1160 (5.16)	1400 (6.23)	1500 (6.68)	1370 (6.10)	1940 (8.63)	2380 (10.59)	2650 (11.79)	182
4L-1 1/2	1 1/2	(40)	5 1/2	2 1/3	1 2/3	1/2-13	740 (3.30)	1020 (4.54)	1250 (5.57)	920 (4.10)	1370 (6.10)	1940 (8.63)	2380 (10.59)	2650 (11.79)	187
4L-2	2	(50)	6 2/7	2 2/3	2	1/2-13	740 (3.30)	1020 (4.54)	1250 (5.57)	920 (4.10)	1420 (6.32)	1990 (8.86)	2440 (10.86)	2720 (12.10)	204
4L-2 1/2	2 1/2	—	6 7/9	3	2 1/3	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	220
4L-65mm	—	(65)	6 7/9	3	2 1/3	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	218
4L-3	3	(80)	7 3/7	3 1/4	2 5/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	323
4L-3 1/2	3 1/2	(90)	8	3 1/2	2 7/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	343
4L-4	4	(100)	8 3/7	3 3/4	3 1/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	253
4L-5	5	—	9 5/9	4 3/8	3 5/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	313
4L-125mm	—	(125)	9 5/9	4 3/8	3 5/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	312
4L-6	6	—	11 3/7	5 1/3	4 4/7	1/2-13	870 (3.87)	1200 (5.34)	1460 (6.50)	1630 (7.26)	1560 (6.94)	2210 (9.84)	2710 (12.06)	3020 (13.44)	540
4L-150mm	—	(150)	11 3/7	5 1/3	4 4/7	1/2-13	870 (3.87)	1200 (5.34)	1460 (6.50)	1630 (7.26)	1560 (6.94)	2210 (9.84)	2710 (12.06)	3020 (13.44)	538
4L-8	8	—	13 3/5	6 2/5	5 2/3	1/2-13	1190 (5.30)	1440 (6.41)	1580 (7.03)	1750 (7.79)	1560 (6.94)	2210 (9.84)	2710 (12.06)	3020 (13.44)	645
4L-200mm	—	(200)	13 3/5	6 2/5	5 2/3	1/2-13	1190 (5.30)	1440 (6.41)	1580 (7.03)	1750 (7.79)	1560 (6.94)	2210 (9.84)	2710 (12.06)	3020 (13.44)	643
4L-10	10	(254)	17 3/5	8 1/4	7 1/4	1/2-13	1620 (7.21)	1660 (7.38)	1570 (6.98)	1740 (7.74)	1620 (7.21)	2300 (10.23)	2820 (12.54)	3140 (13.97)	1349
4L-12	12	(300)	19 3/5	9 1/4	8 1/4	1/2-13	1620 (7.21)	1660 (7.38)	1570 (6.98)	1740 (7.74)	1620 (7.21)	2300 (10.23)	2820 (12.54)	3140 (13.97)	1526

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified. Updated 4-7-21

TOLCO™ Fig. 4LA - In-Line Sway Brace Attachment (UL Listed)

OPM

Size Range: 1" (25mm) through 8" (200mm) IPS.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance.

Approvals: For FM Approval information refer to FM Approved page 177. Underwriters Laboratories Listed in the USA and Canada **(cULus)**. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

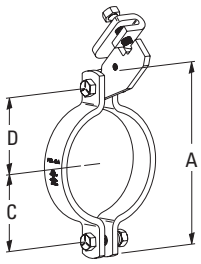
Installation Instructions: Fig. 4LA can be used as the system attachment component of a longitudinal or lateral brace assembly. It is intended to be combined with the "bracing member" and TOLCO transitional attachment and structural attachment to form a complete bracing assembly. For fire sprinkler applications NFPA 13 guidelines should be followed.

To Install: Place the Fig. 4LA pipe clamp component over the pipe to be braced and tighten down the break-off nuts until the hex head portion breaks off to verify correct installation torque. Next engage brace member (pipe or strut) with jaw component and tighten break-off head bolt until the hex head breaks off to verify correct installation torque. Pivot jaw for correct angle and attach to structure using TOLCO brand transitional attachment and structural attachment.

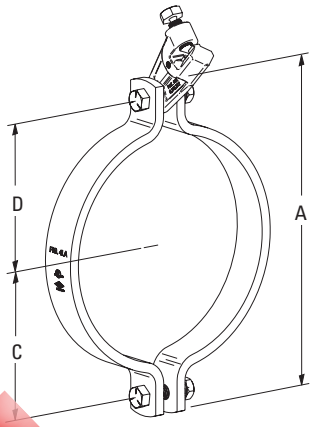
Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

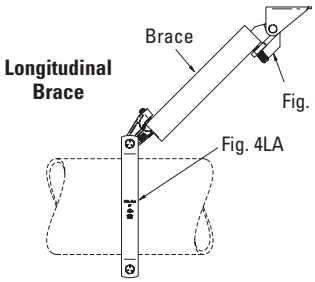
Order By: Figure number, pipe size and finish.

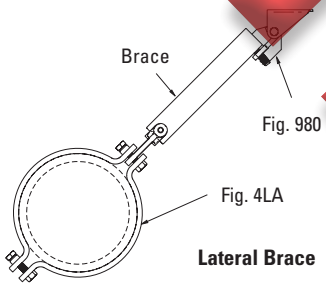
4LA-1 thru 4LA-4



4LA-6 thru 4LA-12







Part No.	Pipe Size in.	(mm)	A in.	(mm)	C in.	(mm)	D in.	(mm)	Bolt Size	UL Max. Rec. Load Longitudinal lbs.	(kN)	Lateral lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
4LA-1	1"	(25)	3 19/32"	(91.2)	1 5/16"	(33.5)	1 5/16"	(33.5)	3/8"-16	1000	(4.45)	NA	(NA)	119	(54.0)
4LA-1 1/4	1 1/4"	(32)	3 29/32"	(99.3)	1 3/8"	(35.3)	1 3/8"	(35.3)	3/8"-16	1000	(4.45)	NA	(NA)	123	(55.8)
4LA-1 1/2	1 1/2"	(40)	4 5/32"	(105.7)	1 1/2"	(38.5)	1 1/2"	(38.5)	3/8"-16	1000	(4.45)	NA	(NA)	127	(57.6)
4LA-2	2"	(50)	5 11/32"	(135.6)	2 1/32"	(51.9)	2 1/16"	(51.9)	3/8"-16	1000	(4.45)	NA	(NA)	142	(64.4)
4LA-2 1/2	2 1/2"	(65)	5 27/32"	(148.7)	2 5/16"	(58.5)	2 5/16"	(58.5)	3/8"-16	1000	(4.45)	NA	(NA)	173	(78.5)
4LA-3	3"	(80)	6 1/2"	(164.9)	2 5/8"	(66.6)	2 5/8"	(66.6)	3/8"-16	1000	(4.45)	1000	(4.45)	187	(84.8)
4LA-3 1/2	3 1/2"	(90)	7.407"	(188.1)	2 7/8"	(73.1)	2 7/8"	(73.1)	3/8"-16	1000	(4.45)	1000	(4.45)	198	(89.8)
4LA-4	4"	(100)	7 13/32"	(190.8)	3 1/8"	(79.5)	3 1/8"	(79.5)	3/8"-16	1000	(4.45)	1000	(4.45)	209	(94.8)
4LA-6	6"	(150)	10 5/8"	(269.9)	4 9/16"	(115.9)	4 9/16"	(115.9)	1/2"-13	1600	(7.12)	1600	(7.12)	521	(236.3)
4LA-8	8"	(200)	12 13/16"	(325.5)	5 9/16"	(143.7)	5 21/32"	(143.7)	1/2"-13	2015	(7.12)	2015	(7.12)	629	(285.3)
4LA-10*	10"	(250)	16 1/2"	(419.1)	7 1/4"	(184.2)	7 1/4"	(184.2)	1/2"-13	NA	(NA)	NA	(NA)	1320	(598.7)
4LA-12*	12"	(300)	18 1/2"	(469.9)	8 1/4"	(209.6)	8 1/4"	(209.6)	1/2"-13	NA	(NA)	NA	(NA)	1496	(678.6)

* FM Approved but not UL Listed.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 3-30-21

DISCONTINUED

TOLCO Fig. 4LA - In-Line Sway Brace Attachment (FM Approved)

OPM

FM APPROVED

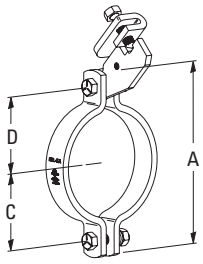
Size Range: 1" (25mm) through 12" (300mm) IPS.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance.

Approvals: Approved by Factory Mutual Engineering **(FM)**, 1" (25mm) through 12" (300mm) pipe.
For UL Listed information refer to UL Listed page 176.
Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

4LA-1 thru 4LA-4



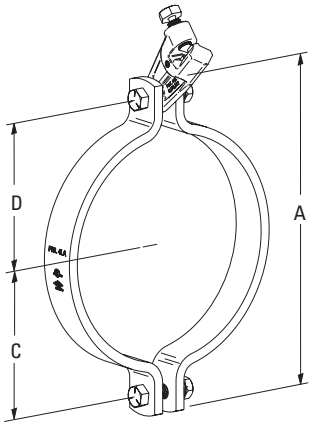
Installation Instructions: Fig. 4LA can be used as the system attachment component of a longitudinal or lateral brace assembly. It is intended to be combined with the "bracing member" and TOLCO transitional attachment and structural attachment to form a complete bracing assembly. For fire sprinkler applications NFPA 13 guidelines should be followed.

To Install: Place the Fig. 4LA pipe clamp component over the pipe to be braced and tighten down the break-off nuts until the hex head portion breaks off to verify correct installation torque. Next engage brace member (pipe or strut) with jaw component and tighten break-off head bolt until the hex head breaks off to verify correct installation torque. Pivot jaw for correct angle and attach to structure using TOLCO brand transitional attachment and structural attachment.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number, pipe size and finish.

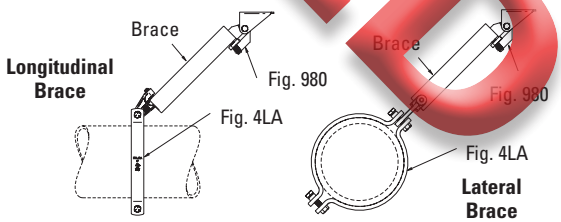
4LA-6 thru 4LA-12



DISCONTINUED

Part No.	Pipe Size in. (mm)	A in. (mm)	C in. (mm)	D in. (mm)	Bolt Size	FM Max. Rec. Load Longitudinal & Lateral** 30°-44° lbs. (kN)	45°-59° lbs. (kN)	60°-74° lbs. (kN)	75°-90° lbs. (kN)	Approx. Wt./100 lbs. (kg)
4LA-1	1" (25)	$3\frac{19}{32}$" (91.2)	$1\frac{5}{16}$" (33.5)	$1\frac{5}{16}$" (33.5)	$\frac{3}{8}$"-16	680 (3.02)	970 (4.31)	1190 (5.29)	1320 (5.87)	119 (54.0)
4LA-1¼	1¼" (32)	$3\frac{29}{32}$" (99.3)	$1\frac{3}{8}$" (35.3)	$1\frac{3}{8}$" (35.3)	$\frac{3}{8}$"-16	680 (3.02)	970 (4.31)	1190 (5.29)	1320 (5.87)	123 (55.8)
4LA-1½	1½" (40)	$4\frac{5}{32}$" (105.7)	$1\frac{1}{2}$" (38.5)	$1\frac{1}{2}$" (38.5)	$\frac{3}{8}$"-16	680 (3.02)	970 (4.31)	1190 (5.29)	1320 (5.87)	127 (57.6)
4LA-2	2" (50)	$5\frac{11}{32}$" (135.6)	$2\frac{1}{32}$" (51.9)	$2\frac{1}{16}$" (51.9)	$\frac{3}{8}$"-16	680 (3.02)	970 (4.31)	1190 (5.29)	1320 (5.87)	142 (64.4)
4LA-2½	2½" (65)	$5\frac{27}{32}$" (148.7)	$2\frac{5}{16}$" (58.5)	$2\frac{5}{16}$" (58.5)	$\frac{3}{8}$"-16	680 (3.02)	970 (4.31)	1190 (5.29)	1320 (5.87)	173 (78.5)
4LA-3	3" (80)	6½" (164.9)	$2\frac{5}{8}$" (66.6)	$2\frac{5}{8}$" (66.6)	$\frac{3}{8}$"-16	680 (3.02)	970 (4.31)	1190 (5.29)	1320 (5.87)	187 (84.8)
4LA-3½	3½" (90)	7.407" (188.1)	$2\frac{7}{8}$" (73.1)	$2\frac{7}{8}$" (73.1)	$\frac{3}{8}$"-16	680 (3.02)	970 (4.31)	1190 (5.29)	1320 (5.87)	198 (89.8)
4LA-4	4" (100)	$7\frac{13}{32}$" (190.8)	$3\frac{1}{8}$" (79.5)	$3\frac{1}{8}$" (79.5)	$\frac{3}{8}$"-16	680 (3.02)	970 (4.31)	1190 (5.29)	1320 (5.87)	209 (94.8)
4LA-6	6" (150)	$10\frac{5}{8}$" (269.9)	$4\frac{9}{16}$" (115.9)	$4\frac{9}{16}$" (115.9)	$\frac{1}{2}$"-13	1620 (7.20)	*Note 1*	*Note 3*	*Note 5*	521 (236.3)
4LA-8	8" (200)	$12\frac{13}{16}$" (325.5)	$5\frac{9}{16}$" (143.7)	$5\frac{21}{32}$" (143.7)	$\frac{1}{2}$"-13	1620 (7.20)	*Note 2*	*Note 4*	*Note 6*	629 (285.3)
4LA-10	10" (250)	16½" (419.1)	$7\frac{1}{4}$" (184.2)	$7\frac{1}{4}$" (184.2)	½"-13	1620 (7.20)	*Note 2*	*Note 4*	*Note 6*	1320 (598.7)
4LA-12	12" (300)	18½" (469.9)	$8\frac{1}{4}$" (209.6)	$8\frac{1}{4}$" (209.6)	½"-13	1620 (7.20)	*Note 2*	*Note 4*	*Note 6*	1496 (678.6)

** Longitudinal and Lateral Loads are the same except where noted in chart.
Note 1: Longitudinal Load 2260 lbs. (10.05kN) - Lateral Load 2300 lbs. (10.23kN)
Note 2: Longitudinal Load 1660 lbs. (7.38kN) - Lateral Load 2300 lbs. (10.23kN)
Note 3: Longitudinal Load 2010 lbs. (8.94kN) - Lateral Load 2820 lbs. (12.54kN)
Note 4: Longitudinal Load 1570 lbs. (6.98kN) - Lateral Load 2820 lbs. (12.54kN)
Note 5: Longitudinal Load 2220 lbs. (9.87kN) - Lateral Load 3140 lbs. (13.96kN)
Note 6: Longitudinal Load 1740 lbs. (7.74kN) - Lateral Load 3140 lbs. (13.96kN)



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 3-30-21

TOLCO™ Figure 4B Pipe Clamp for Sway Bracing

Size Range: 3/4" (20mm) to 8" (200mm) pipe

Material: Steel

Function: For bracing pipe against sway and seismic disturbance

Approvals: Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

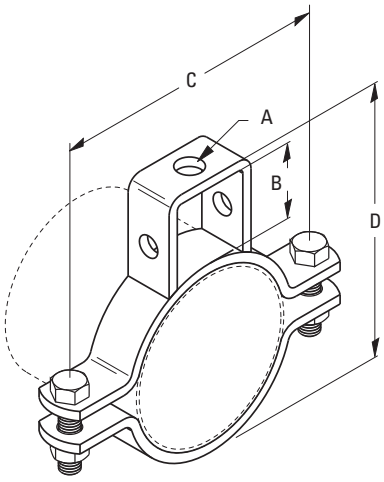
Standard Finish: Plain or Electro-Plated, Contact customer service for alternative finishes and materials.

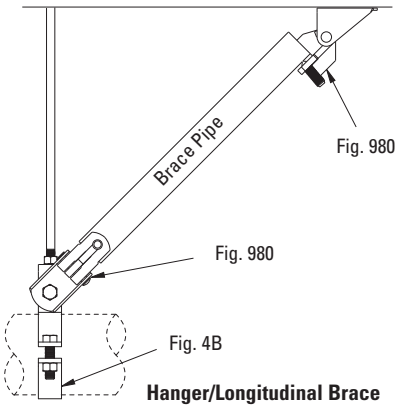
Ordering: Specify part number and finish.

Installation Instructions: Fig. 4B is the "braced pipe" attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and transitional and structural attachment component(s) to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

To Install: Place the Fig. 4B over the pipe to be braced. Attach other transitional fitting, Fig. 909, 910, or 980. Tighten bolts and nuts. Transitional fitting attachment can pivot for adjustment to proper brace angle.

Component of State of California OSHPD Approved Seismic Restraints System





Hanger/Longitudinal Brace

Part No.	Pipe Size in.	(mm)	Rod Size A	B in.	(mm)	C in.	(mm)	D in.	(mm)	Bolt Size	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
4B-3/4	3/4"	(20)	3/8"-16	1"	(25.4)	2 7/8"	(73.0)	2 5/8"	(66.7)	5/16"-18	330	(1.47)	56	(25.4)
4B-1	1"	(25)	3/8"-16	1"	(25.4)	3 1/4"	(82.5)	2 15/16"	(74.6)	5/16"-18	330	(1.47)	60	(27.2)
4B-1 1/4	1 1/4"	(32)	3/8"-16	1"	(25.4)	3 9/16"	(90.6)	3 1/4"	(82.5)	5/16"-18	330	(1.47)	74	(33.5)
4B-1 1/2	1 1/2"	(40)	3/8"-16	1"	(25.4)	3 13/16"	(96.8)	3 7/16"	(87.3)	5/16"-18	330	(1.47)	79	(35.8)
4B-2	2"	(50)	3/8"-16	1 1/2"	(38.1)	5 1/8"	(130.2)	4 5/8"	(117.5)	5/16"-18	440	(1.78)	156	(70.7)
4B-2 1/2	2 1/2"	(65)	1/2"-13	1 3/4"	(44.4)	5 5/8"	(142.9)	5 3/8"	(136.5)	3/8"-16	440	(1.78)	176	(79.8)
4B-3	3"	(80)	1/2"-13	1 7/8"	(47.6)	6 3/4"	(171.4)	6 1/8"	(155.5)	3/8"-16	660	(2.93)	198	(89.9)
4B-3 1/2	3 1/2"	(90)	1/2"-13	2"	(50.8)	7 1/4"	(184.1)	6 3/4"	(171.4)	3/8"-16	660	(2.93)	219	(99.3)
4B-4	4"	(100)	5/8"-11	2"	(50.8)	8 5/8"	(219.1)	7 1/4"	(184.1)	1/2"-13	800	(3.56)	288	(130.6)
4B-5	5"	(125)	5/8"-11	2"	(50.8)	9 7/8"	(250.8)	8 5/16"	(211.1)	5/8"-11	980	(4.36)	390	(176.9)
4B-6	6"	(150)	3/4"-10	2 1/8"	(54.0)	10 15/16"	(277.8)	9 1/2"	(241.3)	5/8"-11	980	(4.36)	448	(203.2)
4B-8	8"	(200)	7/8"-9	2 1/8"	(54.0)	13 7/16"	(341.2)	11 1/2"	(292.1)	3/4"-10	1200	(5.34)	691	(313.4)

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 906 - sway brace multi-fastener adapter

OPM

Material: Steel

Application: Allows sway brace fittings to develop greater load carrying ability by providing multiple fastener attachments for steel and wood. The National Fire Protection (NFPA) provides information on fastener loads to various structures. Refer to NFPA 13 (2016) 9.3.5.9.1.

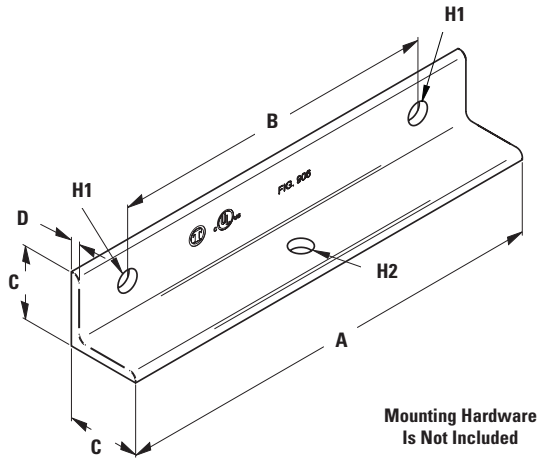
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** only when used with TOLCO™ Fig. 900 Series Earthquake Brace Attachments. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

Installation Instructions: Fig. 906 is a multiple fastener structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Attach the Fig. 906 to the structural surface as per fastener design guidelines. Attach other TOLCO transitional attachment fitting, Fig. 980, 910, 909, or any other TOLCO approved transitional fitting. Transitional fitting attachment can pivot for adjustment to proper brace angle.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number and specify dimensions H1 and H2.



Part Number	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	H1	H2	Approx. Wt./100 Lbs. (kg)
906	12" (305.0)	9" (228.6)	2.5" (63.5)	1/4" (6.3)	Specify	Specify	394 (178.7)
906-12	15" (381.0)	12" (304.8)	2.5" (63.5)	1/4" (6.3)	Specify	Specify	494 (224.1)

Load Note: Actual design load determined by anchor and concrete strength, not to exceed the UL Listed maximum load of 1200 lbs (5.33kN).
Load is for Fig. 906. If combined load of anchors is less, must reduce to anchor maximum capacity.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 800 - adjustable sway brace attachment to steel (UL listed)

OPM

Size Range: 4" (101.6mm) thru 18" (457.2mm) beam width

Material: Steel

Function: Seismic brace attachment to steel.

Features: This product's design incorporates a concentric attachment point which is critical to the performance of structural seismic connections. NFPA 13 indicates the importance of concentric loading of connections and fasteners. Permits secure connection to steel where drilling and/or welding of brace connection could present structural issues.

Installation Instructions: Fig. 800 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO™ transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly.
NFPA 13 guidelines should be followed.

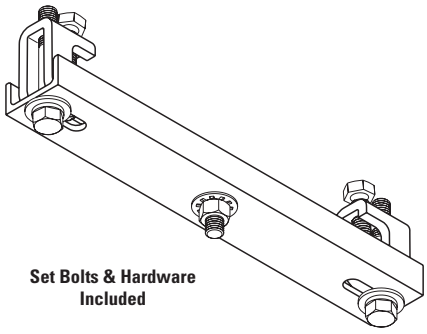
To Install: Place the Fig. 800 on the steel beam, tighten the cone point set bolts on flange until the heads break off. Tighten hex head bolts into clamp body until lock washers are fully flat. Attach other TOLCO transitional attachment fitting, Fig. 980, 910, 909, or any other TOLCO approved transitional fitting. Transitional fitting attachment can pivot for adjustment to proper brace angle.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL listed with Fig. 909, 910, 980, 909 series attachments and the following brace member type pipes: Sch. 40, KSD 3562. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

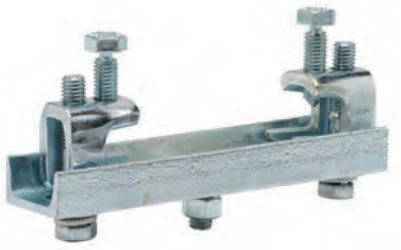
For FM Approval information refer to FM Approved page 59.

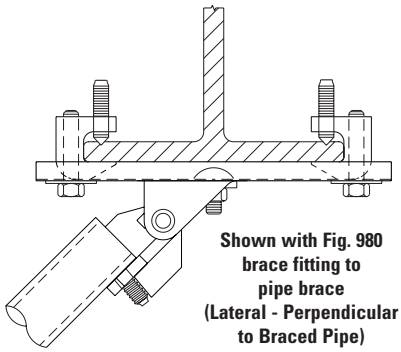
Finish: Plain, Electro-Galvanized and Hot Dip Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number, type number and size number.
Example: FIG. 800 TYPE2X14-16

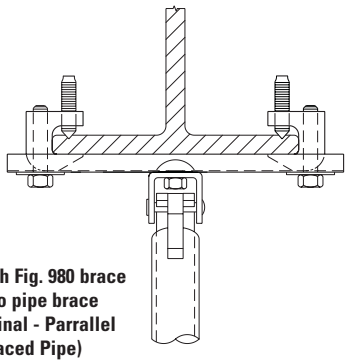


Set Bolts & Hardware Included





Shown with Fig. 980 brace fitting to pipe brace (Lateral - Perpendicular to Braced Pipe)



Shown with Fig. 980 brace fitting to pipe brace (Longitudinal - Parrallel to Braced Pipe)

Type	Fits Beam Flange Thickness in.	(mm)
800 TYPE1	Up to 3/4"	(Up to 19.0)
800 TYPE2	3/4" to 1 1/4"	(19.0 to 31.7)

Fits Flange Width Range			Max.Design Loads (cULus) Along or Across Beam		
Part #	in.	(mm)	Fig. 909 lbs. (kN)	Fig. 910 lbs. (kN)	Fig. 980 lbs. (kN)
800-1	4"-6"	(101.6-152.4)	1270~ (5.65)	1400~ (6.23)	1400~ (6.23)
800-2	6"-8"	(152.4-203.2)			
800-3	8"-10"	(203.2-254.0)			
800-4	10"-12"	(254.0-304.8)			
800-5	12"-14"	(304.8-355.6)	1270~ (5.65)	1300~ (5.78)	1300~ (5.78)
800-6	14"-16"	(355.6-406.4)	900~ (4.00)	900~ (4.00)	900~ (4.00)
800-7	16"-18"	(406.4-457.2)			

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 6-9-21

TOLCO Fig. 800 - adjustable sway brace attachment to steel (FM approved)

OPM

FM APPROVED

Size Range: 4" (101.6mm) thru 18" (457.2mm) beam width

Material: Steel

Function: Seismic brace attachment to steel.

Features: This product's design incorporates a concentric attachment point which is critical to the performance of structural seismic connections. NFPA 13 indicates the importance of concentric loading of connections and fasteners. Permits secure connection to steel where drilling and/or welding of brace connection could present structural issues.

Installation Instructions: Fig. 800 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO™ transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly.
NFPA 13 guidelines should be followed.

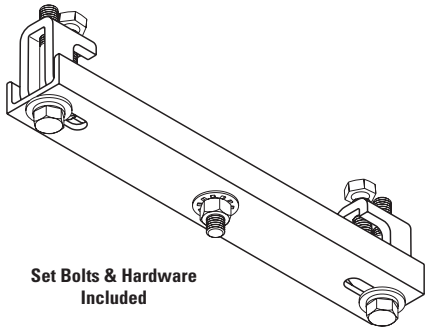
To Install: Place the Fig. 800 on the steel beam, tighten the cone point set bolts on flange until the heads break off. Tighten hex head bolts into clamp body until lock washers are fully flat. Attach other TOLCO transitional attachment fitting, Fig. 980, 910, 909, or any other TOLCO approved transitional fitting. Transitional fitting attachment can pivot for adjustment to proper brace angle.

Approvals: Approved by Factory Mutual Engineering **(FM)**.
Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.
For UL Listed information refer to UL Listed page 58.

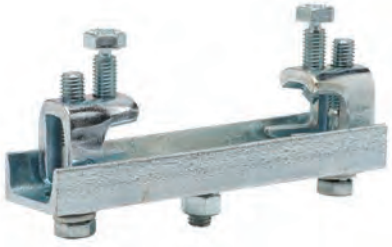
Finish: Plain, Hot Dip Galvanized or Electro-Galvanized. Contact customer service for alternative finishes and materials.

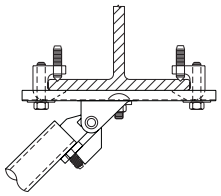
Order By: Figure number, type number and size number.
Example: FIG. 800 TYPE2X14-16

Designed to meet or exceed requirements of FM DS 2-8.

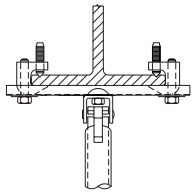


Set Bolts & Hardware Included





Shown with Fig. 980 brace fitting to pipe brace (Lateral - Perpendicular to Braced Pipe)



Shown with Fig. 980 brace fitting to pipe brace (Longitudinal - Parrallel to Braced Pipe)

Type	Fits Beam Flange Thickness		Max.Design Loads (FM)*							
			Lateral - Parallel to Structural Member				Longitudinal - Perpendicular to Structural Member			
	in.	(mm)	30°-44° lbs./(kN)	45°-59° lbs./(kN)	60°-74° lbs./(kN)	75°-90° lbs./(kN)	30°-44° lbs./(kN)	45°-59° lbs./(kN)	60°-74° lbs./(kN)	75°-90° lbs./(kN)
800 TYPE1	Up to 3/4"	(Up to 19.0)	1430 (6.36)	1970 (8.76)	1980 (8.81)	NR (NR)	930 (4.13)	1310 (5.82)	1610 (7.16)	1800 (8.00)
800 TYPE2	3/4" to 1 1/4"	(19.0 to 31.7)	NR (NR)	NR (NR)	NR (NR)	NR (NR)	NR (NR)	NR (NR)	NR (NR)	NR (NR)

Fits Flange Width Range	in.	(mm)
4-6	4"-6"	(101.6-152.4)
6-8	6"-8"	(152.4-203.2)
8-10	8"-10"	(203.2-254.0)
10-12	10"-12"	(254.0-304.8)
12-14	12"-14"	(304.8-355.6)
14-16	14"-16"	(355.6-406.4)
16-18	16"-18"	(406.4-457.2)

* The loads listed are axial loads on the brace. The horizontal load capacity, H, of the brace is: H = F x sin ?, where ? is the installation angle measured from the vertical.

FM Approved design loads are based on ASD design method.

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All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 828 - universal sway brace attachment to steel (UL listed)

OPM

Size Range: One size accommodates all Fig. 900 Series sway brace attachments. Fits from 3/8" (9.4mm) to 7/8" (22.2mm) thick steel structure. For thicknesses less than 3/8" (9.4mm) refer to Fig. 825 and Fig. 825A.

Material: Steel

Function: To attach sway bracing and/or hangers to various types of steel structural members.

Features: Permits secure non-friction connection without drilling or welding. Unique design allows offset placement on wide flange beam, C-channel, open web, welded steel trusses, etc. Secures brace to structure either across or along the beam. Break-off set bolts allow for visual verification of proper installation torque.

Approvals: Underwriters Laboratories Listed in the USA and Canada **(cULus)**. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.
For FM Approval information refer to FM Approved page 183.

Approvals: Installation Instructions: The Fig. 828 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Slide the Fig. 828 on the flange of the beam, truss, or girder. Be sure the attachment is fully engaged to the rear of the opening. Tighten the cone point set screws until the heads break off. Remove the flange nut from the carriage bolt. Install a TOLCO swivel fitting (Fig, 909, 910, 980, *986). Use flange nut to secure the swivel fitting.

*Not UL listed when used in combination with Fig. 986

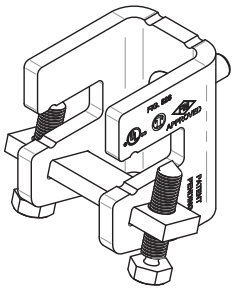
Finish: Plain or Electro-Galvanized

Approx. Weight/100: 341 Lbs. (154.7 kg)

Order By: Figure number and finish

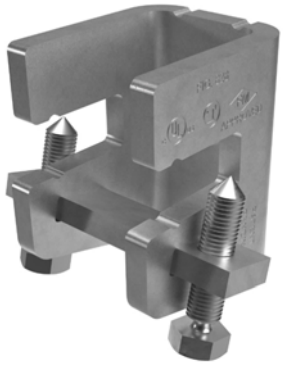
Patent Pending

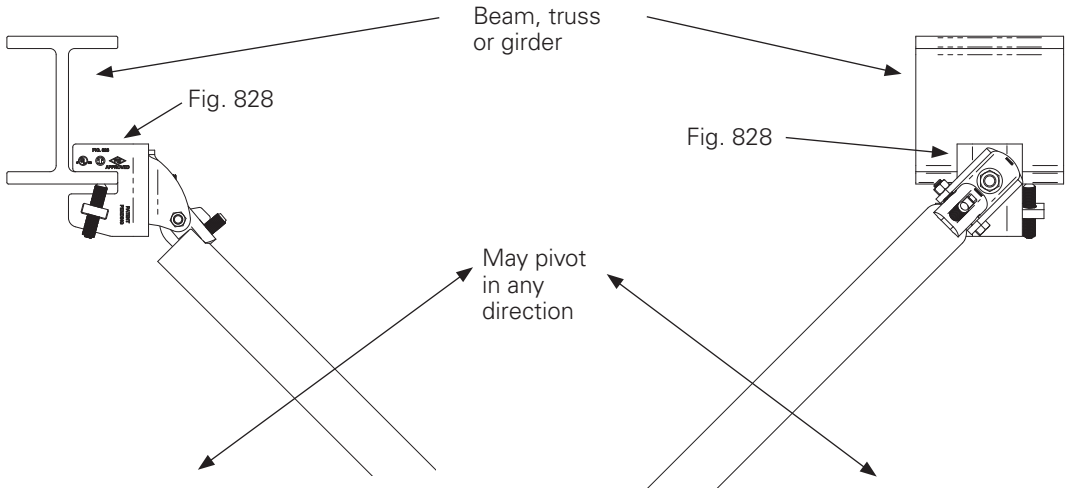
Note: Retaining strap not required.



Set Screws and 1/2" Attachment Bolt and Nut Included

Flange thickness	Maximum UL Rated load
.375" – .499"	1090 lbs. (4.84kN)
.500" – .875"	1370 lbs. (6.09kN)





Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 4-6-21

TOLCO Fig. 828 - Universal sway brace attachment to steel (FM approved)

OPM

FM APPROVED

Size Range: One size accommodates all Fig. 900 Series sway brace attachments. Fits from 3/8" (9.4mm) to 7/8" (22.2mm) thick steel structure. For thicknesses less than 3/8" (9.4mm) refer to Fig. 825.

Material: Steel

Function: To attach sway bracing and/or hangers to various types of steel structural members.

Features: Permits secure non-friction connection without drilling or welding. Unique design allows offset placement on wide flange beam, C-channel, open web, welded steel trusses, etc. Secures brace to structure either across or along the beam. Break-off set bolts allow for visual verification of proper installation torque.

Approvals: Factory Mutual Approved **(FM)**. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For UL Listed information refer to UL Listed page 182.

Installation Instructions: The Fig. 828 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 or FM guidelines should be followed.

To Install: Slide the Fig. 828 on the flange of the beam, truss, or girder. Be sure the attachment is fully engaged to the rear of the opening. Tighten the cone point set screws until the heads break off. Remove the flange nut from the carriage bolt. Install a TOLCO swivel fitting (Fig, 909, 910, 980, *986).
Use flange nut to secure the swivel fitting.

*Not UL listed when used in combination with Fig. 986

Finish: Plain or Electro-Galvanized

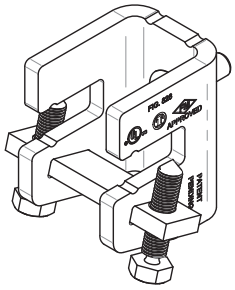
Approx. Weight/100: 341 Lbs. (154.7 kg)

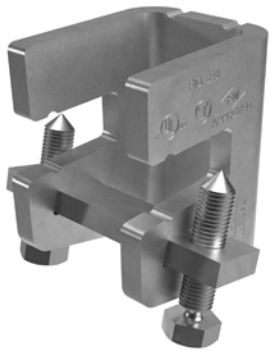
Order By: Figure number and finish

Patent Pending

Designed to meet or exceed requirements of FM DS 2-8.

Note: Retaining strap not required.

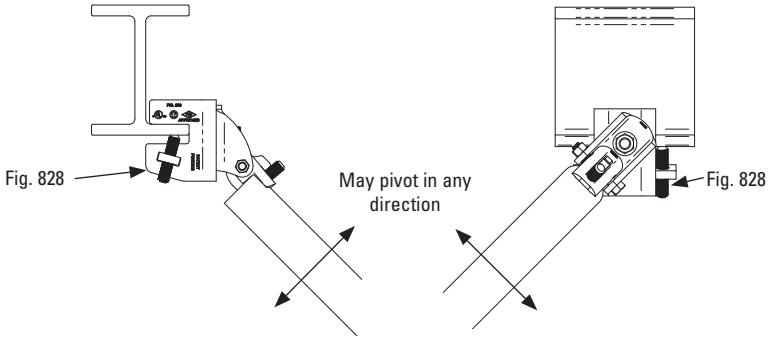




FM Approved Allowable Horizontal Load With Brace Perpendicular To Beam			
Brace Angle (degrees from vertical)			
30°-44°	45°-59°	60°-74°	75°-90°
980 (4.350kN)	2220 (9.780kN)	3340 (14.850kN)	4040 (17.970kN)

FM Approved Allowable Horizontal Load With Brace Parallel To Beam			
Brace Angle (degrees from vertical)			
30°-44°	45°-59°	60°-74°	75°-90°
820 (3.640kN)	1270 (5.640kN)	1490 (6.620kN)	1650 (7.330kN)

FM Approved design loads are based on ASD design method.



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 825 - bar joist sway brace attachment to steel (UL listed)

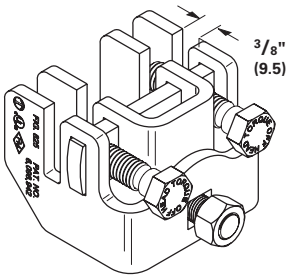
OPM

C UL US LISTED

Size Range: One size accommodates all Fig. 900 Series sway brace attachments.

Material: Steel

Function: To attach sway bracing and hanger assemblies to steel members.



Set Bolts & Hardware Included

Features: This product's design incorporates a concentric attachment point which is critical to the performance of structural seismic connections. NFPA 13 indicates the importance of concentric loading of connections and fasteners. Permits secure non-friction connection without drilling or welding. Unique design reinforces point of connection to joist. Break off head set bolt design assures verification of proper installation torque (min. 31 ft.-lbs.).

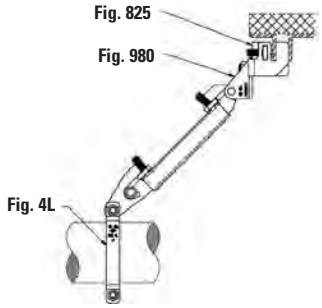
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL listed with Fig. 909, 910, and 980 series attachments and the following brace member type pipes: Sch. 40, KSD 3562. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For FM Approval information refer to FM Approved page 55.

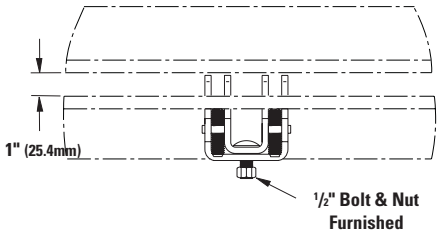
Maximum Design Load	
825W/909-1370 lbs	(5.78 KN)
825W/910-1500 lbs	(7.11 KN)
825W/980-1600 lbs	(8.45 KN)

Installation Instructions: Fig. 825 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO™ transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment, to form a complete bracing assembly. NFPA 13 guidelines should be followed.

UL Listed as Hanger Attachment for 6" (150mm) pipe at Maximum Spacing

To Install: Place the Fig. 825 on the steel beam, tighten the cone point set bolts until heads break off. Attach other TOLCO transitional attachment fitting, Fig. 980, 910, 909, or any other TOLCO approved transitional fitting. Transitional fitting attachment can pivot for adjustment to proper brace angle.





Top View

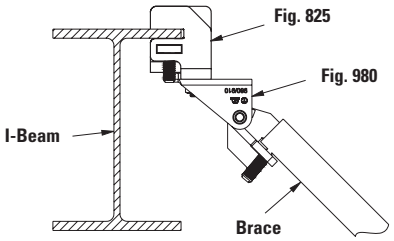
Finish: Plain, Electro-Galvanized and HDG

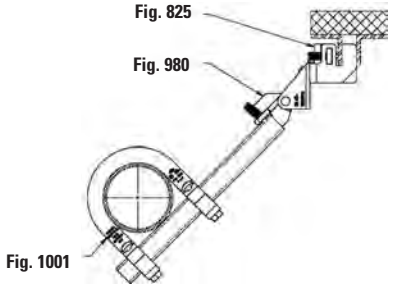
Approx. Wt./100: 247.5 Lbs. (112.2kg)

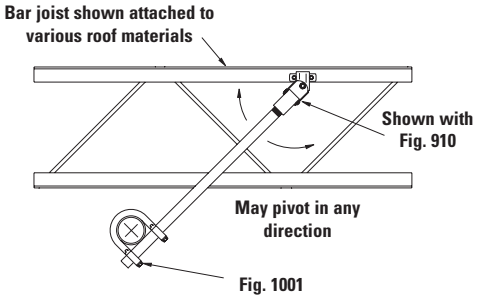
Order By: Figure number and finish

US Patent #6,098,942
Canada Patent #2,286,659

Retaining strap not required.







Front View

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 5-24-21

TOLCO Fig. 825 - bar joist sway brace attachment to steel (FM approved)

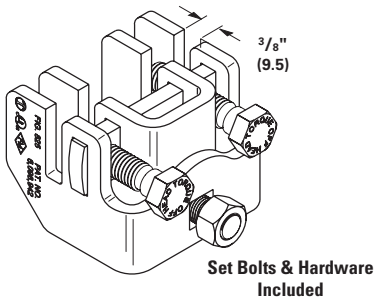
OPM

FM APPROVED

Size Range: One size accommodates all Fig. 900 Series sway brace attachments.

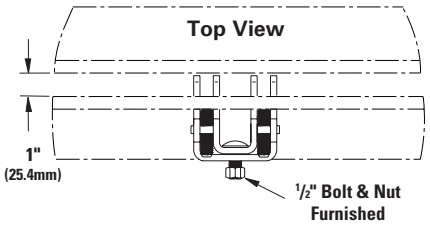
Material: Steel

Function: To attach sway bracing and hanger assemblies to steel members.



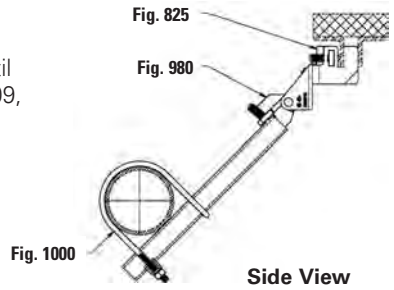
Features: This product's design incorporates a concentric attachment point which is critical to the performance of structural seismic connections. NFPA 13 indicates the importance of concentric loading of connections and fasteners. Permits secure non-friction connection without drilling or welding. Unique design reinforces point of connection to joist. Break off head set bolt design assures verification of proper installation torque (min. 31 ft.-lbs.).

Approvals: Approved by Factory Mutual Engineering **(FM)**.
Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13
For UL Listed information refer to UL Listed page 54.



Installation Instructions: Fig. 825 is the structural attachment componentof a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO™ transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment, to form a complete bracing assembly. NFPA 13 or FM guidelines should be followed.

To Install: Place the Fig. 825 on the steel beam, tighten the cone point set bolts until heads break off. Attach other TOLCO transitional attachment fitting, Fig. 980, 910, 909, or any other TOLCO approved transitional fitting. Transitional fitting attachment can pivot for adjustment to proper brace angle.



Finish: Plain, Electro-Galvanized and HDG

Approx. Wt./100: 247.5 Lbs. (112.2kg)

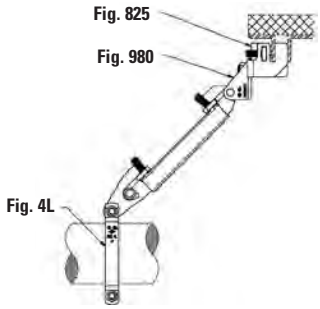
Order By: Figure number and finish

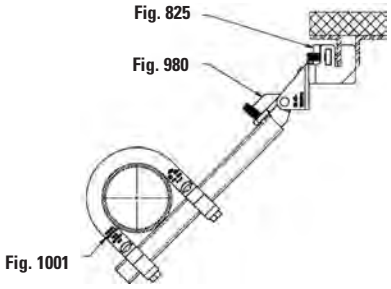
US Patent #6,098,942,
Canada Patent #2,286,659

Designed to meet or exceed requirements of FM DS 2-8.

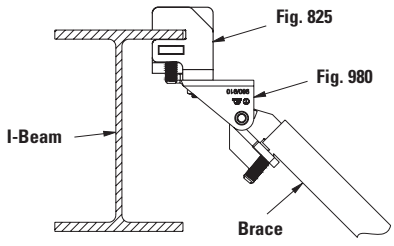
Retaining strap not required.

FM Approved design loads are based on ASD design method.





		FM Approved Design Loads			
		30°-44° lbs. / (kN)	45°-59° lbs. / (kN)	60°-74° lbs. / (kN)	75°-90° lbs. / (kN)
Maximum 3/8" Thick Flange	Perpendicular to Structural Member	990 (4.40)	1360 (6.05)	1670 (7.43)	1860 (8.27)
Maximum 3/8" Thick Flange	Parallel to Structural Member	460 (2.04)	630 (2.80)	770 (3.42)	860 (3.82)



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 825A - bar joist sway brace attachment to steel

OPM

Size Range: One size accommodates all Fig. 900 Series sway brace attachments.

Material: Steel

Function: To attach sway bracing and/or hanger to steel structural members.

Features: This product's design incorporates a concentric attachment point which is critical to the performance of structural seismic connections. NFPA 13 indicates the importance of concentric loading of connections and fasteners. Permits secure non-friction connection without drilling or welding. Unique design reinforces point of connection to joist. Break off head bolt design assures verification of proper installation.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL listed with Fig. 909, 910, and 980 series attachments and the following brace member type pipes: Sch. 40, KSD 3562. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

Installation Instructions: Fig. 825A is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO™ transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 825A on the steel beam, tighten the cone point set bolts until heads break off. Attach other TOLCO transitional attachment fitting, Fig. 980, 910, 909, or any other TOLCO approved transitional fitting. Transitional fitting attachment can pivot for adjustment to proper brace angle.

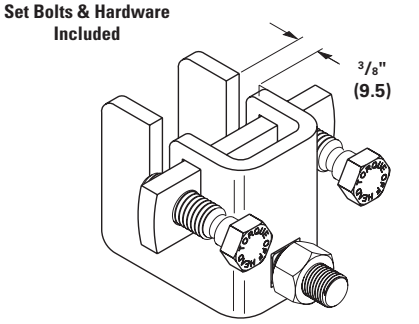
Finish: Plain or Electro-Galvanized

Approx. Wt./100: 154.5 Lbs. (70.1kg)

Order By: Figure number and finish

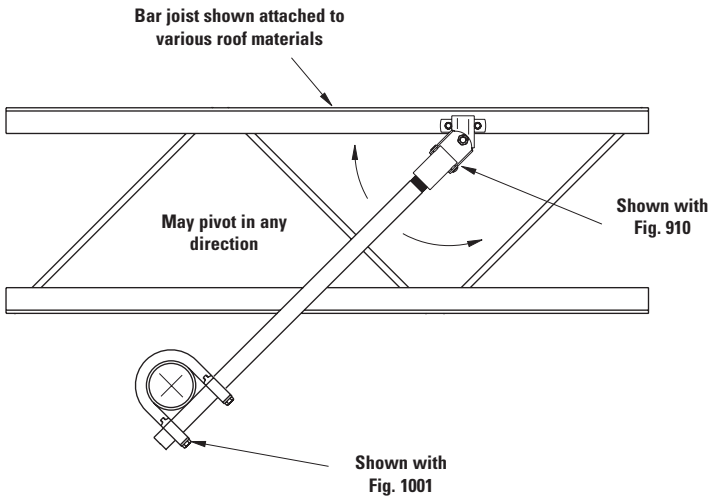
Patent #6,098,942

Retaining strap not required.



Maximum Design Load
825A 700 lbs. (3.11kN)

UL Listed as Hanger Attachment for 8" (200mm) Pipe at Maximum Spacing



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 5-24-21

TOLCO Fig. 909 - no-thread swivel sway brace attachment (UL listed)

OPM

Size Range: 1" (25mm) bracing pipe. For brace pipe sizes larger than 1" (25mm), use Fig. 980. Available with holes for ⅜", ½" or ⅝" attachment.

Material: Steel, hardened cone point set bolt

Function: The structural component of a sway and seismic bracing system.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections. NFPA 13 indicates clearly that fastener table load values are based only on concentric loading. No threading of the bracing pipe is required. Open design allows for easy inspection of pipe engagement.

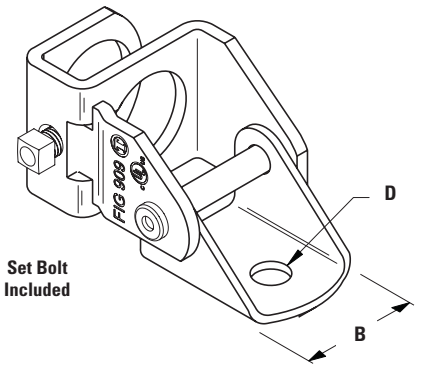
ApJ54plication Note: Fig. 909 is used in conjunction with the Fig. 1001 or Fig. 4L or other approved TOLCO attachment to pipe, and joined together with bracing pipe. Sway brace assemblies are intended to be installed in accordance with NFPA 13. The required type, number and size of fasteners used for the structure attachment fitting shall be in accordance with NFPA 13.

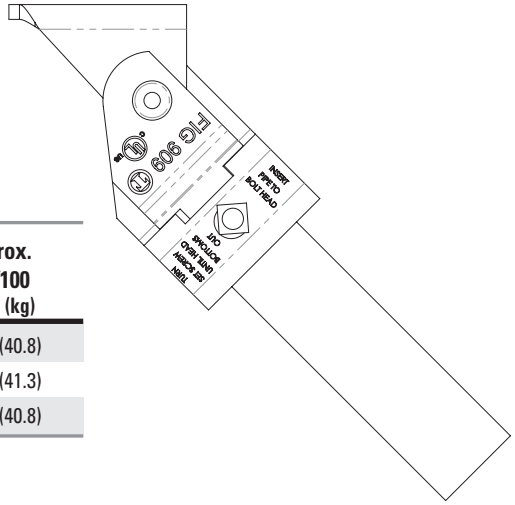
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL Listed for the following brace member type pipes: Sch. 40, KSD 3562. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

Installation Instructions: Place Fig. 909 onto the bracing pipe. Tighten the set screw until the head bottoms out on surface. When using in combination with a Fig. 825A, Fig. 825, Fig. 828, or Fig. 906, refer to those instruction sheets, otherwise select an anchor that is sized appropriately for the intended use and follow anchor manufacturer's instructions regarding structural thickness and embedment requirements. The required type, number and size of fasteners used for the structure attachment fitting shall be in accordance with NFPA 13. Once the anchor is installed per the manufacturer's direction, secure the Fig. 909 to the anchor. Attachment can pivot for adjustment to proper brace angle.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number, fastener attachment size and finish.





Part Number	Mounting Hole D in. (mm)	Brace Pipe Size in. (mm)	B in. (mm)	Max. Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
909-3/8	7/16" (11.1)	1" (25)	1 5/8" (41.3)	1370 (6.09)	90 (40.8)
909-1/2 *	17/32" (13.5)	1" (25)	1 5/8" (41.3)	1370 (6.09)	91 (41.3)
909-5/8	11/16" (17.5)	1" (25)	1 5/8" (41.3)	1370 (6.09)	90 (40.8)

* Standard size.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 910 - threaded swivel sway brace attachment (UL listed)

OPM

Size Range: 1" (25mm) bracing pipe. For brace pipe sizes larger than 1" (25mm), use Fig. 980. Available with holes for ½" fastener attachment.

Material: Steel

Function: The Fig. 910, is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to combined with a 1" "bracing pipe", and TOLCO™ "braced pipe" attachment to form a complete bracing assembly. Sway brace assemblies are intended to be installed in accordance with NFPA 13 and the manufacturer's installation instructions

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections. NFPA 13 (2010) 9.3.5.8.4 and (2013-2016) 9.3.5.11.5 indicates that fastener table load values are based only on concentric loading. Universal swivel design allows Fig. 910 to be attached at any surface angle.

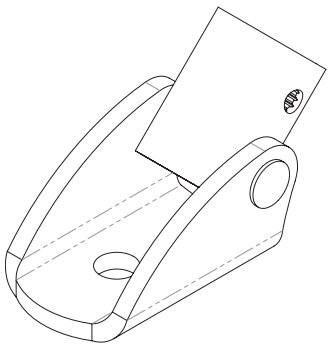
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). **(cUL)**. UL Listed for the following brace member type pipes: Sch. 40. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

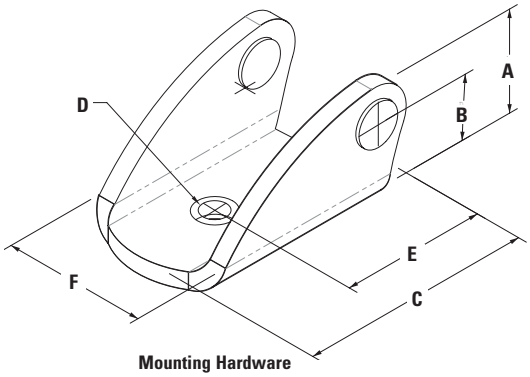
Installation Instructions: Thread the 1" brace pipe into the Fig. 910 until pipe threads are visible through inspection site hole. When using in combination with a Fig. 825A, Fig. 825, Fig. 828, or Fig. 906 refer to those instruction sheets, otherwise select an anchor that is sized appropriately for the intended use and follow anchor manufacturer's instructions regarding structural thickness and embedement requirements. The required type, number and size of fasteners used for the structure attachment fitting shall be in accordance with NFPA 13. Once the anchor is installed per the manufacturer's direction, secure the Fig. 910 to the anchor. Attachment can pivot for adjustment to proper brace angle.

Note: Fig. 910 swivel attachment and Fig. 1001, 2002, 3000 or 4L pipe clamps make up a sway brace system of UL Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association (NFPA).

Finish: Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number, pipe size and finish.





Mounting Hardware Is Not Included

Part Number	Brace Pipe Size in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	Mounting Hole D in. (mm)	E in. (mm)	F in. (mm)	Max. Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
910-1 X 1½	1" (25)	1 7/10" (43.2)	1 1/5" (30.5)	2 15/16"(74.7)	9/16" (14.3)	1 11/16" (42.9)	2 1/20" (52)	1600 (8.96)	105 (47.6)

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 3-30-21

TOLCO Fig. 907 - multi-angle attachment

Size Range: 1" (25.4mm) x 1" (25.4mm), 1" (25.4mm) x 1¼" (31.7mm) and 1¼" (25.4mm) x 1¼" (25.4mm) bracing pipe.

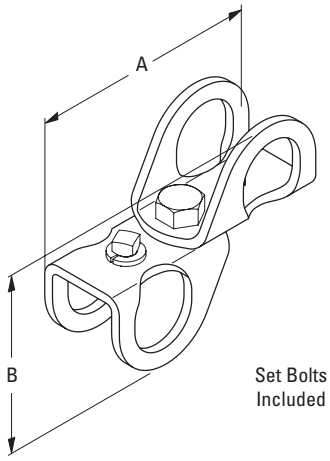
Material: Steel, hardened cone (or cup) point set bolt

Function: For attaching two pieces of pipe together at various angles.

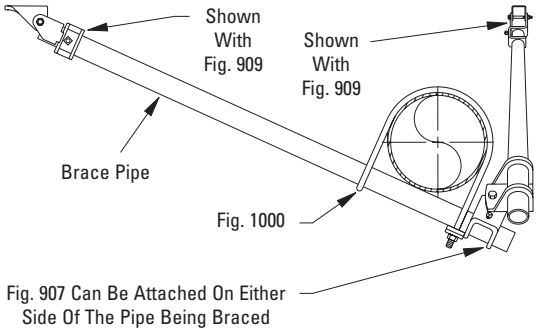
To Install: Attach the Fig. 907 over one piece of pipe and adjust to desired position. Tighten set bolt until head bottoms out on surface, then repeat the process for the second pipe.

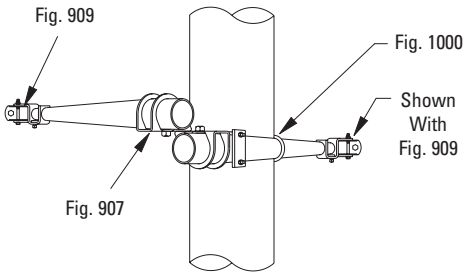
Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number, bracing pipe sizes and finish.



Part Number	Brace Pipe Size in.	(mm)	A in.	(mm)	B in.	(mm)	Max. Design Load lbs.	(kN)	Approx. Wt./100 lbs.	(kg)
907-1 X 1	1" x 1"	(25 x 25)	4 3/4"	(120.6)	4 3/4"	(120.6)	655	(2.91)	103	(46.7)
907-1 X 1¼	1" x 1¼"	(25 x 32)	5 3/16"	(128.6)	4 13/16"	(122.2)	655	(2.91)	107	(48.5)
907-1¼ X 1¼	1¼" x 1¼"	(32 x 32)	5 3/8"	(136.5)	5 1/4"	(133.1)	655	(2.91)	109	(49.4)





4-Way Riser Brace

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 975 - straight sway brace fitting (UL listed)

Size Range: 1" (25mm) bracing pipe. For brace pipe sizes larger than 1" (25mm), use Fig. 980. Available with holes for ½", ⅝", or ¾" fastener attachment.

Material: Steel

Function: The Fig. 975 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a 1" "bracing pipe" and TOLCO™ "braced pipe" attachment to form a complete bracing assembly. Sway brace assemblies are intended to be installed in accordance with NFPA 13 and the manufacturer's installation instructions

Features: Open design allows for easy checking of thread engagement.

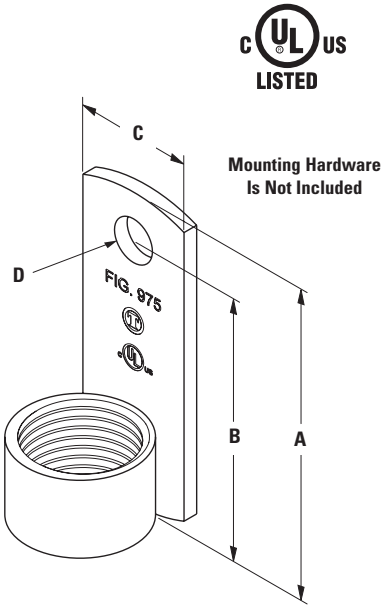
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL Listed for the following brace member type pipes: Sch. 40.

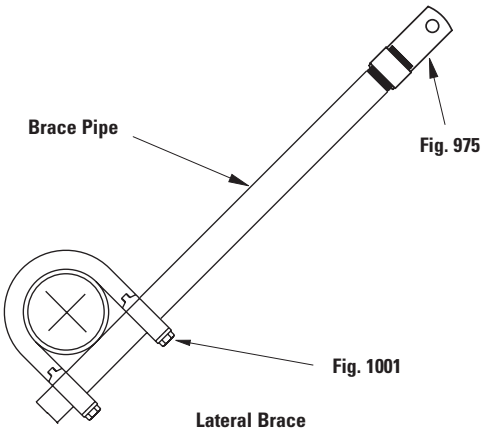
Installation: Thread the Fig. 975 onto the 1" threaded bracing pipe. When using in combination with the Fig. 906, refer to that instruction sheet, otherwise select an anchor that is sized appropriately for the intended use and follow anchor manufacturer's instructions regarding structural thickness and embedment requirements. The required type, number and size of fasteners used for the structure attachment fitting shall be in accordance with NFPA 13. Once the anchor is installed per the manufacturer's direction, secure the Fig. 975 to the anchor. Attachment can pivot for adjustment to proper brace angle. (Bending of plate not permitted).

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number and finish.

Note: Bending of this fitting alters the material strength and voids the cULus Listing. Use Fig. 980, 910, 909, or any other TOLCO fitting when angled fitting is required.





Part Number	Brace Pipe Size in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	Mounting Hole D in. (mm)	Max. Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
975-½ *	1" (25)	4" (101.6)	3½" (88.9)	1½" (38.1)	9/16" (14.3)	2100 (9.34)	88 (39.9)
975-⅝	1" (25)	4" (101.6)	3½" (88.9)	1½" (38.1)	11/16" (17.5)	2100 (9.34)	87 (39.4)
975-¾	1" (25)	4" (101.6)	3½" (88.9)	1½" (38.1)	13/16" (20.6)	2100 (9.34)	86 (39.0)

* Standard size.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 981 - fast attach – universal swivel sway brace attachment

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: Fits bracing pipe 1" (25mm) thru 2" (50mm), 12 gauge (2.6mm) channel and all structural steel up to 1/4" (6.3mm) thick.
Fig. 981-S fits rod sizes 3/8" thru 5/8".
Fig. 981-L fits rod sizes 3/4" thru 7/8".

Material: Steel

Function: Multi-functional attachment to hanger rod, trapeze rod, structure or braced pipe fitting.

Features: Fits multiple sizes of bracing pipe, strut or structural steel. Swivel allows adjustment to various surface angles. Breakaway bolt heads assure verification of proper installation torque. Unique "fast attach" yoke design fits multiple rod sizes; 3/8" thru 5/8" and 3/4" thru 7/8". "Stackable" design allows installation of both lateral and longitudinal braces to be easily installed on a single hanger rod, with no disassembly.

Installation: Fig. 981 is the "braced pipe" attachment component of a lateral or longitudinal brace assembly. It is intended to be combined with the pipe hanger, all-thread rod, "bracing pipe" and TOLCO transitional and structural attachment component(s) to form a complete bracing assembly. NFPA 13 and or OSHPD guidelines should be followed.

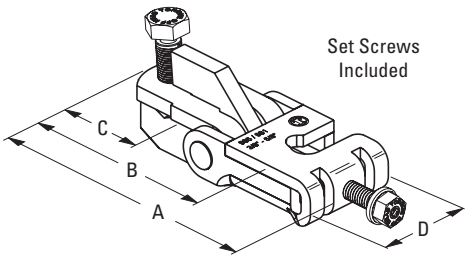
To Install: Spin nut on top of hanger counterclockwise to loosen the nut and raise it above the top of the hanger. Attach Fig. 981 by slipping the open side of the 981 yoke onto the all thread rod above the top of the hanger. Tighten 3/8" cone point set screw on yoke until head breaks-off to ensure proper installation torque. Spin the hex nut clockwise and tighten securely. Insert brace pipe into the jaw of the 981 and tighten the cone point set screw until the head breaks off ensuring proper installation torque. Pivot brace pipe to proper angle and attach to structure using a TOLCO swivel structural attachment.

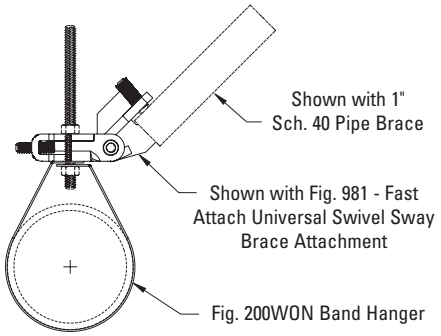
Approvals: Included in our Seismic Restraint Systems Guidelines, approved by the California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Finish: Electro-Galvanized

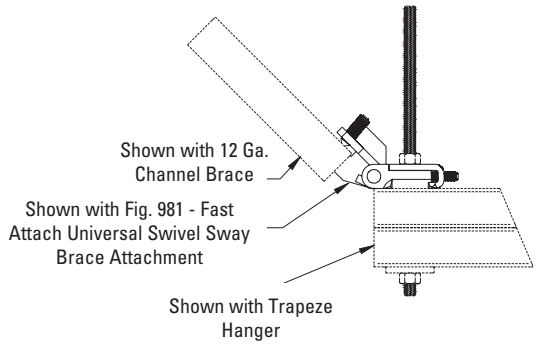
Order By: Figure number, rod size

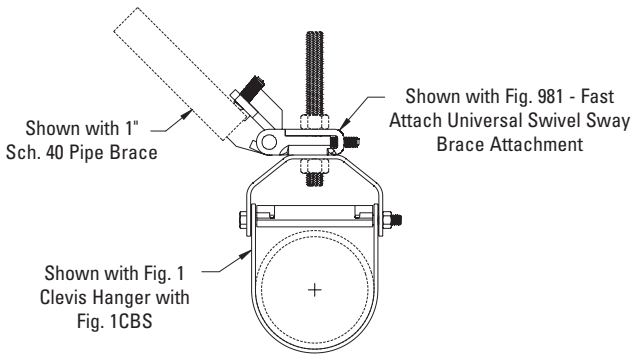
US Patent Numbers
Pat. #6,273,372, Pat. #7,097,141, Pat. #7,654,043, Pat. #7,654,043 B2





Part Number	Rod Size Range	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Max. Horizontal Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
981-S	3/8" thru 5/8"	5 1/8" (130.2)	4 1/8" (104.8)	1 1/4" (31.7)	2 1/4" (57.1)	2015 (8.96)	88 (39.9)
981-L	3/4" & 7/8"	5 1/8" (130.2)	4 1/8" (104.8)	1 1/4" (31.7)	2 1/4" (57.1)	2015 (8.96)	82 (37.2)





All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Fig. 980 - TOLCO Universal swivel sway brace attachment -3/8"-16 to 3/4"-10 rods
Fig. 980H - TOLCO Universal swivel sway brace attachment -7/8"-9 to 1 1/4"-7

OPM

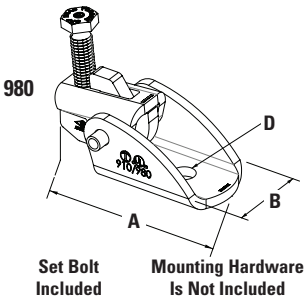
c UL us LISTED

Size Range: One size fits bracing pipe 1" (25mm) thru 2" (50mm), B-Line series 12 gauge (2.6mm) channel.

Material: Carbon steel

Function: Multi-functional attachment to structure or braced pipe fitting.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections and in accordance with NFPA 13, 2019 Section 18.5.11.5. The Fig. 980 mounts to any surface angle and the break off bolt head assures verification of proper installation.



Installation: Fig.980 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO™ "braced pipe" attachment, Fig. 1001, 2002, 3000, 4L or approved attachment to pipe to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 980 onto the "bracing pipe". Tighten the set bolt until the head breaks off. Attachment can pivot for adjustment to proper brace angle.

Approvals: —Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL Listed for the following brace member type pipes: Sch. 40, KSD 3562. Ask the factory for additional information as it may vary by product size. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For FM Approval information refer to FM Approved page 61.

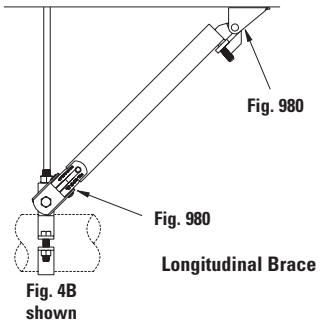
Note: Fig. 980 Swivel Attachment and Fig. 1001, 2002, 3000, 4L, or approved attachment to pipe make up a sway brace system of UL Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association **(NFPA)**

Finish: Plain, Electro-Galvanized or Stainless Steel.

Contact customer service for alternative finishes.

Order By: Figure number and finish.

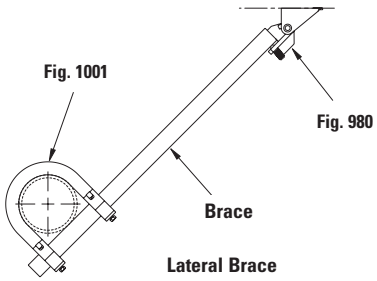
Pat. #6,273,372, Pat. #6,517,030, Pat. #6,953,174, Pat. #6,708,930, Pat. #7,191,987, Pat. #7,441,730, Pat. #7,669,806



Catalog #	A in.	A (mm)	B in.	B (mm)	D** in.	D** (mm)	Max. Design Load (cULus) lbs./(kN)	Approx.Wt./100 lbs.	Approx.Wt./100 (kg)
*980-3/8	4 9/16	(114.9)	2 1/16	(52.4)	7/16	(11.1)	1600 (7.12)	149	(67.6)
*980-1/2					9/16	(14.3)	2100 (9.34)	148	(67.1)
*980-5/8					11/16	(17.5)	2100 (9.34)	147	(66.7)
*980-3/4					13/16	(20.6)	2100 (9.34)	146	(66.2)
980H-7/8	6 3/4	(171.4)	3 1/2	(88.9)	15/16	(23.8)	Fig. 980H is not UL Listed or FM Approved	402	(182.3)
980H-1					1 1/16	(27.0)		400	(181.4)
980H-1 1/8					1 3/16	(30.2)		397	(180.1)
980H-1 1/4					1 5/16	(33.3)		390	(176.9)

* Sizes available in stainless steel (980S-3/8, 980S-1/2, 980S-5/8, and 980S-3/4) and have the same UL rating as what is listed.

** Mounting attachment hole size.



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 3-30-21

Fig. 980 - TOLCO Universal swivel sway brace attachment -3/8"-16 to 3/4"-10 rods
Fig. 980H - TOLCO Universal swivel sway brace attachment -7/8"-9 to 1 1/4"-7

Size Range: One size fits bracing pipe 1" (25mm) thru 2" (50mm), B-Line series 12 gauge (2.6mm) channel.

Material: Carbon steel

Function: Multi-functional attachment to structure or braced pipe fitting.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections and in accordance with NFPA 13, 2019 Section 18.5.11.5. The Fig. 980 mounts to any surface angle and the break off bolt head assures verification of proper installation.

Installation: Fig.980 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO™ "braced pipe" attachment, Fig. 1000, 1001, 3000, 4L, or other TOLCO approved attachment to pipe to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 980 onto the "bracing pipe". Tighten the set bolt until the head breaks off. Attachment can pivot for adjustment to proper brace angle.

Approvals: —Approved by Factory Mutual Engineering **(FM)**. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.
For UL Listed information refer to UL Listed page 60.

Note: Fig. 980 Swivel Attachment and Fig. 1000, 1001, 4L or other TOLCO approved attachment to pipe that make up a sway brace system of bracing materials which satisfies the requirements of Factory Mutual Engineering and the National Fire Protection Association **(NFPA)**

Finish: Plain, Electro-Galvanized or Stainless Steel.
Contact customer service for alternative finishes.

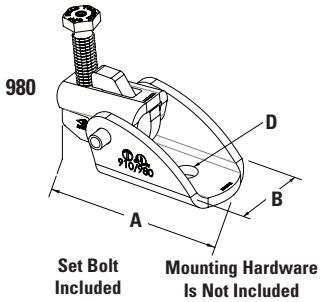
Order By: Figure number and finish.

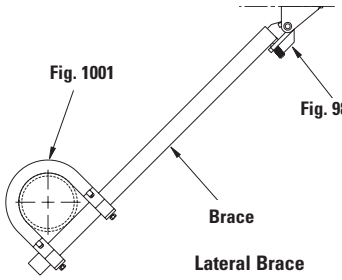
Pat. #6,273,372, Pat. #6,517,030, Pat. #6,953,174, Pat. #6,708,930, Pat. #7,191,987, Pat. #7,441,730, Pat. #7,669,806

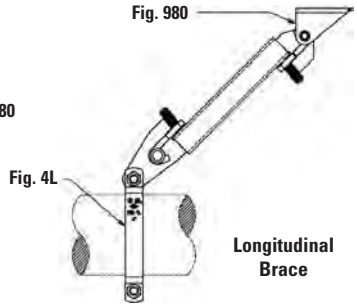
Designed to meet or exceed requirements of FM DS 2-8.

OPM

FM APPROVED







Catalog #	A in.	A (mm)	B in.	B (mm)	D** in.	D** (mm)	Max. Design Load*** (FM) 30°-44° lbs./(kN)	45°-59° lbs./(kN)	60°-74° lbs./(kN)	75°-90° lbs./(kN)	Approx.Wt./100 lbs.	(kg)
980-3/8	4 9/16	(114.9)	2 1/16	(52.4)	7/16	(11.1)	2370 (10.54)	2790 (12.41)	3360 (14.94)	3750 (16.68)	149	(67.6)
980-1/2					9/16	(14.3)					148	(67.1)
980-5/8					11/16	(17.5)					147	(66.7)
980-3/4					13/16	(20.6)					146	(66.2)
980H-7/8	6 3/4	(171.4)	3 1/2	(88.9)	15/16	(23.8)	Fig. 980H is not UL Listed or FM Approved				402	(182.3)
980H-1					1 1/16	(27.0)					400	(181.4)
980H-1 1/8					1 3/16	(30.2)					397	(180.1)
980H-1 1/4					1 5/16	(33.3)					390	(176.9)

** Mounting attachment hole size.
*** Installed with 1" or 1 1/4 "schedule 40 brace pipe.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 3-30-21

TOLCO Fig. 985 - mechanical fast clamp

Size Range: Fig. 985-S fits rod sizes 3/8" thru 5/8"
Fig. 985-L fits rod sizes 3/4" thru 7/8" rod sizes

Material: Steel

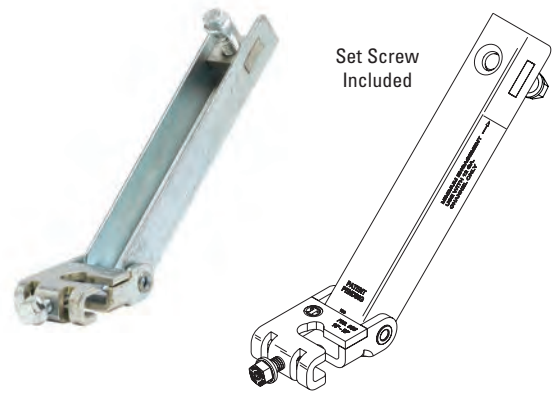
Function: Used for attachment of seismic bracing to pipe hanger or trapeze

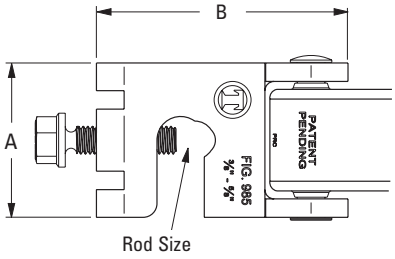
Features: Allows up to 12" (304.8mm) of adjustability in brace length, when used with Fig. 986. Break-off set screw heads visually verify required installation torque. Unique "Fast Attach" yoke design allows Fig. 985 to be installed to hanger rods 3/8" thru 5/8" or 3/4" thru 7/8"

Finish: Electro-galvanized

Order By: Figure number, rod size & finish

Patent Pending





Part Number	Rod Size	A in. (mm)	B in. (mm)	Max. Horizontal Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
985-S	3/8" thru 5/8"	2" (50.8)	1 1/2" (38.1)	2015 (8.96)	204 (92.5)
985-L	3/4" & 7/8"	2" (50.8)	1 5/8" (41.3)	2015 (8.96)	198 (89.8)

TOLCO Fig. 986 - mechanical fast clamp

Size Range: Available with holes for 1/2"-13 thru 3/4"-10 fastener attachment.

Material: Steel

Function: Used for attachment of seismic bracing to structure or hanger.

Features: Allows up to 12" (304.8mm) of adjustability in brace length, when used with Fig. 985. Break-off set screw heads visually verify required installation torque. Swivel allows adjustment to various surface angles.

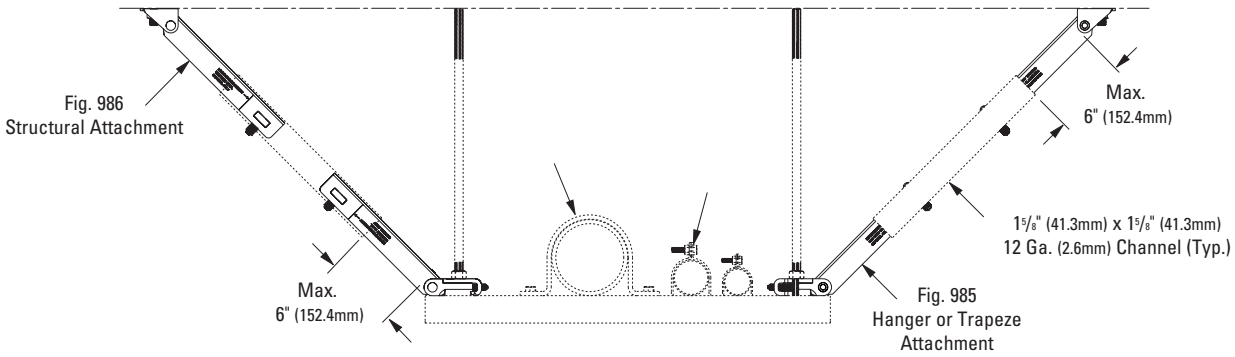
Finish: Electro-galvanized

Order By: Figure number, rod size & finish

Patent Pending

Part Number	Rod Size	Hole Dia. D in. (mm)	Max. Horizontal Design Load* lbs. (kN)	Approx. Wt./100 lbs. (kg)
986-1/2	1/2"	9/16" (14.3)	2015 (8.96)	204 (92.5)
986-5/8	5/8"	11/16" (17.5)	2015 (8.96)	203 (92.1)
986-3/4	3/4"	13/16" (20.6)	2015 (8.96)	202 (91.6)

* When used with 1 5/8" (41.3mm) x 1 5/8" (41.3mm) 12 Ga. (2.6mm) channel

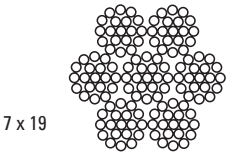


All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

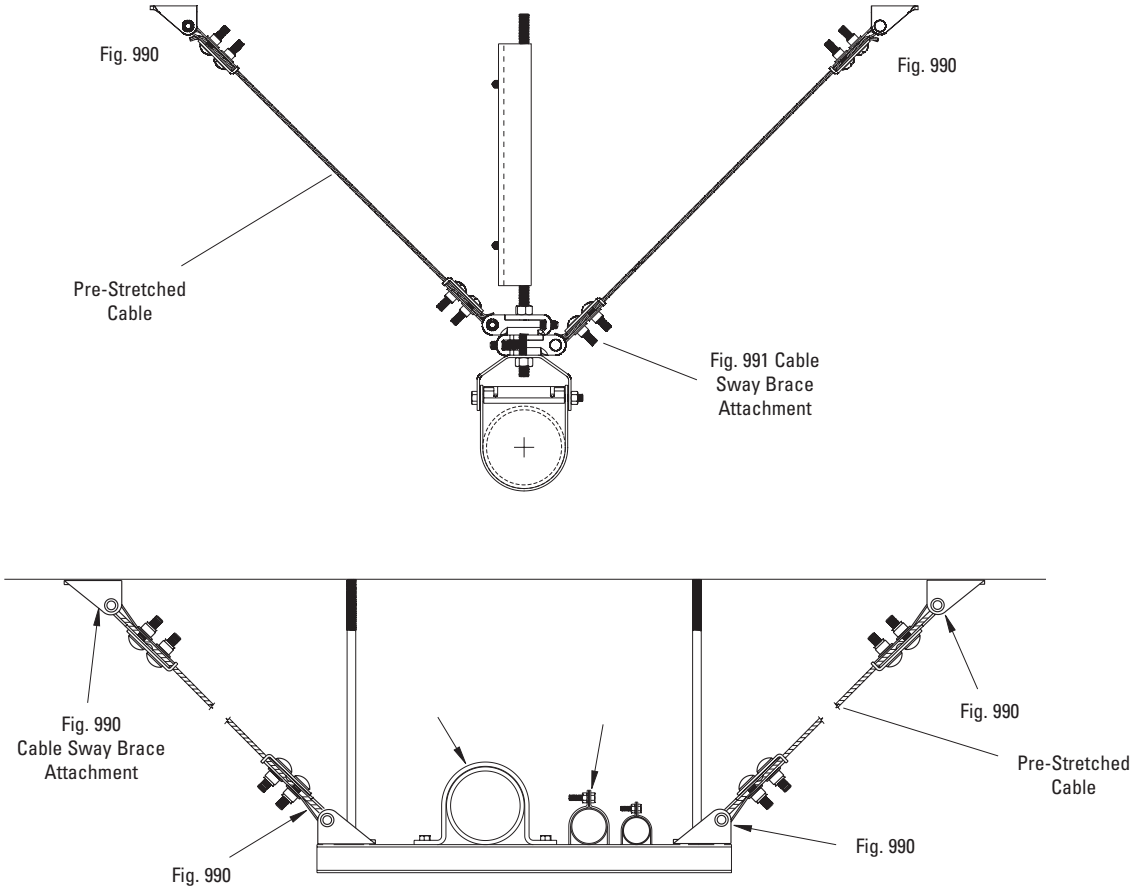
TOLCO Fig. BRC cable - pre-stretched 7 x 19 galvanized aircraft cable

Size Range: Available in cable diameters of 1/8", 3/16", and 1/4"
Material: Steel
Function: Used for attachment of seismic bracing to structure or hanger.
Features: Meets requirements of IBC 2009 and ASCE 7-05 for seismic bracing.
Finish: Galvanized
Order By: Figure number and size
Note: Only pre-stretched aircraft cable should be used in seismic bracing installations where cable is used as the bracing component. Use of other types of cable will, over time, begin to sag and deform, thus rendering the bracing system to not perform properly.

Part Number	Cable Diameter in. (mm)	Max. Rec. Load* lbs. (kN)	Approx. Wt./100 Ft. lbs. (kg)
BRC CABLE-1/8	1/8" (3.2)	975 (4.33)	2.9 (1.31)
BRC CABLE-3/16	3/16" (4.8)	2050 (9.12)	6.5 (2.95)
BRC CABLE-1/4	1/4" (6.3)	3150 (14.01)	11.0 (4.99)



* Cable breaking strength



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 990 - cable sway brace attachment - 3/8"-16 to 3/4"-10 rods
TOLCO Fig. 990H - cable sway brace attachment - 7/8"-9 to 1 1/4"-7 rods

Component of State of California OSHPD Approved Seismic Restraints System

Size Range: 1/8", 3/16" and 1/4" pre-stretched cable.
Fig. 990 for 3/8", 1/2", 5/8", or 3/4" hanger rod, bolt, or fastener.
Fig. 990H for 7/8", 1", 1 1/8", or 1 1/4" hanger rod, bolt, or fastener.

Material: Steel

Function: Cable attachment for sway bracing. Attaches sway brace to structure or to hanger. To be used with 7 x 19 strand core pre-stretched galvanized aircraft cable.

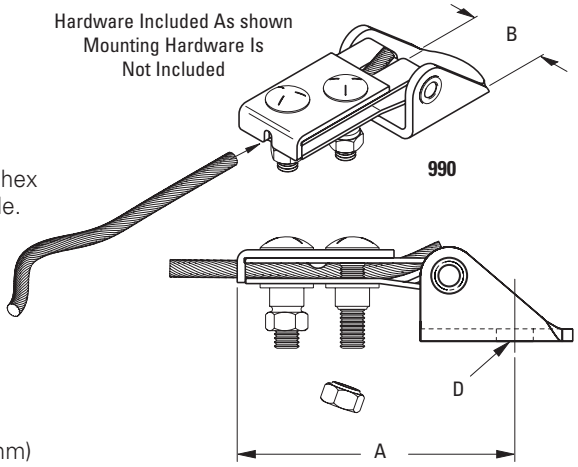
Features: Cable easily slides into oversized front arch opening. Breakaway hex nuts assure verification of proper installation. Will mount to any surface angle.

Approvals: Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint System Guidelines.

Finish: Electro-Galvanized

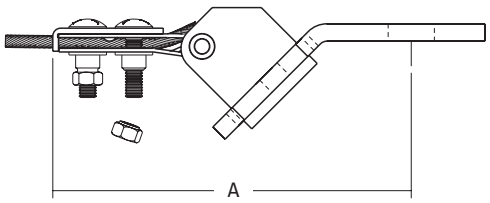
Order By: Figure number, cable size and mounting hole size.

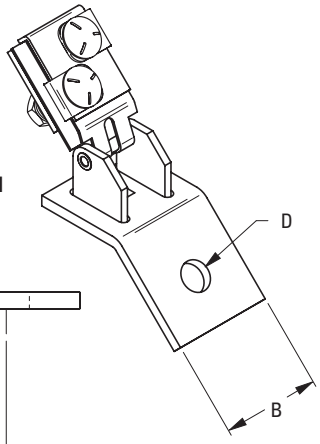
Note: Order 990H for hanger rod, bolt or fastener holes sized for 7/8" (22.2mm) thru 1 1/4" (31.7mm) rods.



Cable ** Diameter in. (mm)	990 Dimensions A in. (mm)	990 Dimensions B in. (mm)	990H Dimensions A in. (mm)	990H Dimensions B in. (mm)	Max. Horizontal Design Load * lbs. (kN)
1/8" (3.2)	4 5/16" (14.3)	2" (50.8)	7 3/4" (196.8)	3 1/2" 88.9)	975 (4.33)
3/16" (4.8)	5" (127.0)	2 1/4" (57.1)	8 1/2" (215.9)	3 1/2" 88.9)	2050 (9.12)
1/4" (6.3)	5" (127.0)	2 5/8" (66.7)	8 1/2" (215.9)	3 1/2" 88.9)	3150 (14.01)

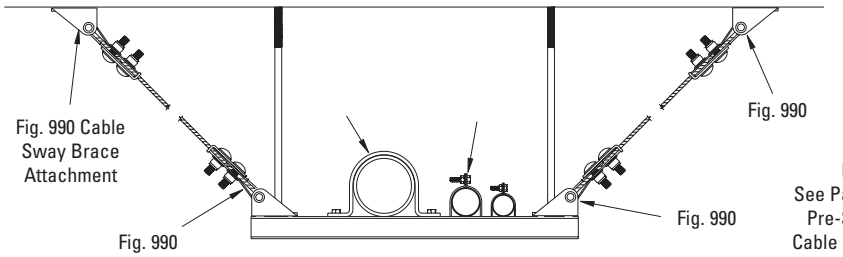
* Maximum load rating controlled by cable breaking strength.

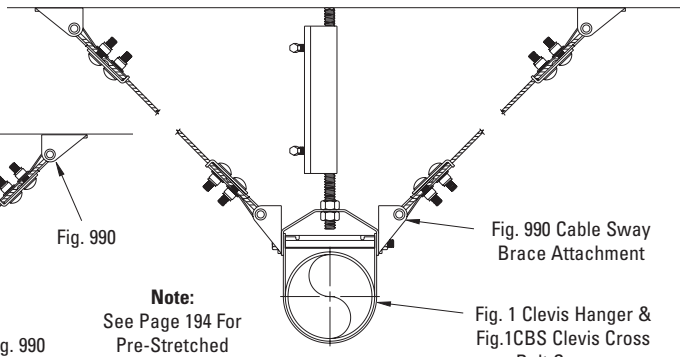




Part Number	Rod Sizes	D Dia. in. (mm)	Approx. Wt./100
990-3/8 X **	3/8"	13/32" (10.3)	Varies
990-1/2 X **	1/2"	17/32" (13.5)	Varies
990-5/8 X **	5/8"	11/16" (17.4)	Varies
990-3/4 X **	3/4"	13/16" (20.6)	Varies
990H-7/8 X **	7/8"	15/16" (23.8)	Varies
990H-1 X **	1"	1 1/8" (28.6)	Varies
990H-11/8 X **	1 1/8"	1 1/4" (31.7)	Varies
990H-11/4 X **	1 1/4"	1 3/8" (34.9)	Varies

** Insert cable diameter in part number.

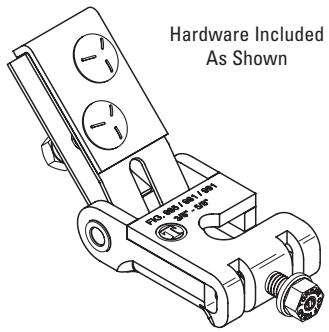




All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 991 - fast attach – cable sway brace attachment

Component of State of California OSHPD Approved Seismic Restraints System



Size Range: 1/8", 3/16" and 1/4" pre-stretched cable.
Fig. 991S fits rod sizes 3/8" thru 5/8".
Fig. 991L fits rod sizes 3/4" thru 7/8".

Material: Steel

Function: Cable attachment for sway bracing. Attaches sway brace to hanger rod. To be used with 7 x 19 strand core pre-stretched galvanized aircraft cable.

Features: Cable easily slides into oversized front arch opening. Swivel allows adjustment to various surface angles. Break-away hex nuts assure verification of proper installation torque. Unique "Fast-Attach" yoke design fits multiple rod sizes; 3/8" thru 5/8" or 3/4" thru 7/8". To verify proper installation to hanger rod, simply install yoke to hanger rod and tighten 3/8" cone point set screw until head breaks off. "Stackable" design allows installation of both lateral and longitudinal braces, as well as opposing braces, to be easily installed on a single hanger rod, with no disassembly. The retrofit yoke has a visual verification of proper installation torque. Tighten existing hex nut down until the slight gap in the yoke assembly closes completely.

Approvals: Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint System Guidelines.

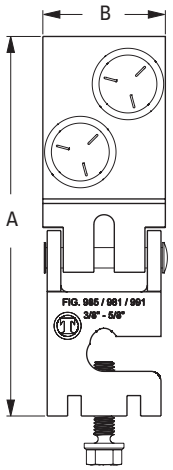
Finish: Electro-Galvanized

Order By: — Figure number, rod size range 3/8" thru 5/8" or 3/4" thru 7/8"

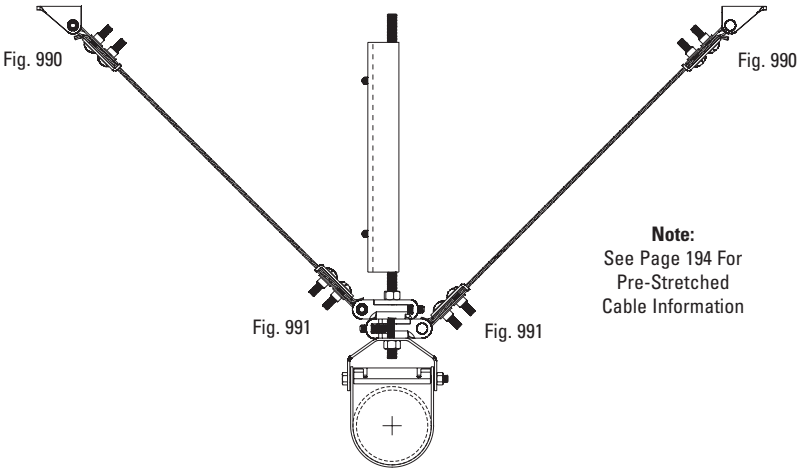
US Patent Numbers: Pat. #7,097,141, Pat. #7,654,043, Pat. #7,654,043 B2

Part Number	Rod Sizes	Cable Diameter in. (mm)	A in. (mm)	B in. (mm)	Max. Horizontal Design Load* lbs. (kN)	Approx. Wt./100 lbs. (kg)
991-S-1/8	3/8"	1/8" (3.2)	4 5/16" (14.3)	2" (50.8)	975 (4.33)	128.3 (58.2)
991-S-3/16	thru	3/16" (4.8)	5" (127.0)	2 1/4" (57.1)	2050 (9.12)	182.1 (82.6)
991-S-1/4	5/8"	1/4" (6.3)	5" (127.0)	2 5/8" (66.7)	3150 (14.01)	221.1 (100.3)

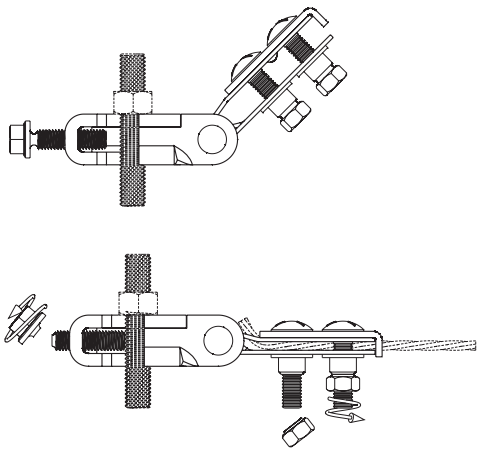
Part Number	Rod Sizes	Cable Diameter in. (mm)	A in. (mm)	B in. (mm)	Max. Horizontal Design Load* lbs. (kN)	Approx. Wt./100 lbs. (kg)
991-L-1/8	3/4"	1/8" (3.2)	4 5/16" (14.3)	2" (50.8)	975 (4.33)	122.3 (55.5)
991-L-3/16	&	3/16" (4.8)	5" (127.0)	2 1/4" (57.1)	2050 (9.12)	176.1 (79.9)
991-L-1/4	7/8"	1/4" (6.3)	5" (127.0)	2 5/8" (66.7)	3150 (14.01)	215.1 (97.5)



* Maximum load rating controlled by cable breaking strength.



Note:
See Page 194 For Pre-Stretched Cable Information



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 3000 - CPVC and steel sway brace attachment

Size Range: Pipe size to be braced: in 1" (25mm) thru 3" (80mm) except 65mm pipe sizes
Pipe size used for bracing 1" (25mm) Schedule 40 IPS

Material: Steel

Function: For bracing CPVC and steel pipe against sway and seismic disturbance. The pipe attachment component of a sway brace system: Fig. 3000 is used in conjunction with a Fig. 900 Series fitting and joined together with bracing pipe per NFPA 13, forming a complete sway brace assembly.

Features: The Fig. 3000 is UL Listed as a sway brace for bracing 1" (25mm) through 3" (80mm) CPVC and (IPS) steel sprinkler pipe, except 65mm diameter pipe. The unique design does not compress the CPVC pipe, and the brace pipe to system pipe offset keeps the brace pipe from leaving harmful residue and oils on the CPVC pipe. Field adjustable, making critical pre-engineering of bracing pipe length unnecessary and requires no threading of bracing pipe. Comes assembled and ready for installation. Has a built-in visual verification of correct installation. See the following installation note.

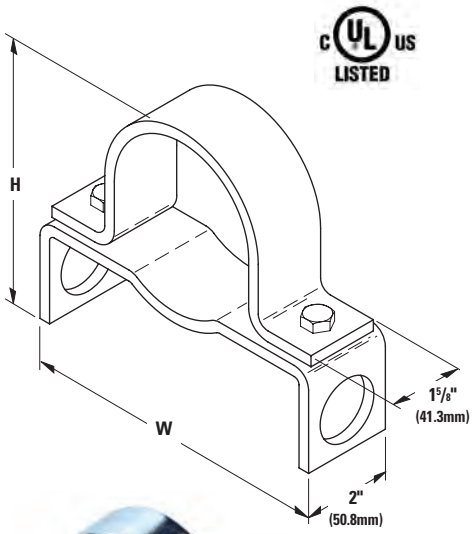
Installation Instructions: Slide the Fig. 3000 bracket over the brace member. Place the Fig. 3000 clamp over the pipe being braced, align the holes, and tighten the supplied bolts until the underside of the bolt bottoms out against the Fig. 3000 clamp. The sway brace fitting is intended to be used with any Tolco 900 series transitional or 800 series structural attachments.

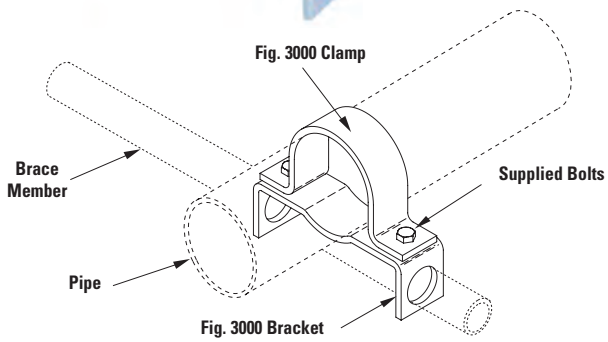
Note: Brace member may be over or under the braced pipe.

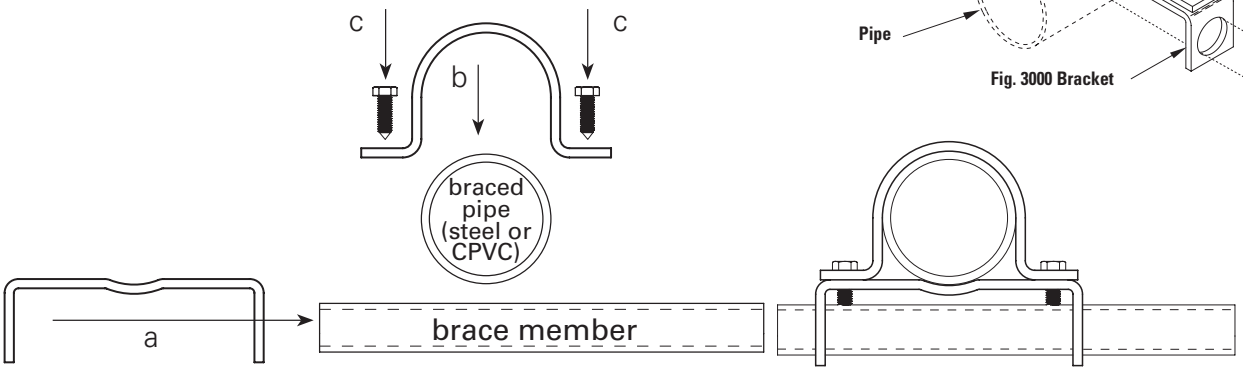
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL Listed for the following sprinkler type pipes: Sch. 40 (and as brace member), Sch. 10, CPVC, DIN 2448, KSD 3562 (and as brace member), KSD 3507.

Finish: Electro-Galvanized

Order By: Figure number and pipe size.







Part No.	CPVC or Steel Pipe Size in.	(mm)	H Height in.	(mm)	W Width in.	(mm)	Max. Design Load UL Listed Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
3000-1	1"	(25)	3 7/10"	(94.0)	4 3/4"	(120.7)	700	(3.11)	120	(54.4)
3000-1 1/4	1 1/4"	(32)	4"	(101.6)	5"	(127.0)	700	(3.11)	129	(58.5)
3000-1 1/2	1 1/2"	(40)	4 3/10"	(109.2)	5 1/4"	(133.4)	700	(3.11)	136	(61.6)
3000-2	2"	(50)	4 7/10"	(119.4)	6 1/2"	(165.1)	700	(3.11)	204	(92.5)
3000-2 1/2	2 1/2"	(65)	5 4/25"	(131.1)	7"	(177.8)	700	(3.11)	226	(102.5)
3000-3	3"	(80)	5 4/5"	(147.3)	7 1/2"	(190.5)	700	(3.11)	252	(114.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 1001 - sway brace attachment (UL listed)

Size Range: Pipe size to be braced: 1" (25mm) thru 8" (200mm) IPS.
Pipe size used for bracing: 1" (25mm) and 1¼" (32mm) Schedule 40 IPS.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance. The pipe attachment component of a sway brace system: Fig. 1001 is used in conjunction with a Fig. 900 Series fitting and joined together with bracing pipe per NFPA 13, forming a complete sway brace assembly.

Features: Can be used to brace schedule 7 through schedule 40 IPS. Field adjustable, making critical pre-engineering of bracing pipe length unnecessary. Unique design requires no threading of bracing pipe. Comes assembled and ready for installation. Fig. 1001 has built-in visual verification of correct installation. See installation note below.

Installation Note: Position Fig. 1001 over the pipe to be braced and tighten two hex head cone point set bolts until heads bottom out. A minimum of 1" (25mm) pipe extension is recommended. Brace pipe can be installed on top or bottom of pipe to be braced.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL Listed for the following sprinkler type pipes: Sch. 40 (and as brace member), Sch. 10, Bull Moose Eddy Flow, Wheatland Mega Flow, DIN 2448, KSD 3562 (and as brace member), KSD 3507. Ask the factory for additional information as it may vary by product size. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For FM Approval information refer to FM Approved page 67.

Finish: Plain, Electro-Galvanized or Hot Dip Galvanized. Contact customer service for alternative finishes and materials.

Order By: Order by figure number, pipe size to be braced, followed by pipe size used for bracing (1" (25mm) or 1¼" (32mm)), and finish.

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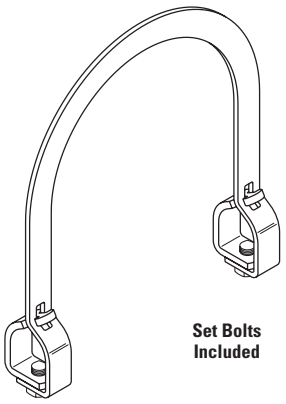


Pipe Size	Part Number & Approx. Wt./100 1" (25mm) Brace Pipe		1¼" (32mm) Brace Pipe		Design Load - Lbs. For Brace Pipe Size 1" / 1¼"		
in. (mm)		Lbs. (kg)		Lbs. (kg)	Sch. 7 1" / 1¼"	Sch. 10 1" / 1¼"	Sch. 40 1" / 1¼"
1" (25)	**1001-1 X 1**	104.6 (47.4)	**1001-1 X 1¼**	122.2 (55.4)	— / —	— / —	1000 / 1000
1¼" (32)	**1001-1¼ X 1**	105.2 (47.7)	**1001-1¼ X 1¼**	122.6 (55.6)	1000 / 1000	1000 / 1000	1000 / 1000
1½" (40)	**1001-1½ X 1**	107.0 (48.5)	**1001-1½ X 1¼**	124.7 (56.6)	1500 / 1500	1500 / 1500	1500 / 1500
2" (50)	**1001-2 X 1**	112.6 (51.1)	**1001-2 X 1¼**	129.2 (58.6)	1500 / 1500	1500 / 1500	1500 / 1500
*2½" (65)	**1001-2½ X 1***	136.3 (61.8)	**1001-2½ X 1¼***	154.4 (70.0)	2000 / 2000	2000 / 2000	2000 / 2000
3" (80)	**1001-3 X 1**	145.0 (65.8)	**1001-3 X 1¼**	163.1 (74.0)	2000 / 2000	2000 / 2000	2000 / 2000
4" (100)	**1001-4 X 1**	158.6 (71.9)	**1001-4 X 1¼**	176.7 (80.1)	2000 / 2000	2000 / 2000	2000 / 2000
5" (100)	**1001-5 X 1**	173.2 (78.6)	**1001-5 X 1¼**	191.4 (86.8)	— / —	2000 / 2000	2000 / 2000
*6" (150)	**1001-6 X 1***	190.0 (85.2)	**1001-6 X 1¼***	206.0 (93.4)	2000 / 2000	2000 / 2000	2000 / 2000
*8" (200)	**1001-8 X 1***	217.4 (111.5)	**1001-8 X 1¼***	265.3 (120.3)	— / —	2000 / 2000	2000 / 2000

*Note: Metric sizes available for 65mm, 150mm, 200mm pipe size with 25mm and 32mm brace pipe size. Contact the factory.

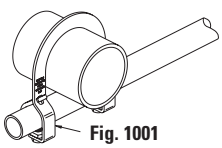
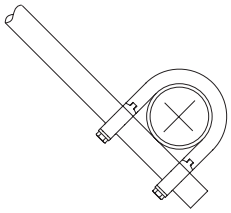
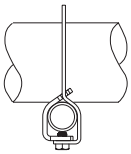
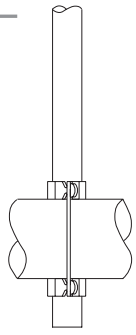


Fig. 1001







All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 1001 - sway brace attachment (FM approved)

OPM

FM APPROVED

Size Range: Pipe size to be braced: 1" (25mm) thru 8" (200mm) IPS. Pipe size used for bracing: 1" (25mm) and 1¼" (32mm) Schedule 40 IPS.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance. The pipe attachment component of a sway brace system: Fig. 1001 is used in conjunction with a Fig. 900 Series fitting and joined together with bracing pipe per NFPA 13, forming a complete sway brace assembly.

Features: Can be used to brace schedule 7 through schedule 40 IPS. Field adjustable, making critical pre-engineering of bracing pipe length unnecessary. Unique design requires no threading of bracing pipe. Can be used as a component of a four-way riser brace. Comes assembled and ready for installation. Fig. 1001 has built-in visual verification of correct installation. See installation note below.

Installation Note: Position Fig. 1001 over the pipe to be braced and tighten two hex head cone point set bolts until heads bottom out. A minimum of 1" (25mm) pipe extension is recommended. Brace pipe can be installed on top or bottom of pipe to be braced.

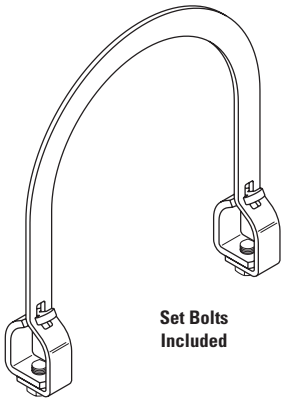
Approvals: Approved by Factory Mutual Engineering **(FM)**. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For **UL** Listed information refer to **UL** Listed page 66.

Finish: Plain, Electro-Galvanized or Hot Dip Galvanized. Contact customer service for alternative finishes and materials.

Order By: Order by figure number, pipe size to be braced, followed by pipe size used for bracing (1" (25mm) or 1¼" (32mm)) , and finish.

Important Note: Fig. 1001 is precision manufactured to perform its function as a critical component of a complete bracing assembly. To ensure performance, the FM Approval requires that Fig. 1001 must be used only with other TOLCO™ bracing products. **The Fig. 1001 is not intended for use with the Fig. 907 4-way Longitudinal Brace Attachment.**

Designed to meet or exceed requirements of FM DS 2-8.



Pipe Size in. (mm)	Part Number & Approx. Wt./100 1" (25mm) Brace Pipe	Lbs.	(kg)	1¼" (32mm) Brace Pipe	Lbs.	(kg)	Design Load - For Sch. 7, Sch. 10, & Sch. 40 Pipe Allowable Horizontal Capacity (lbf) Per Installation[1,2,3] 30°-44° Lbs.	(kN)	45°-59° Lbs.	(kN)	60°-74° Lbs.	(kN)	75°-90° Lbs.	(kN)
1" (25)	**1001-1 X 1**	104.6	(47.4)	**1001-1 X 1¼**	122.2	(55.4)	1800	(8.01)	2550	(11.34)	3120	(13.88)	3490	(15.52)
1¼" (32)	**1001-1¼ X 1**	105.2	(47.7)	**1001-1¼ X 1¼**	122.6	(55.6)	1230	(5.47)	1740	(7.74)	2140	(9.52)	2380	(10.59)
1½" (40)	**1001-1½ X 1**	107.0	(48.5)	**1001-1½ X 1¼**	124.7	(56.6)	1230	(5.47)	1740	(7.74)	2140	(9.52)	2380	(10.59)
2" (50)	**1001-2 X 1**	112.6	(51.1)	**1001-2 X 1¼**	129.2	(58.6)	1230	(5.47)	1740	(7.74)	2140	(9.52)	2380	(10.59)
*2½"(65)	**1001-2½ X 1***	136.3	(61.8)	**1001-2½ X 1¼***	154.4	(70.0)	800	(3.56)	1130	(5.03)	1380	(6.14)	1540	(6.85)
3" (80)	**1001-3 X 1**	145.0	(65.8)	**1001-3 X 1¼**	163.1	(74.0)	850	(3.78)	1200	(5.34)	1470	(6.54)	1640	(7.30)
4" (100)	**1001-4 X 1**	158.6	(71.9)	**1001-4 X 1¼**	176.7	(80.1)	850	(3.78)	1200	(5.34)	1470	(6.54)	1640	(7.30)
5" (100)	**1001-5 X 1**	173.2	(78.6)	**1001-5 X 1¼**	191.4	(86.8)	510	(2.27)	730	(3.25)	890	(3.96)	990	(4.40)
*6" (150)	**1001-6 X 1***	190.0	(85.2)	**1001-6 X 1¼***	206.0	(93.4)	510	(2.27)	730	(3.25)	890	(3.96)	990	(4.40)
*8" (200)	**1001-8 X 1***	217.4	(111.5)	**1001-8 X 1 ¼***	265.3	(120.3)	510	(2.27)	730	(3.25)	890	(3.96)	990	(4.40)

[1] FM Approved when used with 1 or 1¼ inch NPS Schedule 40 GB/T 3091,EN 10255H, or JIS G3451 steel pipe as the brace member.

[2] Load rating for LW above refers to FM Approved Lightwall Pipe commonly referred to as "Schedule 7". These ratings may also be applied when EN 10220 and GB/T 8163 steel pipe.

[3] Load rating for Schedule 10 above may be applied to GB/T 3092,EN 10255M and H, or JIS G3454, FM Approved Thinwall, or Schedule 40 steel pipes.

Note: See UL load ratings in UL Listed Design Load chart shown under drawing.

*Note: Metric sizes available for 65mm, 150mm, 200mm pipe size with 25mm and 32mm brace pipe size. Contact the factory.

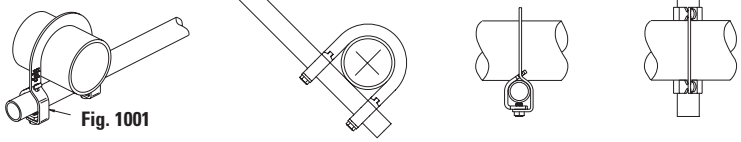


Fig. 1001

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 1000 - "Fast Clamp" branch line restraint attachment (UL listed)

OPM

Size Range: Pipe size to be braced: 1" (25mm) thru 4" (100mm) 40 IPS. Pipe size used for bracing: 1" (25mm) and 1¼" (32mm) Schedule 40 IPS. For pipe sizes larger than 2" (500mm) please refer to TOLCO Fig. 1001.

Material: Steel

Function: A restraint device intended for lateral bracing.

Features: Field adjustable, making critical pre-engineering of bracing pipe unnecessary. Unique design requires no threading of bracing pipe. Steel leaf spring insert provided to assure installer and inspector necessary minimum torque has been achieved.

Installation: Fig. 1000 is the "braced pipe" attachment component of a lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO structural attachment component, Fig. 980, 910, 909 or other approved TOLCO component to form a complete bracing assembly. Follow NFPA 13 guidelines.

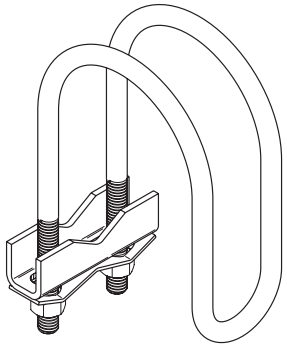
To Install: Place the Fig. 1000 over the pipe to be braced, insert bracing pipe through opening leaving a minimum of 1" extension. Brace pipe can be installed on top or bottom of pipe to be braced. Tighten hex nuts until leaf spring is flat. It is recommended that the brace angle be adjusted before hex nuts are fully tightened.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. Approved for use with engineered light wall sprinkler pipe up to 2" as a restraint device. Torque requirement is 6-8 ft./lbs. (8-10Nm). Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.
For FM Approval information refer to FM Approved page 201.

Application Note: Position Fast Clamp and tighten two hex nuts until leaf spring flattens. A minimum of 1" pipe extension beyond the Fig. 1000 is recommended.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

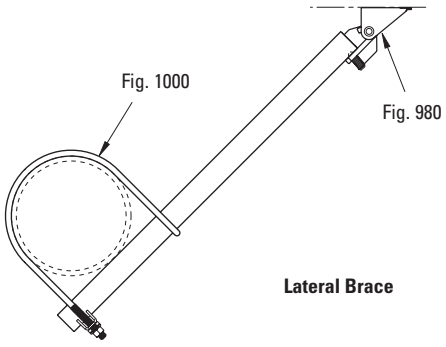
Order By: Order by figure number, pipe size to be braced, followed by pipe size used for bracing (1" (25mm) or 1¼" (32mm)) , and finish.



Hardware Included

*** UL Listed**
1" (25mm) thru 2" (50mm) pipe size

Pipe Size in. (mm)	Part Number & Approx. Wt./100 1" (24mm) Brace Pipe	Lbs. (kg)	1¼" (32mm) Brace Pipe	Lbs. (kg)
1" (25)	1000-1 X 1	71.6 (32.5)	1000-1 X 1¼	75.8 (34.4)
1¼" (32)	1000-1¼ X 1	74.8 (33.9)	1000-1¼ X 1¼	79.1 (35.9)
1½" (40)	1000-1½ X 1	77.8 (35.3)	1000-1½ X 1¼	82.1 (37.2)
2" (50)	1000-2 X 1	84.1 (38.1)	1000-2 X 1¼	88.4 (40.1)



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 1000 - "Fast Clamp" sway brace attachment (FM approved)

Size Range: Pipe size to be braced: 1" (25mm) thru 4" (100mm) 40 IPS. Pipe size used for bracing: 1" (25mm) and 1¼" (32mm) Schedule 40 IPS. For pipe sizes larger than 4" (100mm) please refer to TOLCO Fig. 1001.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance.

Features: Field adjustable, making critical pre-engineering of bracing pipe unnecessary. Unique design requires no threading of bracing pipe. Steel leaf spring insert provided to assure installer and inspector necessary minimum torque has been achieved.

Installation: Fig. 1000 is the "braced pipe" attachment component of a lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO structural attachment component, Fig. 980 or other approved TOLCO seismic brace to form a complete bracing assembly. Follow NFPA 13 guidelines.

To Install: Place the Fig. 1000 over the pipe to be braced, insert bracing pipe through opening leaving a minimum of 1" extension. Brace pipe can be installed on top or bottom of pipe to be braced. Tighten hex nuts until leaf spring is flat. It is recommended that the brace angle be adjusted before hex nuts are fully tightened.

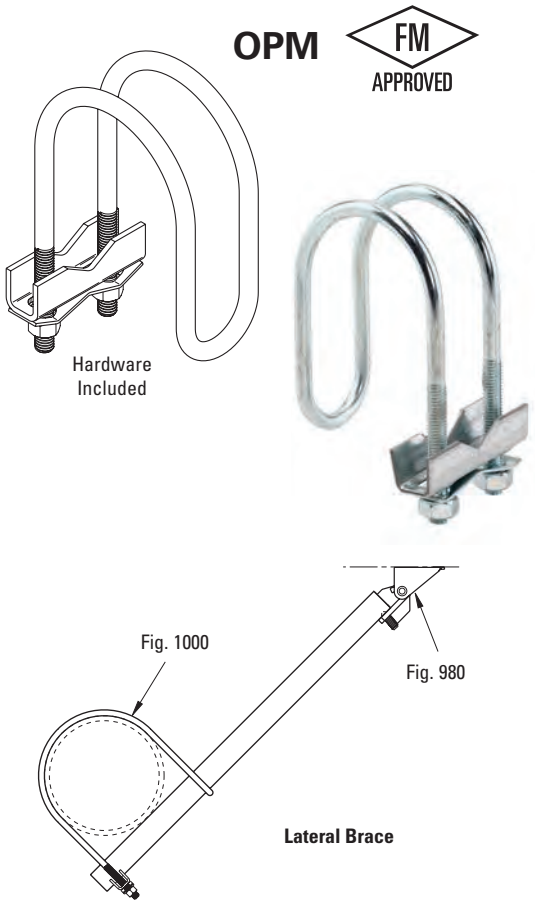
Approvals: Approved by Factory Mutual Engineering **(FM)**. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For UL Listed information refer to UL Listed page 200.

Application Note: Position Fast Clamp and tighten two hex nuts until leaf spring flattens. A minimum of 1" pipe extension beyond the Fig. 1000 is recommended.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Order by figure number, pipe size to be braced, followed by pipe size used for bracing (1" (25mm) or 1¼" (32mm)), and finish.

Designed to meet or exceed requirements of FM DS 2-8.



Pipe Size in. (mm)	Part Number & Approx. Wt./100 1" (24mm) Brace Pipe	Lbs. (kg)	1¼" (32mm) Brace Pipe	Lbs. (kg)	Design Load - Allowable Horizontal Capacity (lbf) Per Installation [1,2,3] 30°-44° Lbs. (kN)	45°-59° Lbs. (kN)	60°-74° Lbs. (kN)	75°-90° Lbs. (kN)
1" (25)	**1000-1 X 1**	71.6 (32.5)	**1000-1 X 1¼**	75.8 (34.4)	200 (0.89)	280 (1.24)	340 (1.51)	380 (1.69)
1¼" (32)	**1000-1¼ X 1**	74.8 (33.9)	**1000-1¼ X 1¼**	79.1 (35.9)	200 (0.89)	280 (1.24)	340 (1.51)	380 (1.69)
1½" (40)	**1000-1½ X 1**	77.8 (35.3)	**1000-1½ X 1¼**	82.1 (37.2)	200 (0.89)	280 (1.24)	340 (1.51)	380 (1.69)
2" (50)	**1000-2 X 1**	84.1 (38.1)	**1000-2 X 1¼**	88.4 (40.1)	200 (0.89)	280 (1.24)	340 (1.51)	380 (1.69)
2½" (65)	**1000-2½ X 1**	90.2 (40.9)	**1000-2½ X 1¼**	94.6 (42.9)	200 (0.89)	280 (1.24)	340 (1.51)	380 (1.69)
3" (80)	**1000-3 X 1**	97.3 (44.1)	**1000-3 X 1¼**	101.7 (46.1)	230 (1.02)	320 (1.42)	400 (1.78)	450 (2.00)
3½" (90)	**1000-3½ X 1**	104.0 (47.2)	**1000-3½ X 1¼**	108.4 (49.2)	230 (1.02)	320 (1.42)	400 (1.78)	450 (2.00)
4" (100)	**1000-4 X 1**	110.3 (50.0)	**1000-4 X 1¼**	114.6 (52.0)	230 (1.02)	320 (1.42)	400 (1.78)	450 (2.00)

[1] FM Approved when used with 1, 1¼, 1½, or 2 inch NPS Schedule 40 GB/T 3091,EN 10255H, or JIS G3451 steel pipe as the brace member.

[2] Load rating for LW above refers to FM Approved Lightwall Pipe commonly referred to as "Schedule 7". These ratings may also be applied when EN 10220 and GB/T 8163 steel pipe.

[3] Load rating for Schedule 10 above may be applied to GB/T 3092,EN 10255M and H, or JIS G3454, FM Approved Thinwall, or Schedule 40 steel pipes.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 2002 - sway brace attachment (UL listed)

Size Range: Pipe size to be braced: 2½" (65mm) thru 8" (200mm) all steel schedules. Consult factory when bracing other than steel. The Fig. 2002 accepts brace pipes sizes 1½" (40mm) and 2" (50mm) steel schedule 40.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance. The pipe attachment component of a sway brace system: Fig. 2002 is used in conjunction with a TOLCO™ Fig. 980 sway brace attachment and joined together with bracing pipe. Install per NFPA 13.

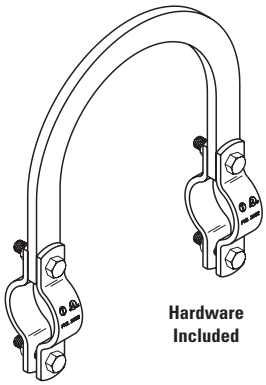
Features: Easy verification of proper installation by tightening bolts until ears touch.

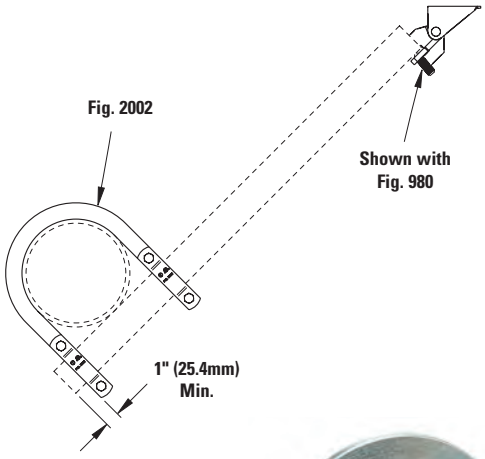
Installation: Place Fig. 2002 over pipe to be braced. Slide bracing pipe through attachment and tighten hex nuts until ears touch.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. UL Listed for the following sprinkler type pipes: Sch. 40 (and as brace member), Sch. 10, Bull Moose Eddy Flow, Wheatland Mega Flow, DIN 2448, KSD 3562 (and as brace member), KSD 3507. Ask the factory for additional information as it may vary by product size.

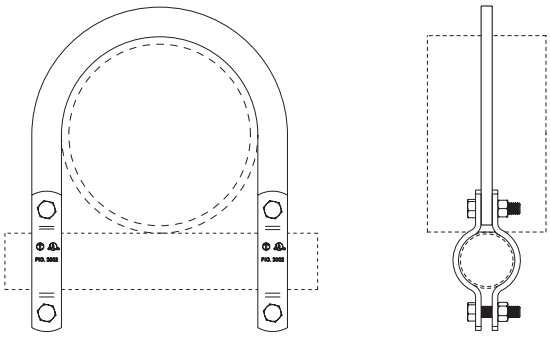
Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Figure number, pipe size to be braced, pipe size used for bracing (1½" (40mm) or 2" (50mm)) and finish.





Pipe Size in. (mm)	Part Number & Approx. Wt./100 1½" (32mm) Brace Pipe	Lbs.	(kg)	2" (50mm) Brace Pipe	Lbs.	(kg)	Design Load Lbs.	(kN)
2½" (65)	**2002-2½ X 1½**	260	(117.9)	**2002-2½ X 2**	283.3	(128.6)	2000	(8.89)
3" (80)	**2002-3 X 1½**	276	(125.2)	**2002-3 X 2**	299.4	(135.8)	2000	(8.89)
4" (100)	**2002-4 X 1½**	303	(137.4)	**2002-4 X 2**	326.8	(148.2)	2000	(8.89)
6" (150)	**2002-6 X 1½**	361	(163.7)	**2002-6 X 2**	385.0	(174.6)	2000	(8.89)
8" (200)	**2002-8 X 1½**	416	(188.7)	**2002-8 X 2**	439.7	(199.4)	2000	(8.89)

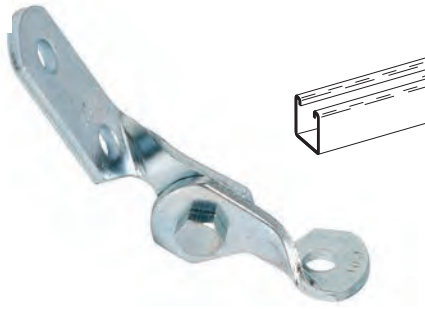


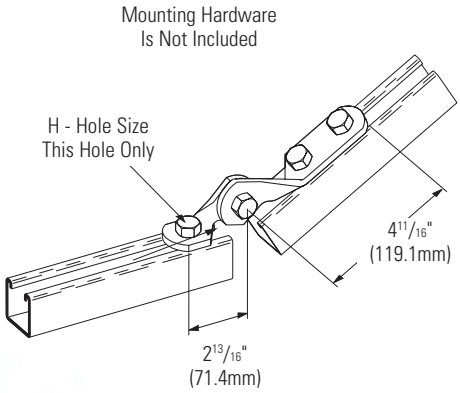
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B335-2 Series - three hole adjustable hinge

Function: For bracing strut channel trapeze supports.

Finish: Zinc Plated or Dura-Green™ paint.





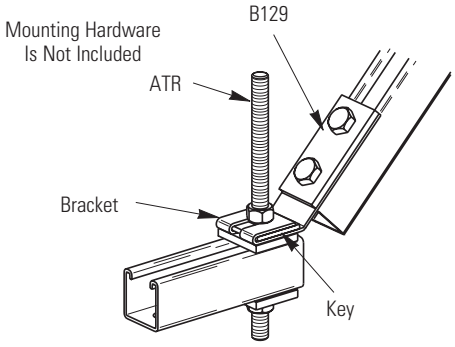
Part Number & Size	Hole Size H in.	(mm)	Approx. Wt./100 lbs.	(kg)
B335-2-3/8	1/2"	(11.1)	96	(43.2)
B335-2-1/2	9/16"	(14.3)	94	(42.3)
B335-2-5/8	11/16"	(17.4)	92	(41.4)
B335-2-3/4	13/16"	(20.6)	90	(40.6)

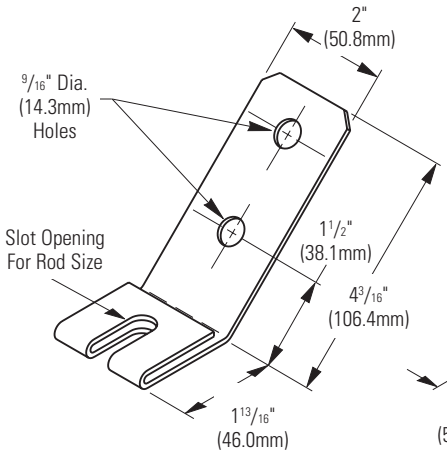
B650 Series - seismic retrofit bracket

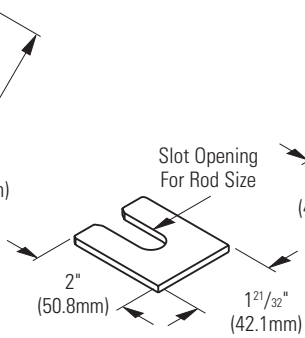
Function: Allows for bracing swivel in two planes.

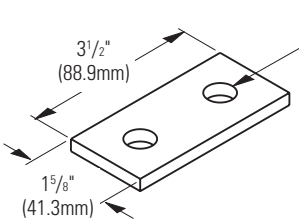
Application: Use ½" bolts & channel nuts on the two hole side of the fitting. (Torque to 50 ft.-lbs.)

Finish: Zinc Plated

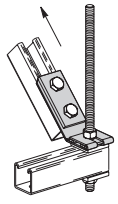




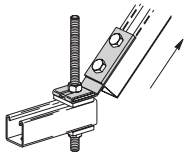




Part Number	Rod Size	TL in.	(kN)	LL in.	(kN)	Approx. Wt./100 lbs.	(kg)
B650-3/8	3/8"	1100	(4.89)	1100	(4.89)	92	(41.4)
B650-1/2	1/2"	1500	(6.67)	1500	(6.67)	97	(43.6)
B650-5/8	5/8"	1500	(6.67)	1500	(6.67)	95	(42.7)
B650-3/4	3/4"	1500	(6.67)	1500	(6.67)	107	(48.5)



Longitudal Load (LL)



Transverse Load (TL)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Fig. 74 - TOLCO structural attachment for branch line restraint assembly (UL listed)

Size Range: ⅜" and ½" all threaded rod (ATR)

Material: Steel

Function: Structural attachment for restraint (sway brace) or hanger assembly

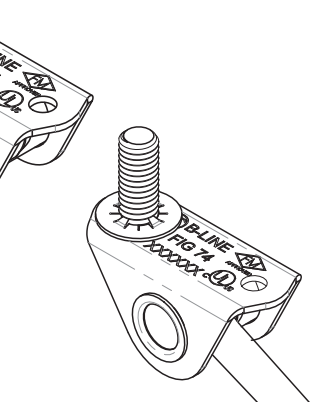
Features: The Fig. 74 has multiple sized fastener holes to accommodate multiple types of fasteners for various types of structures (concrete, wood and steel) see table below. It can be bent in the field to accommodate multiple angles, but is supplied fixed at 45° to accommodate the most common installation configuration. Its open design allows easy inspection to verify thread engagement. It will fit both ⅜" and ½" all thread rod to accommodate changing field conditions when longer brace material is required. It is UL listed both as a restraint and as a hanger attachment for up to 4" (IPS) pipe size.

Installation Instructions: Follow fastener manufacturer and NFPA 13 guidelines to install appropriate fastener for the structural type (i.e. concrete, wood, steel). Install all thread rod (brace member) to TOLCO™ Fig. 74 structural attachment. Bottom out ATR to ensure full thread engagement. This can be visually confirmed due to the open thread design. For more information visit our website for the most up to date instructions sheets.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. For FM Approval information refer to FM Approved page 205.

Finish: Pre-Galvanized.

Order By: Figure number.



Structural Attachment for Branch Line Restraint

Maximum Allowable Loads (UL Listed)

Part No.	⅜" Rod	½" Rod
Fig. 74	300 lbs.	300 lbs.

Loads shown are axial ASD loads.

Fasteners to use with Fig 76 (Up to 2" IPS pipe size) per NFPA 13

Structure Type	Fastener Type	Fastener Diameter	Fastener Embedment	NFPA 13 (2013 & 2016) Reference
Concrete	Through Bolt	⅜"	N/A	9.1.3.10.1
Concrete	Post Installed Anchors	Various	Various	9.1.3 - 9.1.3.8
Steel	Through Bolt	⅜"	N/A	9.1.4.5.1
Steel	Beam Clamp	⅜"	N/A	UL Listed Beam Clamp with Retaining Strap
Wood	(1) ⅜" lag screw	⅜"	2 ½"	9.1.5.3.1
Wood	(2) #10 wood screws	#10	1"	

All Thread Rod Maximum Restraint Lengths

Rod Size (in)	Root Dia. (in)	Least Radius of Gyration r (in)	Maximum Unbraced Length L - (in.) l/r=100	l/r=200	l/r=300	l/r=400†	Max. Horizontal Load @ 45° (lbs.)** l/r=100	l/r=200	l/r=300	l/r=400†
⅜	0.300	0.075	7	14	22	30	300	186	82	44
½	0.404	0.101	10	20	30	40	300‡	300‡	152	85

† l/r = 400 NFPA 13 2010, Sec 9.3.6.1 (5) † l/r = 400 NFPA 13 2013 & 2016,Sec 9.3.6.1 (5) & NFPA (2016) TABLE 9.3.11.8(a)(b)(c)(d)(e)(f)

**Per NFPA 13 (2013) Table 9.3.5.11.8 (a)(b)(c), consult for maximum allowable load information on ATR.

‡Max load governed by Fig. 74/77 Max horizontal load.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 7-13-21

Fig. 74 - TOLCO structural attachment for sway brace assembly (FM approved)

Size Range: ⅜" and ½" all threaded rod (ATR)

Material: Steel

Function: Structural attachment for restraint (sway brace) assembly

Features: The Fig. 74 has multiple sized fastener holes to accommodate multiple types of fasteners for various types of structures (steel, wood or concrete). It can be bent in the field to accommodate multiple angles, but is supplied fixed at 45° to accommodate the most common installation configuration. Its open design allows easy inspection to verify thread engagement. It will fit both ⅜" and ½" all thread rod to accommodate changing field conditions when longer brace material is required.

Installation Instructions: Follow fastener manufacturer and NFPA 13 guidelines to install appropriate fastener for the structural type (i.e. concrete, wood, steel). Install all thread rod (brace member) to TOLCO™ Fig. 74 structural attachment. Bottom out ATR to ensure full thread engagement. This can be visually confirmed due to the open thread design. For more information visit our website for the most up to date instructions sheets.

Approvals: Approved by Factory Mutual Engineering **(FM)**.

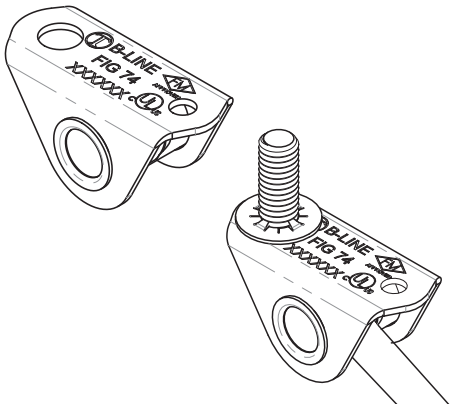
For UL Listed information refer to UL Listed page 204.

Finish: Pre-Galvanized.

Order By: Figure number.

FM APPROVED

Structural Attachment for Branch Line Restraint



Maximum Allowable Loads (FM Approved)

Part No.	30°-44° ⅜" Rod lbs.	30°-44° ½" Rod lbs.	45°-59° ⅜" Rod lbs.	45°-59° ½" Rod lbs.	60°-74° ⅜" Rod lbs.	60°-74° ½" Rod lbs.	75°-90° ⅜" Rod lbs.	75°-90° ½" Rod lbs.
Fig. 74	380	420	530	580	800	1,020	750	1,110

Loads shown are axial ASD loads.

Fasteners to use with Fig 76 (Up to 2" IPS pipe size) per NFPA 13

Structure Type	Fastener Type	Fastener Diameter	Fastener Embedment	NFPA 13 (2013 & 2016) Reference
Concrete	Through Bolt	⅜"	N/A	9.1.3.10.1
Concrete	Post Installed Anchors	Various	Various	9.1.3 - 9.1.3.8
Steel	Through Bolt	⅜"	N/A	9.1.4.5.1
Steel	Beam Clamp	⅜"	N/A	FM Approved Beam Clamp with Retaining Strap
Wood	(1) ⅜" lag screw	⅜"	2½"	9.1.5.3.1
Wood	(2) #10 wood screws	#10	1"	

All Thread Rod Maximum Restraint Lengths

Rod Size (in)	Root Dia. (in)	Least Radius of Gyration r (in)	Maximum Unbraced Length L - (in.) l/r=100	l/r=200	l/r=300	l/r=400†	Max. Horizontal Load @ 45° (lbs.)** l/r=100	l/r=200	l/r=300	l/r=400†
⅜	0.300	0.075	7	14	22	30	300	186	82	44
½	0.404	0.101	10	20	30	40	300‡	300‡	152	85

† l/r = 400 NFPA 13 2010, Sec 9.3.6.1 (5) † l/r = 400 NFPA 13 2013 & 2016,Sec 9.3.6.1 (5) & NFPA (2016) TABLE 9.3.11.8(a)(b)(c)(d)(e)(f)

**Per NFPA 13 (2013) Table 9.3.5.11.8 (a)(b)(c), consult for maximum allowable load information on ATR.

‡Max load governed by Fig. 74/77 Max horizontal load.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Updated 7-13-21

TOLCO Fig. 77 - system piping attachment for restraint assembly (UL listed) For CPVC & steel pipe

Size Range: ⅜" and ½" all threaded rod (ATR)

Material: Steel

Function: System attachment for restraint (sway brace) assembly

Features: The Fig. 77 is UL Listed to be used with both (IPS) steel and CPVC fire sprinkler pipe, in 1" through 2" diameters. It fits multiple rod diameters allowing for field adjustment if longer brace material is needed. Its sturdy break-off bolt will not strip and verifies proper installation. Its snap on design has many advantages. It can be installed with one-hand, can easily position the brace all thread rod over the top of the pipe being braced or underneath the pipe being braced to accommodate the desired brace angle. It can be fixed in place or moved to a new location by sliding along the pipe or snapping on or off and relocating. An entire prefabricated assembly (Fig. 74 & 77 joined with ATR) can be pre-assembled to save time and labor and later be field installed and adjusted to fit.

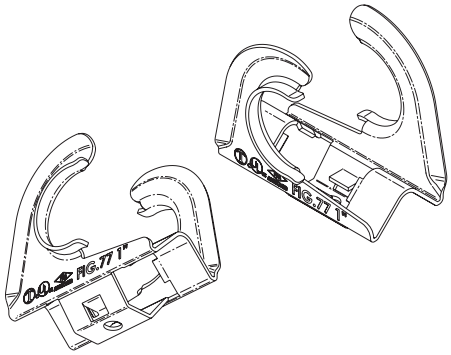
Installation Instructions: Install TOLCO™ Fig. 77 system attachment to sprinkler pipe branch line to be restrained. You can position with the rod engagement either above or below the sprinkler pipe. Rod must extend a min. of 1" (25.4) past the edge of the Fig. 77. The attachment can be slid along the pipe to position close to where the Fig. 74 structural attachment will be fastened to the structure. The snap on design allows maximum adjustability during this stage of the installation process. Engage ATR (previously attached to the Fig. 74 structural attachment to the rod engagement portion of the Fig. 77 system attachment. Tighten set bolt on Fig. 77 system attachment until head breaks off verifying proper installation torque. For more information visit our website for the most up to date instructions sheets.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. For FM Approved information refer to FM Approved page 207.

Finish: Pre-Galvanized.

Order By: Figure number and pipe size.

Pipe Attachment for Branch Line Restraint
Patent Pending



Part No.	Pipe Size in.	(mm)	Max.Design Loads (UL Listed) ⅜" Rod lbs.	(kN)	½" Rod lbs.	(kN)
77-1	1	(25)	300	(1.33)	300	(1.33)
77-1¼	1¼	(32)				
77-1½	1½	(40)				
77-2	2	(50)				

* These loads apply to IPS steel, Sch.10, Sch. 40, engineered lightwall piping, and CPVC plastic pipe. Loads shown are axial ASD loads.

§ All other trademarks are property of their respective owners.

All Thread Rod Maximum Restraint Lengths

Rod Size in.	Root Dia. in.	(mm)	Least Radius of Gyration r in.	(mm)	Maximum Unbraced Length L - (in.) l/r=100 in.	(mm)	l/r=200 in.	(mm)	l/r=300 in.	(mm)	l/r=400† in.	(mm)	Max. Horizontal Load @ 45° (lbs.)** l/r=100 lbs.	(kN)	l/r=200 lbs.	(kN)	l/r=300 lbs.	(kN)	l/r=400† lbs.	(kN)
⅜-16	0.300	(7.6)	0.075	(1.9)	7	(177.8)	14	(355.6)	22	(558.8)	30	(763.0)	300	(1.33)	186	(0.82)	82	(0.36)	44	(0.19)
½-13	0.404	(10.2)	0.101	(2.5)	10	(254.0)	20	(508.0)	30	(762.0)	40	(1016.0)	300‡	(1.33)‡	300‡	(1.33)‡	152	(0.67)	85	(0.38)

† l/r = 400 NFPA 13 2010, Sec 9.3.6.1 (5) † l/r = 400 NFPA 13 2013 & 2016,Sec 9.3.6.1 (5) & NFPA (2016) TABLE 9.3.11.8(a)(b)(c)(d)(e)(f)

**Per NFPA 13 (2013) Table 9.3.5.11.8 (a)(b)(c), consult for maximum allowable load information on ATR.

‡Max load governed by Fig. 74/77 Max horizontal load.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 77 - system piping attachment for sway brace assembly (FM approved) For CPVC & steel pipe

Size Range: ⅜" and ½" all threaded rod (ATR)

Material: Steel

Function: System attachment for restraint

Features: The Fig. 77 is to be used with both (IPS) steel and CPVC fire sprinkler pipe, in 1" through 2" diameters. It fits multiple rod diameters allowing for field adjustment if longer brace material is needed. Its sturdy break-off bolt will not strip and verifies proper installation. Its snap on design has many advantages. It can be installed with one-hand, can easily position the brace all thread rod over the top of the pipe being braced or underneath the pipe being braced to accommodate the desired brace angle. It can be fixed in place or moved to a new location by sliding along the pipe or snapping on or off and relocating. An entire prefabricated assembly (Fig. 74 & 77 joined with ATR) can be pre-assembled to save time and labor and later be field installed and adjusted to fit.

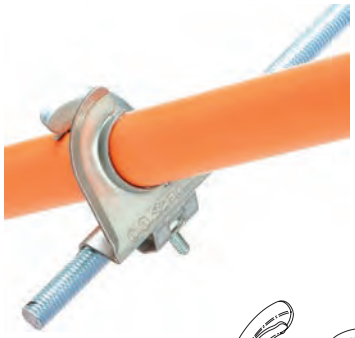
Installation Instructions: Install TOLCO™ Fig. 77 system attachment to sprinkler pipe branch line to be restrained. It can be positioned with the rod engagement either above or below the sprinkler pipe. Rod must extend a min. of 1" past the edge of the Fig. 77. The attachment can be slid along the pipe to position close to where the Fig. 74 structural attachment will be fastened to the structure. The snap on design allows maximum adjustability during this stage of the installation process. Engage ATR (previously attached to the Fig. 74 structural attachment to the rod engagement portion of the Fig. 77 system attachment. Tighten set bolt on Fig. 77 system attachment until head breaks off verifying proper installation torque. For more information visit our website for the most up to date instructions sheets.

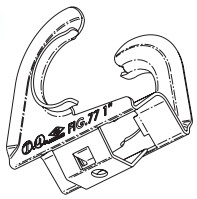
Approvals: Approved by Factory Mutual Engineering **(FM)**.
For UL Listed information refer to UL Listed page 206.

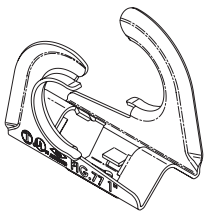
Finish: Pre-Galvanized.

Order By: Figure number and pipe size.

Pipe Attachment for Restraint (Sway Brace)
Patent Pending







Part No.	Pipe Size	Maximum Allowable Loads (FM Approved)* 30°-44°		45°-59°		60°-74°		75°-90°	
		⅜" Rod	½" Rod	⅜" Rod	½" Rod	⅜" Rod	½" Rod	⅜" Rod	½" Rod
	in. (mm)	lbs. (kN)	lbs. (kN)	lbs. (kN)	lbs. (kN)	lbs. (kN)	lbs. (kN)	lbs. (kN)	lbs. (kN)
77-1	1 (25)	140 (0.62)	160 (0.71)	200 (0.89)	230 (1.02)	250 (1.11)	280 (1.24)	280 (1.24)	320 (1.42)
77-1¼	1¼ (32)	140 (0.62)	170 (0.75)	200 (0.89)	250 (1.11)	250 (1.11)	300 (1.33)	280 (1.24)	340 (1.51)
77-1½	1½ (40)	130 (0.58)	160 (0.62)	190 (0.84)	230 (1.02)	230 (1.02)	280 (1.24)	260 (1.15)	320 (1.42)
77-2	2 (50)	120 (0.53)	150 (0.67)	170 (0.75)	210 (0.93)	210 (0.93)	260 (1.15)	240 (1.07)	290 (1.29)

* Loads shown are axial ASD loads.

All Thread Rod Maximum Restraint Lengths

Rod Size	Root Dia.	Least Radius of Gyration r	Maximum Unbraced Length L - (in.)				Max. Horizontal Load @ 45° (lbs.)**			
			l/r=100	l/r=200	l/r=300Δ	l/r=400†Δ	l/r=100	l/r=200	l/r=300Δ	l/r=400†Δ
in.	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	lbs. (kN)	lbs. (kN)	lbs. (kN)	lbs. (kN)
⅜-16	0.300 (7.6)	0.075 (1.9)	7 (177.8)	14 (355.6)	22 (558.8)	30 (763.0)	300 (1.33)	186 (0.82)	82 (0.36)	44 (0.19)
½-13	0.404 (10.2)	0.101 (2.5)	10 (254.0)	20 (508.0)	30 (762.0)	40 (1016.0)	300‡ (1.33)‡	300‡ (1.33)‡	152 (0.67)	85 (0.38)

† l/r = 400 NFPA 13 2010, Sec 9.3.6.1 (5) † l/r = 400 NFPA 13 2013 & 2016,Sec 9.3.6.1 (5) & NFPA (2016) TABLE 9.3.11.8(a)(b)(c)(d)(e)(f)

Δ l/r = 300 for bracing

Δ l/r = 400 for restraint

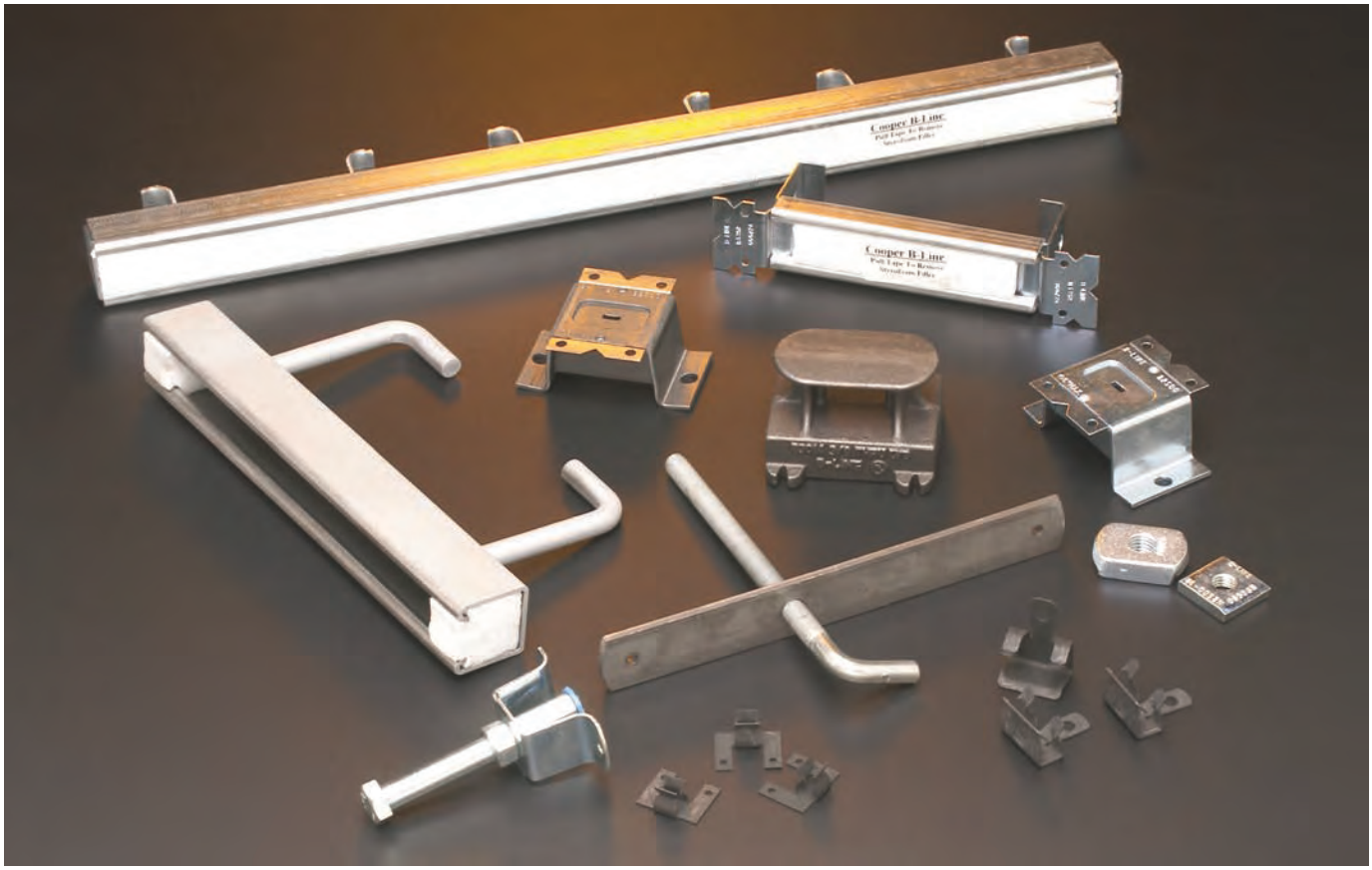
**Per NFPA 13 (2013) Table 9.3.5.11.8 (a)(b)(c), consult for maximum allowable load information on ATR.

‡Max load governed by Fig. 74/77 Max horizontal load.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Concrete Inserts



Concrete inserts offered in this section are designed to provide a pre-set support point in concrete ceilings, walls, and floors. A range of inserts with varying design loads are available.

Materials
Carbon Steel and Malleable Iron are used in the manufacture of concrete inserts. Stainless Steel and other materials are available.

Finishes
The standard finishes for mechanical supports are plain steel (oil coated) sometimes referred to as black and Electro-Galvanized Zinc (ASTM B633 SC3). Hot-Dip Galvanized After Fabrication (ASTM A123), Red Primer, Plastic Coating, DURA GREEN™ and other special coatings are available upon request.

Approvals (as noted)
Items in this section are Underwriters Laboratories Listed and comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58.

B3019 - Adjustable Metal Deck Ceiling Bolt

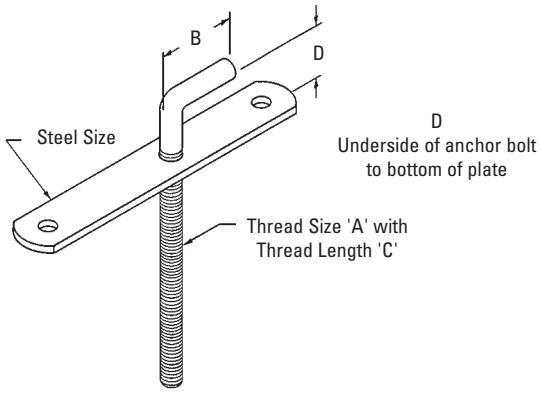
Size Range: 3/8"-16 thru 3/4"-10 rod

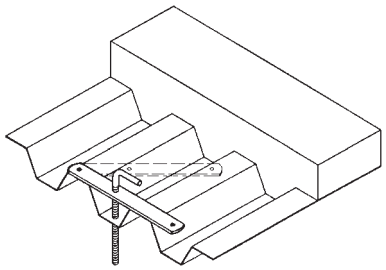
Material: Steel

Function: For use in metal deck formed concrete to attach hanger rods. Allows for pre-positioning of hanger rods in poured concrete decks.

Finish: Plate: Plain Steel. Rod: Electro-Galvanized. Contact Cooper B-Line for alternative finishes and materials.

Order By: Part number and finish. Contact customer service for custom rod lengths.





Part No.	Thread Size A	B in.	B (mm)	Thread Length C in.	Thread Length C (mm)	D in.	D (mm)	Steel Size in.	Steel Size (mm)	Design Load Lbs	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3019-3/8	3/8"-16	2 1/2"	(63.5)	6 3/8"	(161.9)	1 1/4"	(31.7)	7 Ga. x 1 1/4" x 10"	(4.5 x 31.7 x 254.0)	730	(3.25)	80	(36.3)
B3019-1/2	1/2"-13	2 1/2"	(63.5)	6 1/2"	(165.1)	1 1/4"	(31.7)	7 Ga. x 1 1/4" x 10"	(4.5 x 31.7 x 254.0)	1350	(6.00)	99	(44.9)
B3019-5/8	5/8"-11	2 1/2"	(63.5)	6 3/4"	(171.4)	1 1/4"	(31.7)	7 Ga. x 1 1/4" x 10"	(4.5 x 31.7 x 254.0)	2160	(9.61)	129	(58.5)
B3019-3/4	3/4"-10	2 1/2"	(63.5)	6 3/16"	(157.2)	2 1/4"	(57.1)	1/4" x 3" x 10"	(6.3 x 76.2 x 254.0)	3230	(14.37)	238	(107.9)

B2499 - Concrete Insert

Size Range: 5/8"-11 thru 1 1/2"-6 rod

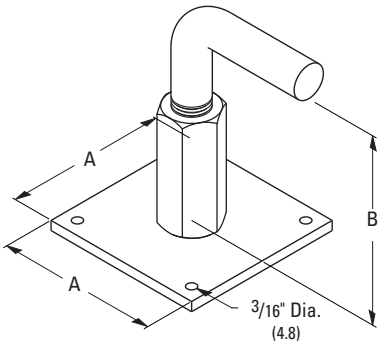
Material: Steel

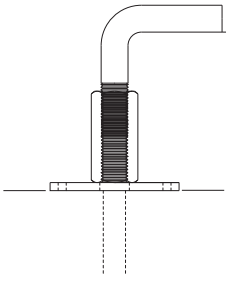
Function: Designed to be embedded in concrete to provide a point of support for 5/8"-11 thru 1 1/2"-6 rod or bolt sizes .

Finish: Plain anchor bolt with Electro-Galvanized coupling. Contact B-Line for alternative finishes and materials.

Note: For rod sizes 3/8"-16 and 1/2"-13, refer to B2501 see page 198.

Order By: Part number and rod size.
For 1 1/8"-7, 1 1/4"-6, and 1 1/2"-6 consult factory.





Part No.	Rod Size	A in.	A (mm)	Min. Embedment B in.	Min. Embedment B (m)	Max. Recommended Loads (In 3000 lb. (13.34kN) Hard Rock Concrete) lbs.	Max. Recommended Loads (In 3000 lb. (13.34kN) Hard Rock Concrete) (kN)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
B2499-5/8	5/8"-11	3"	(76.2)	3 1/2"	(88.9)	1810	(8.05)	118.0	(53.5)
B2499-3/4	3/4"-10	3"	(76.2)	3 1/2"	(88.9)	2710	(12.05)	154.0	(69.8)
B2499-7/8	7/8"-9	3"	(76.2)	4"	(101.6)	3770	(16.77)	210.0	(95.3)
B2499-1	1"-8	3"	(76.2)	4"	(101.6)	4960	(22.06)	276.0	(125.2)

Consult factory for specifications on rod sizes 1 1/8"-7, 1 1/4"-6, and 1 1/2"-6

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 109DD - DDI+™ † - Concrete Deck Insert - Hanger Application

Size Range: 3/8"-16 thru 7/8"-9 rod

Material: Steel

Function: For use in concrete filled metal deck (20 GA. min.) assemblies (i.e. pan deck, Q-deck) applications. After installation, the threaded male hanger of the insert protrudes below the surface of the deck. The threaded bolt offers adjustability for precise height requirements and guarantees the minimum embedment depth. The longer plate enables a variety of installation locations across the deck. Pre-mounted drill screws included for installation.

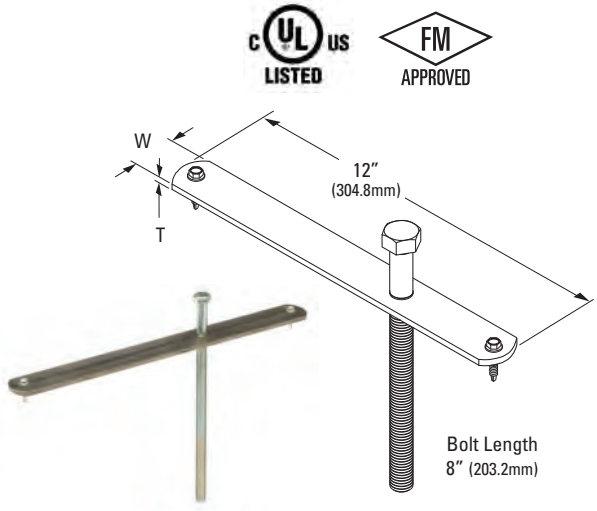
Approvals: International Code Council, Evaluation Service **(ICC-ES)**, ESR-3958 for concrete, for 3/8"-16 thru 5/8"-11″ anchor sizes. Approved for seismic and wind loading.
UL (Underwriters Laboratories) Listed
FM (Factory Mutual) Approved

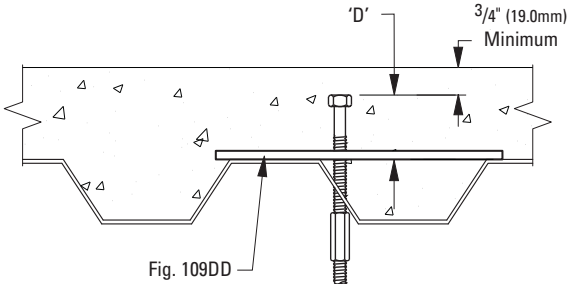
Finish: Plate: Plain Steel. Rod: Electro-Galvanized.

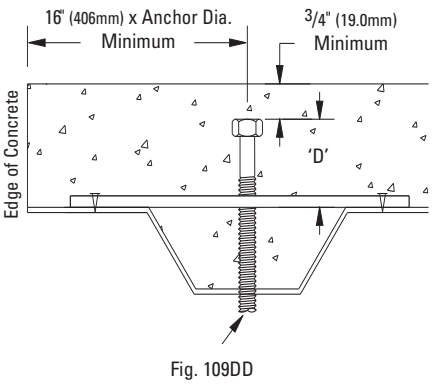
Order By: Figure number, rod size and finish.

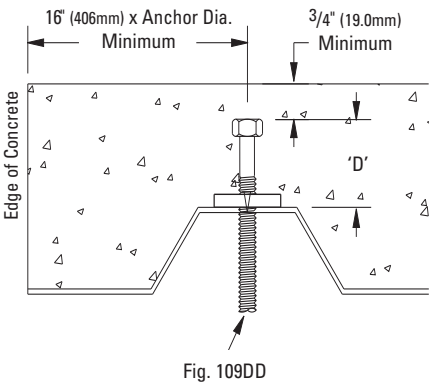
Applications Per NFPA 13 (2010): UL Listed as a component of a hanger assembly per Section 9.1.1.4.1
See dimensions and installation Detail below.

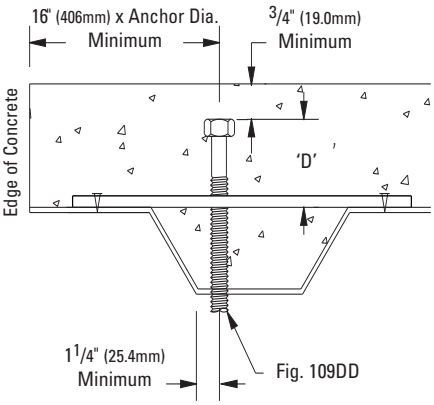
Note: Fig. 109DD replaces Fig. 109A which has been discontinued.











Part No.	Rod Size	T in.	T (mm)	W in.	W (mm)	Max. Vertical Load lbs.	Max. Vertical Load (kn)	'D' Min. Anchor Embedment Depth in.	'D' Min. Anchor Embedment Depth (mm)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
109DD-3/8	3/8"-16	3/16"	(4.7)	1 1/4"	(31.7)	467	(2.08)	2 1/2"	(63.5)	98.1	(44.5)
109DD-1/2	1/2"-13	3/16"	(4.7)	1 1/4"	(31.7)	680	(3.02)	2 1/2"	(63.5)	112.8	(51.1)
109DD-5/8	5/8"-11	3/16"	(4.7)	1 1/4"	(31.7)	647	(2.88)	2 1/2"	(63.5)	139.3	(63.2)
109DD-3/4	3/4"-10	3/8"	(9.5)	2"	(50.8)	612	2.72)	2 1/2"	(63.5)	112.8	(153.6)
109DD-7/8	7/8"-9	3/8"	(9.5)	2"	(50.8)	577	(2.56)	2 1/2"	(63.5)	381.2	(172.9)

NOTES:

1. Mounting holes are standard. If the plate is not mechanically secured to the deck ribs, a jam nut is required to prevent the anchor bolt from laying over when concrete is poured. There is no structural strength added from the use of a mechanical fastener to hold the product in place before the pour.
2. Minimum spacing between inserts shall be not less than 3 times the embedment depth or 12 times the anchor diameter (whichever is greater)

† DDi+™ is a registered trademark used by DEWALT®

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 109DD-DDI+™ † - Concrete Deck Insert - Brace Application

Size Range: 3/8"-16 thru 7/8"-9 rod

Material: Steel

Function: For use in concrete filled metal deck (20 GA. min.) assemblies (i.e. pan deck, Q-deck) applications. After installation, the threaded male hanger of the insert protrudes below the surface of the deck. The threaded bolt offers adjustability for precise height requirements and guarantees the minimum embedment depth. The longer plate enables a variety of installation locations across the deck. Pre-mounted drill screws included for installation.

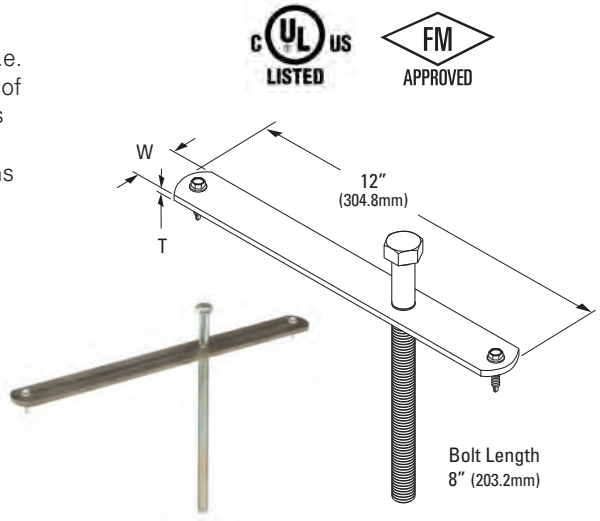
Approvals: International Code Council, Evaluation Service **(ICC-ES)**, ESR-3958 for concrete, for 3/8"-16 thru 5/8"-11" anchor sizes.
Approved for seismic and wind loading.
UL (Underwriters Laboratories) Listed
FM (Factory Mutual) Approved

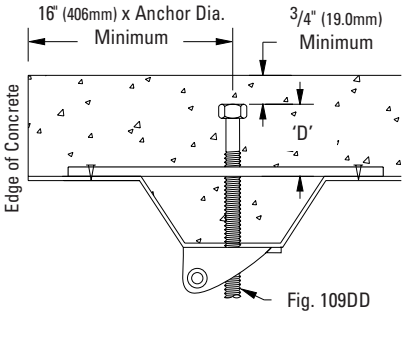
Finish: Plate: Plain Steel. Rod: Electro-Galvanized.

Order By: Figure number, rod size and finish.

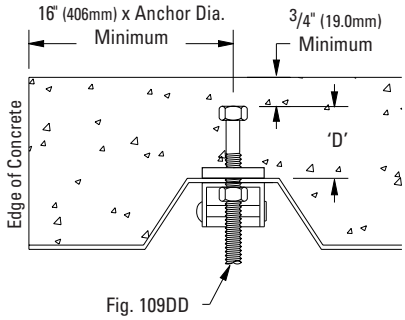
Applications Per NFPA 13 (2010): UL Listed as a component of a hanger assembly per Section 9.1.1.4.1
See dimensions and installation Detail below.

Note: Fig. 109DD replaces Fig. 109A which has been discontinued.

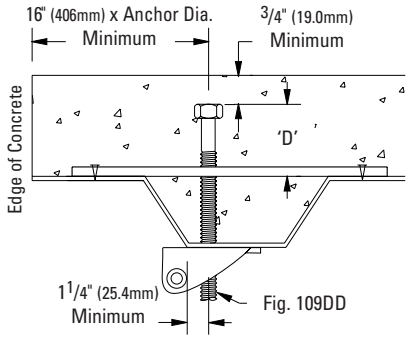




Detail 1



Detail 2



Detail 3

Part No.	Rod Size	T in.	T (mm)	W in.	W (mm)	Details 1 & 2 Max. Horizontal Load Brace At 45° lbs.	Details 1 & 2 (kN)	Detail 3 Max. Horizontal Load Brace At 45° lbs.	Detail 3 (kN)	'D' Min. Anchor Embedment Depth in.	'D' (mm)	Approx. Wt./100 lbs.	Wt. (kg)
109DD-3/8	3/8"-16	3/16"	(4.7)	1 1/4"	(31.7)	311	(1.38)	257	(1.14)	2 1/2"	(63.5)	98.1	(44.5)
109DD-1/2	1/2"-13	3/16"	(4.7)	1 1/4"	(31.7)	424	(1.89)	332	(1.48)	2 1/2"	(63.5)	112.8	(51.1)
109DD-5/8	5/8"-11	3/16"	(4.7)	1 1/4"	(31.7)	482	(2.14)	363	(1.61)	2 1/2"	(63.5)	139.3	(63.2)
109DD-3/4	3/4"-10	3/8"	(9.5)	2"	(50.8)	482	(2.14)	363	(1.61)	2 1/2"	(63.5)	338.7	(153.6)
109DD-7/8	7/8"-9	3/8"	(9.5)	2"	(50.8)	482	(2.14)	363	(1.61)	2 1/2"	(63.5)	381.2	(172.9)

Seismic bracing design load calculated in compliance with the requirements of IBC 2015 / CBC 2016.

NOTES:
1. Mounting holes are standard. If the plate is not mechanically secured to the deck ribs, a jam nut is required to prevent the anchor bolt from laying over when concrete is poured. There is no structural strength added from the use of a mechanical fastener to hold the product in place before the pour.
2. Minimum spacing between inserts shall be not less than 3 times the embedment depth or 12 times the anchor diameter (whichever is greater)

† DDi+™ is a registered trademark used by DEWALT®

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B2500 - Light Duty Spot Insert

Material: Steel

Function: Designed to be embedded in concrete to attach 1/4"-20 to 7/8"-9 hanger rods.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the knockout can be removed from the insert. The N2500 insert nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert but should not be forced further to avoid damaging the insert.

Approvals: Underwriters Laboratories Listed for maximum pipe size 6" (150). Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 19 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

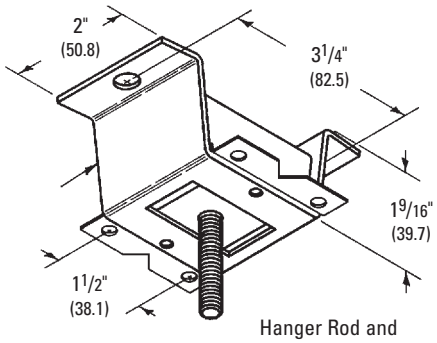
Weight: Approx. Wt./100 - 46 Lbs. (20.8kg)

Finish: Electro-Galvanized.

Order By: Part number and finish.
(Order N2500 nuts separately).

Design Load: Loading based on a straight pull of 600 Lbs. (2.67kN).

Note: Before installation ensure that concrete is sufficient to carry the load.



Hanger Rod and Nut Not Included

Material Thickness
12 Gauge (2.6)

N2500 - Steel Insert Nut

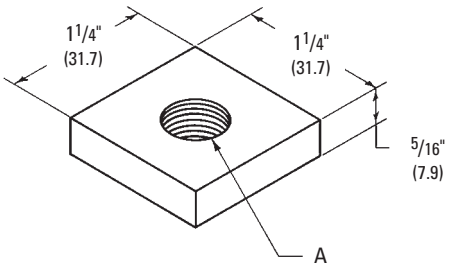
Size Range: 1/4"-20 through 7/8"-9.

Material: Steel

Function: Designed for use with B2500 spot insert.

Finish: Plain or Electro-Galvanized.

Order By: Part number and size.



Part No.	Tap Size A	Approx. Wt./100 Lbs.	(kg)
N2500-1/4	1/4"-20	14	(6.3)
N2500-3/8	3/8"-16	13	(5.9)
N2500-1/2	1/2"-13	12	(5.4)
N2500-5/8	5/8"-11	11	(5.0)
N2500-3/4	3/4"-10	11	(5.0)
N2500-7/8	7/8"-9	10	(4.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3014 - Malleable Iron Insert

Material: Malleable Iron

Function: Designed to be embedded in concrete to attach 3/8"-16 to 7/8"-9 hanger rods.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the B3014N nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

Approvals: Underwriters Laboratories Listed when used with B3014N Insert Nut. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 18 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

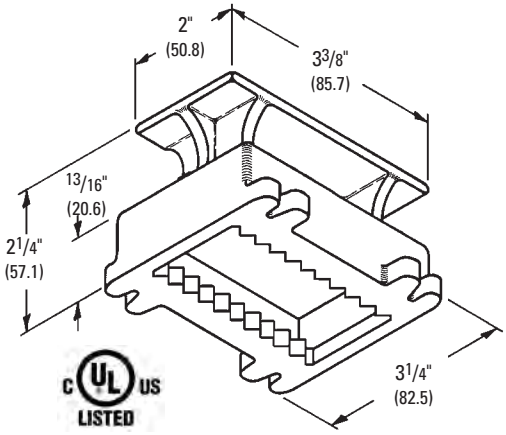
Weight: Approx. Wt./100 - 166 Lbs. (75.3kg)

Finish: Plain or Electro-Galvanized.

Order By: Part number and finish.
(Order B3014N nuts separately).

Design Load: Design Loads based on B3014N malleable iron insert nut below.

Note: Before installation ensure that concrete is sufficient to carry the load.



Horizontal Adjustment:
For 3/8"-16, 1/2"-13, 5/8"-11 rods - Adjustment is 1 3/4" (44.4)
For 3/4"-10, 7/8"-9 rods - Adjustment is 1 3/16" (30.2)

B3014N - Malleable Iron Insert Nut

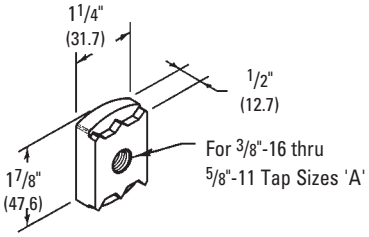
Size Range: 3/8"-20 through 7/8"-9.

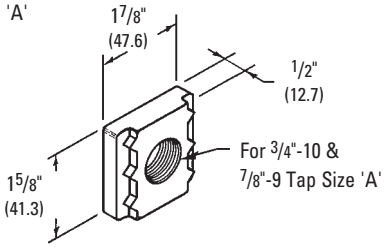
Material: Malleable Iron

Standard Finish: Plain or Electro-Galvanized

Service: Designed for use with the B3014 malleable iron insert shown above.

Ordering: Part number and finish.





Part No.	Tap Size 'A'	UL Max. Pipe Size	Design Load* Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3014N-3/8	3/8"-16	4"	730	(3.25)	22	(10.0)
B3014N-1/2	1/2"-13	8"	1350	(6.00)	22	(10.0)
B3014N-5/8	5/8"-11	10"	1400	(6.23)	20	(9.1)
B3014N-3/4	3/4"-10	10"	1400	(6.23)	29	(13.1)
B3014N-7/8	7/8"-9	10"	1400	(6.23)	29	(13.1)

* When used with B3014 Malleable Iron Insert.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B2501 - Light Duty Spot Insert - Hanger Application

Size Range: 3/8"-16 & 1/2"-13 rod

Material: Steel

Standard Finish: Electro-Plated

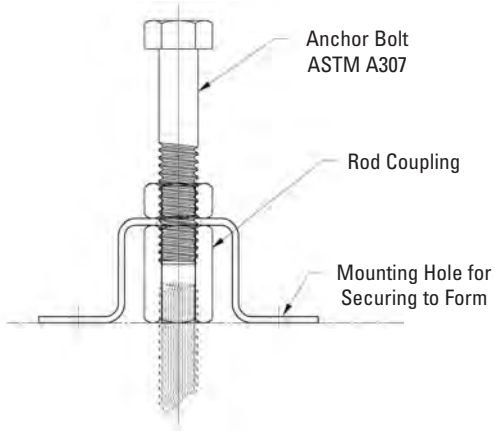
Approvals: 3/8" & 1/2" rod sizes are Underwriters Laboratories listed in the USA **(UL)** and Canada **(cUL)**.

Service: Designed to be embedded in concrete for attachment of 3/8"-16 & 1/2"-13 hanger rods.

Ordering: Specify part number and size.

How to Install: Locate and nail to form. Pour concrete and strip forms when set. Remove color coded plug, install rod and lock with jam nut.

Note: Design load is based off of rod sizes. Before installation ensure that concrete is sufficient to carry the load.



B2501 - Data

Part No.	Rod Size	UL Listed	Approx. Wt./C Lbs.	(kg)
B2501-3/8	3/8"-16	Up to 4" IPS	22	(10.0)
B2501-1/2	1/2"-13	Up to 8" IPS	26	(11.8)

B2505 thru B2508 - Spot Insert

Material: Steel (Stainless steel available on B2505 only)

Standard Finish: Plain or Pre-Galvanized

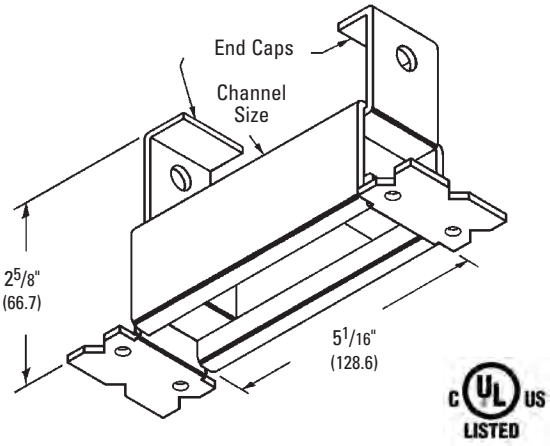
Function: Designed to be embedded in concrete to attach 1/4"-20 to 7/8"-9 hanger rods.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the channel nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

Approvals: Underwriters Laboratories Listed. Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

Order By: Part number and finish. When supporting 10" (254mm) pipe, order B2505 Insert with 5/8"-11 channel nuts.

Note: For appropriate channel nut selection, see page 18. Before installation ensure that concrete is sufficient to carry the load.



Styrofoam Filled

Part No.	Channel Size	End Cap Part No.	Design Load Lbs.	(kN)	Max. Pipe Size in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B2505	B22	B3322	1200	(5.34)	10"	(250)	96	(43.5)
B2506	B32	B3332	1000	(4.45)	8"	(200)	88	(39.9)
B2508	B52	B3352	1000	(4.45)	8"	(200)	69	(31.3)

B2506 shown

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B2503 - Heavy Duty Spot Insert

Material: Steel

Standard Finish: Electro-Galvanized

Function: Designed to be embedded in concrete where heavy loads are required in curtain wall applications. Styrofoam end caps prevent concrete seepage into the channel.

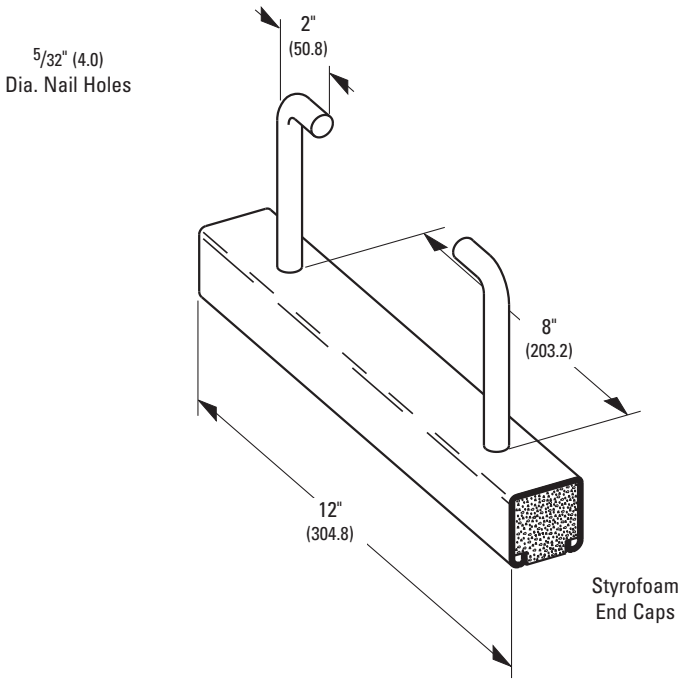
How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the channel nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

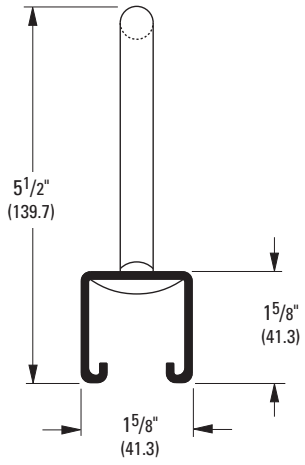
Approvals: Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

Design Load: 5000 Lbs. (22.2kN).
Loading based on two N225 channel nuts spaced 3" (76.2mm) on center and a minimum of 2" (50.8mm) from the end of the insert.

Weight: Approx. Wt./100 - 42 Lbs. (19.0kg)

Order By: Part number and finish. Channel nuts are sold separately, see page 18 for appropriate selection.





All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B22I - Continuous Concrete Insert

Material: Steel

Standard Finish: Plain, Pre-Galvanized, or Hot-Dip Galvanized

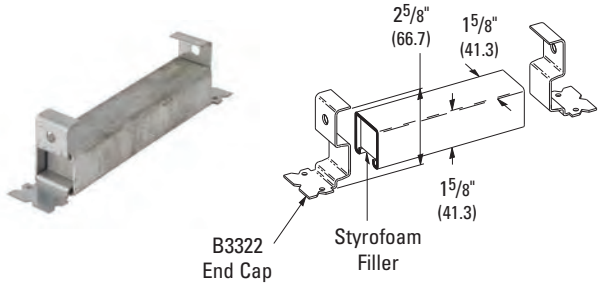
Function: Concrete insert should be secured to forms on 16" (406.4mm) to 24" (609.6mm) intervals.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the channel nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

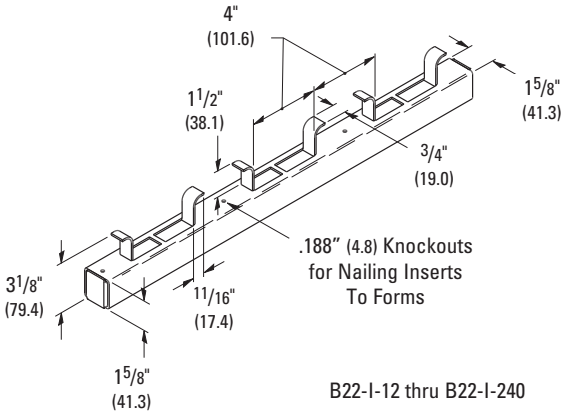
Approvals: Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

Design Load: 2000 Lbs. (8.89kN) per foot for B22-I-12 thru B22-I-240 in 3000 psi concrete. Loads concentrated within the last 2" (50.8mm) of inserts 8" (203.2mm) and longer should not exceed 1000 Lbs. (4.45kN).

Order By: Part number and finish. Channel nuts are sold separately, see page 18 for appropriate selection.
To order inserts without styrofoam and end caps add insert only to the part number.

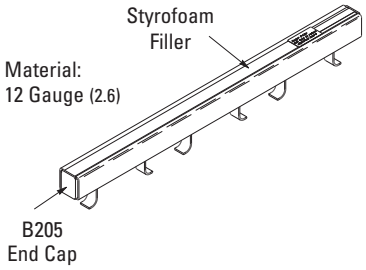


B22-I-3 thru B22-I-8



B22-I-12 thru B22-I-240

Part No.	Length in.	(mm)	Approx. Wt./100 Lbs.	(kg)	Design Load Lbs.	(kN)
B22-I-3	3"	(76)	72	(32.6)	500	(2.22)
B22-I-4	4"	(101)	88	(39.9)	800	(3.56)
B22-I-6	6"	(152)	120	(54.4)	1000	(4.45)
B22-I-8	8"	(203)	152	(68.9)	1200	(5.34)



Part No.	Length in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B22-I-12	12"	(305)	224	(101.6)
B22-I-16	16"	(406)	289	(131.1)
B22-I-20	20"	(508)	353	(160.1)
B22-I-24	24"	(609)	420	(190.5)
B22-I-32	32"	(813)	553	(250.8)
B22-I-36	36"	(914)	620	(281.2)
B22-I-40	40"	(1016)	686	(311.1)
B22-I-48	48"	(1219)	820	(371.9)
B22-I-60	60"	(1524)	1018	(461.7)
B22-I-72	72"	(1829)	1218	(552.5)
B22-I-84	84"	(2133)	1417	(642.7)
B22-I-96	96"	(2438)	1616	(733.0)
B22-I-108	108"	(2743)	1816	(823.7)
B22-I-120	120"	(3048)	2016	(914.4)
B22-I-144	144"	(3657)	2416	(1095.9)
B22-I-168	168"	(4267)	2816	(1277.3)
B22-I-192	192"	(4877)	3216	(1458.7)
B22-I-216	216"	(5486)	3616	(1640.2)
B22-I-240	240"	(6096)	4016	(1821.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B32I - Continuous Concrete Insert

Material: Steel

Standard Finish: Plain, Pre-Galvanized, or Hot-Dip Galvanized

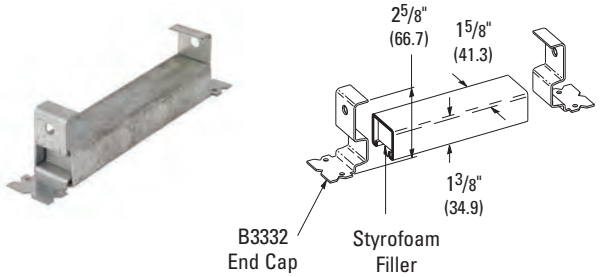
Function: Concrete insert should be secured to forms on 16″ (406.4mm) to 24″ (609.6mm) intervals.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the channel nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

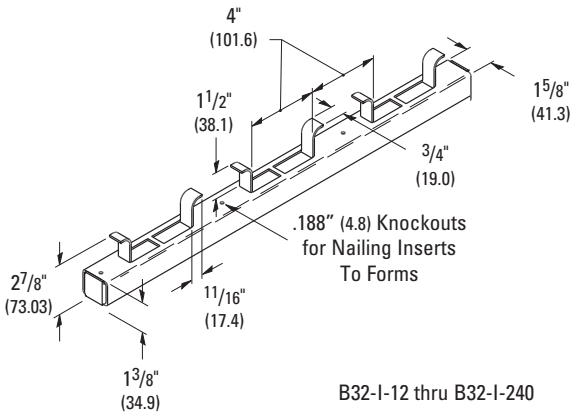
Approvals: Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

Design Load: 2000 Lbs. (8.89kN) per foot for B32-I-12 thru B32-I-240 in 3000 psi concrete. Loads concentrated within the last 2″ (50.8mm) of inserts 8″ (203.2mm) and longer should not exceed 1000 Lbs. (4.45kN).

Order By: Part number and finish. Channel nuts are sold separately, see page 18 for appropriate selection.
To order inserts without styrofoam and end caps add insert only to the part number.

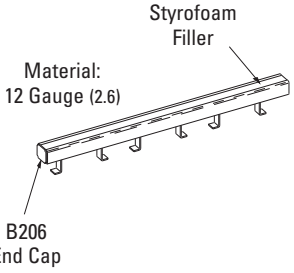


B32-I-3 thru B32-I-8



B32-I-12 thru B32-I-240

Part No.	Length in.	Length (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)	Design Load Lbs.	Design Load (kN)
B32-I-3	3″	(76)	65	(29.5)	500	(2.22)
B32-I-4	4″	(101)	80	(36.3)	800	(3.56)
B32-I-6	6″	(152)	108	(49.0)	1000	(4.45)
B32-I-8	8″	(203)	137	(62.1)	1200	(5.34)



Part No.	Length in.	Length (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B32-I-12	12″	(305)	202	(91.6)
B32-I-16	16″	(406)	262	(118.8)
B32-I-20	20″	(508)	316	(143.3)
B32-I-24	24″	(609)	376	(170.5)
B32-I-32	32″	(813)	496	(225.0)
B32-I-36	36″	(914)	556	(252.2)
B32-I-40	40″	(1016)	616	(279.4)
B32-I-48	48″	(1219)	736	(333.8)
B32-I-60	60″	(1524)	915	(415.0)
B32-I-72	72″	(1829)	1095	(496.7)
B32-I-84	84″	(2133)	1274	(577.9)
B32-I-96	96″	(2438)	1453	(659.0)
B32-I-108	108″	(2743)	1633	(740.7)
B32-I-120	120″	(3048)	1813	(822.3)
B32-I-144	144″	(3657)	2173	(985.6)
B32-I-168	168″	(4267)	2533	(1148.9)
B32-I-192	192″	(4877)	2893	(1312.2)
B32-I-216	216″	(5486)	3253	(1475.5)
B32-I-240	240″	(6096)	3613	(1638.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B52I - Continuous Concrete Insert

Material: Steel

Standard Finish: Plain, Pre-Galvanized, or Hot-Dip Galvanized

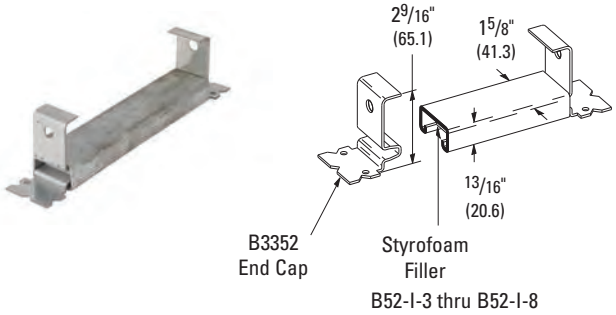
Function: Concrete insert should be secured to forms on 16″ (406.4mm) to 24″ (609.6mm) intervals.

How to Install: Attach concrete insert to forms and install reinforcing rods as required. After forms are dismantled, the channel nut can be installed and the rod fastened to the nut. The rod should touch the inside top of the insert.

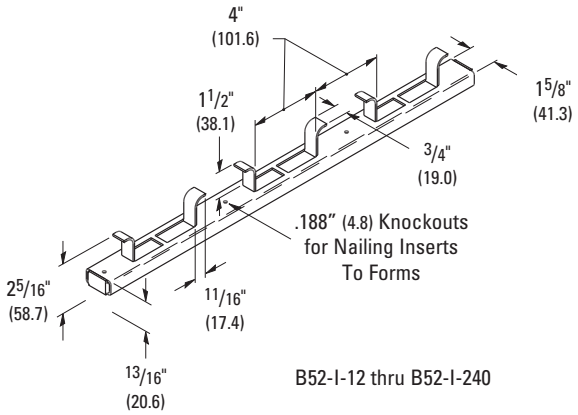
Approvals: Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 18.

Design Load: 1500 Lbs. (6.67kN) per foot for B52-I-12 thru B52-I-240 in 3000 psi concrete. Loads concentrated within the last 2″ (50.8mm) of inserts 8″ (203.2mm) and longer should not exceed 750 Lbs. (3.33kN).

Order By: Part number and finish. Channel nuts are sold separately, see page 18 for appropriate selection.
To order inserts without styrofoam and end caps add insert only to the part number.

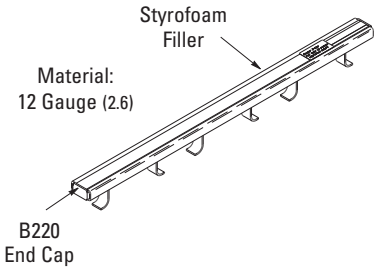


B52-I-3 thru B52-I-8



B52-I-12 thru B52-I-240

Part No.	Length in.	(mm)	Approx. Wt./100 Lbs.	(kg)	Design Load Lbs.	(kN)
B52-I-3	3″	(76)	53	(24.0)	400	(1.78)
B52-I-4	4″	(101)	63	(28.6)	500	(2.22)
B52-I-6	6″	(152)	85	(38.5)	750	(3.33)
B52-I-8	8″	(203)	106	(48.1)	1000	(4.45)



Part No.	Length in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B52-I-12	12″	(305)	157	(71.2)
B52-I-16	16″	(406)	202	(91.6)
B52-I-20	20″	(508)	237	(107.5)
B52-I-24	24″	(609)	282	(127.9)
B52-I-32	32″	(813)	373	(169.2)
B52-I-36	36″	(914)	419	(190.0)
B52-I-40	40″	(1016)	464	(210.4)
B52-I-48	48″	(1219)	556	(252.2)
B52-I-60	60″	(1524)	692	(313.9)
B52-I-72	72″	(1829)	829	(376.0)
B52-I-84	84″	(2133)	965	(437.7)
B52-I-96	96″	(2438)	1107	(502.1)
B52-I-108	108″	(2743)	1237	(561.1)
B52-I-120	120″	(3048)	1374	(623.2)
B52-I-144	144″	(3657)	1648	(747.5)
B52-I-168	168″	(4267)	1922	(871.8)
B52-I-192	192″	(4877)	2196	(996.1)
B52-I-216	216″	(5486)	2470	(1120.4)
B52-I-240	240″	(6096)	2744	(1244.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

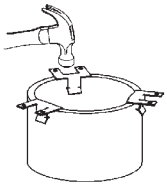
BD40 - Pipe Sleeve Fastener

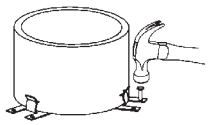
Material: Steel

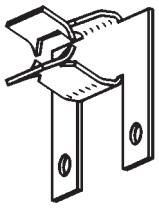
Function: Designed to attach pipe sleeves to wall or floor forms before concrete pours.

Standard Finish: Zinc Phosphate

Order By: Part number and finish.







Part No.	Sleeve Diameter	Wall Thickness	Approx. Wt./100 Lbs. (kg)
BD40	All Diameters	5/16" (7.9mm) and under	1.5 (.68)
	2" (50.8mm) to 6" (152.4mm)	Schedule 40 Pipe	

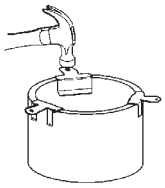
BE-5-8 and BE-9-12 - Pipe Sleeve Fastener

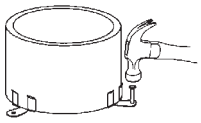
Material: Steel

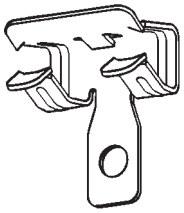
Function: Designed to attach pipe sleeves to wall or floor forms before concrete pours.

Standard Finish: Zinc Phosphate

Order By: Part number and finish.



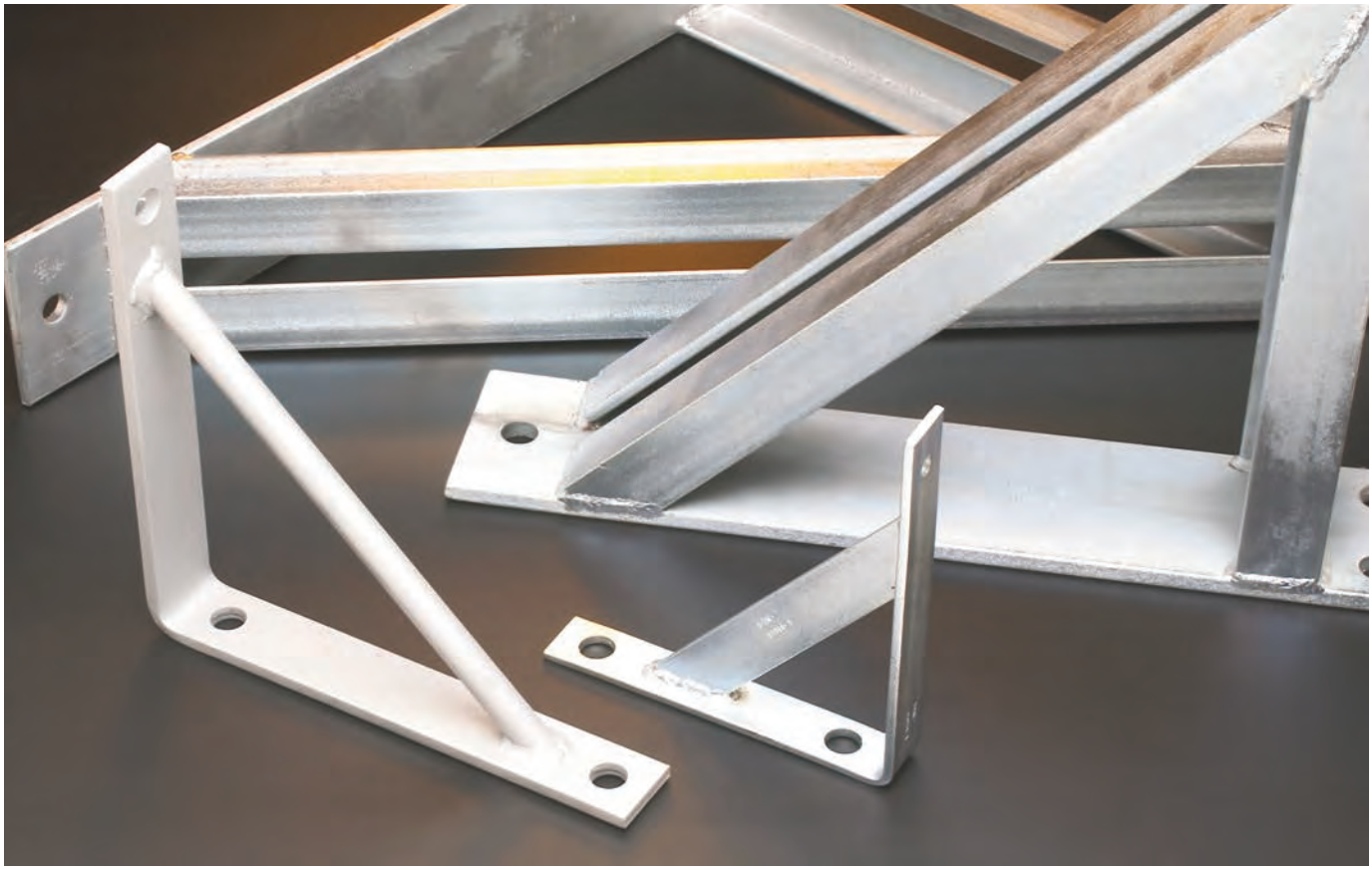




Part No.	Sleeve Diameter in.	Sleeve Diameter (mm)	Wall Thickness	Approx. Wt./100 Lbs. (kg)
BE-5-8	6"	(152.4)	Schedule 80 Pipe	3.5 (1.6)
	8" to 10"	(203.2 to 254.0)	Schedule 40 Pipe	
BE-9-12	9" to 14"	(228.6 to 355.6)	Schedule 80 Pipe	4.0 (1.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Brackets



Brackets offered in this section are designed for support of pipe or hanger rod attachments. Brackets offer a convenient means of supporting pipe from a vertical surface.

Materials
Carbon Steel material is mig-welded into bracket assemblies. Stainless Steel and other materials are available.

Finishes
The standard finishes for mechanical supports are plain steel (oil coated) sometimes referred to as black and Electro-Galvanized Zinc (ASTM B633 SC3). Hot-Dip Galvanized After Fabrication (ASTM A123), Red Primer, Plastic Coating, DURA GREEN™ and other special coatings are available upon request.

Approvals (as noted)
Items in this section comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58.

B3068 - Light Duty Welded Bracket

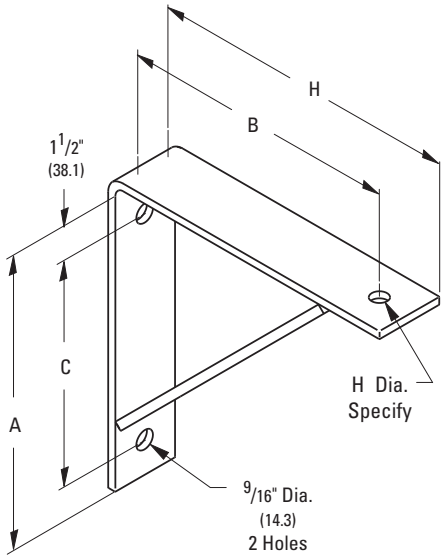
Material: Steel

Function: Recommended for suspending pipe outward from mounting surface.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 32 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 31.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number, hole size 'H', and finish



Part No.	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	H Dia. in.	H Dia. (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3068-1	9"	(228.6)	8"	(203.2)	6 1/2"	(165.1)	Specify	(Specify)	750	(3.33)	360	(163.3)
B3068-2	13"	(330.2)	12"	(304.8)	10 1/2"	(266.7)	Specify	(Specify)	750	(3.33)	582	(264.0)
B3068-3	19"	(482.6)	18"	(457.2)	16 1/2"	(419.1)	Specify	(Specify)	750	(3.33)	860	(390.1)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

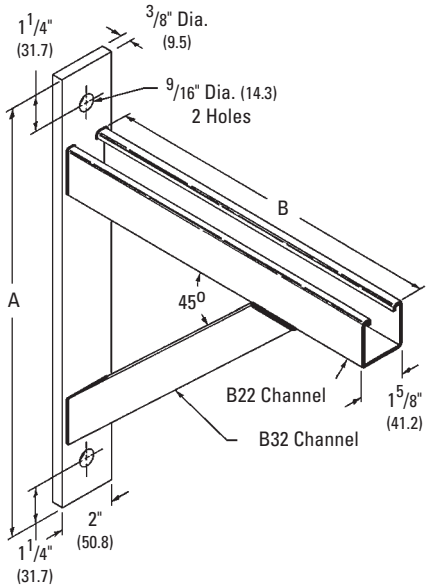
B3064 - Adjustable Strut Bracket

Material: Steel

Function: Designed for supporting pipe from walls or structures where lateral adjustment is required.

Standard Finish: Plain or Electro-Galvanized

Order By: Part number and finish.



Part No.	A in.	A (mm)	B in.	B (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3064-1	15"	(381.0)	12"	(304.8)	1200	(5.34)	660	(299.4)
B3064-2	21"	(533.4)	18"	(457.2)	800	(3.56)	1004	(455.4)
B3064-3	27"	(685.8)	24"	(609.6)	600	(2.67)	1346	(610.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3065 - Welded Bracket - Light Duty

Max. Recommended Load: 750 lbs. (3.33kN)

Material: Steel

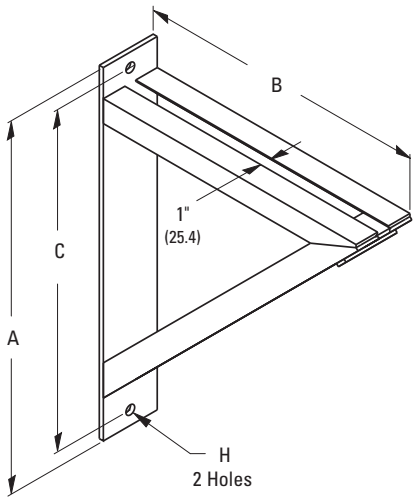
Function: Recommended for supporting pipe on top or hanging through support bracket outward from mounting surface.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 32 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 31.

Finish: Plain or Electro-Galvanized.

Note: Available in Electro-Galvanized and HDG finish or Stainless Steel materials.

Order By: Part number and finish



Part No.	Mtg. Hole H in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)
B3065-1	9/16"	(14.3)	13"	(330.2)	9"	(228.6)	11 1/2"	(292.1)
B3065-2	9/16"	(14.3)	17"	(431.8)	13"	(330.2)	15 1/2"	(393.7)
B3065-3	9/16"	(14.3)	23"	(584.2)	19"	(482.6)	21 1/2"	(546.1)

Part No.	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3065-1	750	(3.33)	571	(259.0)
B3065-2	750	(3.33)	769	(348.8)
B3065-3	750	(3.33)	1057	(479.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Figure B3066 - Welded Bracket - Medium Duty

Max. Recommended Load: 1500 lbs. (6.67kN)

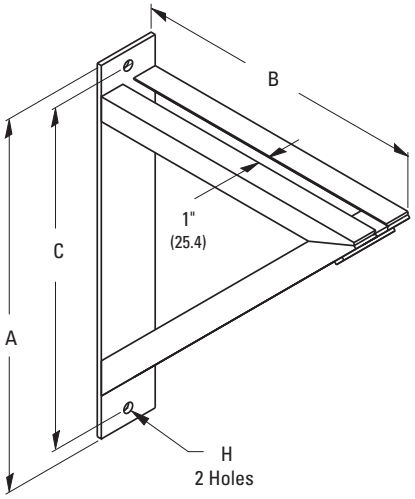
Material: Steel

Function: Recommended for supporting pipe on top or hanging through support bracket outward from mounting surface.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 33 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 32.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish



Part No.	Mtg. Hole H in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)
B3066-0	13/16"	(20.6)	18"	(457.2)	12"	(304.8)	15 1/2"	(393.7)
B3066-1	13/16"	(20.6)	24"	(609.6)	18"	(457.2)	21 1/2"	(546.1)
B3066-2	13/16"	(20.6)	30"	(762.0)	24"	(609.6)	27 1/2"	(698.5)

Part No.	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3066-0	1500	(6.67)	1577	(715.3)
B3066-1	1500	(6.67)	2578	(1169.4)
B3066-2	1500	(6.67)	4446	(2016.7)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3067 - Welded Bracket - Heavy Duty

Max. Recommended Load: 3000 lbs. (13.34kN)

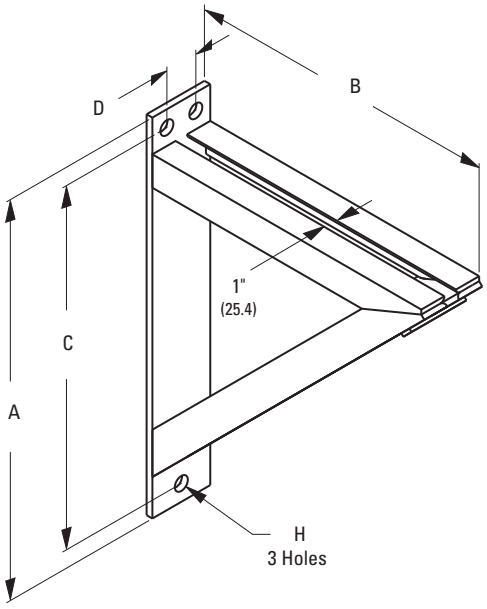
Material: Steel

Function: Recommended for supporting pipe on top or hanging through support bracket outward from mounting surface.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 33 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 33.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish



Only one hole in top for B3067-0

Part No.	Mtg. Hole H in.	(mm)	A in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)
B3067-0	1 1/8"	(28.6)	18"	(457.2)	12"	(304.8)	15 1/4"	(387.3)	**	**
B3067-1	1 1/8"	(28.6)	24"	(609.6)	18"	(457.2)	21 1/4"	(539.7)	2 1/2"	(63.5)
B3067-2	1 1/8"	(28.6)	30"	(762.0)	24"	(609.6)	27 1/4"	(692.1)	2 1/2"	(63.5)
B3067-3	1 1/8"	(28.6)	36"	(914.4)	30"	(762.0)	33"	(838.2)	2 1/2"	(63.5)
B3067-4	1 1/8"	(28.6)	42"	(1066.8)	36"	(914.4)	39"	(990.6)	3 1/2"	(88.9)
B3067-5	1 1/8"	(28.6)	50"	(1270.0)	42"	(1066.8)	46"	(1168.4)	3 1/2"	(88.9)

** One Hole

Part No.	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3067-0	3000	(13.34)	2195	(995.6)
B3067-1	3000	(13.34)	4398	(1994.9)
B3067-2	3000	(13.34)	6294	(2854.9)
B3067-3	3000	(13.34)	7196	(3264.1)
B3067-4	3000	(13.34)	13197	(5986.2)
B3067-5	3000	(13.34)	15795	(7164.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3069W - Welded Knee Bracket

Size Range: 1/2" (15mm) thru 8" (200mm) pipe

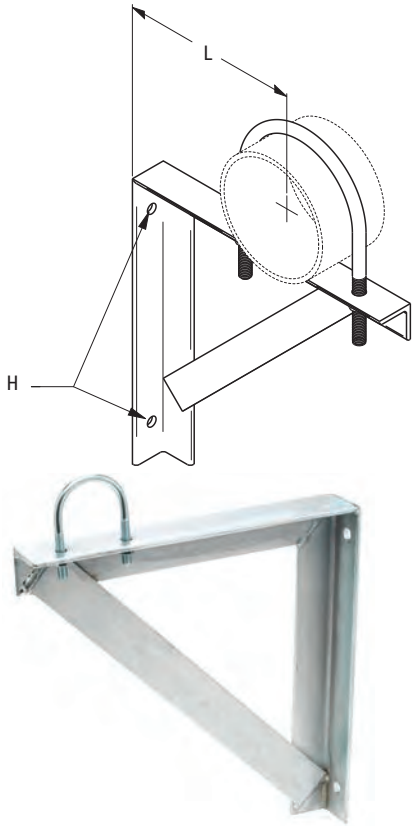
Material: Steel

Function: Recommended for suspending pipe outward from mounting surface.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Note: Maximum "L" dimension 16" (406.4mm).

Order By: Part number, pipe size, (**) "L" dimension and finish



Part No.	Pipe Size in.	(mm)	Hole Size H in.	(mm)	Max. Rec. Load Lbs.	(kN)
B3069W-1/2-**	1/2"	(15)	9/16"	(14.3)	1000	(4.45)
B3069W-3/4-**	3/4"	(20)	9/16"	(14.3)	1000	(4.45)
B3069W-1-**	1"	(25)	9/16"	(14.3)	1000	(4.45)
B3069W-1 1/4-**	1 1/4"	(32)	9/16"	(14.3)	1000	(4.45)
B3069W-1 1/2-**	1 1/2"	(40)	9/16"	(14.3)	1000	(4.45)
B3069W-2-**	2"	(50)	9/16"	(14.3)	1000	(4.45)
B3069W-2 1/2-**	2 1/2"	(65)	9/16"	(14.3)	1000	(4.45)
B3069W-3-**	3"	(80)	9/16"	(14.3)	1000	(4.45)
B3069W-3 1/2-**	3 1/2"	(90)	9/16"	(14.3)	1000	(4.45)
B3069W-4-**	4"	(100)	11/16"	(17.5)	1000	(4.45)
B3069W-5-**	5"	(125)	11/16"	(17.5)	1000	(4.45)
B3069W-6-**	6"	(150)	11/16"	(17.5)	1000	(4.45)
B3069W-8-**	8"	(200)	11/16"	(17.5)	1000	(4.45)

** Length to be specified as shown on the drawing.

B3069E - "O" Bracket

Size Range: 1/2" (15mm) thru 8" (200mm) pipe

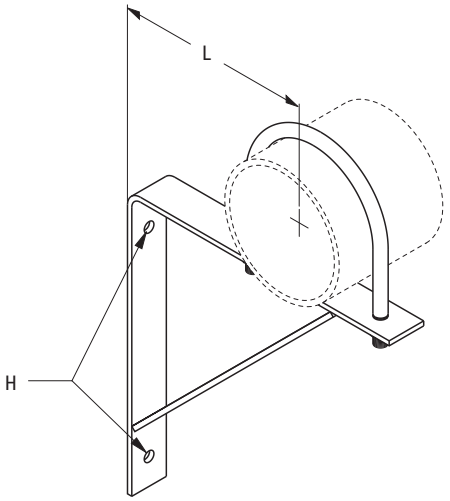
Material: Carbon Steel

Function: Recommended for suspending pipe outward from mounting surface.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Note: Maximum "L" dimension 16" (406.4mm).

Order By: Part number, pipe size, (**) "L" dimension and finish

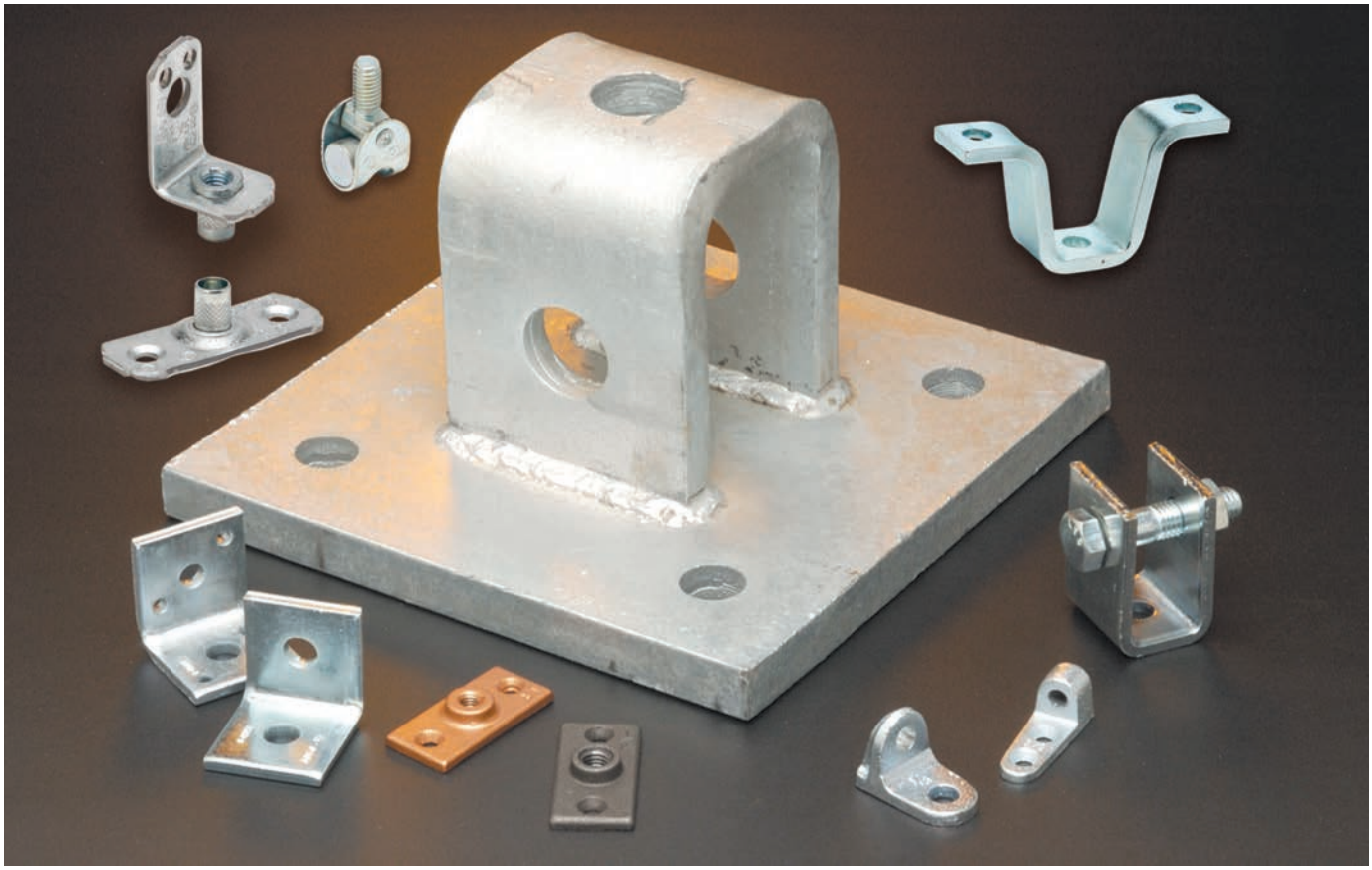


Part No.	Pipe Size in.	(mm)	Hole Size H in.	(mm)	Max. Rec. Load Lbs.	(kN)
B3069E-1/2-**	1/2"	(15)	9/16"	(14.3)	450	(2.00)
B3069E-3/4-**	3/4"	(20)	9/16"	(14.3)	450	(2.00)
B3069E-1-**	1"	(25)	9/16"	(14.3)	450	(2.00)
B3069E-1 1/4-**	1 1/4"	(32)	9/16"	(14.3)	450	(2.00)
B3069E-1 1/2-**	1 1/2"	(40)	9/16"	(14.3)	450	(2.00)
B3069E-2-**	2"	(50)	9/16"	(14.3)	450	(2.00)
B3069E-2 1/2-**	2 1/2"	(65)	9/16"	(14.3)	450	(2.00)
B3069E-3-**	3"	(80)	9/16"	(14.3)	450	(2.00)
B3069E-3 1/2-**	3 1/2"	(90)	9/16"	(14.3)	450	(2.00)
B3069E-4-**	4"	(100)	11/16"	(17.5)	450	(2.00)
B3069E-5-**	5"	(125)	11/16"	(17.5)	450	(2.00)
B3069E-6-**	6"	(150)	11/16"	(17.5)	450	(2.00)
B3069E-8-**	8"	(200)	11/16"	(17.5)	450	(2.00)

** Length to be specified as shown on the drawing.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Upper Attachments



Upper attachments offered in this section are designed to suspend hanger rods from beams, concrete, and other structural surfaces by bolting or welding.

Materials
Carbon Steel and Malleable Iron are used in the manufacturing of upper attachments and provide the high strength properties required. Stainless Steel and other materials are available.

Finishes
The standard finishes for mechanical supports are plain steel (oil coated) sometimes referred to as black and Electro-Galvanized Zinc (ASTM B633 SC3). Hot-Dip Galvanized After Fabrication (ASTM A123), Red Primer, Plastic Coating, DURA GREEN™ and other special coatings are available upon request.

Note: Due to the design of some products, (threads, connecting hardware, swivels, etc.) items may or may not be uniformly coated with special finishes. In some cases, the hanger itself may be coated, however, the hardware may be supplied Electro-Plated, copper plated, or in stainless steel.

Approvals (as noted)
Items in this section are Underwriters Laboratories Listed, Factory Mutual Approved, and comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58.

B3199R - Ceiling Flange
B3199RCT - Ceiling Flange Dura-Copper Coated

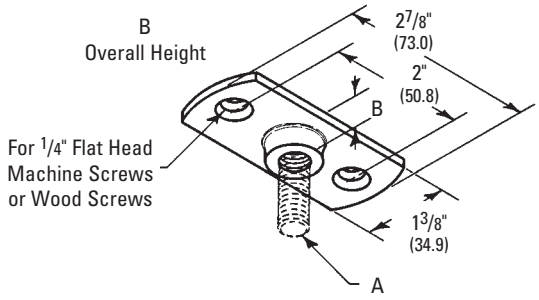
Size Range: 3/8"-16 & 1/2"-13 rod

Material: Malleable Iron (Stainless Steel Type 304 available)

Standard Finish: Plain or Electro-Galvanized
B3199RCT is DURA-COPPER™ coated

Function: Designed for attaching a hanger or support rod to beams, ceilings, or walls.

Order By: Part number and finish.



B3199RCT

B3199R

Part No.		Thread Size A	B in. (mm)	Design Load Lbs. (kN)	Approx. Wt./100 Lbs. (kg)
B3199R-3/8	B3199RCT-3/8	3/8"-16	7/16" (11.1)	180 (.80)	13 (5.9)
B3199R-1/2	B3199RCT-1/2	1/2"-13	1/2" (12.7)	180 (.80)	17 (7.7)

TOLCO™ Fig. 78 - All Steel Ceiling Plate

Size Range: 3/8"-16 rod

Material: Pre-Galvanized Steel

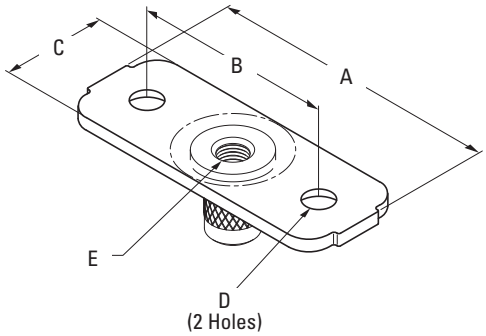
Function: Attachment to wood beams, ceilings, metal decks or walls. Can also be welded to steel beams.

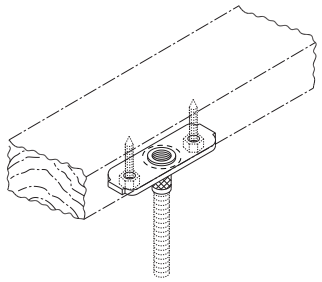
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. Additionally, UL has listed the Fig. 78 with fasteners as shown in the table below.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish

US Patent #5,702,077





UL Listed Fastener Table

Pipe Size	Qty	Fastener Type	Material
1/2" - 2"	2	#14 x 1 1/4" A-point hex-washer-head sheet metal screw	Wood
2 1/2" - 4"	2	1/4" x 1 1/2" wood screws*	Wood
1/2" - 2"	2	1/4" x 1" tek screws	Metal (18 gauge)
1/2" - 2"	2	#14 x 1 1/4" A-point hex-washer-head sheet metal screw	Wood
1/2" - 2"	2	#14 x 2" A-point-hex-washer-head sheet metal screw	Wood thru 5/8" gyp board

* No pre-drilling

Part No.	Pipe Size in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	Hole Dia. D in. (mm)	Thread Size E	Design Load Lbs. (kN)	Approx. Wt./100 Lbs. (kg)
78-3/8	1/2" - 2" (15 - 60)	3" (76.2)	2 1/8" (54.0)	1 1/8" (28.6)	5/16" (7.9)	3/8"-16	150 (0.67)	15 (6.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3060L - Light Duty Angle Clip

Size Range: 3/8"-16 rod

Material: Steel (Stainless steel available)

Function: Designed for attaching 3/8"-16 hanger rod to the side of beams or walls.

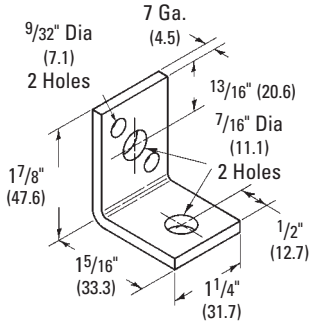
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 35 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 34.

Finish: Plain or Electro-Galvanized

Order By: number and finish.

Design Load: 300 Lbs. (1.33kN)

Weight: Approx. Wt./100 - 15 Lbs. (6.8 kg)



B3070 - Reversible Angle Clip

Size Range: 3/8"-16 and 1/2"-13 rod, 1/2" (15mm) thru 3 1/2" (90mm) pipe

Material: Steel

Function: Designed for attaching hanger rod to the side of beams or walls.

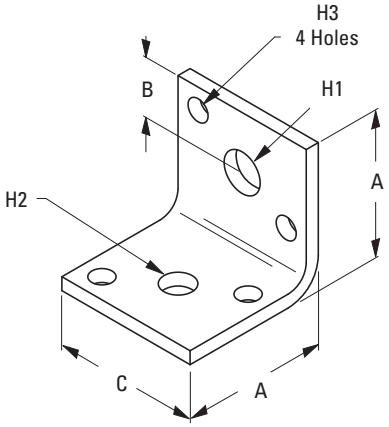
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 35 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 34.

Finish: Plain or Electro-Galvanized

Order By: number and finish.

Design Load: 500 Lbs. (2.22 kN) when installed in either direction.

Weight: Approx. Wt./100 - 49 Lbs. (22.2 kg)



Part No.	Rod Size	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	Hole 1 in.	Hole 1 (mm)	Hole 2 in.	Hole 2 (mm)	Hole 3 in.	Hole 3 (mm)	Max. Rec. Load Lbs.	Max. Rec. Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3070-3/8x1/2	3/8"-16 x 1/2"-13	2"	(50.8)	13/16"	(20.6)	2"	(50.8)	9/16"	(14.3)	7/16"	(11.1)	5/16"	(7.9)	700	(3.11)	35	(15.9)
B3070-1/2x1/2	1/2"-13 x 1/2"-13	2"	(50.8)	3/4"	(19.0)	2"	(50.8)	9/16"	(14.3)	9/16"	(14.3)	5/16"	(7.9)	700	(3.11)	34	(15.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3060 - Side beam angle clip

Size Range: 3/8"-16 and 7/8"-9 rod

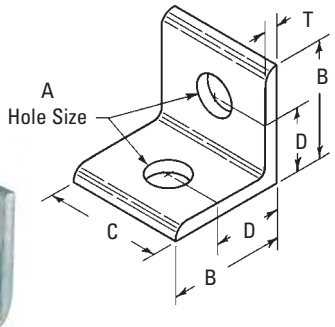
Material: Steel (Stainless steel available)

Function: Designed for attaching a hanger rod to the side of beams or walls.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 35 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 34.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



Part No.	Hole Size A in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)	T in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3060-3/8	7/16"	(11.1)	2 3/16"	(55.6)	2"	(50.8)	1 1/4"	(31.7)	1/4"	(6.3)	305	(1.35)	53	(24.0)
B3060-1/2	9/16"	(14.3)	2 3/16"	(55.6)	2"	(50.8)	1 1/4"	(31.7)	1/4"	(6.3)	565	(2.51)	51	(23.1)
B3060-5/8	11/16"	(17.5)	2 3/16"	(55.6)	2"	(50.8)	1 1/4"	(31.7)	1/4"	(6.3)	909	(4.02)	48	(21.8)
B3060-3/4	13/16"	(20.6)	3"	(76.2)	3"	(76.2)	1 3/4"	(44.4)	3/8"	(9.5)	1355	(6.03)	169	(74.8)
B3060-7/8	15/16"	(23.8)	4"	(101.6)	4"	(101.6)	2 1/2"	(63.5)	3/8"	(9.5)	1870	(8.32)	312	(141.5)

TOLCO Fig. 51NFPA - side beam bracket for NFPA rod & fastener sizing

Size Range: 3/8"-16 thru 1/2"-13 rod, 1/2" (15mm) thru 8" pipe (200mm)

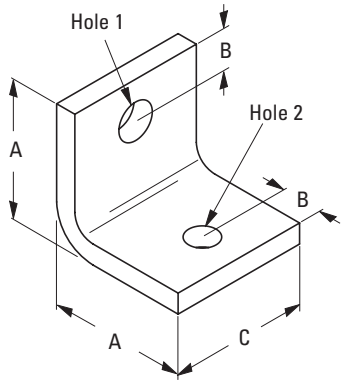
Material: Steel

Function: Recommended for attaching hanger rod to side of beams or walls. Designed to accommodate current rod schedule and fastener requirements per National Fire Protection Association (NFPA) Pamphlet 13.

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**, and Factory Mutual Engineering approved.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish



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Part No.	Pipe Size in.	(mm)	Rod Size	A in.	(mm)	B in.	(mm)	C in.	(mm)	Hole 1 in.	(mm)	Hole 2 in.	(mm)
51NFPA-3/8x3/8	1/2" - 2"	(15 - 60)	3/8"-16	2"	(50.8)	3/4"	(19.0)	2"	(50.8)	7/16"	(11.1)	7/16"	(11.1)
51NFPA-3/8x1/2	2 1/2" - 4"	(65 - 100)	3/8"-16	2"	(50.8)	3/4"	(19.0)	2"	(50.8)	9/16"	(14.3)	7/16"	(11.1)
51NFPA-1/2x1/2	5" - 6"	(125 - 150)	1/2"-13	2 1/2"	(63.5)	3/4"	(19.0)	2 1/2"	(63.5)	9/16"	(14.3)	9/16"	(14.3)
51NFPA-1/2x5/8	8"	(200)	1/2"-13	2 1/2"	(63.5)	3/4"	(19.0)	2 1/2"	(63.5)	11/16"	(17.5)	9/16"	(14.3)

Part No.	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
51NFPA-3/8x3/8	700	(3.11)	35	(15.9)
51NFPA-3/8x1/2	700	(3.11)	34	(15.4)
51NFPA-1/2x1/2	1250	(5.56)	71	(32.2)
51NFPA-1/2x5/8	1250	(5.56)	70	(31.7)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 50 - Side Beam Bracket for NFPA Rod & Fastener Sizing

Size Range: 3/8"-16 thru 7/8"-9 rod

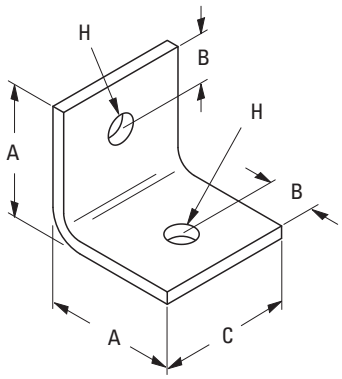
Material: Steel

Function: Recommended for attaching hanger rod to side of beams or walls.

Approvals: Factory Mutual Engineering approved **(FM)**.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish



Part No.	Rod Size	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	Hole Size H in.	Hole Size H (mm)	Max. Rec. Load Lbs.	Max. Rec. Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
50-3/8	3/8"-16	2"	(50.8)	3/4"	(19.0)	2"	(50.8)	7/16"	(11.1)	700	(3.22)	35	(15.9)
50-1/2	1/2"-13	2"	(50.8)	3/4"	(19.0)	2"	(50.8)	9/16"	(14.3)	700	(3.22)	35	(15.9)
50-5/8	5/8"-11	2"	(50.8)	3/4"	(19.0)	2"	(50.8)	11/16"	(17.5)	700	(3.22)	32	(14.5)
50-3/4	3/4"-10	2 1/2"	(63.5)	3/4"	(19.0)	2 1/2"	(63.5)	13/16"	(20.6)	1250	(5.56)	110	(49.9)
50-7/8	7/8"-9	2 1/2"	(63.5)	3/4"	(19.0)	2 1/2"	(63.5)	15/16"	(23.8)	1250	(5.56)	100	(45.3)

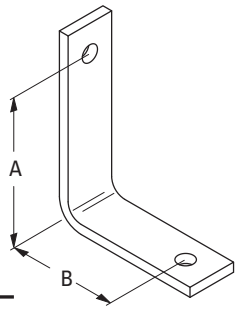
B3061 - Angle Bracket

Material: Steel

Function: — Recommended for supporting pipe at various distances from wall or column.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish



Part No.	Size	A in.	A (mm)	B in.	B (mm)	Hole Size in.	Hole Size (mm)	Max. Rec. Load Lbs.	Max. Rec. Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3061-1	1	3"	(76.2)	2"	(50.8)	7/16"	(11.1)	180	(0.80)	46	(20.8)
B3061-2	2	4"	(101.6)	3"	(76.1)	7/16"	(11.1)	180	(0.80)	65	(29.5)
B3061-3	3	3"	(76.2)	2"	(50.8)	9/16"	(14.3)	390	(1.73)	85	(38.5)
B3061-4	4	4"	(101.6)	3"	(76.1)	9/16"	(14.3)	390	(1.73)	115	(52.1)

TOLCO™ Fig. 56 - Tapped Side Beam Connector (Stainless Steel)

Size Range: 1/2" (15mm) thru 4" (100mm) pipe (3/8"-16 rod)

Material: Stainless Steel

Function: Recommended for attaching hanger rod to steel or wood beams. Tapped hole allows easy adjustment of hanger rod.

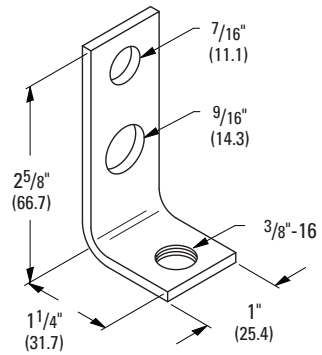
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**, and Factory Mutual Engineering approved for 1/2" (15mm) thru 4" (100mm) pipe.

Weight: Approx. Wt./100 - 20.0 Lbs. (9.1kg)

Order By: Part number

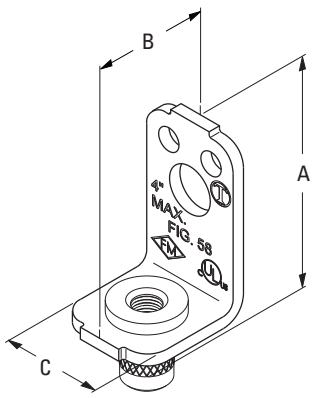
Note: Available only in Stainless Steel materials.

Per NFPA 13: 1/2" (15mm) thru 2" (50mm) pipe use 3/8"-16 fastener; 2 1/2" (65mm) thru 4" (100mm) pipe, use 1/2"-13 fastener.



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 58 - Threaded Side Beam Bracket



Size Range: 3/8"-16 rod, pipe sizes 1/2" (15mm) thru 4" (100mm)

Material: Pre-Galvanized Steel

Function: Practical and economical bracket used to support piping from wood, concrete or steel beams.

Features: Unique design allows rod to be easily threaded into bracket. Offset design permits unlimited rod adjustment. Center mounting hole will accept 3/8" and 1/2" fastener bolts. Per NFPA 13: 1/2" (15mm) thru 2" (50mm) pipe requires 3/8" fastener, 2 1/2" (65mm) thru 4" (100mm) pipe requires 1/2" fastener.*

Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**, and Factory Mutual Engineering approved thru 4" (100mm) pipe.

Finish: Pre-Galvanized

Order By: Part number and finish

***Note:** Additionally UL has listed the Fig. 58 with fasteners as shown in table below.

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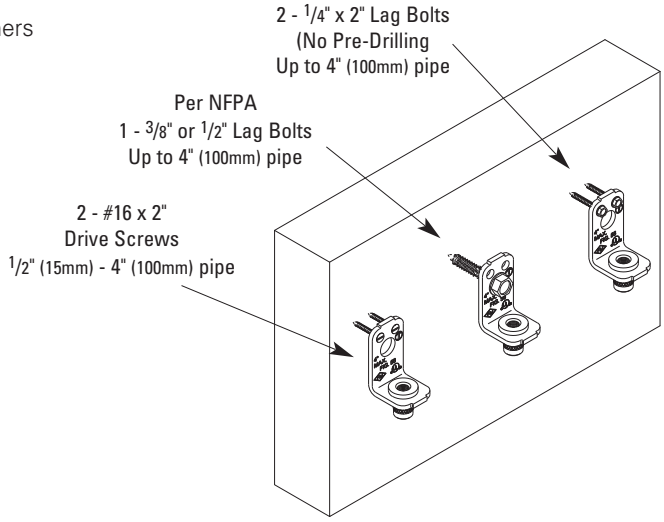
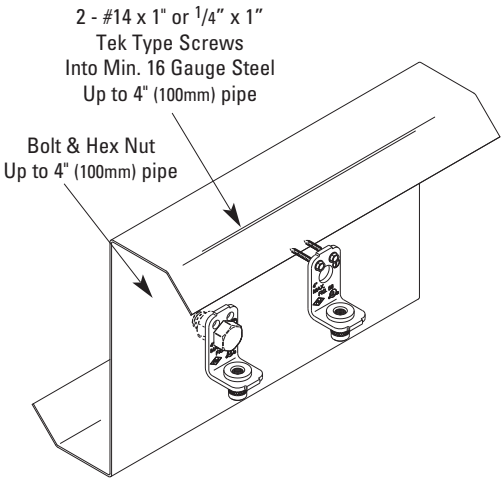




UL Listed Fastener Table

Pipe Size	Qty	Fastener Type	Material
2"	2	#16 x 2" Drive screws	Wood
2"	1	3/8" Lag bolt	Wood
2 1/2" - 4"	1	1/2" Lag bolt	Wood
3 1/2"	2	1/4" x 1 1/2" Lag bolts	Wood
4"	2	1/4" x 2" Lag bolts **	Wood
4"	2	#14 x 1" or 1/4" x 1" Tek type screws	Metal (15 gauge)
4"	2	#14 x 1" or 1/4" x 1" Tek type screws	Metal (16 gauge)

** No pre-drilling

Part No.	Pipe Size in.	Pipe Size (mm)	Rod Size	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	Max. Rec. Load Lbs.	Max. Rec. Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
58	1/2" - 4"	(15 - 100)	3/8"-16	2 3/4"	(69.8)	1 1/2"	(38.1)	1 1/8"	(28.6)	300***	(1.33)	14	(6.3)

*** With Safety Factor of 5.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 75 - Swivel Attachment

Size Range: — 3/8"-16 Rod Attachment

Material: Steel

Function: Three recommended applications for this product:
- May be used as a Branch Line Restraint for structural attachment to anchor bolt, beam clamp, etc.
- May be used as an upper attachment with short hanger rod to omit seismic bracing.
- May be used in a pitched or sloped roof application, to meet requirements of NFPA 13 (2010) 9.1.2.6.

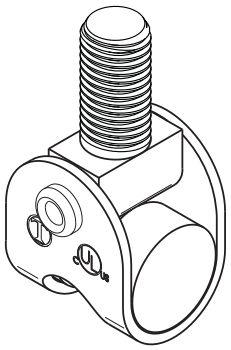
Approvals: Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** to support up to 4" (100mm) pipe.

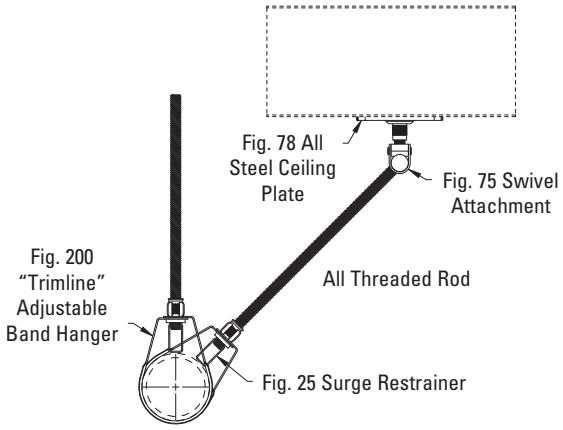
Finish: Electro-Galvanized

Weight: Approx. Wt./100 - 13.3 Lbs. (6.0kg)

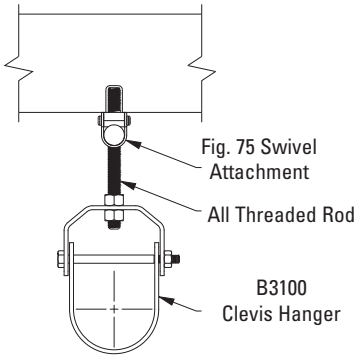
Order By: Part number

Patent: #7,887,248

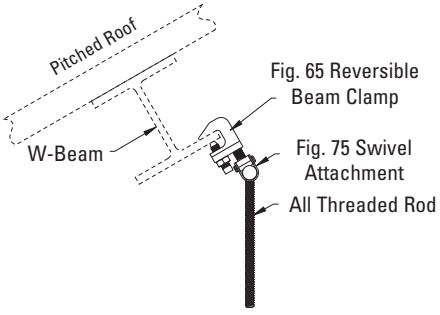




May be used as a structural attachment component of a branch line restraint



May be used as a upper attachment with short hanger rod to omit seismic bracing



May be used with a pitched roof application, to meet requirements of NFPA 13 (2010) Sec. 9.1.2.5.

B3058 - Side Beam Connector

Size Range: 3/8"-16 & 1/2"13 rods

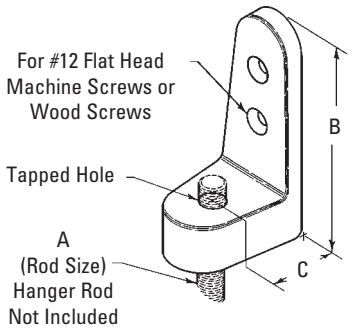
Material: Malleable Iron

Function: Designed for attaching hanger rod to the side of beams or walls.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 35 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 34.

Finish: Plain or Electro-Galvanized

Order By: Part number and finish.



Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3058-3/8	3/8"-16	2 3/8"	(60.3)	9/16"	(14.3)	250	(1.11)	13	(5.9)
B3058-1/2	1/2"-13	2 3/4"	(69.8)	3/4"	(19.0)	480	(2.13)	25	(11.3)

B3062 - Side Beam Bracket

Size Range: 3/8"-16 thru 5/8"-11 rods

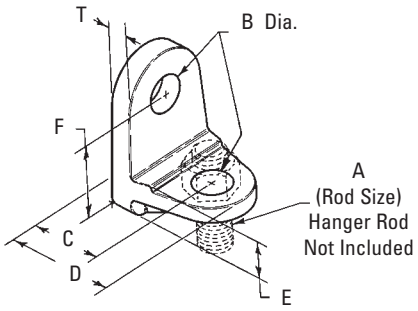
Material: Malleable Iron

Function: Designed for attaching hanger rod to the side of beams or walls.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 35 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 34.

Finish: Plain or Electro-Galvanized

Order By: Part number and finish.



Part No.	Rod Size A	For Nominal Pipe Sizes in.	For Nominal Pipe Sizes (mm)	Design Load With Lag Screw Lbs.	Design Load With Lag Screw (kN)	Design Load With Bolt To Steel Lbs.	Design Load With Bolt To Steel (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3062-3/8	3/8"-16	3/4"-2"	(20-50)	390	(1.73)	730	(3.25)	21	(9.5)
B3062-1/2	1/2"-13	2 1/2"-3 1/2"	(65-95)	640	(2.84)	1350	(6.00)	44	(19.9)
B3062-5/8	5/8"-11	4"-5"	(100-125)	760	(3.38)	2160	(9.71)	81	(36.7)

Part No.	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	E in.	E (mm)	F in.	F (mm)	T in.	T (mm)
B3062-3/8	7/16"	(11.1)	7/8"	(22.2)	1 3/8"	(34.9)	5/8"	(15.9)	1 7/16"	(36.5)	1/4"	(6.3)
B3062-1/2	9/16"	(14.3)	1 3/16"	(30.2)	1 13/16"	(46.0)	3/4"	(19.0)	1 7/8"	(47.6)	11/32"	(8.7)
B3062-5/8	3/4"	(19.0)	1 7/16"	(36.5)	2 3/16"	(55.6)	7/8"	(22.2)	2 1/4"	(54.0)	7/16"	(11.1)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3083 - Welded Beam Attachment
B3083WO - Welded Beam Attachment Without Pin

Size Range: 3/8"-16 thru 2"-4 1/2 rod

Material: Steel (Stainless steel available)

Function: Designed for attaching hanger rod to the bottom of structural steel where heavy loads and large hanger rod sizes are required. Can be welded in place in either the upright or inverted position. When using B3083WO, attach hanger rod to bolt or pin with a B3200 weldless eye nut or B3210 and B3211 series eye rods.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 22 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 22.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number (with or without hardware) and finish.

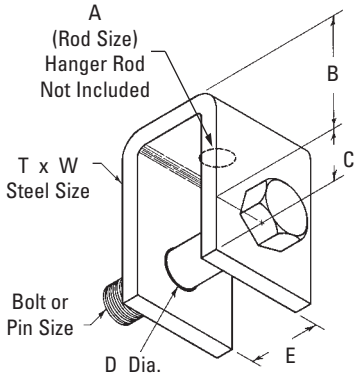
Note: When ordering with hardware for sizes 3/8 thru 1 1/8, hex head cap screws and hex nuts will be supplied. For 1 1/4 thru 2, clevis pin and cotter pins will be supplied. Must be specified with or without hardware.

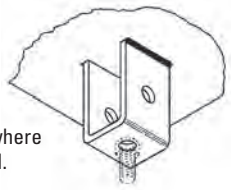
B
Center of cross bolt to bottom of attachment.

C
Center of cross bolt to top of attachment.

B3083

B3083WO





Field weld where required.

Part No.	Rod Size A	Pin or Bolt Size in.	(mm)	Design Load 650° F (349°C) Lbs.	(kN)	750°F (399°C) Lbs.	(kN)	Approx. Wt./100 W/O Hardware Lbs.	(kg)	With Hardware Lbs.	(kg)
B3083-3/8	3/8"-16	1/2"	(12.7)	730	(3.25)	572	(2.54)	89	(40.3)	110	(49.9)
B3083-1/2	1/2"-13	5/8"	(15.9)	1350	(6.00)	1057	(4,70)	87	(39.4)	123	(55.8)
B3083-5/8	5/8"-11	3/4"	(19.0)	2160	(9.61)	1692	(7.52)	84	(38.1)	140	(63.5)
B3083-3/4	3/4"-10	7/8"	(22.2)	3230	(14.37)	2530	(11.25)	173	(78.4)	268	(121.5)
B3083-7/8	7/8"-9	1"	(25.4)	4480	(19.93)	3508	(15.60)	234	(106.1)	376	(170.4)
B3083-1	1"-8	1 1/8"	(28.6)	5900	(26.24)	4620	(20.55)	394	(178.6)	596	(270.2)
B3083-1 1/8	1 1/8"-7	1 1/4"	(31.7)	7450	(33.14)	5830	(25.93)	402	(182.2)	680	(308.3)
B3083-1 1/4	1 1/4"-7	1 3/8"	(34.9)	9500	(42.25)	7440	(33.09)	734	(332.7)	955	(432.9)
B3083-1 1/2	1 1/2"-6	1 5/8"	(41.3)	13800	(61.38)	10807	(48.07)	1460	(661.8)	1817	(823.7)
B3083-1 3/4	1 3/4"-5	1 7/8"	(47.6)	18600	(82.73)	14566	(64.79)	1746	(791.5)	2310	(1047.1)
B3083-2	2"-4 1/2	2 1/4"	(57.1)	24600	(109.42)	19625	(87.29)	2190	(992.7)	2996	(1358.1)

Part No.	B in.	(mm)	C in.	(mm)	Dia. D in.	(mm)	E in.	(mm)	T x W in.	(mm)
B3083-3/8	2"	(50.8)	7/8"	(22.2)	9/16"	(14.3)	1 1/4"	(31.7)	1/4" x 2"	(6.3 x 50.8)
B3083-1/2	2"	(50.8)	7/8"	(22.2)	11/16"	(17.5)	1 1/4"	(31.7)	1/4" x 2"	(6.3 x 50.8)
B3083-5/8	2"	(50.8)	7/8"	(22.2)	13/16"	(20.6)	1 1/4"	(31.7)	1/4" x 2"	(6.3 x 50.8)
B3083-3/4	2"	(50.8)	1 1/8"	(28.6)	15/16"	(23.8)	1 1/2"	(38.1)	3/8" x 2 1/2"	(9.5 x 63.5)
B3083-7/8	3"	(76.2)	1 1/4"	(31.7)	1 1/8"	(28.6)	2"	(50.8)	3/8" x 2 1/2"	(9.5 x 63.5)
B3083-1	3"	(76.2)	1 1/2"	(38.1)	1 1/4"	(31.7)	2"	(50.8)	1/2" x 3"	(12.7 x 76.2)
B3083-1 1/8	3"	(76.2)	1 1/2"	(38.1)	1 3/8"	(34.9)	2 3/4"	(69.8)	1/2" x 3"	(12.7 x 76.2)
B3083-1 1/4	3"	(76.2)	2"	(50.8)	1 1/2"	(38.1)	3"	(76.2)	5/8" x 4"	(15.9 x 101.6)
B3083-1 1/2	4"	(101.6)	2 1/2"	(63.5)	1 3/4"	(44.4)	3 1/2"	(88.9)	3/4" x 5"	(19.0 x 127.0)
B3083-1 3/4	5"	(127.0)	2 3/4"	(69.8)	2"	(50.8)	3 3/4"	(95.2)	3/4" x 5"	(19.0 x 127.0)
B3083-2	5"	(127.0)	3 1/4"	(82.5)	2 3/8"	(60.3)	3 3/4"	(95.2)	3/4" x 6"	(19.0 x 152.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3080S - (Short) Structural Welding Lug
B3080L - (Long) Structural Welding Lug

Size Range: Short lug is available for use with 1/2"-13 thru 2"-4 1/2 rods; Long lug may be used with 1/2"-13 thru 2"-4 1/2 rod.

Material: Steel

Function: Designed for attachment to structural steel. Use with B3201 forged steel clevis.

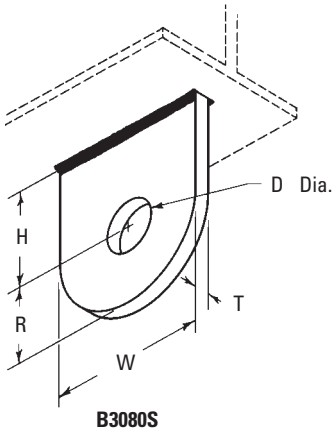
Approvals: Conforms to Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 57.

Finish: Plain or Electro-Galvanized

Order By: Part number and finish.

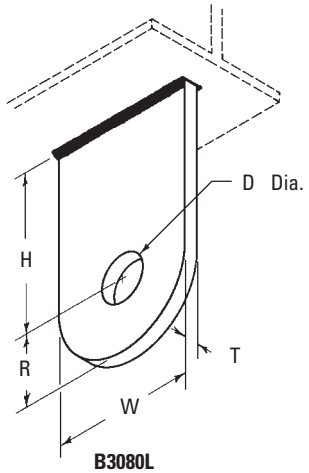
B3080L

B3080S



B3080S

Note:
Must be field welded to structural steel.



B3080L

Part No. Short	Part No. Long	For Hanger	Pin or Bolt Size in.	Pin or Bolt Size (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Short Lbs.	Approx. Wt./100 Short (kg)	Approx. Wt./100 Long Lbs.	Approx. Wt./100 Long (kg)
B3080S-1/2	B3080L-1/2	1/2"-13	5/8"	(15.9)	1350	(6.00)	44	(19.9)	71	(32.2)
B3080S-5/8	B3080L-5/8	5/8"-11	3/4"	(19.0)	2160	(9.61)	44	(19.9)	68	(30.8)
B3080S-3/4	B3080L-3/4	3/4"-10	7/8"	(22.0)	3230	(14.37)	63	(28.6)	100	(45.3)
B3080S-7/8	B3080L-7/8	7/8"-9	1"	(25.4)	4480	(19.93)	71	(32.2)	100	(45.3)
B3080S-1	B3080L-1	1"-8	1 1/8"	(28.6)	5900	(26.24)	126	(57.1)	169	(76.6)
B3080S-1 1/8	B3080L-1 1/8	1 1/8"-7	1 1/4"	(31.7)	7450	(33.14)	166	(75.3)	208	(94.3)
B3080S-1 1/4	B3080L-1 1/4	1 1/4"-7	1 3/8"	(38.1)	9500	(42.25)	310	(140.6)	381	(172.8)
B3080S-1 1/2	B3080L-1 1/2	1 1/2"-6	1 5/8"	(41.3)	13800	(61.38)	503	(228.1)	662	(300.3)
B3080S-1 3/4	B3080L-1 3/4	1 3/4"-5	1 7/8"	(47.6)	18600	(82.73)	487	(220.9)	646	(293.0)
B3080S-2	B3080L-2	2"-4 1/2	2 1/4"	(57.1)	24600	(109.42)	744	(337.5)	808	(366.5)

Part No. Short	Part No. Long	Hole Dia. 'D' in.	Hole Dia. 'D' (mm)	Short H in.	Short H (mm)	Long H in.	Long H (mm)	R in.	R (mm)	T in.	T (mm)	W in.	W (mm)
B3080S-1/2	B3080L-1/2	11/16"	(17.5)	1 1/2"	(38.1)	3"	(76.2)	1 1/4"	(31.7)	1/4"	(6.3)	2 1/2"	(63.5)
B3080S-5/8	B3080L-5/8	13/16"	(20.6)	1 1/2"	(38.1)	3"	(76.2)	1 1/4"	(31.7)	1/4"	(6.3)	2 1/2"	(63.5)
B3080S-3/4	B3080L-3/4	15/16"	(23.8)	1 1/2"	(38.1)	3"	(76.2)	1 1/4"	(31.7)	3/8"	(9.5)	2 1/2"	(63.5)
B3080S-7/8	B3080L-7/8	1 1/8"	(28.6)	2"	(50.8)	3"	(76.2)	1 1/4"	(31.7)	3/8"	(9.5)	2 1/2"	(63.5)
B3080S-1	B3080L-1	1 1/4"	(31.7)	2"	(50.8)	3"	(76.2)	1 1/2"	(38.1)	1/2"	(12.7)	3"	(76.2)
B3080S-1 1/8	B3080L-1 1/8	1 3/8"	(34.9)	3"	(76.2)	4"	(101.6)	1 1/2"	(38.1)	1/2"	(12.7)	3"	(76.2)
B3080S-1 1/4	B3080L-1 1/4	1 1/2"	(38.1)	3"	(76.2)	4"	(101.6)	2"	(50.8)	5/8"	(15.9)	4"	(101.6)
B3080S-1 1/2	B3080L-1 1/2	1 3/8"	(44.4)	3"	(76.2)	4 1/2"	(114.3)	2 1/2"	(63.5)	3/4"	(19.0)	5"	(127.0)
B3080S-1 3/4	B3080L-1 3/4	2"	(50.8)	3"	(76.2)	4 1/2"	(114.3)	2 1/2"	(63.5)	3/4"	(19.0)	5"	(127.0)
B3080S-2	B3080L-2	2 3/8"	(60.3)	4"	(101.6)	4 1/2"	(114.3)	3"	(76.2)	3/4"	(19.0)	6"	(152.4)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3085 - Rod Attachment Concrete Plate

Size Range: 3/8"-16 thru 2"-4 1/2 rod

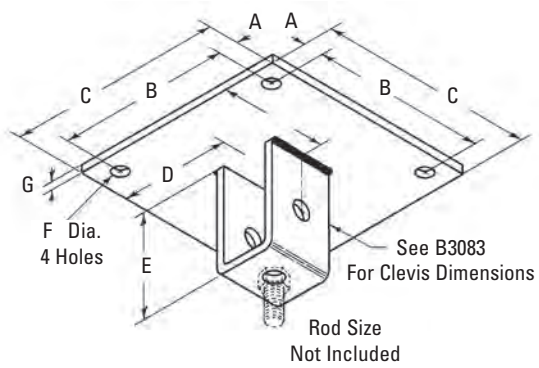
Material: Steel

Function: Structural attachment to concrete ceiling where vertical attachment is desired. Attach hanger rod directly to support bracket.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

Note: Design load is based off rod sizes. Before installation ensure that concrete and anchorage are sufficient to carry the load.



Part No.	Rod Size	A		B		C		D	
		in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
B3085-3/8	3/8"-16	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)
B3085-1/2	1/2"-13	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)
B3085-5/8	5/8"-11	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)
B3085-3/4	3/4"-10	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)
B3085-7/8	7/8"-9	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)
B3085-1	1"-8	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)
B3085-1 1/8	1 1/8"-7	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)
B3085-1 1/4	1 1/4"-7	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)
B3085-1 1/2	1 1/2"-6	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)

Part No.	E		F		G		Max. Rec. Load*		Approx. Wt./100	
	in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kN)	Lbs.	(kg)
B3085-3/8	2 7/8"	(73.0)	9/16"	(14.3)	3/8"	(9.5)	730	(3.25)	1145	(519.4)
B3085-1/2	2 7/8"	(73.0)	9/16"	(14.3)	3/8"	(9.5)	1450	(6.00)	1143	(518.4)
B3085-5/8	2 7/8"	(73.0)	9/16"	(14.3)	1/2"	(12.7)	2160	(9.61)	1490	(675.8)
B3085-3/4	3 1/8"	(79.4)	11/16"	(`17.5)	1/2"	(12.7)	3230	(14.37)	1574	(713.9)
B3085-7/8	4 1/4"	(107.7)	11/16"	(`17.5)	1/2"	(12.7)	4480	(19.93)	1635	(741.6)
B3085-1	4 1/2"	(114.3)	13/16"	(`20.6)	3/4"	(19.0)	5900	(26.24)	3420	(1551.3)
B3085-1 1/8	4 3/4"	(120.6)	15/16"	(`23.8)	3/4"	(19.0)	7450	(33.14)	3413	(1548.1)
B3085-1 1/4	5"	(127.0)	15/16"	(`23.8)	3/4"	(19.0)	9500	(42.25)	3747	(1699.6)
B3085-1 1/2	6 1/2"	(165.1)	1 1/8"	(`28.6)	1"	(25.4)	13800	(61.38)	5438	(2466.7)

* Based on allowable stresses shown in the ANSI code for pressure piping.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3086 - Clevis Concrete Plate

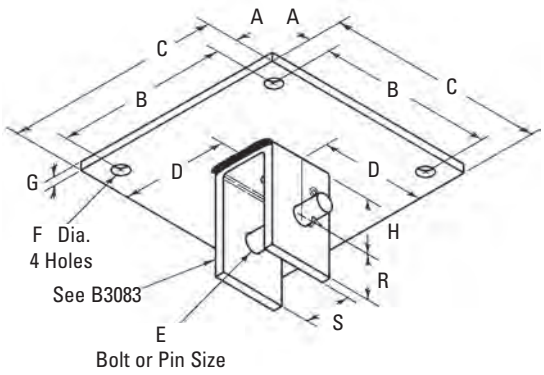
Size Range: 3/8"-16 thru 2"-4 1/2 rod

Material: Steel

Function: Structural attachment to concrete ceiling where flexibility is desired. (Use with B3200 weldless eye nut, B3210 eye rod or B3211 welded eye rod.)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish



Part No.	For Hanger Rod Size	A		B		C		D		E		F	
		in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
B3086-3/8	3/8"-16	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	1/2"	(12.7)	9/16"	(14.3)
B3086-1/2	1/2"-13	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	5/8"	(15.9)	9/16"	(14.3)
B3086-5/8	5/8"-11	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	3/4"	(19.0)	9/16"	(14.3)
B3086-3/4	3/4"-10	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	7/8"	(22.2)	11/16"	(17.5)
B3086-7/8	7/8"-9	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	1"	(25.4)	11/16"	(17.5)
B3086-1	1"-8	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)	1 1/8"	(28.6)	13/16"	(20.6)
B3086-1 1/8	1 1/8"-7	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)	1 1/4"	(31.7)	15/16"	(23.8)
B3086-1 1/4	1 1/4"-7	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)	1 3/8"	(34.9)	15/16"	(23.8)
B3086-1 1/2	1 1/2"-6	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)	1 5/8"	(41.3)	1 1/8"	(28.6)

Part No.	G		H		R		S		Max. Rec. Load*		Approx. Wt./100	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kN)	Lbs.	(kg)
B3086-3/8	3/8"	(9.5)	2"	(50.8)	7/8"	(22.2)	1 1/4"	(31.7)	730	(3.25)	1165	(528.4)
B3086-1/2	3/8"	(9.5)	2"	(50.8)	7/8"	(22.2)	1 1/4"	(31.7)	1350	(6.00)	1178	(534.4)
B3086-5/8	1/2"	(12.7)	2"	(50.8)	7/8"	(22.2)	1 1/4"	(31.7)	2160	(9.61)	1546	(701.2)
B3086-3/4	1/2"	(12.7)	2"	(50.8)	1 1/8"	(28.6)	1 1/2"	(38.1)	3230	(14.37)	1673	(758.9)
B3086-7/8	1/2"	(12.7)	3"	(76.2)	1 1/4"	(31.7)	2"	(50.8)	4480	(19.93)	1783	(808.7)
B3086-1	3/4"	(19.0)	3"	(76.2)	1 1/2"	(38.1)	2"	(50.8)	5900	(26.24)	3636	(1649.3)
B3086-1 1/8	3/4"	(19.0)	3"	(76.2)	1 3/4"	(44.4)	2 3/4"	(69.8)	7450	(33.14)	3708	(1681.9)
B3086-1 1/4	3/4"	(19.0)	3"	(76.2)	2"	(50.8)	3"	(76.2)	9500	(42.25)	3986	(1808.0)
B3086-1 1/2	1"	(25.4)	4"	(101.6)	2 1/2"	(63.5)	3 1/2"	(88.9)	13800	(61.38)	5816	(2638.1)

* Based on allowable stresses shown in the ANSI code for pressure piping.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3084 - Single Lug Concrete Plate

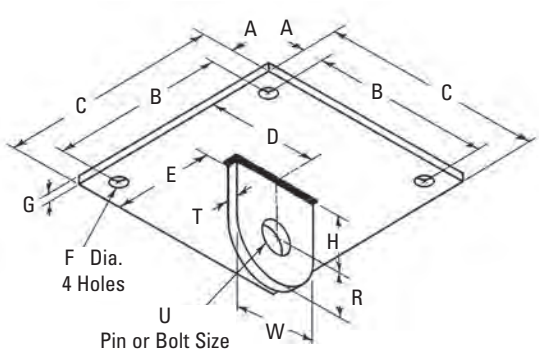
Size Range: 1/2"-13 thru 2"-4 1/2 rod

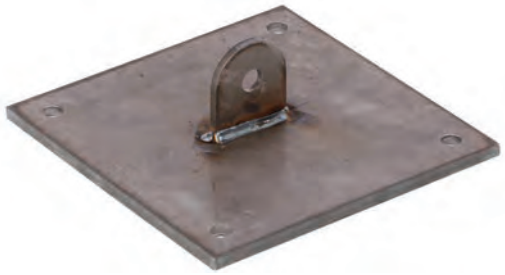
Material: Steel

Function: Structural attachment to concrete ceiling. Use with B3201 bridge clevis to attach to center lug.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish





Part No.	For Hanger Rod Size	A		B		C		D		E		F		G	
		in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
B3084-1/2	1/2"-13	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	4 7/8"	(123.8)	9/16"	(14.3)	3/8"	(9.5)
B3084-5/8	5/8"-11	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	4 7/8"	(123.8)	9/16"	(14.3)	1/2"	(12.7)
B3084-3/4	3/4"-10	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	4 13/16"	(122.2)	11/16"	(17.5)	1/2"	(12.7)
B3084-7/8	7/8"-9	1"	(25.4)	8"	(203.2)	10"	(254.0)	5"	(127.0)	4 13/16"	(122.2)	11/16"	(17.5)	3/4"	(19.0)
B3084-1	1"-8	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)	5 3/4"	(146.0)	13/16"	(20.6)	3/4"	(19.0)
B3084-1 1/8	1 1/8"-7	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)	5 3/4"	(146.0)	15/16"	(23.8)	3/4"	(19.0)
B3084-1 1/4	1 1/4"-7	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)	5 11/16"	(144.5)	15/16"	(23.8)	3/4"	(19.0)
B3084-1 1/2	1 1/2"-6	2"	(50.8)	8"	(203.2)	12"	(304.8)	6"	(152.4)	5 5/8"	(142.9)	1 1/8"	(28.6)	1"	(25.4)

Part No.	H		R		U		T x W		Max. Rec. Load*		Approx. Wt./100	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	Lbs.	(kN)	Lbs.	(kg)
B3084-1/2	1 1/2"	(38.1)	1 1/4"	(31.7)	5/8"	(15.9)	1/4" x 2 1/2"	(6.3 x 63.5)	1350	(6.00)	1096	(497.1)
B3084-5/8	1 1/2"	(38.1)	1 1/4"	(31.7)	3/4"	(19.0)	1/4" x 2 1/2"	(6.3 x 63.5)	2160	(9.61)	1447	(656.3)
B3084-3/4	1 1/2"	(38.1)	1 1/4"	(31.7)	7/8"	(22.2)	3/8" x 2 1/2"	(9.5 x 63.5)	3230	(14.37)	1459	(661.8)
B3084-7/8	2"	(50.8)	1 1/4"	(31.7)	1"	(25.4)	3/8" x 2 1/2"	(9.5 x 63.5)	4480	(19.93)	2166	(982.5)
B3084-1	2"	(50.8)	1 1/2"	(38.1)	1 1/8"	(28.6)	1/2" x 3"	(12.7 x 76.2)	5900	(26.24)	3145	(1426.6)
B3084-1 1/8	3"	(76.2)	1 1/2"	(38.1)	1 1/4"	(31.7)	1/2" x 3"	(12.7 x 76.2)	7450	(33.14)	3170	(1437.9)
B3084-1 1/4	3"	(76.2)	2"	(50.8)	1 3/8"	(34.9)	5/8" x 4"	(15.9 x 101.6)	9500	(42.25)	4312	(1955.9)
B3084-1 1/2	3"	(76.2)	2 1/2"	(63.5)	1 5/8"	(41.3)	3/4" x 5"	(19.0 x 127.0)	13800	(61.38)	4470	(2027.6)

* Based on allowable stresses shown in the ANSI code for pressure piping.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3082 - Adjustable Rod Beam Attachment

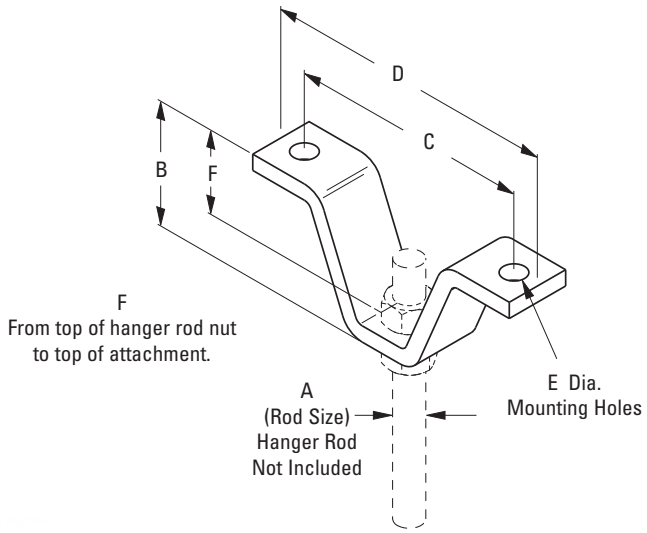
Size Range: 3/8"-16 thru 7/8"-9 rod

Material: Steel

Function: Designed for attaching hanger rod to bottom flange of beam or ceilings allowing for vertical adjustment where required.

Standard Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)
B3082-3/8	3/8"-16	2 3/4"	(69.8)	3 7/8"	(98.4)	4 7/8"	(123.8)
B3082-1/2	1/2"-13	3 1/8"	(97.4)	4 3/4"	(120.6)	6"	(152.4)
B3082-5/8	5/8"-11	3 1/8"	(79.4)	4 3/4"	(120.6)	6"	(152.4)
B3082-3/4	3/4"-10	3 11/16"	(93.7)	6 1/4"	(158.7)	7 3/4"	(196.8)
B3082-7/8	7/8"-9	3 3/4"	(95.2)	6 3/8"	(161.9)	8 1/4"	(209.5)

Part No.	Dia. E in.	Dia. E (mm)	Adjustment F in.	Adjustment F (mm)	Design Load Lbs.	Design Load (kN)	Approx.Wt./100 Lbs.	Approx.Wt./100 (kg)
B3082-3/8	7/16"	(11.1)	2 1/8"	(54.0)	810	(3.60)	53	(24.0)
B3082-1/2	9/16"	(14.3)	2 5/16"	(58.7)	1130	(5.02)	129	(58.5)
B3082-5/8	9/16"	(14.3)	2 3/16"	(55.6)	1810	(8.05)	128	(58.0)
B3082-3/4	11/16"	(17.5)	2 9/16"	(65.1)	2710	(12.05)	196	(88.9)
B3082-7/8	13/16"	(20.6)	2 1/2"	(63.5)	3770	(16.77)	282	(127.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Threaded Accessories

Threaded accessories offered in this section are designed to reduce installation time. A wide range of types and sizes are available for various applications.

Materials
For maximum loading design, Carbon Steel, Forged Steel, and Malleable Iron are used in the manufacturing of threaded accessories. Stainless Steel and other materials are available.

Finishes
The standard finishes for threaded accessories are plain steel (oil coated) sometimes referred to as black and Electro-Galvanized Zinc (ASTM B633 SC1). Hot-Dip Galvanized After Fabrication (ASTM A153) and other special coatings are available upon request.

Approvals (as noted)
Items in this section are Underwriters Laboratories Listed and comply with Federal Specification WW-H-171E & A-A-1192A or Manufacturers Standardization Society ANSI/MSS SP-69 SP-58.

B3222 - Eye Socket

Size Range: 1/4"-20 thru 3/4"-10 rod

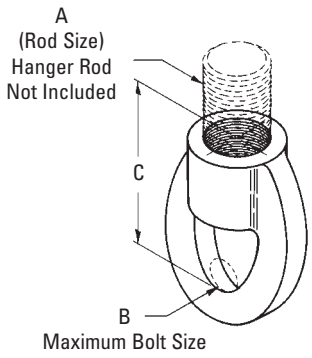
Material: Malleable Iron

Function: To provide an adjustable threaded connection for hanger rods.

Approvals: Underwriters Laboratories Listed 3/8"-16 thru 3/4"-10. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 16 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 16.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish



Part No.	Rod Size A	Max. Bolt Size B in.	(mm)	C in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3222-1/4	1/4"-20	1/4"	(6.3)	1 1/8"	(28.6)	400	(1.78)	6	(2.7)
B3222-3/8	3/8"-16	1/4"	(6.3)	1 3/8"	(34.9)	730	(3.25)	9	(4.1)
B3222-1/2	1/2"-13	1/4"	(6.3)	1 1/2"	(38.1)	1350	(6.00)	16	(7.2)
B3222-5/8	5/8"-11	3/8"	(9.5)	1 3/4"	(44.4)	1580	(7.03)	21	(9.5)
B3222-3/4	3/4"-10	1/2"	(12.7)	2"	(50.8)	1900	(8.45)	38	(17.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3200 - Weldless Eye Nut

Size Range: 3/8"-16 thru 2 1/2"-4 1/2 machine thread.

Material: Forged Steel

Quality Assurance: Conforms to the requirements of NCA 3800.

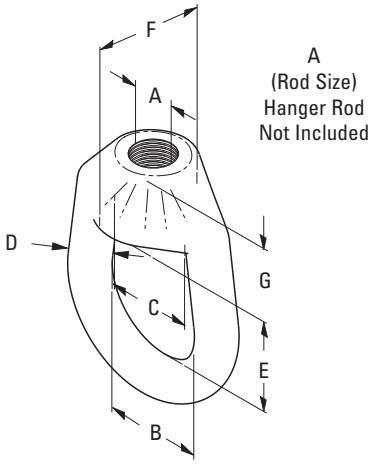
Threads: Tapped UNC Class 2B. Right hand threads are standard. Left hand threads supplied upon request.

Function: Used on piping installations where high strength and swivel action are required. Left hand tap is also available.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 17 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 17.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



Part No.	Rod Size A	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	E in.	E (mm)	F in.	F (mm)	G in.	G (mm)
B3200-3/8	3/8"-16	1 1/2"	(38.1)	1 3/16"	(30.2)	1/2"	(12.7)	2"	(50.8)	1 3/8"	(34.9)	11/16"	(17.5)
B3200-1/2	1/2"-13	1 1/2"	(38.1)	1 3/16"	(30.2)	1/2"	(12.7)	2"	(50.8)	1 3/8"	(34.9)	11/16"	(17.5)
B3200-5/8	5/8"-11	1 1/2"	(38.1)	1 3/16"	(30.2)	1/2"	(12.7)	2"	(50.8)	1 3/8"	(34.9)	11/16"	(17.5)
B3200-3/4	3/4"-10	1 1/2"	(38.1)	1 3/16"	(30.2)	1/2"	(12.7)	2"	(50.8)	1 3/8"	(34.9)	11/16"	(17.5)
B3200-7/8	7/8"-9	2"	(50.8)	1 11/16"	(42.9)	3/4"	(19.0)	2 5/8"	(66.7)	1 15/16"	(49.2)	1"	(25.4)
B3200-1	1"-8	2"	(50.8)	1 11/16"	(42.9)	3/4"	(19.0)	2 5/8"	(66.7)	1 15/16"	(49.2)	1"	(25.4)
B3200-1 1/8	1 1/8"-7	2 1/2"	(63.5)	1 13/16"	(46.0)	1"	(25.4)	3 3/8"	(85.7)	2 3/8"	(60.3)	1 1/4"	(31.7)
B3200-1 1/4	1 1/4"-7	2 1/2"	(63.5)	1 13/16"	(46.0)	1"	(25.4)	3 3/8"	(85.7)	2 3/8"	(60.3)	1 1/4"	(31.7)
B3200-1 1/2	1 1/2"-6	2 1/2"	(63.5)	1 13/16"	(46.0)	1"	(25.4)	3 3/8"	(85.7)	2 3/8"	(60.3)	1 1/4"	(31.7)
B3200-1 3/4	1 3/4"-5	4"	(101.6)	4"	(101.6)	1 1/2"	(38.1)	6 1/4"	(158.7)	4"	(101.6)	2 1/4"	(57.1)
B3200-2	2"-4 1/2	4"	(101.6)	4"	(101.6)	1 1/2"	(38.1)	6 1/4"	(158.7)	4"	(101.6)	2 1/4"	(57.1)
B3200-2 1/4	2 1/4"-4 1/2	4"	(101.6)	4"	(101.6)	1 1/2"	(38.1)	6 1/4"	(158.7)	4"	(101.6)	2 1/4"	(57.1)
B3200-2 1/2	2 1/2"-4 1/2	4"	(101.6)	4"	(101.6)	1 1/2"	(38.1)	6 1/4"	(158.7)	4"	(101.6)	2 1/4"	(57.1)

Part No.	Design Load 650°F (343°C) Lbs.	(kN)	750°F (399°C) Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3200-3/8	610	(2.71)	540	(2.40)	63	(28.6)
B3200-1/2	1130	(5.02)	1010	(4.49)	60	(27.2)
B3200-5/8	1810	(8.05)	1610	(7.16)	59	(26.7)
B3200-3/4	2710	(12.05)	2420	(10.76)	56	(25.4)
B3200-7/8	3770	(16.77)	3360	(14.94)	170	(77.1)
B3200-1	4950	(22.02)	4420	(19.66)	174	(78.9)
B3200-1 1/8	6230	(27.71)	5560	(24.73)	373	(169.2)
B3200-1 1/4	8000	(35.58)	7140	(31.76)	364	(165.1)
B3200-1 1/2	11630	(51.73)	10370	(46.12)	345	(156.5)
B3200-1 3/4	15700	(69.83)	14000	(62.27)	1657	(751.6)
B3200-2	20700	(92,07)	18460	(82.11)	1614	(732.1)
B3200-2 1/4	27200	(120.98)	24260	(107.91)	1562	(708.5)
B3200-2 1/2	33500	(149.01)	29880	(132.90)	1506	(683.1)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B501 - Light Weight U-Bolt with 2 Hex Nuts

Size Range: 1/2" (15mm) thru 8" (200mm) pipe

Material: Carbon Steel

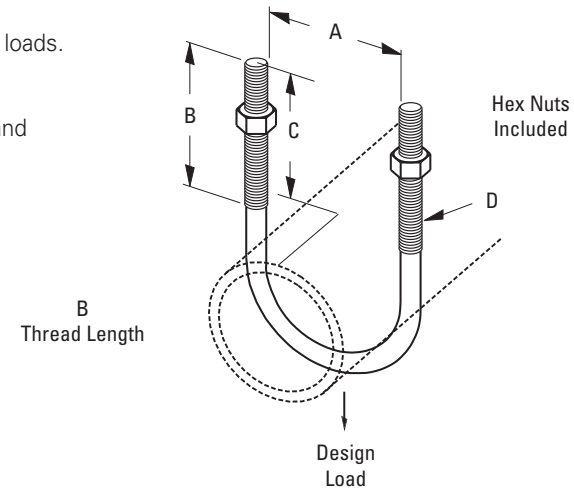
Function: Recommended for supporting or anchoring light pipe loads.

Maximum Temperature: 650°F (343°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.

Note: When furnished in Hot-Dip Galvanized finish, oversize tapped hex nuts must be used.



Part No.	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	D	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B501-1/2	15/16"	(23.8)	1 3/4"	(44.4)	1 1/2"	(38.1)	5/16"-18	600	(2.67)	12	(5.4)
B501-3/4	1 1/8"	(28.6)	1 3/4"	(44.4)	1 5/8"	(41.3)	5/16"-18	600	(2.67)	13	(5.9)
B501-1	1 3/8"	(29.9)	1 7/8"	(47.6)	1 5/8"	(41.3)	5/16"-18	900	(4.00)	14	(6.3)
B501-1 1/4	1 23/32"	(43.6)	1 3/4"	(44.4)	1 15/32"	(37.3)	5/16"-18	900	(4.00)	15	(6.8)
B501-1 1/2	2"	(50.8)	1 3/4"	(44.4)	1 7/16"	(36.5)	5/16"-18	900	(4.00)	16	(7.2)
B501-2	2 7/16"	(61.9)	2 1/16"	(52.4)	1 7/8"	(47.6)	3/8"-16	1200	(5.34)	27	(12.2)
B501-2 1/2	2 15/16"	(74.6)	2 1/16"	(52.4)	1 13/16"	(46.0)	3/8"-16	1200	(5.34)	32	(14.5)
B501-3	3 9/16"	(90.5)	2"	(50.8)	1 3/4"	(44.4)	3/8"-16	1800	(8.00)	36	(16.3)
B501-3 1/2	4 3/32"	(94.6)	2"	(50.8)	1 23/32"	(43.6)	3/8"-16	1800	(8.00)	38	(17.2)
B501-4	4 19/32"	(116.7)	2 1/4"	(57.1)	1 21/32"	(50.0)	3/8"-16	1800	(8.00)	42	(19.0)
B501-5	5 21/32"	(143.6)	2 1/4"	(57.1)	2"	(50.8)	1/2"-13	2400	(10.70)	92	(41.7)
B501-6	6 3/4"	(171.4)	2 5/8"	(66.7)	2 3/8"	(60.3)	5/8"-11	2400	(10.70)	176	(79.8)
B501-8	8 3/4"	(222.2)	2 5/8"	(66.7)	2 3/8"	(60.3)	5/8"-11	2400	(10.70)	191	(86.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3188 - Standard U-Bolt with 4 Hex Nuts
B3188C - Standard Plastic Coated U-Bolt

Size Range: 1/2" (15mm) thru 30" (900mm) pipe

Material: Steel

Function: Recommended for support, anchor or guide of pipe.

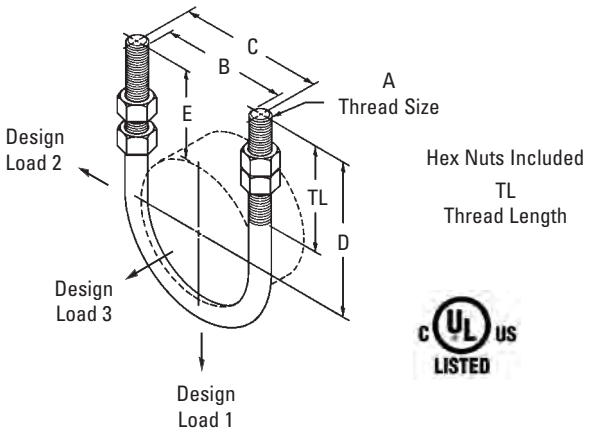
Approvals: Underwriters Laboratories Listed 3/4" (20mm) thru 12" (300mm). Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 24 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 24.

Maximum Temperature: 750°F (399°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish. U-bolt can be furnished with longer tangents "D" or with longer threads "TL". Consult factory.

Note: When furnished in Hot-Dip Galvanized finish, oversize tapped hex nuts must be used. B3188NS - Non-standard (NS) U-bolts are available upon request. Specify dimensions other than standard. B3188DI - For ductile iron pipe.



B3188

B3188C
Plastic Coated

Part No.	Pipe Size in.	(mm)	Thread Size	Thread Length TL in.	(mm)	B in.	(mm)
B3188-1/2	1/2"	(15)	1/4"-20	2 1/8"	(54.0)	15/16"	(23.8)
B3188-3/4	3/4"	(20)	1/4"-20	2 1/8"	(54.0)	1 1/8"	(28.6)
B3188-1	1"	(25)	1/4"-20	2 1/8"	(54.0)	1 3/8"	(34.9)
B3188-1 1/4	1 1/4"	(32)	3/8"-16	2 1/8"	(54.0)	1 11/16"	(42.9)
B3188-1 1/2	1 1/2"	(40)	3/8"-16	2 1/2"	(63.5)	2"	(50.8)
B3188-2	2"	(50)	3/8"-16	2 1/2"	(63.5)	2 7/16"	(61.9)
B3188-2 1/2	2 1/2"	(65)	1/2"-13	3"	(76.2)	2 15/16"	(74.6)
B3188-3	3"	(80)	1/2"-13	3"	(76.2)	3 9/16"	(90.5)
B3188-3 1/2	3 1/2"	(90)	1/2"-13	3"	(76.2)	4 1/16"	(103.2)
B3188-4	4"	(100)	1/2"-13	3"	(76.2)	4 9/16"	(115.9)
B3188-5	5"	(125)	1/2"-13	3"	(76.2)	5 21/32"	(143.6)
B3188-6	6"	(150)	5/8"-11	3 3/4"	(95.2)	6 3/4"	(171.4)
B3188-8	8"	(200)	5/8"-11	3 3/4"	(95.2)	8 3/4 "	(222.2)
B3188-10	10"	(250)	3/4"-10	4"	(101.6)	10 7/8"	(276.2)
B3188-12	12"	(300)	7/8"-9	4 1/4"	(107.9)	12 7/8"	(327.0)
B3188-14	14"	(350)	7/8"-9	4 1/4"	(107.9)	14 1/8"	(358.8)
B3188-16	16"	(400)	7/8"-9	4 1/4"	(107.9)	16 1/8"	(409.6)
B3188-18	18"	(450)	1"-8	4 3/4"	(120.6)	18 1/8"	(460.4)
B3188-20	20"	(500)	1"-8	4 3/4"	(120.6)	20 1/8"	(511.2)
B3188-24	24"	(600)	1"-8	4 3/4"	(120.6)	24 1/8"	(612.8)
B3188-30	30"	(750)	1"-8	4 3/4"	(120.6)	30 1/8"	(765.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3188 - Standard U-Bolt with 4 Hex Nuts cont.

Part No.	C in.	C (mm)	Tangent D in.	Tangent D (mm)	E in.	E (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3188-1/2	1 3/16"	(30.2)	2 3/4"	(69.8)	2 5/16"	(58.7)	10	(4.5)
B3188-3/4	1 3/8"	(34.9)	2 3/4"	(69.8)	2 7/32"	(56.3)	11	(5.0)
B3188-1	1 5/8"	(41.3)	2 3/4"	(69.8)	2 3/32"	(53.2)	11	(5.0)
B3188-1 1/4	2 3/32"	(53.2)	2 7/8"	(73.0)	2 1/32"	(51.6)	28	(12.7)
B3188-1 1/2	2 3/8"	(60.3)	3"	(76.2)	2 1/16"	(52.4)	29	(13.1)
B3188-2	2 13/16"	(71.4)	3 1/4"	(82.5)	2 1/16"	(52.4)	31	(14.0)
B3188-2 1/2	3 7/16"	(87.3)	3 3/4"	(95.2)	2 5/16"	(58.7)	72	(32.6)
B3188-3	4 1/16"	(103.2)	4"	(101.6)	2 1/4"	(57.1)	79	(35.8)
B3188-3 1/2	4 9/16"	(115.9)	4 1/4"	(107.9)	2 1/4"	(57.1)	84	(38.1)
B3188-4	5 1/16"	(128.6)	4 1/2"	(114.3)	2 1/4"	(57.1)	94	(42.6)
B3188-5	6 5/32"	(156.3)	5"	(127.0)	2 7/32"	(56.3)	104	(47.2)
B3188-6	7 3/8"	(187.3)	6 1/8"	(155.6)	2 13/16"	(71.4)	203	(92.1)
B3188-8	9 3/8"	(238.1)	7 1/8"	(181.0)	2 13/16"	(71.4)	241	(109.3)
B3188-10	11 5/8"	(295.3)	8 3/8"	(212.7)	3"	(76.2)	412	(186.9)
B3188-12	13 3/4"	(349.2)	9 5/8"	(244.5)	3 1/4"	(82.5)	661	(299.8)
B3188-14	15"	(381.0)	10 1/4"	(260.3)	3 1/4"	(82.5)	707	(320.7)
B3188-16	17"	(431.8)	11 1/4"	(285.7)	3 1/4"	(82.5)	782	(354.7)
B3188-18	19 1/8"	(485.8)	12 5/8"	(320.7)	3 5/8"	(92.1)	1344	(609.6)
B3188-20	21 1/8"	(536.6)	13 5/8"	(346.1)	3 5/8"	(92.1)	1458	(661.3)
B3188-24	25 1/8"	(638.2)	15 5/8"	(396.9)	3 5/8"	(92.1)	1687	(765.2)
B3188-30	31 1/8"	(790.6)	18 5/8"	(473.1)	3 5/8"	(92.1)	2030	(920.8)

Part No.	Design Load 1 650°F (343°C) Lbs.	Design Load 1 650°F (343°C) (kN)	Design Load 1 750°F (399°C) Lbs.	Design Load 1 750°F (399°C) (kN)	Design Load 2 650°F (343°C) Lbs.	Design Load 2 650°F (343°C) (kN)	Design Load 3 650°F (343°C) Lbs.	Design Load 3 650°F (343°C) (kN)
B3188-1/2	580	(2.58)	454	(2.02)	145	(0.64)	180	(0.80)
B3188-3/4	580	(2.58)	454	(2.02)	145	(0.64)	300	(1.33)
B3188-1	580	(2.58)	454	(2.02)	145	(0.64)	480	(2.13)
B3188-1 1/4	1460	(6.49)	1144	(5.09)	365	(1.62)	600	(2.67)
B3188-1 1/2	1460	(6.49)	1144	(5.09)	365	(1.62)	600	(2.67)
B3188-2	1460	(6.49)	1144	(5.09)	365	(1.62)	720	(3.20)
B3188-2 1/2	2700	(12.01)	2114	(9.40)	675	(3.00)	720	(3.20)
B3188-3	2700	(12.01)	2114	(9.40)	675	(3.00)	900	(4.00)
B3188-3 1/2	2700	(12.01)	2114	(9.40)	675	(3.00)	900	(4.00)
B3188-4	2700	(12.01)	2114	(9.40)	675	(3.00)	900	(4.00)
B3188-5	2700	(12.01)	2114	(9.40)	675	(3.00)	1080	(4.80)
B3188-6	4320	(19.21)	3382	(15.04)	1080	(4.80)	1080	(4.80)
B3188-8	4320	(19.21)	3382	(15.04)	1080	(4.80)	--	--
B3188-10	6460	(28.73)	5060	(22.50)	1615	(7.18)	--	--
B3188-12	9960	(44.30)	7016	(31.21)	2490	(11.07)	--	--
B3188-14	9960	(44.30)	7016	(31.21)	2490	(11.07)	--	--
B3188-16	9960	(44.30)	7016	(31.21)	2490	(11.07)	--	--
B3188-18	11800	(52.48)	9240	(41.10)	--	--	--	--
B3188-20	11800	(52.48)	9240	(41.10)	--	--	--	--
B3188-24	11800	(52.48)	9240	(41.10)	--	--	--	--
B3188-30	11800	(52.48)	9240	(41.10)	--	--	--	--

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3201 - Forged Steel Clevis with Pin
B3201WO - Forged Steel Clevis without Pin

Size Range: 3/8"-16 thru 2"-4 1/2 rod

Material: Forged Steel

Function: For use on high temperature piping installations providing hanger rod adjustability.

Features: Complies fully with code for pressure piping. Supports loads equal to the full limitation of the hanger rod. Available with pin and cotter pins, if required.

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 14 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 14.

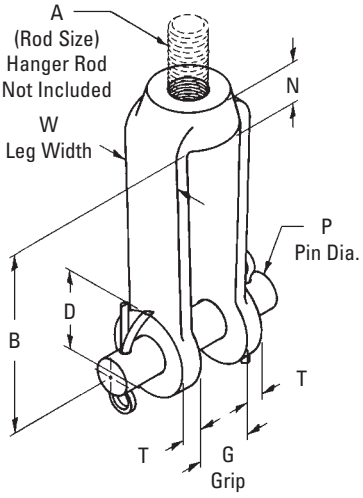
Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish. If pin and cotter pins are required, specify "with pin". If other than standard combination of clevis size and rod tapping is required, specify clevis number, special rod tapping size and grip.

B
Center of clevis pin to underside of top

D
Boss Dia.

N
Thickness of threaded top.



Part No.	Rod Size A	B in.	B (mm)	D in.	D (mm)	Grip G in.	Grip G (mm)	Pin Dia. N in.	Pin Dia. N (mm)	P in.	P (mm)
B3201-3/8	3/8"-16	3 9/16"	(90.5)	1 7/16"	(36.5)	1/2"	(12.7)	5/8"	(15.9)	1/2"	(12.7)
B3201-1/2	1/2"-13	3 9/16"	(90.5)	1 7/16"	(36.5)	1/2"	(12.7)	5/8"	(15.9)	5/8"	(15.9)
B3201-5/8	5/8"-11	3 9/16"	(90.5)	1 7/16"	(36.5)	5/8"	(15.9)	5/8"	(15.9)	3/4"	(19.0)
B3201-3/4	3/4"-10	4"	(101.6)	2 1/2"	(63.5)	3/4"	(19.0)	1 1/8"	(28.6)	7/8"	(22.2)
B3201-7/8	7/8"-9	4"	(101.6)	2 1/2"	(63.5)	7/8"	(22.2)	1 1/8"	(28.6)	1"	(25.4)
B3201-1	1"-8	5 1/16"	(128.6)	3"	(76.2)	1"	(25.4)	1 1/4"	(31.7)	1 1/8"	(28.6)
B3201-1 1/8	1 1/8"-7	5 1/16"	(128.6)	3"	(76.2)	1 1/8"	(28.6)	1 1/4"	(31.7)	1 1/4"	(31.7)
B3201-1 1/4	1 1/4"-7	5 1/16"	(128.6)	3"	(76.2)	1 1/4"	(31.7)	1 1/4"	(31.7)	1 3/8"	(34.9)
B3201-1 1/2	1 1/2"-6	6"	(152.4)	3 1/2"	(88.9)	1 1/2"	(38.1)	1 1/2"	(38.1)	1 5/8"	(41.3)
B3201-1 3/4	1 3/4"-5	5 15/16"	(150.8)	4"	(101.6)	1 1/2"	(38.1)	1 3/4"	(44.4)	1 7/8"	(47.6)
B3201-2	2"-4 1/2	7"	(177.8)	5"	(127.0)	2 1/2"	(63.5)	2 1/4"	(57.1)	2 1/4"	(57.1)

Part No.	T in.	T (mm)	W in.	W (mm)	Design Load 650°F (343°C) Lbs.	Design Load 650°F (343°C) (kN)	Design Load 750°F (399°C) Lbs.	Design Load 750°F (399°C) (kN)	Approx. Wt./100 With Pin Lbs.	Approx. Wt./100 With Pin (kg)	Approx. Wt./100 Without Pin Lbs.	Approx. Wt./100 Without Pin (kg)
B3201-3/8	5/16"	(7.9)	1 1/16"	(27.0)	730	(3.25)	572	(2.54)	102	(46.2)	85	(38.5)
B3201-1/2	5/16"	(7.9)	1 1/16"	(27.0)	1350	(6.00)	1057	(4.70)	112	(50.8)	82	(37.2)
B3201-5/8	5/16"	(7.9)	1 1/16"	(27.0)	2160	(9.61)	1692	(7.52)	134	(60.8)	78	(35.4)
B3201-3/4	3/8"	(9.5)	1 1/4"	(31.7)	3230	(14.37)	2530	(11.25)	250	(113.4)	163	(73.9)
B3201-7/8	3/8"	(9.5)	1 1/4"	(31.7)	4480	(19.93)	3508	(15.60)	305	(138.3)	161	(73.0)
B3201-1	1/2"	(12.7)	1 1/2"	(38.1)	5900	(26.24)	4620	(20.55)	656	(297.5)	449	(203.6)
B3201-1 1/8	1/2"	(12.7)	1 1/2"	(38.1)	7450	(33.14)	5830	(25.93)	718	(325.7)	433	(196.4)
B3201-1 1/4	1/2"	(12.7)	1 1/2"	(38.1)	9500	(42.25)	7440	(33.09)	603	(273.5)	382	(173.3)
B3201-1 1/2	1/2"	(12.7)	1 3/4"	(44.4)	13800	(61.38)	10807	(48.07)	952	(431.8)	600	(272.1)
B3201-1 3/4	1/2"	(12.7)	2"	(50.8)	18600	(82.73)	14566	(64.79)	1357	(615.5)	800	(362.9)
B3201-2	5/8"	(15.9)	2 1/2"	(63.5)	24600	(109.42)	19625	(87.29)	2403	(1090.0)	1600	(725.7)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3203 - Extension Piece

Size Range: 3/8"-16 thru 7/8"-9 rod

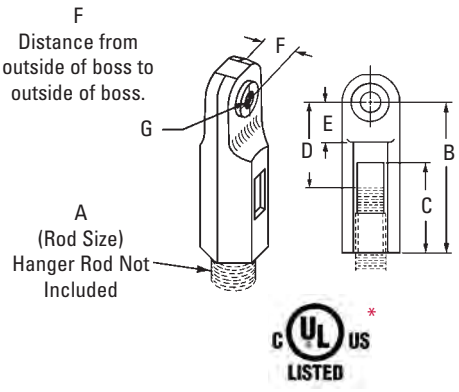
Material: Malleable Iron

Function: For use in attaching hanger rod to other attachments. (Use with B3054.)

Approvals: Underwriters Laboratories Listed *

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish



Part No.	Rod Size A	For Pipe Sizes in.	(mm)	B in.	(mm)	C in.	(mm)	D in.	(mm)
B3203-3/8 *	3/8"-16	3/4" to 2"	(20 to 50)	2 1/16"	(52.4)	1 1/4"	(31.7)	1 1/4"	(31.7)
B3203-1/2 *	1/2"-13	2 1/2" to 3 1/2"	(65 to 90)	2 1/16"	(58.7)	1 3/8"	(34.9)	1 3/8"	(34.9)
B3203-5/8	5/8"-11	4"-5"	(100 to125)	2 7/16"	(61.9)	1 1/2"	(38.1)	1 7/16"	(36.5)
B3203-3/4	3/4"-10	6"	(150)	2 7/8"	(73.0)	1 3/4"	(44.4)	1 11/16"	(42.9)
B3203-7/8	7/8"-9	8" to 12"	(200 to 300)	3"	(76.2)	1 7/8"	(47.6)	1 3/4"	(44.4)

Part No.	E in.	(mm)	F in.	(mm)	G in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3203-3/8	9/16"	(14.3)	1/2"	(12.7)	1/2"	(12.7)	730	(3.25)	18	(8.1)
B3203-1/2	11/16"	(17.5)	5/8"	(15.9)	1/2"	(12.7)	1350	(6.00)	37	(16.8)
B3203-5/8	3/4"	(19.0)	5/8"	(15.9)	1/2"	(12.7)	1550	(6.89)	42	(19.0)
B3203-3/4	7/8"	(22.2)	5/8"	(15.9)	1/2"	(12.7)	2100	(9.34)	56	(25.4)
B3203-7/8	7/8"	(22.2)	3/4"	(19.0)	9/16"	(14.3)	2350	(10.45)	75	(34.0)

B3223-3/8" - Offset Eye Socket

Size Range: 3/8"-16 rod

Material: Steel

Function: Designed for attachment of 3/8"-16 hanger rod to structure.

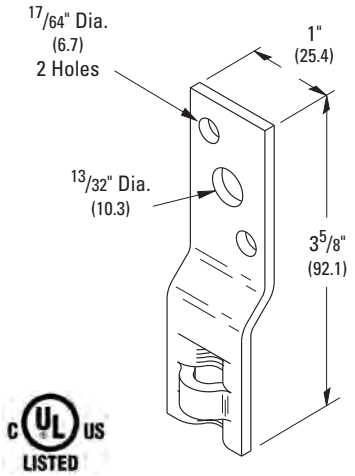
Approvals: Underwriters Laboratories Listed for up to 2" (50mm) pipe.

Weight: Approx. Wt./100 - 6.0 lbs. (2.7kg)

Finish: Electro-Galvanized

Order By: Part number and finish

Design Load: 610 lbs (2.71kN)



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3224 - Hanger Adjuster
B3224CT - Copper Tubing Hanger Adjuster

Size Range: 1/4"-20 thru 3/4"-10 rod

Material: Malleable Iron

Function: To provide an adjustable threaded connection for hanger rods.

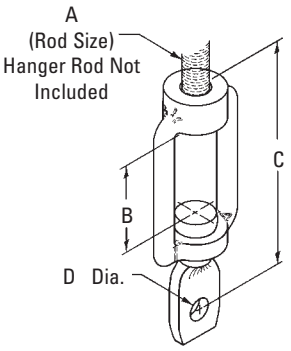
Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 15 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 15.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size and finish

B3224

B3224CT



Part No.	Rod Size A	For Pipe Sizes in.	For Pipe Sizes (mm)	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3224-1/4	1/4"-20	3/8"	(10)	1 3/4"	(44.4)	3 7/8"	(98.4)	7/32"	(5.5)	230	(1.02)	9	(4.1)
B3224-3/8	3/8"-16	1/2" to 2"	(15 to 50)	1 3/4"	(44.4)	3 7/8"	(98.4)	13/32"	(10.3)	730	(3.25)	28	(12.7)
B3224-1/2	1/2"-13	2 1/2" to 3 1/2"	(65 to 90)	1 3/4"	(44.4)	3 7/8"	(98.4)	13/32"	(10.3)	730	(3.25)	29	(13.1)
B3224-5/8	5/8"-11	4" to 5"	(100 to 125)	2 1/4"	(57.1)	5 1/8"	(130.2)	1/2"	(12.7)	730	(3.25)	30	(13.6)
B3224-3/4	3/4"-10	6"	(150)	2 1/4"	(57.1)	5 1/8"	(130.2)	9/16"	(14.3)	860	(3.82)	74	(33.5)

B3202 - Turnbuckle

Size Range: 3/8"-16 thru 2"-4 1/2 machine thread

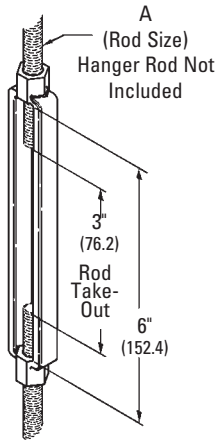
Material: Forged Steel

Function: Standard turnbuckle tapped right and left hand which provides 6" (152.4mm) take up (3" (76.2mm) rod take out).

Approvals: Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 13, 3/8"-16 thru 1 1/2"-6 rod, and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 13.

Finish: Plain. Contact customer service for alternative finishes and materials.

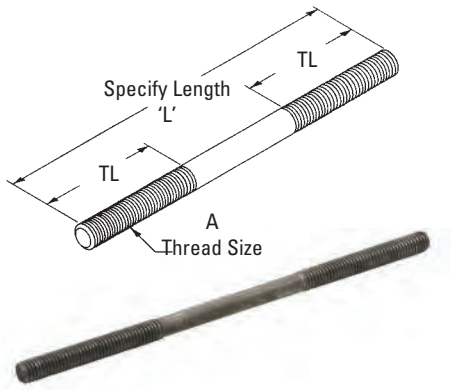
Order By: Part number, rod size and finish



Part No.	Rod Size A	Design Load 650°F (343°C) Lbs.	Design Load 650°F (343°C) (kN)	Design Load 750°F (399°C) Lbs.	Design Load 750°F (399°C) (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3202-3/8	3/8"-16	730	(3.25)	572	(2.54)	38	(17.2)
B3202-1/2	1/2"-13	1350	(6.00)	1057	(4.70)	54	(24.5)
B3202-5/8	5/8"-11	2160	(9.61)	1692	(7.52)	91	(41.3)
B3202-3/4	3/4"-10	3230	(14.37)	2530	(11.25)	130	(58.9)
B3202-7/8	7/8"-9	4480	(19.93)	3508	(15.60)	202	(91.6)
B3202-1	1"-8	5900	(26.24)	4620	(20.55)	270	(122.5)
B3202-1 1/8	1 1/8"-7	7450	(33.14)	5830	(25.93)	354	(160.6)
B3202-1 1/4	1 1/4"-7	9500	(42.25)	7440	(33.09)	445	(201.8)
B3202-1 1/2	1 1/2"-6	13800	(61.38)	10807	(48.07)	640	(290.3)
B3202-1 3/4	1 3/4"-5	18600	(82.73)	14566	(64.79)	1100	(498.9)
B3202-2	2"-4 1/2	24600	(109.42)	19625	(87.29)	1490	(675.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3205 - Threaded Rod (right-hand threads - both ends)
B3205L - Threaded Rod (right & left hand threads)



Size Range: 3/8"-16 thru 3"-4 rod

Material: Steel

Function: Recommended for use as a hanger support in hanger assemblies. Rod is threaded on both ends with right hand threads of the length shown. Also available with left and right hand threads - specify Fig. B3205L when ordering.

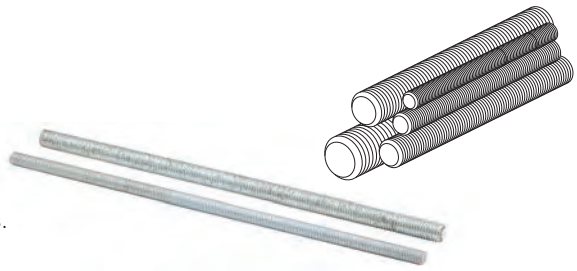
Maximum Temperature: 750°F (399°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size, length and finish

Part No.	Thread Size A	Standard Thread Length TL in.	(mm)	Design Load 650°F (343°C) Lbs.	(kN)	750°F (399°C) Lbs.	(kN)
B3205-3/8 x 'L'	3/8"-16	2 1/2"	(63.5)	730	(3.25)	572	(2.54)
B3205-1/2 x 'L'	1/2"-13	2 1/2"	(63.5)	1350	(6.00)	1057	(4.70)
B3205-5/8 x 'L'	5/8"-11	2 1/2"	(63.5)	2160	(9.61)	1692	(7.52)
B3205-3/4 x 'L'	3/4"-10	3"	(76.2)	3230	(14.37)	2530	(11.25)
B3205-7/8 x 'L'	7/8"-9	3 1/2"	(88.9)	4480	(19.93)	3508	(15.60)
B3205-1 x 'L'	1"-8	4"	(101.6)	5900	(26.24)	4620	(20.55)
B3205-1 1/8 x 'L'	1 1/8"-7	4 1/2"	(114.3)	7450	(33.14)	5830	(25.93)
B3205-1 1/4 x 'L'	1 1/4"-7	5"	(127.0)	9500	(42.25)	7440	(33.09)
B3205-1 1/2 x 'L'	1 1/2"-6	6"	(152.4)	13800	(61.38)	10807	(48.07)
B3205-1 3/4 x 'L'	1 3/4"-5	7"	(177.8)	18600	(82.73)	14566	(64.79)
B3205-2 x 'L'	2"-4 1/2	8"	(203.2)	24600	(109.42)	19625	(87.29)
B3205-2 1/4 x 'L'	2 1/4"-4 1/2	9"	(228.6)	32300	(143.67)	25295	(112.51)
B3205-2 1/2 x 'L'	2 1/2"-4	10"	(254.0)	39800	(177.03)	31169	(138.64)
B3205-2 3/4 x 'L'	2 3/4"-4	11"	(279.4)	49400	(219.73)	38687	(172.08)
B3205-3 x 'L'	3"-4	12"	(304.8)	60100	(267.32)	47066	(209.35)

ATR - All Threaded Rod 120" (3.05m) Lengths
Fig. 99 - All Threaded Rod Cut To Length



Size Range: 3/8"-16 thru 1 1/2"-6 rod in 120" (3.05m) lengths or cut to length

Material: Steel

Maximum Temperature: 750°F (399°C)

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod diameter and finish

Part No. - Size x Length ATR	Fig.99	Threads Per Inch	Recommended Load Lbs.	(kN)	Approx. Wt./100 Ft. Lbs.	(kg)
ATR 1/4" x 120	99-1/4" x length	20	240	(1.07)	12	(5.44)
ATR 3/8" x 120	99-3/8" x length	16	730	(3.24)	29	(13.15)
ATR 1/2" x 120	99-1/2" x length	13	1350	(6.00)	53	(24.04)
ATR 5/8" x 120	99-5/8" x length	11	2160	(9.60)	89	(40.37)
ATR 3/4" x 120	99-3/4" x length	10	3230	(14.37)	123	(55.79)
ATR 7/8" x 120	99-7/8" x length	9	4480	(19.93)	170	(77.11)
ATR 1" x 120	99-1" x length	8	5900	(26.24)	225	(102.06)
ATR 1 1/8" x 120	99-1 1/8" x length	7	7450	(33.14)	280	(127.01)
ATR 1 1/4" x 120	99-1 1/4" x length	7	9500	(42.25)	351	(159.21)
ATR 1 1/2" x 120	99-1 1/2" x length	6	13800	(61.38)	510	(231.33)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 98 - Rod Stiffener
TOLCO™ Fig. 98B - Rod Stiffener with Break-Off Bolt Head

Size Range: Secures 3/8"-16 thru 7/8"-9 hanger rod

Material: Steel

Function: Secures channel to hanger rod for vertical seismic bracing. Slight distortion of the channel (strut) may occur upon installation of rod stiffeners.

Approvals: Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines

Finishes: Fig. 98B - Electro Galvanized
Fig. 98 - HDG or SS
Contact customer service for alternative finishes and materials.

Weight: Approx. Wt./100: Fig. 98 - 11.8 Lbs. (5.3kg)
Fig. 98B - 12.7 Lbs. (5.7kg)

Order By: Part number

Fig. 98

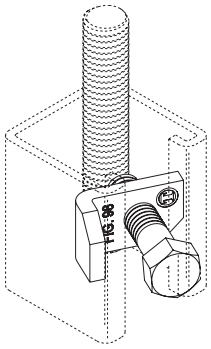
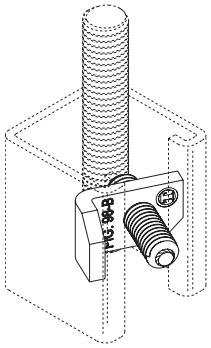


Fig. 98B



SC228 - Hanger Rod Stiffener

Size Range: Secures 3/8"-16 thru 5/8"-11 hanger rod

Material: Steel

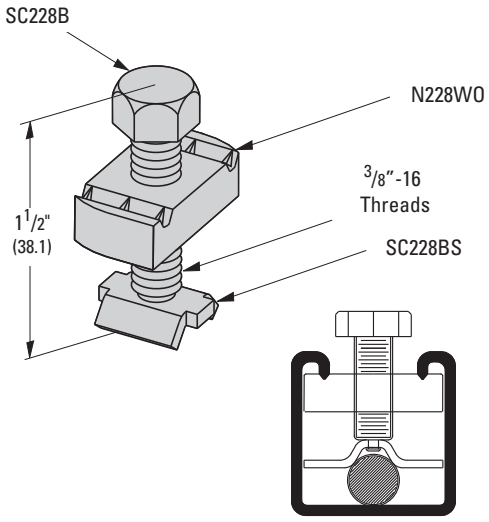
Function: Secures channel to hanger rod for vertical seismic bracing. Slight distortion of the channel (strut) may occur upon installation of rod stiffeners.

Finish: Electro Galvanized. Contact customer service for alternative finishes and materials.

Weight: Approx. Wt./100: 21.0 Lbs. (9.5kg)

Order By: Part number

Note: Order channel separately



Rod Stiffener Requirements

Rod Size	Maximum Rod Length Without Rod Stiffener	Maximum Spacing Between Rod Stiffeners
3/8"	19" (482mm)	13" (330mm)
1/2"	25" (635mm)	18" (457mm)
5/8"	31" (787mm)	23" (584mm)
3/4"	37" (940mm)	28" (711mm)
7/8"	43" (1092mm)	33" (838mm)
1"	50" (1270mm)	38" (965mm)
1 1/4"	60" (1524mm)	43" (1092mm)

Notes:

1.) Rod stiffeners are required only on hanger and trapeze assemblies that have seismic bracing attached at or within 4" (101.6mm) of the rod. A minimum of two rod stiffeners (Figure 98, 98B, or SC228) must be installed.

2.) Recommended torque on Figure 98 and SC228 is 8 ft-lbs. (10.8Nm) or finger tight and one full turn with a wrench.
Figure 98B has the break off bolt head.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ B3214 - Tie Bolt

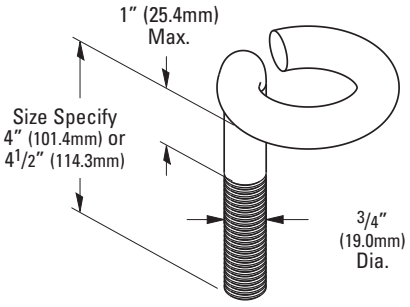
Material: Steel

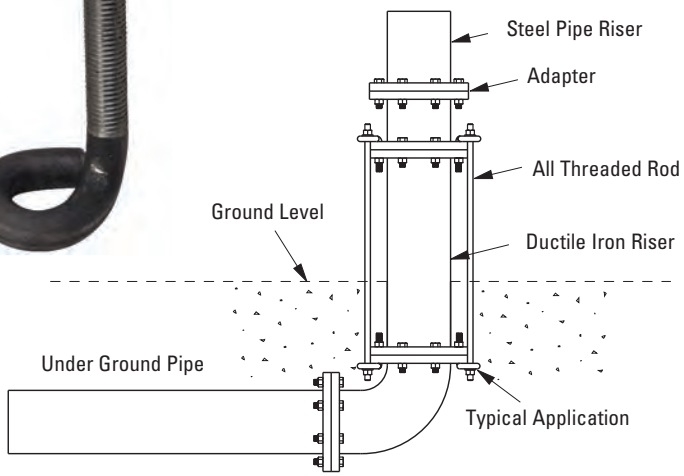
Function: Recommended for securing the connection of steel pipe to ductile pipe first attach tie bolts to pipe flanges then connect tie rods. May be used in vertical or horizontal applications.

Approvals: Conforms to NFPA Pamphlet 24, Installation of Private Fire Service Maintenance 4" (100mm) - 12" (300mm) pipe size.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, size and finish.
Custom lengths for thicker flange available.





Part No.	Length in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B3214-4	4"	(101.6)	107.5	(48.5)
B3214-4 1/2	4 1/2"	(114.3)	113.7	(51.6)

B3213 - Coach Screw Rod

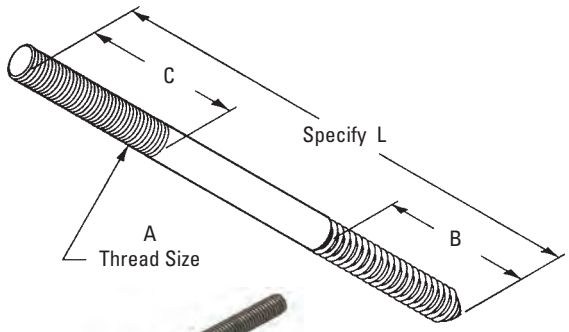
Size Range: 3/8"-16 rod thru 1/2"-13 rod

Material: Steel

Function: Typically used to suspend pipe from wood joists. Machine threaded on one end and lag threaded on the other end. It is recommended that pilot holes be pre-drilled to prevent beam from splitting and to aid in starting lag threads.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size, length and finish



Part No.	Thread Size A	Standard Rod Lengths L in.	(mm)	Coach Screw Thread Length B in.	(mm)	Rod Thread Length C in.	(mm)	Design Load Lbs.	(kg)
B3213-3/8 x 'L'	3/8"-16	*3 1/2", 8"	(88.9, 203.2)	2"	(50.8)	2"	(50.8)	390	(1.73)
B3213-1/2 x 'L'	1/2"-13	*3 1/2", 8"	(88.9, 203.2)	2 1/2"	(63.5)	2 1/2"	(63.5)	640	(2.84)

*3/8 x 3 1/2 and 1/2 x 3 1/2 will have a coach screw thread length of 2" (50.8) and a rod thread length of 1" (25.4).
Design Load is based on proper installation and solid wood.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3210 - Eye Rod (right-hand threads)
B3210L - Eye Rod (left-hand threads)

B3211 - Welded Eye Rod (right-hand threads)
B3211L - Welded Eye Rod (left-hand threads)

Size Range: 3/8"-16 thru 2"-4 1/2 rod

Material: Steel

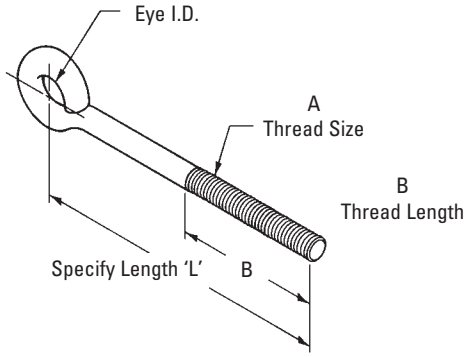
Function: Designed for use as support hanger rod that may be attached directly to structure or to other pipe support product. The welded eye allows for heavier loads.

Finish: Plain. Contact customer service for alternative finishes and materials.

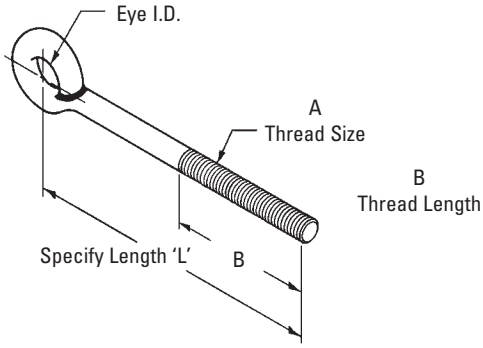
Order By: Part number, rod size, length and finish

Important Note: The Eye I.D. dimension may be larger if needed. Contact B-line if larger Eye I.D. dimension is required.

B3210



B3211



Part No.		Thread Size A	Thread Length B in.	(mm)	Eye I.D. in.	(mm)	Design Load B3210 650°F (343°C) Lbs.	(kN)	B3211 650°F (343°C) Lbs.	(kN)	B3211 750°F (399°C) Lbs.	(kN)
B3210-3/8 x 'L'	B3211-3/8 x 'L'	3/8"-16	2 1/2"	(63.5)	1/2"	(12.7)	240	(1.07)	730	(3.25)	572	(2.54)
B3210-1/2 x 'L'	B3211-1/2 x 'L'	1/2"-13	2 1/2"	(63.5)	5/8"	(15.9)	440	(1.96)	1350	(6.00)	1057	(4.70)
B3210-5/8 x 'L'	B3211-5/8 x 'L'	5/8"-11	2 1/2"	(63.5)	3/4"	(19.0)	705	(3.13)	2160	(9.61)	1692	(7.52)
B3210-3/4 x 'L'	B3211-3/4 x 'L'	3/4"-10	3"	(76.2)	7/8"	(22.2)	1050	(4.67)	3230	(14.37)	2530	(11.25)
B3210-7/8 x 'L'	B3211-7/8 x 'L'	7/8"-9	3 1/2"	(88.9)	1"	(25.4)	1470	(6.54)	4480	(19.93)	3508	(15.60)
B3210-1 x 'L'	B3211-1 x 'L'	1"-8	4"	(101.6)	1 1/8"	(28.6)	1940	(8.63)	5900	(26.24)	4620	(20.55)
B3210-1 1/8 x 'L'	B3211-1 1/8 x 'L'	1 1/8"-7	4 1/2"	(114.3)	1 1/4"	(31.7)	2430	(10.81)	7450	(33.14)	5830	(25.93)
B3210-1 1/4 x 'L'	B3211-1 1/4 x 'L'	1 1/4"-7	5"	(127.0)	1 3/8"	(34.9)	3120	(13.88)	9500	(42.25)	7440	(33.09)
B3210-1 1/2 x 'L'	B3211-1 1/2 x 'L'	1 1/2"-6	6"	(152.4)	1 5/8"	(41.3)	4650	(20.68)	13800	(61.38)	10807	(48.07)
B3210-1 3/4 x 'L'	B3211-1 3/4 x 'L'	1 3/4"-5	7"	(177.8)	2"	(50.8)	6380	(28.38)	18600	(82.73)	14566	(64.79)
B3210-2 x 'L'	B3211-2 x 'L'	2"-4 1/2	8"	(203.2)	2 1/4"	(57.1)	8280	(36.83)	24600	(109.42)	19625	(87.29)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3210X - Linked Eye Rods (right-hand threads-both ends)
B3210XL - Linked Eye Rods (left-hand & right-hand threads)

B3211X - Linked Welded Eye Rods (right-hand threads-both ends)
B3211XL - Linked Welded Eye Rods (left-hand & right-hand threads)

Size Range: 3/8"-16 thru 2"-4 1/2 rod

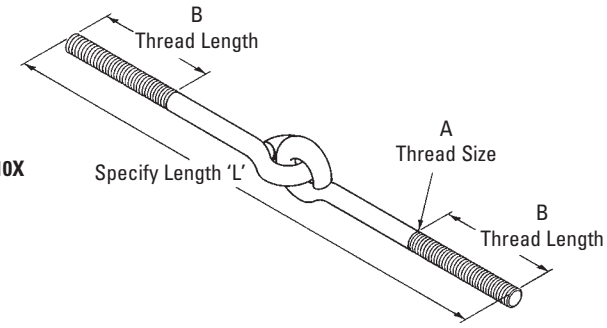
Material: Steel

Function: Designed for use in a hanger assembly where universal movement is necessary. The welded eye rods allow for heavier loads.

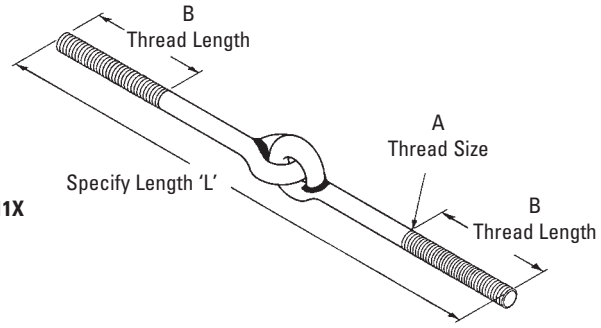
Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, rod size, and length.

B3210X



B3211X



Part No.		Thread Size A	Thread Length B		Eye I.D.		Design Load B3210X 650°F (343°C)		Design Load B3211X 650°F (343°C)		Design Load B3211X 750°F (399°C)	
			in.	(mm)	in.	(mm)	Lbs.	(kN)	Lbs.	(kN)	Lbs.	(kN)
B3210X-3/8 x 'L'	B3211X-3/8 x 'L'	3/8"-16	2 1/2"	(63.5)	1/2"	(12.7)	240	(1.07)	730	(3.25)	572	(2.54)
B3210X-1/2 x 'L'	B3211X-1/2 x 'L'	1/2"-13	2 1/2"	(63.5)	5/8"	(15.9)	440	(1.96)	1350	(6.00)	1057	(4.70)
B3210X-5/8 x 'L'	B3211X-5/8 x 'L'	5/8"-11	2 1/2"	(63.5)	3/4"	(19.0)	705	(3.13)	2160	(9.61)	1692	(7.52)
B3210X-3/4 x 'L'	B3211X-3/4 x 'L'	3/4"-10	3"	(76.2)	7/8"	(22.2)	1050	(4.67)	3230	(14.37)	2530	(11.25)
B3210X-7/8 x 'L'	B3211X-7/8 x 'L'	7/8"-9	3 1/2"	(88.9)	1"	(25.4)	1470	(6.54)	4480	(19.93)	3508	(15.60)
B3210X-1 x 'L'	B3211X-1 x 'L'	1"-8	4"	(101.6)	1 1/8"	(28.6)	1940	(8.63)	5900	(26.24)	4620	(20.55)
B3210X-1 1/8 x 'L'	B3211X-1 1/8 x 'L'	1 1/8"-7	4 1/2"	(114.3)	1 1/4"	(31.7)	2430	(10.81)	7450	(33.14)	5830	(25.93)
B3210X-1 1/4 x 'L'	B3211X-1 1/4 x 'L'	1 1/4"-7	5"	(127.0)	1 3/8"	(34.9)	3120	(13.88)	9500	(42.25)	7440	(33.09)
B3210X-1 1/2 x 'L'	B3211X-1 1/2 x 'L'	1 1/2"-6	6"	(152.4)	1 5/8"	(41.3)	4650	(20.68)	13800	(61.38)	10807	(48.07)
B3210X-1 3/4 x 'L'	B3211X-1 3/4 x 'L'	1 3/4"-5	7"	(177.8)	2"	(50.8)	6380	(28.38)	18600	(82.73)	14566	(64.79)
B3210X-2 x 'L'	B3211X-2 x 'L'	2"-4 1/2	8"	(203.2)	2 1/4"	(57.1)	8280	(36.83)	24600	(109.42)	19625	(87.29)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3212 - J-Bolt

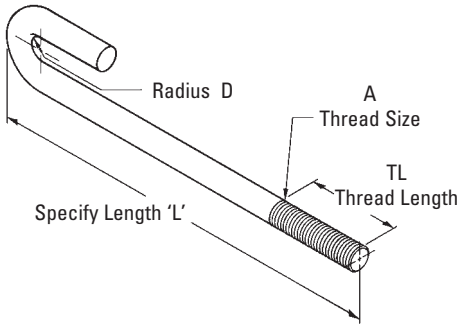
Size Range: 3/8"-16 thru 7/8"-19 rod

Material: Steel

Function: Designed to be hooked or hung from beam flange or purlin.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, length and finish



Part No.	Thread Size A	Thread Length TL in.	(mm)	Radius D in.	(mm)	Design Load Lbs.	(kg)
B3212-3/8 x 'L'	3/8"-16	2"	(50.8)	1/2"	(12.7)	240	(1.07)
B3212-1/2 x 'L'	1/2"-13	2"	(50.8)	5/8"	(15.9)	440	(1.96)
B3212-5/8 x 'L'	5/8"-11	2 1/2"	(63.5)	3/4"	(19.0)	705	(3.13)
B3212-3/4 x 'L'	3/4"-10	2 1/2"	(63.5)	7/8"	(22.2)	1050	(4.67)
B3212-7/8 x 'L'	7/8"-9	2 1/2"	(63.5)	1"	(25.4)	1470	(6.54)

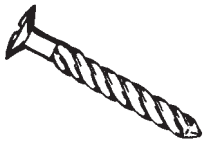
DS 16 x 2 - Drive Screw

Material: Steel

Function: Equivalent to a nail, but has greater holding power

Finish: Plain and Electro-Galvanized

Order By: Part number, size and finish



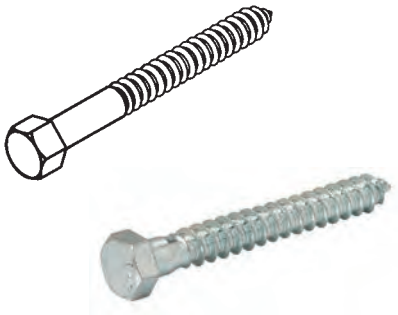
B3228 - Hex Head Lag Bolt

Material: Steel

Function: Designed to fasten metal to wood. Lag screws are made with hex heads in lengths of 6" (152.5mm) or shorter and square heads in lengths longer than 6" (152.5mm). Both types have coarse lag threads and gimlet points and are available in diameters of 1/4" (6.3mm) to 5/8" (15.9mm) inclusive. Square-head lag screws are also available in 3/4" (19.0mm), 7/8" (22.2mm) and 1" (25.4mm) diameters.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number, bolt size, length and finish



Length		Bolt Diameter and Wt./C 1/4"	(6.3)	3/8"	(9.5)	1/2"	(12.7)	5/8"	(15.9)	3/4"	(19.0)
1 1/2"	(38.1)	2.3	(1.0)	6.0	(2.7)	11.8	(5.3)	19.4	(8.8)	32.3	(14.6)
2"	(50.8)	2.8	(1.3)	7.0	(3.2)	14.4	(6.5)	23.2	(10.5)	38.3	(17.4)
2 1/2"	(63.5)	3.3	(1.5)	8.3	(3.7)	16.2	(7.3)	27.0	(12.2)	44.0	(19.9)
3"	(76.2)	3.9	(1.7)	9.8	(4.4)	18.6	(8.4)	31.0	(14.0)	47.7	(21.6)
3 1/2"	(88.9)	4.4	(2.0)	11.4	(5.2)	21.2	(9.6)	34.8	(15.8)	56.3	(25.5)
4"	(101.6)	5.0	(2.2)	12.5	(5.7)	23.3	(10.5)	37.6	(17.0)	58.5	(26.5)
4 1/2"	(114.3)	5.7	(2.6)	14.0	(6.3)	26.1	(11.8)	42.6	(19.3)	64.0	(29.0)
5"	(127.0)	6.3	(2.8)	15.4	(7.0)	29.0	(13.1)	45.5	(20.6)	68.0	(30.8)
5 1/2"	(139.7)	7.0	(3.2)	16.4	(7.4)	31.5	(14.3)	49.3	(22.3)	74.0	(33.5)
6"	(152.4)	7.4	(3.3)	18.3	(8.3)	34.0	(15.4)	53.0	(24.0)	77.0	(34.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B655 - Steel Rod Coupling
B656 - Steel Reducing Rod Coupling

Size Range: 1/4"-20 thru 1"-8 rod

Material: Steel

Function: Used for coupling two threaded rods together of equal or reduced rod sizes, with or without inspection hole.

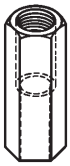
Finish: Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

Part No.	For Rod Size	Length in.	Length (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B655-1/4	1/4"-20	7/8"	(22.2)	300	(1.33)	1.9	(0.86)
B655-3/8	3/8"-16	1 1/8"	(28.6)	730	(3.25)	3.6	(1.63)
B655-1/2	1/2"-13	1 3/4"	(44.4)	1350	(6.00)	11.3	(5.12)
B655-5/8	5/8"-11	2 1/8"	(54.0)	2160	(9.61)	17.6	(7.98)
B655-3/4	3/4"-10	2 1/4"	(57.1)	3230	(14.37)	28.1	(12.74)
B655-7/8	7/8"-9	2 1/2"	(63.5)	4480	(19.93)	57.2	(25.94)
B655-1	1"-8	2 3/4"	(69.8)	5900	(26.24)	73.7	(33.43)

B655

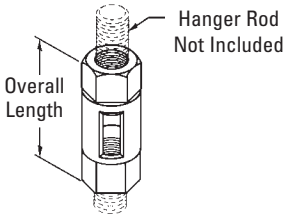
Part No.	For Rod Size	Length in.	Length (mm)	Design Load Lbs.	Design Load (kN)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B656-3/8 x 1/4	3/8"-16 & 1/4"-20	1"	(25.4)	300	(1.33)	3.7	(1.68)
B656-1/2 x 3/8	1/2"-13 & 3/8"-16	1 1/4"	(31.7)	730	(3.25)	6.6	(2.99)
B656-5/8 x 1/2	5/8"-11 & 1/2"-13	1 1/4"	(31.7)	1350	(6.00)	11.6	(5.26)
B656-3/4 x 5/8	3/4"-10 & 5/8"-11	1 1/2"	(38.1)	2160	(9.61)	20.6	(9.34)
B656-7/8 x 3/4	7/8"-9 & 3/4"-10	1 3/4"	(44.4)	3230	(14.37)	39.4	(17.87)



B656

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3220 - Rod Coupling



Size Range: 3/8"-16 thru 1"-8 rod

Material: Malleable Iron

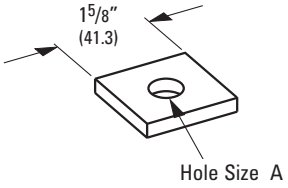
Function: Used for coupling two threaded rods together of equal rod sizes, with inspection hole.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish

Part No.	For Rod Size	Overall Length in.	(mm)	Design Load Lbs.	(kN)	Approx. Wt./100 Lbs.	(kg)
B3220-1/4	1/4"-20	1 3/8"	(34.9)	300	(1.33)	6	(2.7)
B3220-3/8 x 1/4	3/8"-16 to 1/4"-20	1 5/8"	(41.3)	300	(1.33)	11	(5.0)
B3220-3/8	3/8"-16	1 5/8"	(41.3)	730	(3.25)	10	(4.5)
B3220-1/2 x 3/8	1/2"-13 to 3/8"-16	2 1/8"	(54.0)	730	(3.25)	20	(9.1)
B3220-1/2	1/2"-13	2 1/8"	(54.0)	1350	(6.00)	20	(9.1)
B3220-5/8	5/8"-11	2 1/2"	(63.5)	2160	(9.61)	32	(14.5)
B3220-3/4	3/4"-10	2 5/8"	(66.7)	3230	(14.37)	42	(19.0)
B3220-7/8	7/8"-9	3 3/16"	(55.6)	4480	(19.93)	91	(41.3)
B3220-1	1"-8	2 3/4"	(69.8)	5900	(26.24)	100	(45.3)

B200 - Series Square Washer

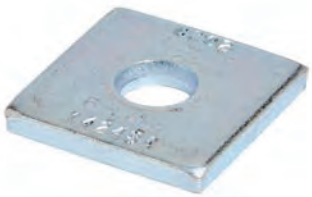


Material: Steel

Standard Finish: Electro-Galvanized

Service: Designed as a washer to suspend hanger rods.

Order by: Part number and finish.



Part No.	Hole Size A in.	(mm)	Bolt Size	Thickness in.	(mm)	Approx. Wt./100 Lbs.	(kg)
B200	3/8"	(9.5)	5/16"-18	1/4"	(6.3)	18	(8.1)
B201	7/16"	(11.1)	3/8"-16	1/4"	(6.3)	18	(8.1)
B202	9/16"	(14.2)	1/2"-13	1/4"	(6.3)	17	(7.7)
B202-1	11/16"	(17.4)	5/8"-11	1/4"	(6.3)	16	(7.2)
B202-2	13/16"	(20.6)	3/4"-10	1/4"	(6.3)	15	(6.8)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

B3248 - Steel Washer Plate

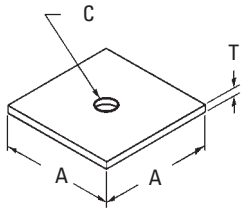
Size Range: 3/8" thru 1" rod sizes

Material: Steel

Function: Heavy duty washer for use on top of channels or angles to support hanger rod.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number and finish.



Part No.	Rod Size	Hole Size C in.	Hole Size C (mm)	A in.	A (mm)	T in.	T (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3248-3/8	3/8"-16	7/16"	(11.1)	2"	(50.8)	1/4"	(6.3)	27	(12.2)
B3248-1/2	1/2"-13	9/16"	(14.3)	2"	(50.8)	1/4"	(6.3)	27	(12.2)
B3248-5/8	5/8"-11	11/16"	(17.5)	2 1/2"	(63.5)	1/4"	(6.3)	47	(21.3)
B3248-3/4	3/4"-10	13/16"	(20.6)	2 1/2"	(63.5)	3/8"	(9.5)	52	(23.6)
B3248-7/8	7/8"-9	15/16"	(23.8)	3"	(76.2)	3/8"	(9.5)	85	(38.5)
B3248-1	1"-8	1 1/8"	(28.6)	4"	(101.6)	3/8"	(9.5)	160	(72.6)

B3234 - Bevel Washer

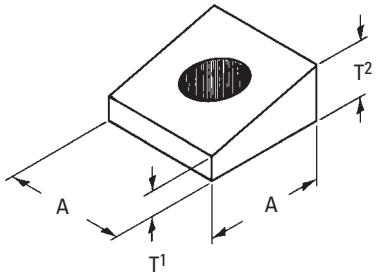
Size Range: 3/8"-16 thru 7/8"-9 bolt

Material: Malleable Iron

Function: Designed to match taper of flange of I-beam or channel to permit right angle fastening of bolt.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Part number size and finish



Part No.	For Bolt Size	A in.	A (mm)	T1 in.	T1 (mm)	T2 in.	T2 (mm)	Approx. Wt./100 Lbs.	Approx. Wt./100 (kg)
B3234-3/8	3/8"-16	1 1/4"	(31.7)	5/32"	(3.9)	11/32"	(8.7)	9	(4.1)
B3234-1/2	1/2"-13	1 1/4"	(31.7)	5/32"	(3.9)	11/32"	(8.7)	9	(4.1)
B3234-5/8	5/8"-11	1 1/2"	(38.1)	5/32"	(3.9)	13/32"	(10.3)	14	(6.3)
B3234-3/4	3/4"-10	1 1/2"	(38.1)	7/32"	(5.5)	15/32"	(11.9)	16	(7.2)
B3234-7/8	7/8"-9	2"	(50.8)	7/32"	(5.5)	9/16"	(14.3)	33	(14.9)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

HN - Standard Hex Nut

Size Range: 1/4"-20 thru 7/8"-9

Material: Steel

Finish: Plain or Electro-Galvanized.
Contact customer service for alternative finishes and materials.

Order By: Part number size and finish

Part Number	For Rod Size	Width Across Flats		Width Across Points		Thickness		Approx. Wt./100	
		in.	(mm)	in.	(mm)	in.	(mm)	lbs.	(kg)
HN-1/4	1/4"-20	7/16"	(11.1)	1/2"	(12.7)	7/32"	(5.7)	0.7	(0.3)
HN-3/8	3/8"-16	9/16"	(14.3)	21/32"	(16.6)	21/64"	(8.3)	1.6	(0.7)
HN-1/2	1/2"-13	3/4"	(19.0)	55/64"	(21.8)	7/16"	(11.1)	3.7	(1.7)
HN-5/8	5/8"-11	15/16"	(23.8)	1 3/32"	(27.8)	35/64"	(13.9)	7.3	(3.3)
HN-3/4	3/4"-10	1 1/8"	(28.6)	1 5/16"	(33.3)	41/64"	(16.3)	12.0	(5.4)
HN-7/8	7/8"-9	1 5/16"	(33.3)	1 33/64"	(38.5)	3/4"	(19.0)	19.0	(8.6)

HHN - Heavy Hex Nut

Size Range: 1/4"-20 thru 7/8"-9

Material: Steel

Finish: Plain or Electro-Galvanized.
Contact customer service for alternative finishes and materials.

Order By: Part number size and finish

Part Number	For Rod Size	Width Across Flats		Width Across Points		Thickness		Approx. Wt./100	
		in.	(mm)	in.	(mm)	in.	(mm)	lbs.	(kg)
HHN-1/4	1/4"-20	1/2"	(12.7)	37/64"	(14.7)	15/64"	(5.9)	1.2	(0.5)
HHN-3/8	3/8"-16	11/16"	(17.5)	51/64"	(20.2)	23/64"	(9.1)	3.1	(1.4)
HHN-1/2	1/2"-13	7/8"	(22.2)	1 1/8"	(28.6)	31/64"	(12.3)	6.5	(2.9)
HHN-5/8	5/8"-11	1 1/16"	(27.0)	1 15/64"	(31.3)	39/64"	(15.5)	12.0	(5.4)
HHN-3/4	3/4"-10	1 1/4"	(31.7)	1 29/64"	(36.9)	47/64"	(18.6)	19.0	(8.6)
HHN-7/8	7/8"-9	1 7/16"	(36.5)	1 21/32"	(42.6)	55/64"	(21.8)	30.0	(13.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

FW - Flat Washer

Size Range: 1/4"-20 thru 1"-8 rods

Material: Steel

Finish: Plain or Electro-Galvanized.
Contact customer service for alternative finishes and materials.

Order By: Part number size and finish

Part Number	For Rod Size	Outside Diameter		Approx. Wt./100	
		in.	(mm)	lbs.	(kg)
FW-1/4	1/4"-20	3/4"	(19.0)	0.7	(0.3)
FW-3/8	3/8"-16	1"	(25.4)	3.9	(1.7)
FW-1/2	1/2"-13	1 3/8"	(34.9)	6.7	(3.0)
FW-5/8	5/8"-11	1 3/4"	(44.4)	7.3	(3.3)
FW-3/4	3/4"-10	2"	(50.8)	11.0	(5.0)
FW-7/8	7/8"-9	2 1/4"	(57.1)	19.0	(8.6)
FW-1	1"-8	2 1/2"	(69.8)	22.0	(10.0)

LW - Lock Washer

Size Range: 1/4"-20 thru 1"-8 rods

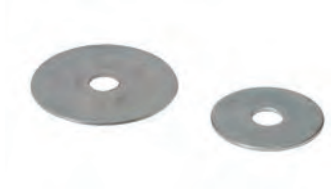
Material: Steel

Finish: Plain or Electro-Galvanized.
Note: Available in Hot Dip Galvanized finish or Stainless Steel materials.

Order By: Part number size and finish

Part Number	For Rod Size	Outside Diameter		Approx. Wt./100	
		in.	(mm)	lbs.	(kg)
LW-1/4	1/4"-20	.49"	(12.4)	0.3	(0.13)
LW-3/8	3/8"-16	.68"	(17.3)	0.6	(0.27)
LW-1/2	1/2"-13	.88"	(22.3)	1.3	(0.59)
LW-5/8	5/8"-11	1.08"	(27.4)	2.4	(1.09)
LW-3/4	3/4"-10	1.27"	(32.2)	3.8	(1.72)
LW-7/8	7/8"-9	1.46"	(37.1)	5.9	(2.67)
LW-1	1"-8	1.66"	(42.1)	8.8	(3.99)

FFW - Flat Fender Washer



Size Range: 3/8"-16 and 1/2"-13 rods

Material: Steel

Function: To provide a greater bearing surface than standard washer.

Finish: Plain or Electro-Galvanized.
Contact customer service for alternative finishes and materials.

Order By: Part number and size

Part Number	For Rod Size	Inside Diameter		Outside Diameter		Approx. Wt./100	
		in.	(mm)	in.	(mm)	lbs.	(kg)
FFW-3/8	3/8"-16	1/2"	(12.7)	1 1/8"	(28.6)	3.0	(1.3)
FFW-1/2	1/2"-13	9/16"	(14.3)	2"	(50.8)	2.8	(1.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

ATB - Toggle Bolt

Material: Steel

Function: Used with threaded rod in hollow walls

Finish: Electro-Galvanized

Order By: Part number and size

Part Number	Rod Size	Drill Size lbs.	Drill Size (kg)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
ATB-18-300	3/16"-24	1/2"	(12.7)	3.8	(1.7)
ATB-18-400	3/16"-24	1/2"	(12.7)	4.4	(2.0)
ATB-25-300	1/4"-20	5/8"	(15.9)	6.6	(3.0)
ATB-25-400	1/4"-20	5/8"	(15.9)	7.8	(3.5)
ATB-37-300	3/8"-16	7/8"	(22.2)	15.6	(7.1)
ATB-37-400	3/8"-16	7/8"	(22.2)	17.6	(8.0)

AWA - Wedge Anchor

Material: Steel or Stainless Steel

Function: Designed for use in solid concrete and grout fill blocks

Finish: Electro-Galvanized

Order By: Part number and finish

Part Number	Anchor Size	Thread Length in.	Thread Length (mm)	Approx. Wt./100 lbs.	Approx. Wt./100 (kg)
AWA-25-175	1/4"-20 x 1 3/4" (44.4mm)	3/4"	(19.0)	3.2	(1.4)
AWA-25-225	1/4"-20 x 2 1/4" (44.4mm)	1 1/4"	(31.7)	3.7	(1.7)
AWA-25-325	1/4"-20 x 3 1/4" (44.4mm)	2 1/4"	(57.1)	4.8	(2.2)
AWA-37-225	3/8"-16 x 2 1/4" (44.4mm)	1 1/4"	(31.7)	9.4	(4.2)
AWA-37-275	3/8"-16 x 2 3/4" (69.8mm)	1 5/8"	(41.3)	10.4	(4.7)
AWA-37-300	3/8"-16 x 3" (76.2mm)	1 7/8"	(47.6)	11.4	(5.2)
AWA-37-350	3/8"-16 x 3 1/2" (88.9mm)	2 3/8"	(60.3)	12.2	(5.5)
AWA-37-375	3/8"-16 x 3 3/4" (95.2mm)	2 5/8"	(66.7)	13.2	(6.0)
AWA-37-500	3/8"-16 x 5" (127.0mm)	3 7/8"	(98.4)	16.0	(7.2)
AWA-50-275	1/2"-13 x 2 3/4" (69.8mm)	1 3/8"	(34.9)	19.0	(8.6)
AWA-50-375	1/2"-13 x 3 3/4" (95.2mm)	2 3/8"	(60.3)	23.0	(10.4)
AWA-50-450	1/2"-13 x 4 1/2" (114.3mm)	3 1/8"	(79.4)	26.6	(12.0)
AWA-50-550	1/2"-13 x 5 1/2" (139.7mm)	4 1/8"	(104.8)	34.0	(15.4)
AWA-50-700	1/2"-13 x 7" (177.8mm)	5 5/8"	(142.9)	38.0	(17.2)
AWA-62-350	5/8"-11 x 3 1/2" (88.9mm)	2"	(50.8)	41.2	(18.7)
AWA-62-450	5/8"-11 x 4 1/2" (114.3mm)	3"	(76.2)	47.6	(21.6)
AWA-62-500	5/8"-11 x 5" (127.0mm)	3 1/2"	(88.9)	52.0	(23.6)
AWA-62-600	5/8"-11 x 6" (152.4mm)	4 1/2"	(114.3)	58.8	(26.7)
AWA-62-700	5/8"-11 x 7" (177.8mm)	5 1/2"	(139.7)	65.2	(29.6)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Vibration Isolation

To help address the issues of vibration and noise control/dampening vibration in mechanical, refrigeration, HVAC and electrical installations, Eaton offers the following B-Line series vibration isolation products. It is our continuing effort to offer the industry quality support system products that meet the demands of today's construction environment.

The following pages depict vibration isolation and noise control products that are commonly specified and required on piping, duct and equipment, but not limited to mechanical rooms. As an aid in choosing the proper vibration control device, the chart shown on the following page is a reference for obtaining Vibration Isolation Efficiency.

Considerations must be given to the desired deflection and the frequency (R.P.M.).

The Theory of Vibration Isolation

Background

Soils, floors, ceilings, walls, etc. deflect as the result of applied forces. Cyclical forces generated by machines result in work done on the floors, etc. Under steady state conditions, this work is stored as potential energy in the floor each cycle and returned as work in forcing the machine back to its equilibrium position. Disturbance is transmitted during this flexing.

Vibration Isolation is needed when disturbing force magnitudes are expected to be great enough to cause damage or annoyance.

Assumption	Fact
1. We know the effects of vibration isolation (efficiency)	Formula for calculation shown below.
2. We know the magnitude of the disturbing forces created by the machines	Equipment manufacturers rarely provide these data. These forces are seldom known except in generalities.
3. We know the magnitude of disturbing forces beyond	Detailed calculations require so many simplifying assumptions that the resulting answers have questionable value in addition to being prohibitively expensive. Reliance is placed on brief calculations, general rules, and past experience.

Consideration of items 1. and 2. is essential to determine acceptable isolation efficiency. Unfortunately manifold complexities prevent inclusion of steps for determination of these efficiencies in this document.

Natural frequency of isolation system f_n (cycles per minute)

Visualize a machine suspended barely above 4 springs (one on each corner). Now release the suspension. The machine will deflect the springs and be pushed up and return a number of times with diminishing deflection until it comes to rest. The spring deflection at rest is called the static deflection. The number of cycles per unit time is the natural frequency of the isolation system. Unlike multi-degree of freedom floors with limitless natural frequencies, springs essentially have only one natural frequency.

$$f_n = 188 \sqrt{\frac{1}{\text{static deflection (inches)}}}$$

$$\text{Vibration isolation efficiency \%} = 100\% \times \left[1 - \frac{1}{(f_d \div f_n)^2 - 1}\right]$$

Transmitted force f_t (pounds) $f_t = f_d$ (100% - isolation efficiency)

Note that fn must be compared to f_d for satisfactory isolation efficiency. Also note that the force transmitted can be greater than the disturbing force when f_n is close to or equals f_d. This condition is called resonance and is avoided in vibration isolation.

Natural frequency of floor or soil

Visualize the effect of dropping a load on the floor. This floor will deflect and spring back diminishingly a number of cycles until it comes to rest. The number of these cycles per unit time is a natural frequency of the floor. It is essentially independent of the magnitude of deflection and hence is a characteristic of a given floor if given a light tap or a hard jolt at the same location. The floor has many natural frequencies. The lowest natural frequency is called the fundamental. It is characterized by maximum deflection at mid span. The higher natural frequencies are generally less bothersome than the fundamental since they are less likely to be excited by machines in common use and are more quickly damped. The greater a floor deflects under a given load, the lower the fundamental frequency of that floor. Soft, springy floors have low fundamentals. Hard, solid floors have high fundamentals.

Disturbing frequency f_d (cycles per minute)

With few exceptions, the speed (RPM) of the machine will be most representative of the frequency of the disturbance. Disturbances are more readily transmitted when the disturbing frequency is close to a natural frequency of the floor or soil. For this reason, these characteristics are important considerations i designing a trouble-free installation.

Disturbing force f_d (pounds)

The disturbing force causes the problem. It is constantly changing from maximum positive through zero to maximum negative through zero to maximum positive each cycle. It results from unbalanced reciprocating and rotating masses. Its peak magnitude varies from ounces to tons. From less than 1% to over 60% of the weight of some types of machines. Generally this force will increase with time in a given machine as bearings wear, deposits form and moving parts get out of balance with each other.

Proper Sizing

Once it is determined as to what type of vibration dampening device is needed, weight loading is the next crucial step. As a built in safety measure, take the actual weight of supported pipe or equipment (consider all accessories - i.e. valves, insulation, brackets, etc...) and multiply by 1.25. Then refer to the sizing chart for the selected product to determine part number.

Sizing: Divide weight of equipment by points of support to determine load requirement per support.

Example: 240 Lb. (90.7 kg) piece of equipment, 4 support points, take 240 x 1.25 = 300 Lbs. (136.1kg) (safety measure), then take 300 ÷ 4 = 75 Lbs. (34.0 kg) Specify appropriate vibration device rated at 75 Lbs. (34.0 kg) for each of the support points.

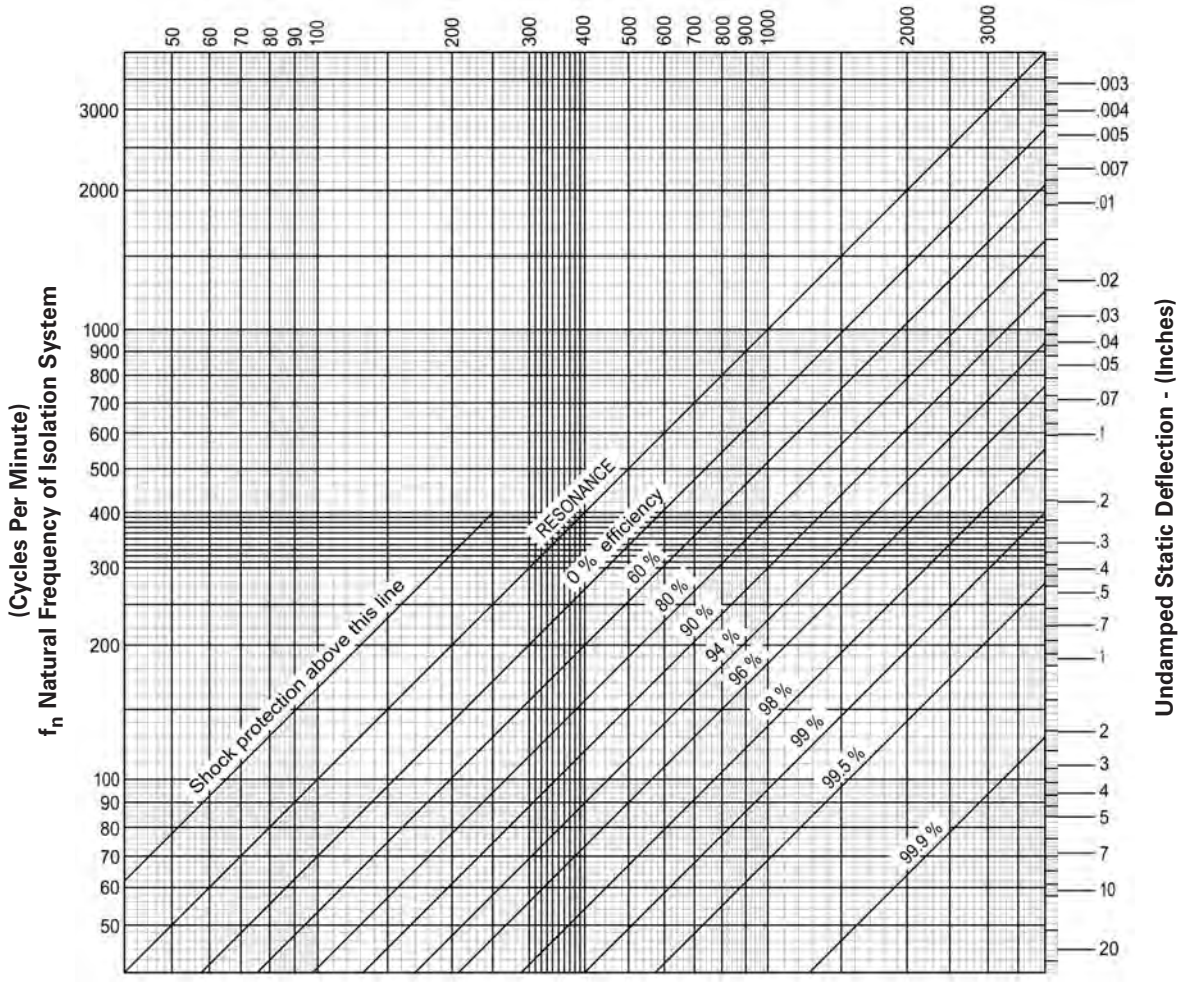
If weight of equipment is unequally proportionate, select mounts to satisfy the weight distribution.

IE Computer Isolation Efficiency

$$f_n = 188 \sqrt{\frac{1}{\text{static deflection (inches)}}} \qquad \text{Transmissibility} = \frac{1}{(f_d \div f_n)^2 - 1}$$

3 HX = 180 cpm = 1.1" Deflection

f_d Disturbing Frequency - (cycles per minute)



Critical Installations
96% to 99% Vibration Isolation Efficiency recommended (only 1% to 4% of disturbing vibration transmitted).

Standard Installations
90% to 95% Vibration Isolation Efficiency recommended (only 5% to 10% of disturbing vibration transmitted).

Non-Critical Installations
75% to 89% Vibration Isolation Efficiency recommended (only 11% to 24% of disturbing vibration transmitted).

For 1/4" (6.3mm) deflection: Specify B-Line series RM and RQ Neoprene Mountings or B-Line series RH Neoprene Hangers.

For 1/2" (12.7mm) deflection: Specify B-Line series RMD and RQD, (or JQTN fo OSHPD pre-approved) Neoprene Mountings or B-Line series RHD Neoprene Hangers.

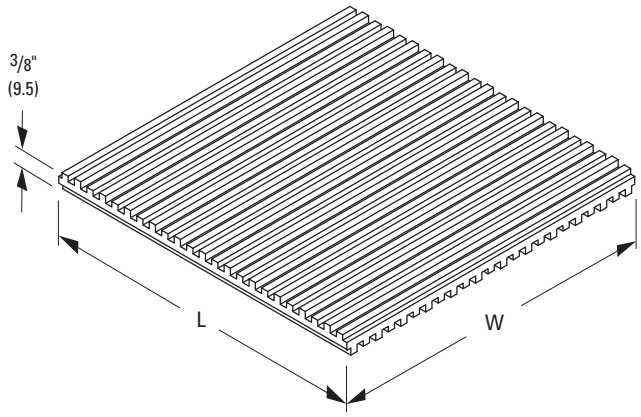
For 1"-2" (25.4mm-50.8mm) deflection: Specify B-Line series CHSCS, CH30SCS, HHSCS, and HH30SCS Housed Spring Mountings.

For larger deflection requirements, consult factory.

NNP Type - Ribbed Neoprene Vibration Pad

Use: Is used under equipment to dampen noise and vibration in floor caused by medium and high speed equipment.

- Recommended load capacity:
  Up to 50 lbs./sq.in. (0.042 kgf/mm²) with a range of
  25-70 lbs./sq.in. (0.021-0.059 kgf/mm²)
- Thickness: 3/8" (9.5mm)
- The NNP type has a deflection of 1/8" (3.1mm).
  For greater deflection, use multiple pads in layers
- Non-skid: The pad has an alternating height rib pattern to minimize slip
- Durable: Material is oil-resistant Neoprene
- Typical Applications: Air conditioners, cooling towers, compressors, fans, generators, pumps, piping, process equipment, transformers, etc.



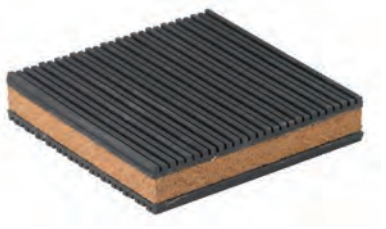
Part No.	Rated Load Lbs.	(kN)	Dimensions L in.	(mm)	W in.	(mm)	Std. Pkg.	Wt. Each Lbs.	(kg)
NNP-4	200	(.89)	2"	(50.8)	2"	(50.8)	48	.04	(.02)
NNP-9	450	(2.00)	3"	(76.2)	3"	(76.2)	36	.10	(.05)
NNP-16	800	(3.56)	4"	(101.6)	4"	(101.6)	24	.17	(.08)
NNP-36	1800	(8.00)	6"	(152.4)	6"	(152.4)	24	.39	(.18)
NNP-81	4050	(18.01)	9"	(228.6)	9"	(228.6)	Bulk	.87	(.39)
NNP-324	16200	(72.06)	18"	(457.2)	18"	(457.2)	6	3.50	(1.59)

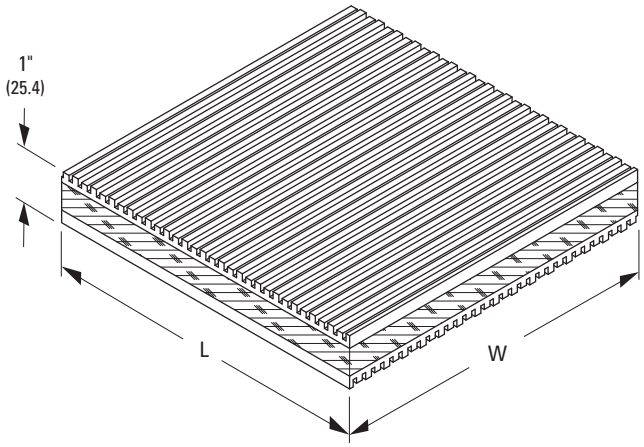
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

CNP Type - Cork and Ribbed Neoprene Vibration Pad

Use: Is used under equipment to dampen noise and vibration in floor caused by medium and high speed equipment.

- Recommended load capacity:
  Up to 50 lbs./sq.in. (0.042 kgf/mm²) with a range of
  25-70 lbs./sq.in. (0.021-0.059 kgf/mm²)
- Thickness: 1" (25.4mm)
- The NNP type has a deflection of 3/16" (4.7mm).
  For greater deflection, use multiple pads in layers
- Non-skid: The pad has an alternating height rib pattern to minimize slip
- Durable: Material is oil-resistant Neoprene
- Typical Applications: Air conditioners, cooling towers, compressors, fans, generators, pumps, piping, process equipment, transformers, etc.





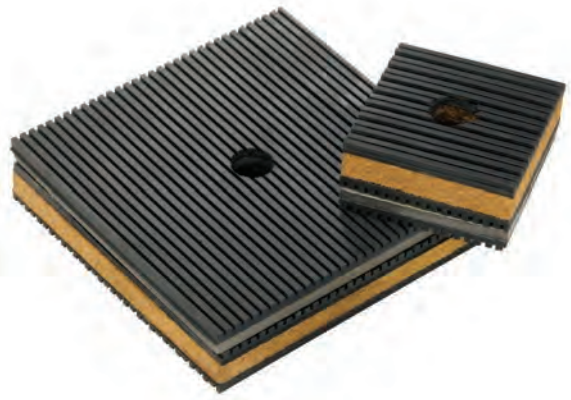
Part No.	Rated Load Lbs.	(kN)	Dimensions L in.	(mm)	W in.	(mm)	Std. Pkg.	Wt. Each Lbs.	(kg)
CNP-4	200	(.89)	2"	(50.8)	2"	(50.8)	48	.07	(.03)
CNP-9	450	(2.00)	3"	(76.2)	3"	(76.2)	36	.16	(.07)
CNP-16	800	(3.56)	4"	(101.6)	4"	(101.6)	24	.28	(.13)
CNP-25	1250	(5.56)	5"	(127.0)	5"	(127.0)	24	.44	(.20)
CNP-36	1800	(8.00)	6"	(152.4)	6"	(152.4)	24	.63	(.29)
CNP-81	4050	(18.01)	9"	(228.6)	9"	(228.6)	Bulk	1.40	(.64)
CNP-324	16200	(72.06)	18"	(457.2)	18"	(457.2)	6	5.60	(2.54)
CNP-3x36	5400	(24.02)	3"	(76.2)	36"	(914.4)	6	1.89	(.86)
CNP-4x36	7200	(32.02)	4"	(101.6)	36"	(914.4)	6	2.52	(1.14)

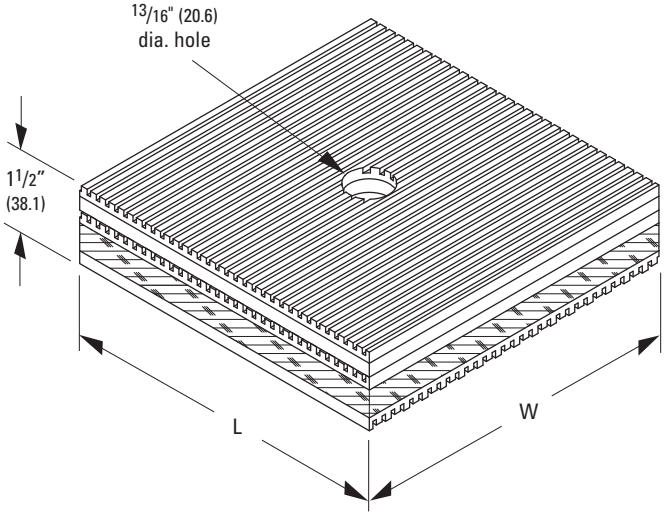
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

CNNK Type - Cork, Ribbed Neoprene and Steel Vibration Pad

Use: Is used to dampen noise and vibration in floor caused by medium and high speed equipment.

- Recommended load capacity:
  Up to 50 lbs./sq.in. (0.042 kgf/mm²) with a range of
  25-70 lbs./sq.in. (0.021-0.059 kgf/mm²)
- Overall thickness: 1 1/2" (38.1mm)
  Has 1/4" (6.3mm) steel plate for even weight distribution.
  Hole in center will accept up to 3/4" bolt
- The CNNK type has a deflection of 3/16" (4.7mm).
  For greater deflection, use multiple pads in layers
- Non-skid: The pad has an alternating height rib pattern to minimize slip
- Durable: Material is oil-resistant Neoprene
- Typical Applications: Air conditioners, cooling towers, compressors, fans, generators, pumps, piping, process equipment, transformers, etc.





Part No.	Rated Load Lbs.	Rated Load (kN)	Dimensions L in.	Dimensions L (mm)	Dimensions W in.	Dimensions W (mm)	Std. Pkg.	Wt. Each Lbs.	Wt. Each (kg)
CNNK-4	200	(.89)	2"	(50.8)	2"	(50.8)	48	.40	(.18)
CNNK-9	450	(2.00)	3"	(76.2)	3"	(76.2)	36	.90	(.41)
CNNK-16	800	(3.56)	4"	(101.6)	4"	(101.6)	24	1.60	(.73)
CNNK-25	1250	(5.56)	5"	(127.0)	5"	(127.0)	24	2.50	(1.13)
CNNK-36	1800	(8.00)	6"	(152.4)	6"	(152.4)	Bulk	3.50	(1.59)
CNNK-64	3200	(14.23)	8"	(203.2)	8"	(203.2)	6	6.20	(2.81)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

VRP Type - Rubber Cube Vibration Pad

Use: Is used to dampen noise and vibration in floor caused by medium and high speed equipment.

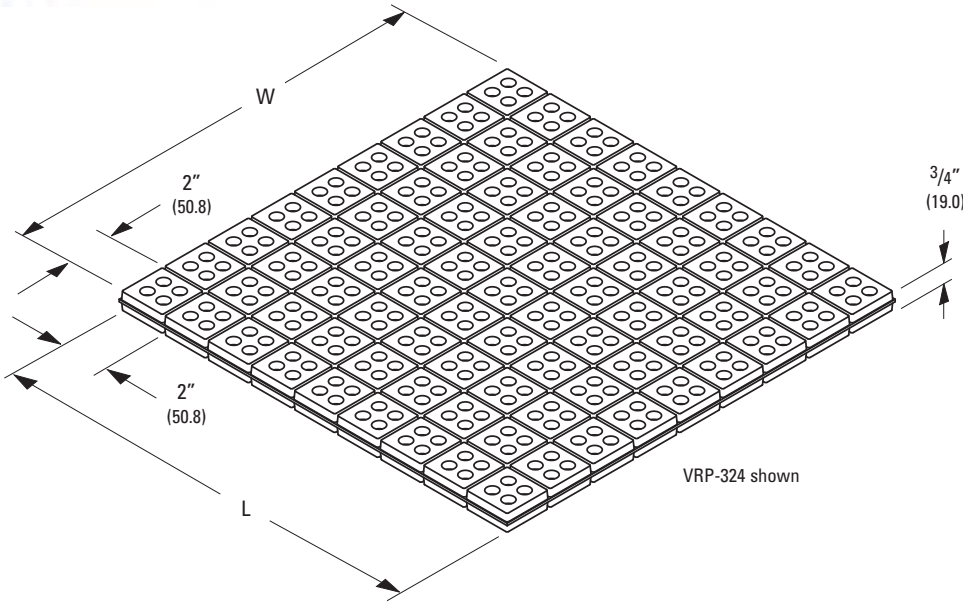
- Recommended load capacity:
  Up to 45 lbs./sq.in. (0.038 kgf/mm²) per 1 square inch
- Overall thickness: 3/4" (19.0mm)
- Rated deflection is 3/16" (4.7mm).
- Durable: Material is natural rubber composition
- Each square has 4 suction holes (1/2" (12.7mm) diameter) to provide a non-skid effect. The standard VRP pad has 81 squares that are 2" x 2" (50.8mm x 50.8mm) making the pad itself 18" x 18" (457.2mm x 457.2mm). These squares are easily cut or torn to desired sizes.

VRP-4

VRP-16

VRP-324

VRP-36



VRP-324 shown

Part No.	Rated Load Lbs.	(kN)	Dimensions L in.	(mm)	W in.	(mm)	Std. Pkg.	Wt. Each Lbs.	(kg)
VRP-4	180	(.80)	2"	(50.8)	2"	(50.8)	Bulk	.10	(.05)
VRP-16	720	(3.20)	4"	(101.6)	4"	(101.6)	Bulk	.41	(.19)
VRP-36	1620	(7.20)	6"	(152.4)	6"	(152.4)	Bulk	.90	(.41)
VRP-324	14580	(64.85)	18"	(457.2)	18"	(457.2)	3	8.15	(3.70)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

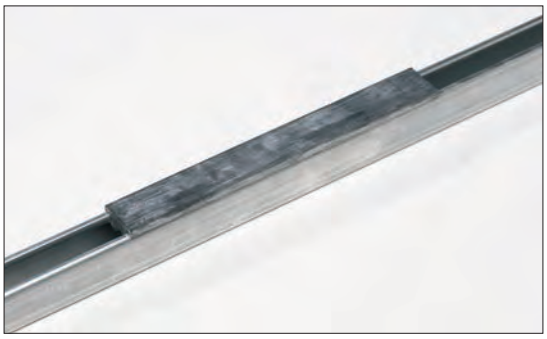
BVS Type - Vibra Strip™ for 1 5/8" (41.3mm) wide Eaton B-Line series channel

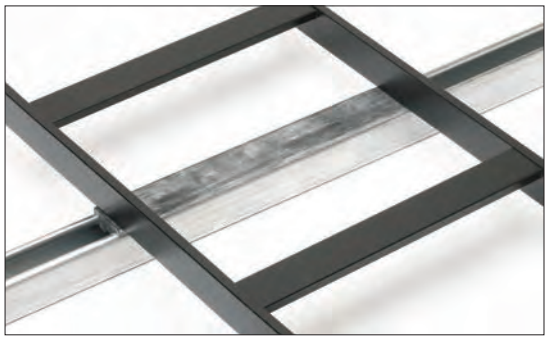
Use: Dampen noise and vibration of equipment when mounted on strut.

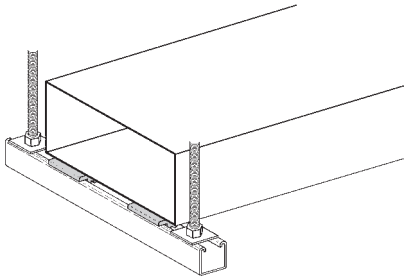
- When inserted in channel slot, provides an excellent isolation medium between equipment, duct, piping, etc., and the support channel.
- Vibra Strip is furnished in 12" (304.8mm) or 120" (3.05m) lengths, may be cut to satisfy specific requirement.
- Durable: 45 durometer Neoprene
- Temperature Range: -20°F (-28.9°C) to 212°F (100°C) (continuous)

BVS-12

BVS-120







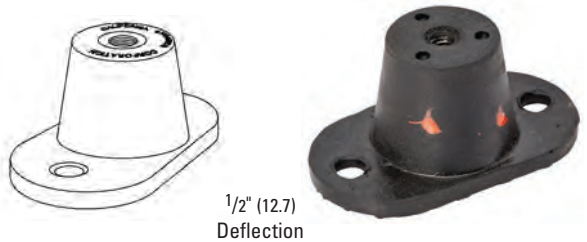
Part No.	Max. Load Lbs. per Lineal In. Lbs.	(kg/25.4 mm)	Length in.	(mm)	Std. Pkg.	Wt. Each Lbs.	(kg)
BVS-12	40	(18.1)	12"	(304.8)	25	.46	(.21)
BVS-120	40	(18.1)	120"	(3048.0)	1	4.56	(2.07)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

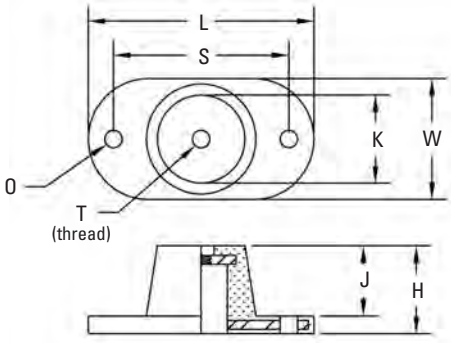
RM & RM-D Type - Neoprene Mount

Use: To minimize or prevent noise and vibration from transferring between equipment and floor or solid support structure. Typical applications include air handling units, air conditioners, compressors, pumps, machine tools, motors, business machines, transformers, furnaces, etc.

1/4" (6.3) Deflection



1/2" (12.7) Deflection



Typical Part Numbering

RM - 80 A

Type Load Mount Size

RM Series for 1/4" (6.3mm) Deflection

Part No.	Mount Size	Maximum Load Lbs.	(kN)	Color Code
RM-40A	A	40	(0.18)	Orange
RM-55A	A	55	(0.25)	Yellow
RM-80A	A	80	(0.35)	Green
RM-130A	A	130	(0.58)	Blue
RM-120B	B	120	(0.53)	Orange
RM-200B	B	200	(0.89)	Yellow
RM-280B	B	280	(1.24)	Green
RM-400B	B	400	(1.78)	Blue
RM-300C	C	300	(1.33)	Yellow
RM-520C	C	520	(2.31)	Green
RM-750C	C	750	(3.33)	Blue
RM-1100C	C	1100	(4.89)	White
RM-1800F	F	1800	(8.00)	Green
RM-3000F	F	3000	(13.3)	Blue
RM-5000F	F	5000	(22.2)	Green

RM-D Series for 1/2" (12.7mm) Deflection

Part No.	Mount Size	Maximum Load Lbs.	(kN)	Color Code
RM-D-40A	A	40	(0.18)	Orange
RM-D-55A	A	55	(0.25)	Yellow
RM-D-80A	A	80	(0.35)	Green
RM-D-130A	A	130	(0.58)	Blue
RM-D-120B	B	120	(0.53)	Orange
RM-D-200B	B	200	(0.89)	Yellow
RM-D-280B	B	280	(1.24)	Green
RM-D-400B	B	400	(1.78)	Blue
RM-D-300C	C	300	(1.33)	Yellow
RM-D-520C	C	520	(2.31)	Green
RM-D-750C	C	750	(3.33)	Blue
RM-D-1100C	C	1100	(4.89)	White
RM-D-1800F	F	1800	(8.00)	Green
RM-D-3000F	F	3000	(13.3)	Blue
RM-D-5000F	F	5000	(22.2)	Green

Dimensions

Mount Size	L in.	(mm)	S in.	(mm)	W in.	(mm)	O in.	(mm)	T	K in.	(mm)	H RM in.	(mm)	H RM-D in.	(mm)	J RM in.	(mm)	J RM-D in.	(mm)
A	3 3/16	(81.0)	2 3/8	(27.8)	1 13/16	(47.5)	11/32	(8.7)	5/16"-18	1 1/4	(31.7)	1	(25.4)	1 1/2	(38.1)	13/16	(20.6)	1 5/16	(33.3)
B	3 7/8	(98.4)	3	(76.2)	2 3/8	(60.3)	11/32	(8.7)	3/8"-16	1 3/4	(44.4)	1 1/4	(31.7)	1 13/16	(46.0)	1 1/32	(26.2)	1 9/16	(39.7)
C	5 1/2	(134.7)	4 1/8	(104.8)	3 1/4	(82.5)	9/16	(14.3)	1/2"-13	2 1/2	(63.5)	1 1/2	(38.1)	2 1/2	(63.5)	1 1/4	(31.7)	2 1/4	(57.1)
F	7 1/2	(190.5)	6 1/8	(155.6)	4 7/8	(123.8)	9/16	(14.3)	5/8"-11	4 3/8	(111.1)	1 5/8	(41.3)	2 3/4	(69.8)	1 3/8	(34.9)	2 1/2	(63.5)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

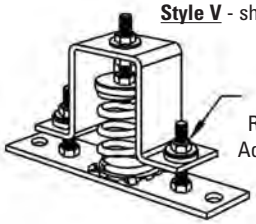
OS Type - Steel Spring Isolator/Restraint - 1" (25.4mm) & 2" (50.8mm) Deflection

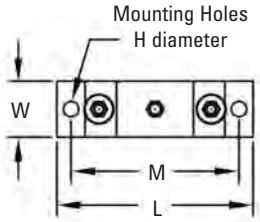
Use: To support and isolation of vibrations between equipment or frame mounted equipment and the floor or supporting structure.

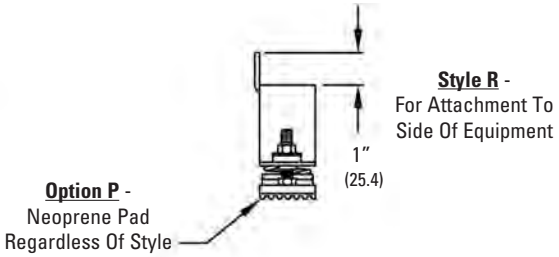
- Neoprene pad 1/4" (6.3mm) thick under spring regardless of style
- All OS Type isolator/restraints feature large diameter springs with O.D. not less than 80% of rated deflection height
- Adjust load transfer while motion restraint adjustments are loose
- For compact support of heavy loads, some OS's include inner springs. For lower profile support of heavy loads when required, OSE's have clustered springs

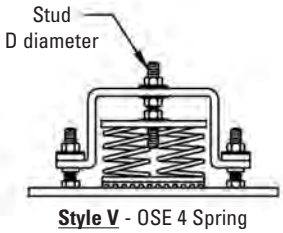
Style V

Style R



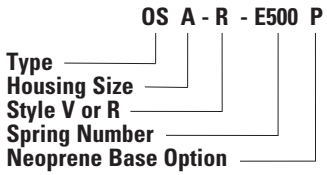






Style V - OSE 4 Spring

Typical Part Numbering



Part Numbers - E Springs - 1" (25.4mm) Deflection

Housing Size A	Housing Size B	Housing Size E
OSA-(*)-E21(**)	OSB-(*)-ET255(**)	OSE-(*)-E976(**)
OSA-(*)-E55(**)	OSB-(*)-ET347(**)	OSE-(*)-E1272(**)
OSA-(*)-E79(**)	OSB-(*)-ET473(**)	OSE-(*)-E1660(**)
OSA-(*)-E106(**)	OSB-(*)-E630(**)	OSE-(*)-E2000(**)
OSA-(*)-E143(**)	OSB-(*)-E806(**)	OSE-(*)-E2532(**)
OSA-(*)-E187(**)	OSB-(*)-E1030(**)	OSE-(*)-E3204(**)
OSA-(*)-E244(**)	OSB-(*)-E1230(**)	OSE-(*)-E4128(**)
OSA-(*)-E318(**)	OSB-(*)-E1430(**)	
OSA-(*)-E415(**)	OSB-(*)-E1810(**)	
OSA-(*)-E500(**)	OSB-(*)-E2210(**)	
OSA-(*)-E633(**)		
OSA-(*)-E801(**)		

(*) Insert Style V or R
(**) Insert Option P when required

Part Numbers - F Springs - 2" (50.8mm) Deflection

Housing Size A	Housing Size B	Housing Size E	Housing Size F
OSA-(*)-F33(**)	OSB-(*)-FT121(**)	OSE-(*)-F332(**)	OSF-(*)-F1159(**)
OSA-(*)-F43(**)	OSB-(*)-FT171(**)	OSE-(*)-F480(**)	OSF-(*)-F1408(**)
OSA-(*)-F59(**)	OSB-(*)-FT241(**)	OSE-(*)-F620(**)	OSF-(*)-F1710(**)
OSA-(*)-F83(**)	OSB-(*)-F348(**)	OSE-(*)-F780(**)	OSF-(*)-F2149(**)
OSA-(*)-F120(**)	OSB-(*)-F453(**)	OSE-(*)-F944(**)	OSF-(*)-F2700(**)
OSA-(*)-F155(**)	OSB-(*)-F590(**)	OSE-(*)-F1200(**)	
OSA-(*)-F195(**)	OSB-(*)-F676(**)		
OSA-(*)-F236(**)	OSB-(*)-F787(**)		
OSA-(*)-F300(**)	OSB-(*)-F918(**)		

(*) Insert Style V or R
(**) Insert Option P when required

Dimensions

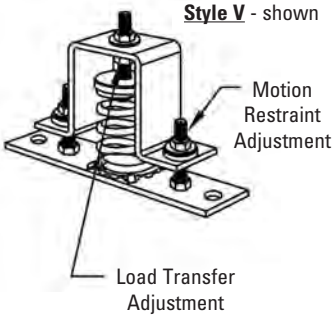
Housing Size	L in.	L (mm)	M in.	M (mm)	T in.	T (mm)	W in.	W (mm)	D in.	D (mm)	H in.	H (mm)	Approx. Oper. Height in.	Approx. Oper. Height (mm)
A	7	(177.8)	6	(152.4)	2 3/4	(69.8)	2	(50.8)	3/8	(9.5)	9/16	(14.3)	4 1/2	(114.3)
B	10 1/2	(266.7)	9	(228.6)	4	(101.6)	3 1/2	(88.9)	1/2	(12.7)	11/16	(17.5)	5 1/2	(139.7)
E	14	(355.6)	12	(304.8)	6	(152.4)	5	(127.0)	5/8	(15.9)	11/16	(17.5)	5	(127.0)
F	14	(355.6)	12	(304.8)	6	(152.4)	5	(127.0)	5/8	(15.9)	11/16	(17.5)	8	(203.3)

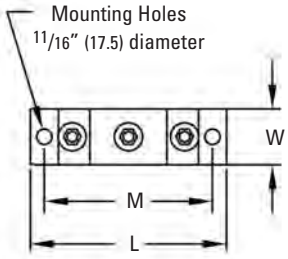
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

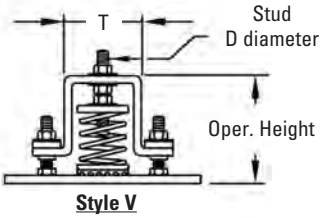
OS Type - Steel Spring Isolator/Restraint - 3" (76.2mm) Deflection

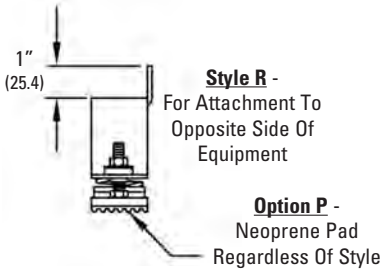
Use: To support and isolation of vibrations between equipment or frame mounted equipment and the floor or supporting structure.

- Neoprene pad 1/4" (6.3mm) thick under spring regardless of style
- All OS Type isolator/restraints feature large diameter springs with O.D. not less than 80% of rated deflection height
- Adjust load transfer while motion restraint adjustments are loose
- For compact support of heavy loads, some OS's include inner springs. For lower profile support of heavy loads when required, OSE's have clustered springs









Part Numbers - G Springs - 3" (76.2mm) Deflection

Housing Size	
OSB	**OSF**
OSB-(*)-3YW162(**)	OSF-(*)-G853(**)
OSB-(*)-G213(**)	OSF-(*)-3YW1036(**)
OSB-(*)-G303(**)	OSF-(*)-G1223(**)
OSB-(*)-3YW325(**)	
OSB-(*)-3YW496(**)	

(*) Insert Style V or R
(**) Insert Option P when required

Typical Part Numbering

OS B - V - G213 P

- OS — Type
- B — Housing Size
- V — Style V or R
- G213 — Spring Number
- P — Neoprene Base Option

Dimensions

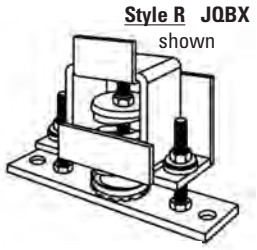
Housing Size	L in. (mm)	W in. (mm)	M in. (mm)	T in. (mm)	D in. (mm)	Approx. Oper. Height in. (mm)
OSB	10 1/2 (266.7)	3 1/2 (88.9)	9 (228.6)	4 (101.6)	1/2 (12.7)	5 1/2 (139.7)
OSF	14 (355.6)	5 (127.0)	12 (304.8)	6 (152.4)	5/8 (15.9)	8 (203.2)

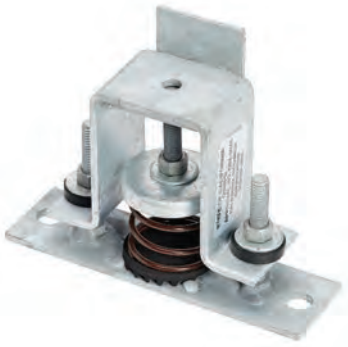
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

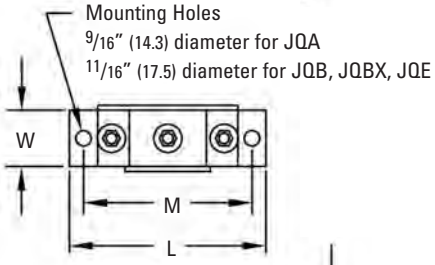
JQ Type - Isolator/Restraints - 1" (25.4mm) Deflection with California Pre-Approved Seismic Protection OPA-0070

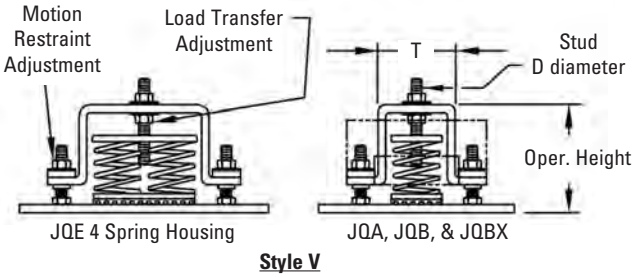
Use: To support and isolation of vibrations between equipment or frame mounted equipment and the floor or supporting structure. Pre-approved for state of California health care projects (OSHPD).

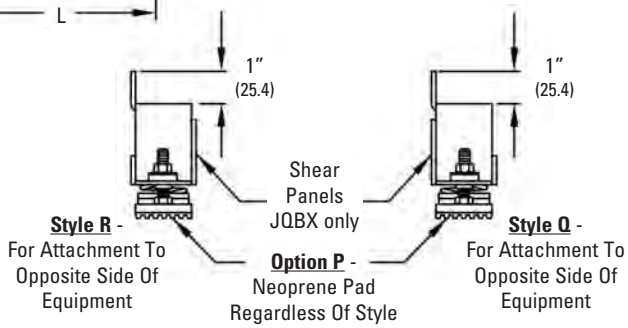
- Neoprene pad 1/4" (6.3mm) thick under spring regardless of style
- All JQ Type isolator/restraints feature large diameter springs with O.D. not less than 80% of rated deflection height
- Adjust load transfer while motion restraint adjustments are loose
- For compact support of heavy loads, some JQ include inner springs. For lower profile support of heavy loads when required, JQE's have clustered springs
- Housings are HDG with Zinc Plated hardware Springs are Zinc Plated or Powder Coated











Part Numbers - E Springs - 1" (25.4mm) Deflection

Housing Size			
JQA	JQB	JQBX	JQE
JQA-(*)-E21(**)	JQB-(*)-ET255(**)	JQBX-ET255(*)(**)	JQE-(*)-E976(**)
JQA-(*)-E55(**)	JQB-(*)-ET347(**)	JQBX-ET347(*)(**)	JQE-(*)-E1272(**)
JQA-(*)-E79(**)	JQB-(*)-ET473(**)	JQBX-ET473(*)(**)	JQE-(*)-E1660(**)
JQA-(*)-E106(**)	JQB-(*)-E630(**)	JQBX-E630(*)(**)	JQE-(*)-E2000(**)
JQA-(*)-E143(**)	JQB-(*)-E806(**)	JQBX-E806(*)(**)	JQE-(*)-E2532(**)
JQA-(*)-E187(**)	JQB-(*)-E1030(**)	JQBX-E1030(*)(**)	JQE-(*)-E3204(**)
JQA-(*)-E244(**)	JQB-(*)-E1230(**)	JQBX-E1230(*)(**)	JQE-(*)-E4128(**)
JQA-(*)-E318(**)	JQB-(*)-E1430(**)	JQBX-E1430(*)(**)	
JQA-(*)-E415(**)	JQB-(*)-E1810(**)	JQBX-E1810(*)(**)	
JQA-(*)-E500(**)	JQB-(*)-E2210(**)	JQBX-E2210(*)(**)	
JQA-(*)-E633(**)			
JQA-(*)-E801(**)			

(*) Insert Style V, R, or Q
(**) Insert Option P when required

Typical Part Numbering

JQ A - R - E500 P

- Type
- Housing Size
- Style V, R, or Q
- Spring Number
- Neoprene Base Option

OPA-0070 – Pre-Approved Maximum Allowable Loads

Housing Size	Horizontal Lbs. (kN)	Vertical Lbs. (kN)
JQA	800 (3.56)	1660 (7.38)
JQB	1000 (4.45)	1600 (7.11)
JQBX	1500 (6.67)	2000 (8.89)
JQE	3200 (14.23)	4300 (19.12)

Dimensions

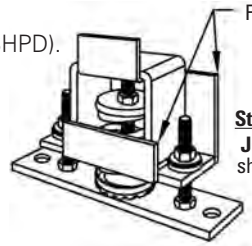
Housing Size	L in. (mm)	W in. (mm)	M in. (mm)	T in. (mm)	D in. (mm)	Approx. Oper. Height in. (mm)
JQA	7 (177.8)	2 (50.8)	6 (152.4)	2 3/4 (69.8)	3/8 (9.5)	4 1/2 (114.3)
JQB/JQBX	10 1/2 (266.7)	3 1/2 (88.9)	9 (228.6)	4 (101.6)	1/2 (12.7)	5 1/2 (139.7)
JQE	14 (355.6)	5 (127.0)	12 (304.8)	6 (152.4)	5/8 (15.9)	5 (127.0)

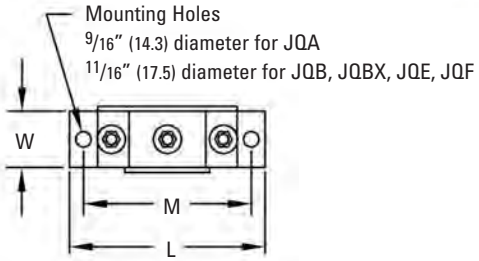
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

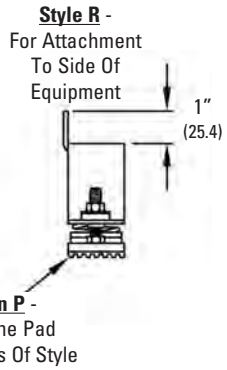
JQ Type - Isolator/Restraints - 2" (50.8mm) Deflection with California Pre-Approved Seismic Protection OPA-0070

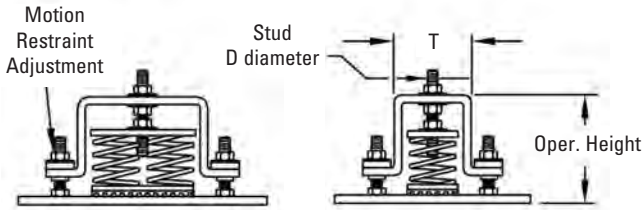
Use: To support and isolation of vibrations between equipment or frame mounted equipment and the floor or supporting structure. Pre-approved for state of California health care projects (OSHPD).

- Neoprene pad 1/4" (6.3mm) thick under spring regardless of style
- All JQ Type isolator/restraints feature large diameter springs with O.D. not less than 80% of rated deflection height
- Adjust load transfer while motion restraint adjustments are loose
- For compact support of heavy loads, some JQ include inner springs. For lower profile support of heavy loads when required, JQE's have clustered springs
- Housings are HDG with Zinc Plated hardware Springs are Zinc Plated or Powder Coated









Style V

Part Numbers - F Springs - 2" (50.8mm) Deflection

Housing Size			
JQA	JQB***	JQE	JQF
JQA-(*)-F33(**)	JQB_-(*)-FT121(**)	JQE_-(*)-F332(**)	JQF-(*)-F1159(**)
JQA-(*)-F43(**)	JQB_-(*)-FT171(**)	JQE_-(*)-F480(**)	JQF-(*)-F1408(**)
JQA-(*)-F59(**)	JQB_-(*)-FT241(**)	JQE_-(*)-F620(**)	JQF-(*)-F1710(**)
JQA-(*)-F83(**)	JQB_-(*)-F348(**)	JQE_-(*)-F780(**)	JQF-(*)-F2149(**)
JQA-(*)-F120(**)	JQB_-(*)-F453(**)	JQE_-(*)-F944(**)	JQF-(*)-F2700(**)
JQA-(*)-F155(**)	JQB_-(*)-F590(**)	JQE_-(*)-F1200(**)	
JQA-(*)-F195(**)	JQB_-(*)-F676(**)		
JQA-(*)-F236(**)	JQB_-(*)-F787(**)		
JQA-(*)-F300(**)	JQB_-(*)-F918(**)		

(*) Insert Style V or R
(**) Insert Option P when required
*** Leave blank for JQB style or insert X in part number for JQBX style

Typical Part Numbering

JQ A - R - F236 P

- JQ — Type
- A — Housing Size
- R — Style V or R
- F236 — Spring Number
- P — Neoprene Base Option

OPA-0070 – Pre-Approved Maximum Allowable Loads

Housing Size	Horizontal Lbs.	(kN)	Vertical Lbs.	(kN)
JQA	800	(3.56)	1660	(7.38)
JQB	1000	(4.45)	1600	(7.11)
JQBX	1500	(6.67)	2000	(8.89)
JQE	3200	(14.23)	4300	(19.12)
JQF	2900	(12.90)	4000	(17.79)

Dimensions

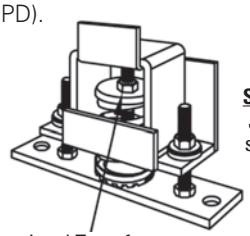
Housing Size	L in.	(mm)	W in.	(mm)	M in.	(mm)	T in.	(mm)	D in.	(mm)	Approx. Oper. Height in.	(mm)
JQA	7	(177.8)	2	(50.8)	6	(152.4)	2 3/4	(69.8)	3/8	(9.5)	4 1/2	(114.3)
JQB/JQBX	10 1/2	(266.7)	3 1/2	(88.9)	9	(228.6)	4	(101.6)	1/2	(12.7)	5 1/2	(139.7)
JQE	14	(355.6)	5	(127.0)	12	(304.8)	6	(152.4)	5/8	(15.9)	5	(127.0)
JQF	14	(355.6)	5	(127.0)	12	(304.8)	6	(152.4)	5/8	(15.9)	8	(203.2)

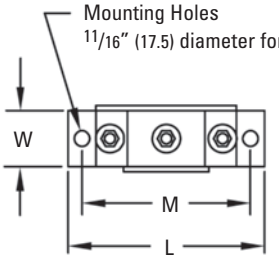
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

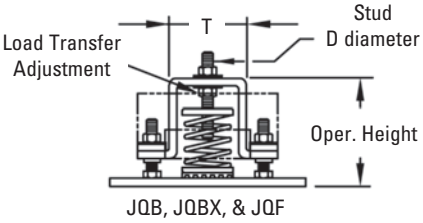
JQ Type - Isolator/Restraints - 3" (76.2mm) Deflection with California Pre-Approved Seismic Protection OPA-0070

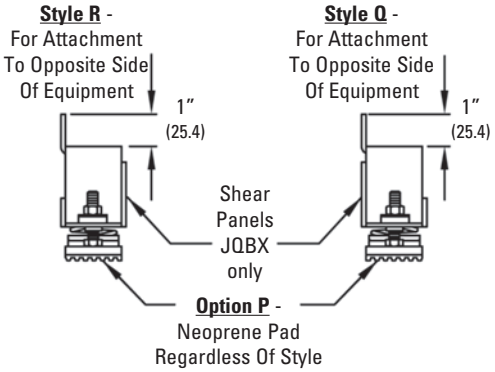
Use: For compact support or low profile support of heavy loads. Pre-approved for state of California health care projects (OSHPD).

- Neoprene pad 1/4" (6.3mm) thick under spring regardless of style
- All JQ Type isolator/restraints feature large diameter springs with O.D. not less than 80% of rated deflection height
- Adjust load transfer while motion restraint adjustments are loose
- Housings are HDG with Zinc Plated hardware Springs are Zinc Plated or Powder Coated







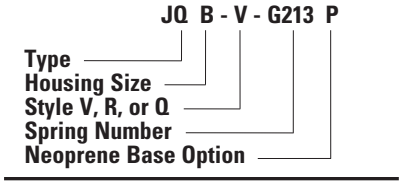


Part Numbers - G Springs - 3" (76.2mm) Deflection

Housing Size		
JQB	JQBX	JQF
JQB-(*)-3YW162(**)	JQBX-(*)-3YW162(**)	JQF-(*)-G853(**)
JQB-(*)-G213(**)	JQBX-(*)-G213(**)	JQF-(*)-3YW1036(**)
JQB-(*)-G303(**)	JQBX-(*)-G303(**)	JQF-(*)-G1223(**)
JQB-(*)-3YW325(**)	JQBX-(*)-3YW325(**)	
JQB-(*)-3YW496(**)	JQBX-(*)-3YW496(**)	

(*) Insert Style V, R, or Q
(**) Insert Option P when required

Typical Part Numbering



OPA-0070 – Pre-Approved Maximum Allowable Loads

Housing Size	Horizontal Lbs. (kN)	Vertical Lbs. (kN)
JQB	1000 (4.45)	1600 (7.11)
JQBX	1500 (6.67)	2000 (8.89)
JQF	2900 (12.90)	4000 (17.79)

Dimensions

Housing Size	L in. (mm)	W in. (mm)	M in. (mm)	T in. (mm)	D in. (mm)	Approx. Oper. Height in. (mm)
JQB/JQBX	10 1/2 (266.7)	3 1/2 (88.9)	9 (228.6)	4 (101.6)	1/2 (12.7)	5 1/2 (139.7)
JQF	14 (355.6)	5 (127.0)	12 (304.8)	6 (152.4)	5/8 (15.9)	8 (203.2)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

JQ-TQN Type - Top Quality Neoprene Isolator/Restraints - 1/2" (12.7mm) Deflection with California Pre-Approved Seismic Protection OPA-0070

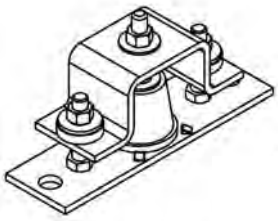
Use: For support of light equipment or framed equipment and isolation with a cushion to prevent vibration transference to structure. Pre-approved for state of California health care projects (OSHPD).

- Adjust load transfer while motion restraint adjustments are loose
- Housings are HDG with Zinc Plated hardware

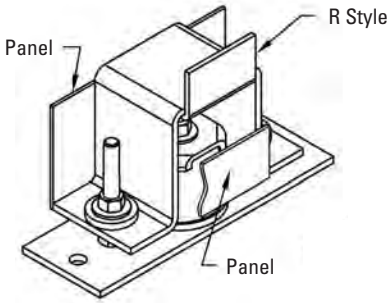
Style V

Style R

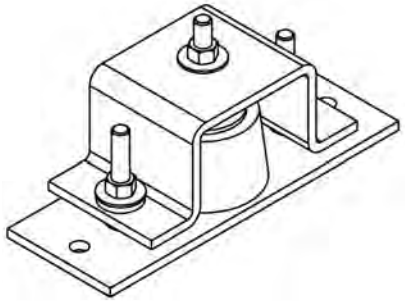
JQAM TQN 55
Style V shown



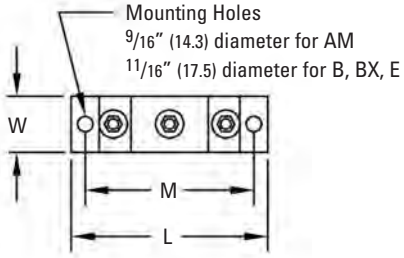
JQBX TQN 520
Style R shown

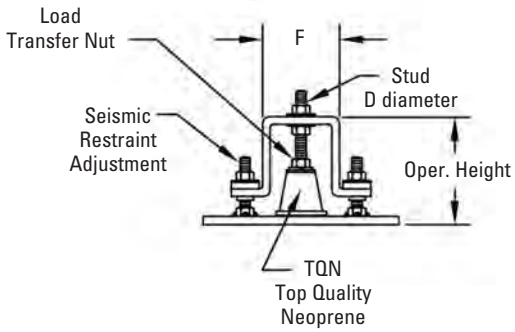


JQE TQN 4200
Style V shown

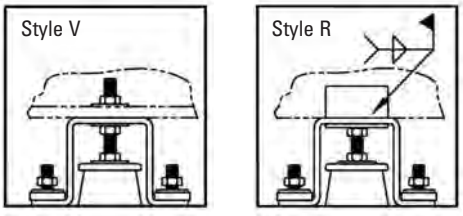


Panels	
JQB	No
JQBX	Yes





Load Transfer Styles



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

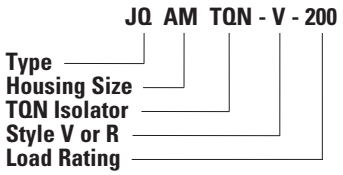
JQ-TQN Type - Top Quality Neoprene Isolator/Restraints - 1/2" (12.7mm) Deflection con't. with California Pre-Approved Seismic Protection OPA-0070

1/2" (12.7mm) Rated Static Deflection

Part No.	Maximum Load in.	(mm)	Color Code
JQAMTQN-(*)-40	40	(0.18)	Yellow
JQAMTQN-(*)-55	55	(0.25)	Green
JQAMTQN-(*)-80	80	(0.35)	Blue
JQAMTQN-(*)-120	120	(0.53)	Orange
JQAMTQN-(*)-200	200	(0.89)	Yellow
JQAMTQN-(*)-280	280	(1.24)	Green
JQAMTQN-(*)-400	400	(1.78)	Blue
JQBTQN-(*)-300	300	(1.33)	Yellow
JQBTQN-(*)-520	520	(2.31)	Green
JQBTQN-(*)-750	750	(3.33)	Blue
JQBTQN-(*)-1100	1100	(4.89)	White
JQBXTQN-(*)-300	300	(1.33)	Yellow
JQBXTQN-(*)-520	520	(2.31)	Green
JQBXTQN-(*)-750	750	(3.33)	Blue
JQBXTQN-(*)-1100	1100	(4.89)	White
JQETQN-(*)-1800	1800	(8.00)	Green
JQETQN-(*)-3000	3000	(13.34)	Blue
JQETQN-(*)-5000	5000	(22.24)	White

(*) Insert Style V or R

Typical Part Numbering



OPA-0070 – Pre-Approved Maximum Allowable Loads

Housing Size	Horizontal Lbs.	(kN)	Vertical Lbs.	(kN)
AM	600	(2.67)	900	(4.00)
B	1000	(4.45)	1600	(7.11)
BX	1500	(6.67)	2000	(8.89)
E	3200	(14.23)	4300	(19.13)

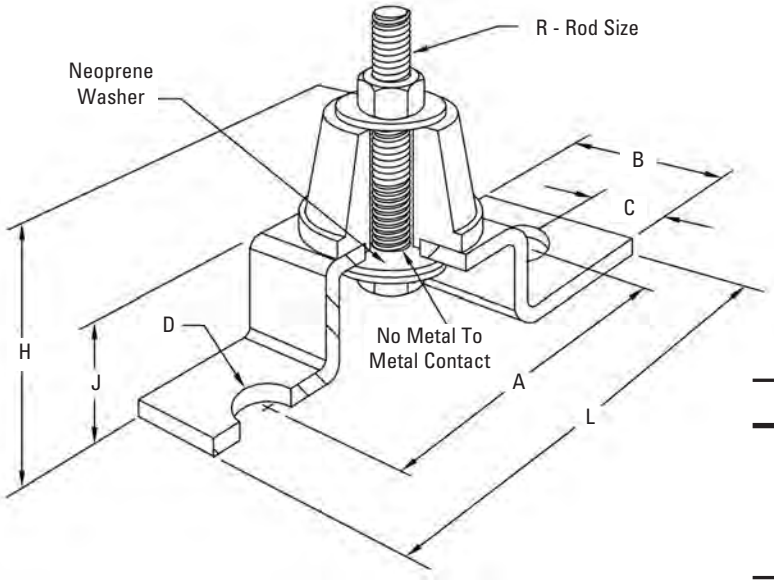
Dimensions

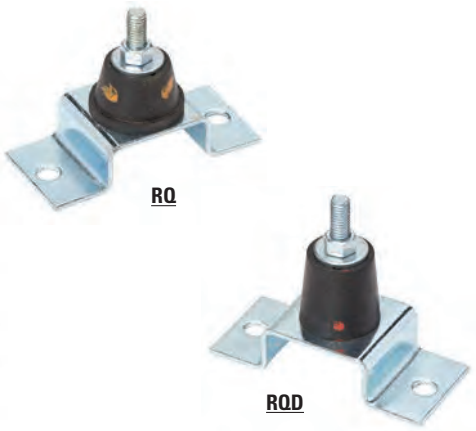
Housing Size	L in.	(mm)	W in.	(mm)	M in.	(mm)	F in.	(mm)	D in.	(mm)	Approx. Oper. Height in.	(mm)
AM	7	(177.8)	2	(50.8)	6	(152.4)	2 3/4	(69.8)	3/8	(9.5)	2 3/4	(69.8)
B / BX	10 1/2	(266.7)	3 1/2	(88.9)	9	(228.6)	4	(101.6)	1/2	(12.7)	5	(127.0)
E	14	(355.6)	5	(127.0)	12	(304.8)	6	(152.4)	5/8	(15.9)	5	(127.0)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

RQ & RQD Type - Neoprene Mount with Integrak Seismic Restraints

Use: For support of light equipment or framed light equipment while preventing transfer of vibration to structure.





Typical Part Numbering

RQ - A130

Type

Mount Number

1/4" (6.3mm) Maximum Deflection

Part No.	Maximum Load Lbs.	(kN)	Color Code
RQ-A40	40	(0.18)	Orange
RQ-A55	55	(0.25)	Yellow
RQ-A80	80	(0.35)	Green
RQ-A130	130	(0.58)	Blue
RQ-B120	120	(0.53)	Orange
RQ-B200	200	(0.89)	Yellow
RQ-B280	280	(1.24)	Green
RQ-B400	400	(1.78)	Blue
RQ-C300	300	(1.33)	Yellow
RQ-C520	520	(2.31)	Green
RQ-C750	750	(3.33)	Blue
RQ-C1100	1100	(4.89)	White

1/2" (12.7mm) Maximum Deflection

Part No.	Maximum Load Lbs.	(kN)	Color Code
RQD-A40	40	(0.18)	Orange
RQD-A55	55	(0.25)	Yellow
RQD-A80	80	(0.35)	Green
RQD-A130	130	(0.58)	Blue
RQD-B120	120	(0.53)	Orange
RQD-B200	200	(0.89)	Yellow
RQD-B280	280	(1.24)	Green
RQD-B400	400	(1.78)	Blue
RQD-C300	300	(1.33)	Yellow
RQD-C520	520	(2.31)	Green
RQD-C750	750	(3.33)	Blue
RQD-C1100	1100	(4.89)	White

Dimensions

Neoprene Type	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	L in. (mm)	J in. (mm)	R	H in. (mm)
RQ-A	3 1/2 (88.9)	2 (50.8)	1 (25.4)	7/16 (11.1)	4 1/2 (114.3)	1 (25.4)	3/8"-16	2 (50.8)
RQ-B	4 5/16 (109.5)	2 1/2 (63.5)	1 1/4 (31.7)	9/16 (14.3)	5 3/8 (136.5)	1 1/2 (38.1)	5/8"-11	2 3/4 (69.8)
RQ-C	5 (127.0)	3 1/4 (82.5)	1 5/8 (41.3)	11/16 (17.5)	6 3/16 (157.2)	1 7/8 (47.6)	3/4"-10	3 3/8 (85.7)
RQD-A	3 1/2 (88.9)	2 (50.8)	1 (25.4)	7/16 (11.1)	4 1/2 (114.3)	1 (25.4)	3/8"-16	2 (50.8)
RQD-B	4 5/16 (109.5)	2 1/2 (63.5)	1 1/4 (31.7)	9/16 (14.3)	5 3/8 (136.5)	1 1/2 (38.1)	5/8"-11	2 3/4 (69.8)
RQD-C	5 (127.0)	3 1/4 (82.5)	1 5/8 (41.3)	11/16 (17.5)	6 3/16 (157.2)	1 7/8 (47.6)	3/4"-10	3 3/8 (85.7)

Type RQ: Single Deflection (1/4" (6.3mm) Maximum)

Type RQD: Double Deflection (1/2" (12.7mm) Maximum)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Reference Tables

For use in selecting hangers for standard pipe

Nominal Pipe Size		Weight Per Foot (25.4mm) Standard Pipe				Hanger Selection Load 10′ (3.05m) Spacing	
		Dry or Steam Filled		Water Filled			
in.	(mm)	lbs.	(kg)	lbs.	(kg)	lbs.	(kN)
3/4	(20)	1.13	(0.51)	1.36	(0.61)	21	(0.09)
1	(25)	1.68	(0.76)	2.06	(0.93)	55	(0.24)
1 1/4	(32)	2.28	(1.03)	2.93	(1.33)	55	(0.24)
1 1/2	(40)	2.73	(1.24)	3.62	(1.64)	55	(0.24)
2	(50)	3.68	(1.67)	5.15	(2.33)	79	(0.35)
2 1/2	(65)	5.82	(2.64)	7.91	(3.59)	143	(0.63)
3	(80)	7.62	(3.45)	10.85	(4.92)	143	(0.63)
3 1/2	(90)	9.20	(4.17)	13.52	(6.13)	187	(0.83)
4	(100)	10.89	(4.94)	16.45	(7.46)	244	(1.08)
4 1/2	(115)	12.64	(5.73)	19.50	(8.84)	244	(1.08)
5	(125)	14.81	(6.72)	23.55	(10.68)	318	(1.41)
6	(150)	19.18	(8.70)	31.80	(14.42)	415	(1.84)
7	(175)	24.05	(10.91)	40.85	(18.53)	500	(2.22)
8	(200)	28.60	(12.97)	50.50	(22.90)	715	(3.18)
9	(225)	33.90	(15.38)	61.10	(27.71)	1060	(4.71)
10	(250)	40.50	(18.37)	75.00	(24.02)	1060	(4.71)
12	(300)	49.60	(22.50)	99.00	(44.90)	1430	(6.36)

Selection based on water filled pipe only. Add weight of fittings if any and reselect.

125# Cast Iron pipe fitting approximate weights

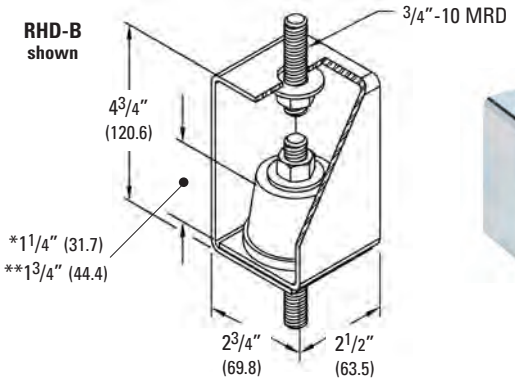
Nominal Pipe Size		Strainer		Check Valve		Gate Valve		Elbow		Tee		Flange	
in.	(mm)	lbs.	(kg)	lbs.	(kg)	lbs	(kg)	lbs	(kg)	lbs	(kg)	lbs	(kg)
1 1/2	(40)	20	(9.1)	25	(11.3)	30	(13.6)	15	(6.8)	20	(9.1)	3.5	(1.6)
2	(50)	30	(13.6)	25	(11.3)	40	(18.1)	20	(9.1)	25	(11.3)	6	(2.7)
2 1/2	(65)	40	(18.1)	35	(15.9)	50	(22.7)	25	(11.3)	35	(15.9)	8	(3.6)
3	(80)	50	(22.7)	45	(20.4)	70	(31.7)	30	(13.6)	40	(18.1)	9	(4.1)
4	(100)	85	(38.5)	80	(36.3)	110	(49.9)	55	(24.9)	70	(31.7)	16	(7.2)
5	(125)	110	(49.9)	120	(54.4)	140	(63.5)	70	(31.7)	90	(40.8)	20	(9.1)
6	(150)	140	(63.5)	155	(70.3)	415	(1.84)	90	(40.8)	115	(52.1)	25	(11.3)
8	(200)	205	(93.0)	305	(138.3)	250	(113.4)	120	(54.4)	175	(79.4)	34	(15.4)
10	(250)	330	(149.7)	455	(206.4)	475	(215.4)	245	(111.1)	295	(133.8)	53	(24.0)
12	(300)	440	(199.6)	675	(306.2)	690	(313.0)	375	(54.4)	405	(183.7)	71	(32.2)

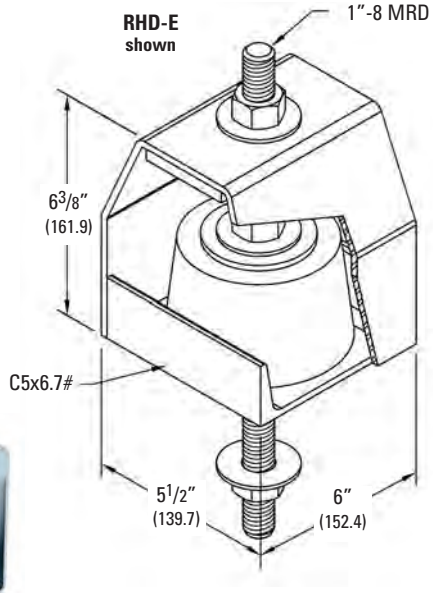
For 250# fittings, multiply above values by 1.8.

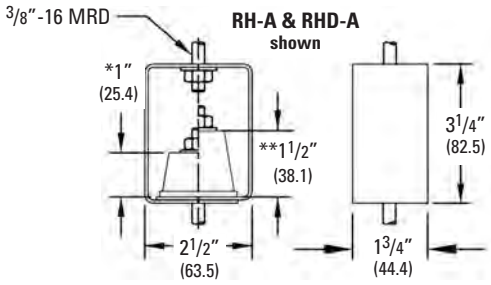
RH & RHD Type - Neoprene Hanger

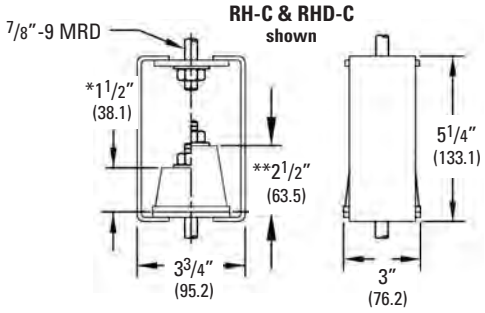
Use: Used to dampen noise and vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.

- *Type RH: Single deflection - 1/4" (6.3mm) maximum
- **Type RHD: Double deflection - 1/2" (12.7mm) maximum
- MRD is maximum rod diameter
- Housing finish: Zinc Plated
- Threaded rods, nuts, and washers are furnished separately









1/4" (6.3mm) Maximum Single Deflection

Part Number	Maximum Load lbs.	(kN)	Color Code
RH-40-A	40	(0.18)	Yellow
RH-55-A	55	(0.25)	Green
RH-80-A	80	(0.35)	Blue
RH-130-A	130	(0.58)	White
RH-120-B	120	(0.53)	Orange
RH-200-B	200	(0.89)	Yellow
RH-280-B	280	(1.24)	Green
RH-400-B	400	(1.78)	Blue
RH-300-C	300	(1.33)	Yellow
RH-520-C	520	(2.31)	Green
RH-750-C	750	(3.33)	Blue
RH-1100-C	1100	(4.89)	White

Typical Part Numbering

RH - 280 - B

- **Type**
- **Load Rating**
- **Size**

1/2" (12.7mm) Maximum Double Deflection

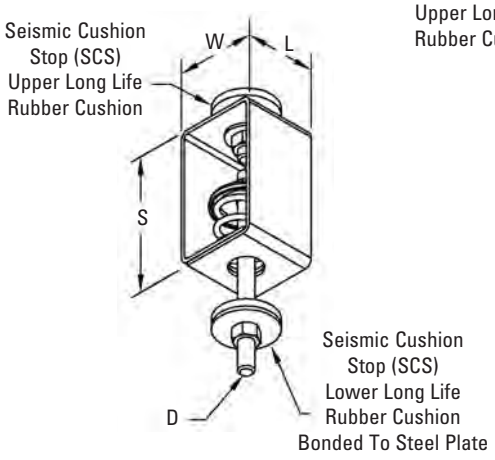
Part Number	Maximum Load lbs.	(kN)	Color Code
RHD-40-A	40	(0.18)	Yellow
RHD-55-A	55	(0.25)	Green
RHD-80-A	80	(0.35)	Blue
RHD-130-A	130	(0.58)	White
RHD-120-B	120	(0.53)	Orange
RHD-200-B	200	(0.89)	Yellow
RHD-280-B	280	(1.24)	Green
RHD-400-B	400	(1.78)	Blue
RHD-300-C	300	(1.33)	Yellow
RHD-520-C	520	(2.31)	Green
RHD-750-C	750	(3.33)	Blue
RHD-1100-C	1100	(4.89)	White
RHD-1700-E	1700	(7.56)	Green
RHD-2700-E	2700	(12.01)	Blue
RHD-4200-E	4200	(18.68)	White

CHSCS Type - Spring Hanger with Seismic Cushion Stop - 1" (25.4mm) Deflection

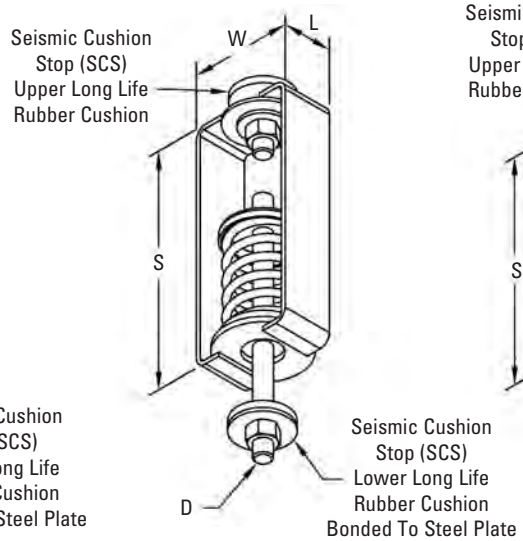
Use: Used to dampen noise and vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.

- All housing sizes have been tested to carry five times the maximum load without failure
- Spring rated deflection is 1" (25.4mm)
- SFH = Free Height
- Threaded rod, nuts, and washers supplied separately

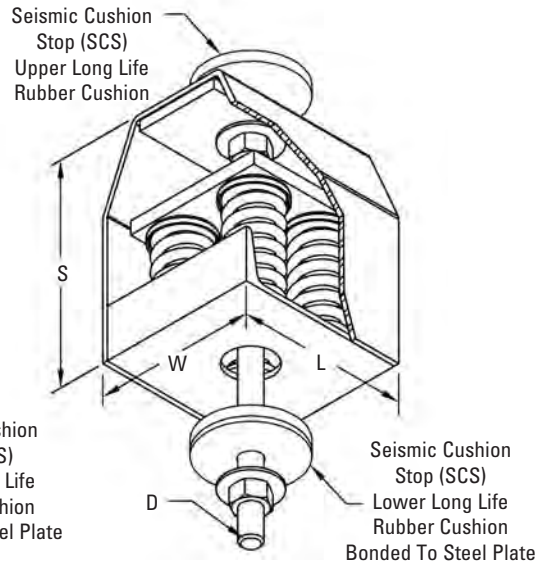
Light Weight Hanger
CHSCS-E21 thru CHSCS-E415



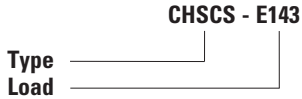
Basic Hanger
CHSCS-E500 thru CHSCS-E1060



***Extra Strength Hanger**
CHSCS-E1580 thru CHSCS-E2860



Typical Part Numbering



Dimensions

Part Number	Maximum Load lbs.	(kN)	SFH in.	(mm)	S in.	(mm)	W in.	(mm)	L in.	(mm)	SCS Diameter in.	(mm)	D Diameter
CHSCS-E21	21	(0.09)	2 5/8	(66.7)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	3/8"-16
CHSCS-E55	55	(0.24)	2 3/4	(69.8)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	3/8"-16
CHSCS-E79	79	(0.35)	2 5/8	(66.7)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	3/8"-16
CHSCS-E106	106	(0.47)	2 5/8	(66.7)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	3/8"-16
CHSCS-E143	143	(0.63)	2 5/8	(66.7)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CHSCS-E187	187	(0.83)	2 5/8	(66.7)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CHSCS-E244	244	(1.08)	2 3/4	(69.8)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CHSCS-E318	318	(1.41)	3 1/8	(79.4)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	5/8"-11
CHSCS-E415	415	(1.84)	3 1/16	(77.8)	4 3/4	(120.6)	2 3/4	(69.8)	2 1/2	(63.5)	2 3/8	(60.3)	5/8"-11
CHSCS-E500	500	(2.22)	3 1/4	(82.5)	7 1/2	(190.5)	3 1/4	(82.5)	2 3/4	(69.8)	3	(76.2)	3/4"-10
CHSCS-715	715	(3.18)	4 1/4	(107.9)	7 1/2	(190.5)	3 1/4	(82.5)	2 3/4	(69.8)	3	(76.2)	3/4"-10
CHSCS-1060	1060	(4.71)	4 1/4	(107.9)	7 1/2	(190.5)	3 1/4	(82.5)	2 3/4	(69.8)	3	(76.2)	3/4"-10
CHSCS-1430 *	1430	(6.36)	4 1/4	(107.9)	8 3/8	(212.7)	6	(152.4)	6	(152.4)	3	(76.2)	7/8"-9
CHSCS-2120 *	2120	(9.43)	4 1/4	(107.9)	8 3/8	(212.7)	6	(152.4)	6	(152.4)	3	(76.2)	7/8"-9
CHSCS-2860 *	2860	(12.72)	4 1/4	(107.9)	8 3/8	(212.7)	6	(152.4)	6	(152.4)	3	(76.2)	7/8"-9

* Housings are specially reinforced for extra strength

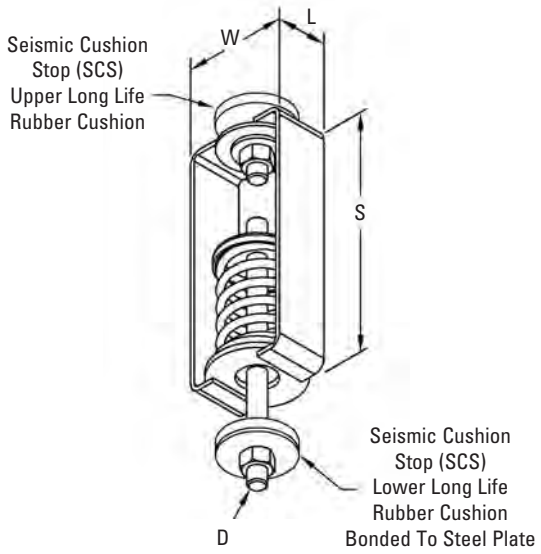
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

CHSCS Type - Spring Hanger with Seismic Cushion Stop - 2" (50.8mm) Deflection

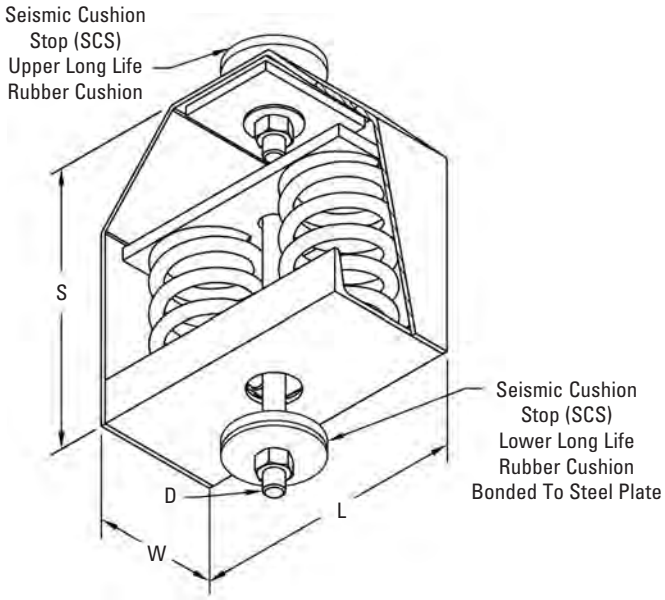
Use: Used to dampen noise and vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.

- All housing sizes have been tested to carry five times the maximum load without failure
- Spring rated deflection is 2" (50.8mm)
- SFH = Free Height
- Threaded rod, nuts, and washers supplied separately

Basic Hanger
CHSCS-F59 thru CHSCS-F918



***Extra Strength Hanger**
CHSCS-F1159 thru CHSCS-F3420



Typical Part Numbering

CHSCS - F120

Type
Load

Dimensions

Part Number	Maximum Load lbs.	(kN)	SFH in.	(mm)	S in.	(mm)	W in.	(mm)	L in.	(mm)	SCS Diameter in.	(mm)	D Diameter
CHSCS-F59	59	(0.26)	4 1/4	(107.9)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CHSCS-F83	83	(0.37)	4 1/4	(107.9)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CHSCS-F120	120	(0.53)	4 1/4	(107.9)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CHSCS-F155	155	(0.69)	4 1/4	(107.9)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CHSCS-F195	195	(0.87)	4 9/16	(115.9)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CHSCS-F241	241	(1.07)	4 1/2	(114.3)	10	(254.0)	5 1/2	(139.7)	4 1/2	(114.3)	2 3/8	(60.3)	1/2"-13
CHSCS-F348	348	(1.55)	5	(127.0)	10	(254.0)	5 1/2	(139.7)	4 1/2	(114.3)	2 3/8	(60.3)	5/8"-11
CHSCS-F453	453	(2.01)	5	(127.0)	10	(254.0)	5 1/2	(139.7)	4 1/2	(114.3)	2 3/8	(60.3)	5/8"-11
CHSCS-F590	590	(2.62)	5	(127.0)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	2 3/8	(60.3)	3/4"-10
CHSCS-F676	676	(3.00)	5	(127.0)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	2 3/8	(60.3)	3/4"-10
CHSCS-F787	787	(3.50)	5	(127.0)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	2 3/8	(60.3)	3/4"-10
CHSCS-F918	918	(4.08)	5	(127.0)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	2 3/8	(60.3)	3/4"-10
CHSCS-F1159 *	1159	(5.15)	6 7/16	(163.5)	11	(279.4)	6	(152.9)	5	(127.0)	3	(76.2)	3/4"-10
CHSCS-F1408 *	1408	(6.26)	6 7/16	(163.5)	11	(279.4)	6	(152.9)	5	(127.0)	3	(76.2)	7/8"-9
CHSCS-F1710 *	1710	(7.60)	6 7/16	(163.5)	11	(279.4)	6	(152.9)	5	(127.0)	3	(76.2)	7/8"-9
CHSCS-F2318 *	2318	(10.31)	6 7/16	(163.5)	11 1/4	(285.7)	11	(279.4)	5	(127.0)	3	(76.2)	7/8"-9
CHSCS-F2816 *	2816	(12.52)	6 7/16	(163.5)	11 1/4	(285.7)	11	(279.4)	5	(127.0)	3	(76.2)	7/8"-9
CHSCS-F3420 *	3420	(15.21)	6 7/16	(163.5)	11 1/4	(285.7)	11	(279.4)	5	(127.0)	3	(76.2)	7/8"-9

* Housings are specially reinforced for extra strength

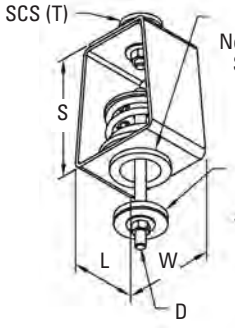
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

CH30SCS Type - 15° Tilt, 1" (25.4mm) Deflection Combination Hanger - Spring & Neoprene with Seismic Cushion Stop

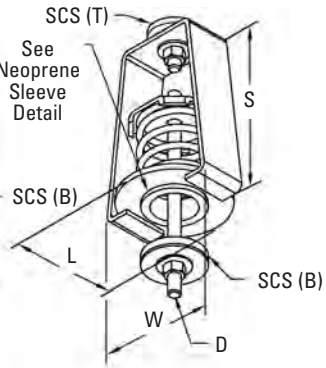
Use: Used to dampen noise and minor vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.Used where uncertain alignment is anticipated during installation. At rated load the hanger rod will operate to a full 15° tilt in any direction from vertical centerline.

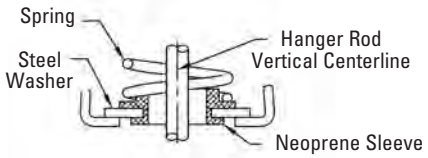
- All housing sizes have been tested to carry five times the maximum load without failure
- Spring rated deflection is 1" (25.4mm)
- SFH = Free Height
- Threaded rod, nuts, and washers supplied separately

Light Weight Hanger
CH30SCS-ET20 thru CH30SCS-ET255



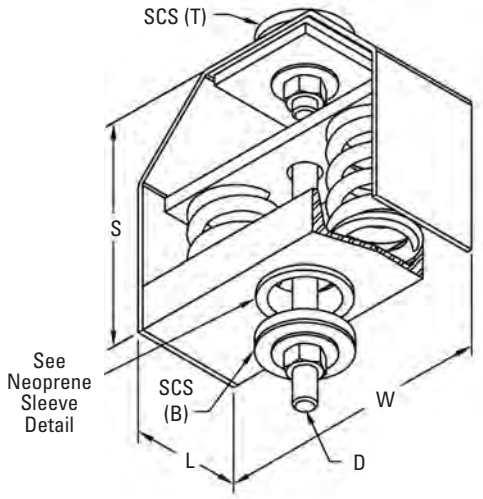
Basic Hanger
CH30SCS-ET347 thru CH30SCS-ET1326

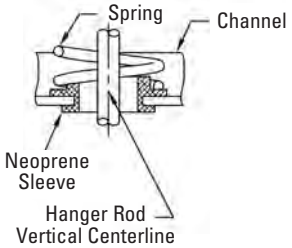




Neoprene Sleeve Detail

***Extra Strength Hanger**
CH30SCS-E1612 thru CH30SCS-E4920





Neoprene Sleeve Detail

Typical Part Numbering

CH30SCS - ET129

Type
Load

SCS (T) = Seismic Cushion Stop (SCS) Upper Long Life Rubber Cushion

SCS (B) = Seismic Cushion Stop (SCS) Lower Long Life Rubber Cushion Bonded To Steel Plate

Dimensions

Part Number	Maximum Load lbs. (kN)	SFH in. (mm)	S in. (mm)	W in. (mm)	L in. (mm)	SCS Diameter in. (mm)	D Diameter
CH30SCS-ET20	20 (0.09)	1 7/8 (47.6)	4 3/4 (120.6)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	1/2"-13
CH30SCS-ET42	42 (0.18)	2 (50.8)	4 3/4 (120.6)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	1/2"-13
CH30SCS-ET80	80 (0.35)	2 1/8 (54.0)	4 3/4 (120.6)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	1/2"-13
CH30SCS-ET129	129 (0.57)	2 3/8 (60.3)	4 3/4 (120.6)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	1/2"-13
CH30SCS-ET194	194 (0.86)	2 3/8 (60.3)	4 3/4 (120.6)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	1/2"-13
CH30SCS-ET255	255 (1.13)	2 1/2 (63.5)	4 3/4 (120.6)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	1/2"-13
CH30SCS-ET347	347 (1.54)	2 3/4 (69.8)	6 (152.9)	5 5/16 (134.9)	4 1/4 (107.9)	2 3/8 (60.3)	5/8"-11
CH30SCS-ET473	473 (2.10)	2 7/8 (73.0)	6 (152.9)	5 5/16 (134.9)	4 1/4 (107.9)	2 3/8 (60.3)	5/8"-11
CH30SCS-ET667	667 (2.96)	3 1/8 (79.4)	7 (177.8)	5 7/8 (149.2)	4 3/4 (120.6)	3 (76.2)	3/4"-10
CH30SCS-ET940	940 (4.18)	3 3/8 (85.7)	7 (177.8)	5 7/8 (149.2)	4 3/4 (120.6)	3 (76.2)	3/4"-10
CH30SCS-ET1326	1326 (5.90)	3 5/8 (92.1)	7 (177.8)	5 7/8 (149.2)	4 3/4 (120.6)	3 (76.2)	7/8"-9
CH30SCS-E1612 *	1612 (7.17)	3 5/8 (92.1)	8 1/4 (209.5)	10 (254.0)	4 (101.6)	3 (76.2)	7/8"-9
CH30SCS-E2060 *	2060 (9.16)	3 7/8 (98.4)	8 1/4 (209.5)	10 (254.0)	4 (101.6)	3 (76.2)	1"-8
CH30SCS-E2460 *	2460 (10.94)	4 1/8 (104.8)	8 1/4 (209.5)	10 (254.0)	4 (101.6)	3 (76.2)	1"-8
CH30SCS-E2980 *	2980 (13.25)	4 1/8 (104.8)	8 1/4 (209.5)	10 (254.0)	4 (101.6)	3 (76.2)	1"-8
CH30SCS-E4120 *	4120 (18.32)	3 7/8 (98.4)	8 1/2 (215.9)	9 1/2 (241.3)	7 (177.8)	4 (101.6)	1 1/8"-7
CH30SCS-E4920 *	4920 (21.88)	4 1/8 (104.8)	8 1/2 (215.9)	9 1/2 (241.3)	7 (177.8)	4 (101.6)	1 1/8"-7

***** Housings are specially reinforced for extra strength

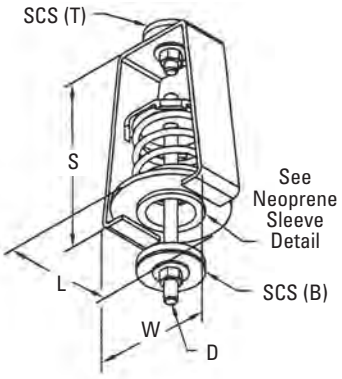
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

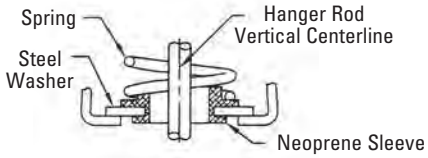
CH30SCS Type - 15° Tilt, 2" (50.8mm) Deflection Spring Hanger with Seismic Cushion Stop

Use: Used to dampen noise and minor vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.Used where uncertain alignment is anticipated during installation. At rated load the hanger rod will operate to a full 15° tilt in any direction from vertical centerline.

- All housing sizes have been tested to carry five times the maximum load without failure
- Spring rated deflection is 2" (50.8mm)
- SFH = Free Height
- Threaded rod, nuts, and washers supplied separately

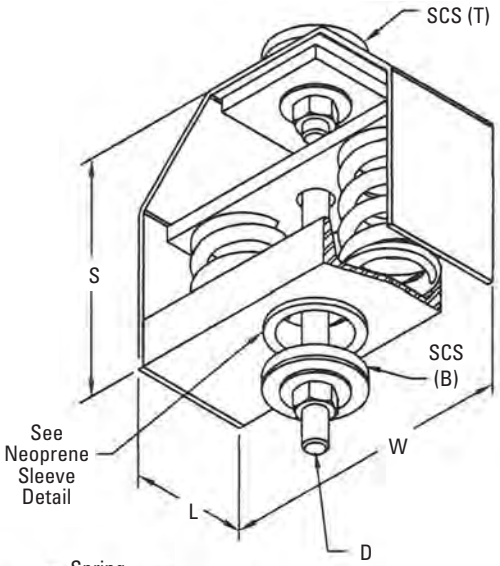
Basic Hanger
CH30SCS-FT30 thru CH30SCS-F590

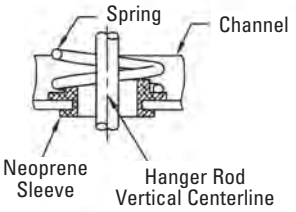




Neoprene Sleeve Detail

***Extra Strength Hanger**
CH30SCS-F696 thru CH30SCS-F3420





Neoprene Sleeve Detail

Typical Part Numbering

CH30SCS - FT121

Type
Load

SCS (T) =
Seismic Cushion Stop (SCS)
Upper Long Life Rubber Cushion

SCS (B) =
Seismic Cushion Stop (SCS)
Lower Long Life Rubber Cushion
Bonded To Steel Plate

Dimensions

Part Number	Maximum Load lbs.	(kN)	SFH in.	(mm)	S in.	(mm)	W in.	(mm)	L in.	(mm)	SCS Diameter in.	(mm)	D Diameter
CH30SCS-FT30	30	(0.13)	3 1/2	(88.9)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CH30SCS-FT41	41	(0.18)	3 1/2	(88.9)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CH30SCS-FT60	60	(0.26)	3 3/4	(95.2)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CH30SCS-FT85	85	(0.38)	3 3/4	(95.2)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
CH30SCS-FT121	121	(0.54)	4	(101.6)	8	(203.2)	5	(127.0)	4	(101.6)	2 3/8	(60.3)	1/2"-13
CH30SCS-FT171	171	(0.76)	4 1/4	(107.9)	8	(203.2)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	1/2"-13
CH30SCS-FT241	241	(1.07)	4 1/2	(114.3)	8	(203.2)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	1/2"-13
CH30SCS-F348	348	(1.55)	5	(127.0)	8	(203.2)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	5/8"-11
CH30SCS-F453	453	(2.01)	5	(127.0)	8	(203.2)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	5/8"-11
CH30SCS-F590	590	(2.62)	5	(127.0)	8	(203.2)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	3/4"-10
CH30SCS-F696 *	696	(3.09)	5	(127.0)	9	(228.6)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	3/4"-10
CH30SCS-F906 *	906	(4.03)	5	(127.0)	9	(228.6)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	3/4"-10
CH30SCS-F1180 *	1180	(5.25)	5	(127.0)	9	(228.6)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	3/4"-10
CH30SCS-F1352 *	1352	(6.01)	5	(127.0)	9	(228.6)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	7/8"-9
CH30SCS-F1574 *	1574	(7.00)	5	(127.0)	9	(228.6)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	7/8"-9
CH30SCS-F1836 *	1836	(8.16)	5	(127.0)	9	(228.6)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	7/8"-9
CH30SCS-F2318 *	2318	(10.31)	6 1/2	(165.1)	11 1/2	(292.1)	12 3/8	(314.3)	5	(127.0)	4	(101.6)	7/8"-9
CH30SCS-F2816 *	2816	(12.52)	6 1/2	(165.1)	11 1/2	(292.1)	12 3/8	(314.3)	5	(127.0)	4	(101.6)	7/8"-9
CH30SCS-F3420 *	3420	(15.21)	6 1/2	(165.1)	11 1/2	(292.1)	12 3/8	(314.3)	5	(127.0)	4	(101.6)	7/8"-9

* Housings are specially reinforced for extra strength

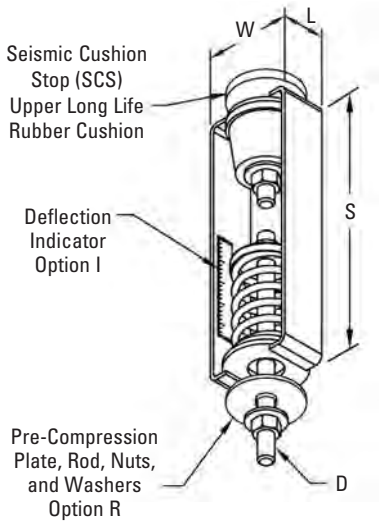
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

HHSCS Type - Combination Hanger Spring & Neoprene with Seismic Cushion Stop - 1 1/2" (38.1mm) Deflection

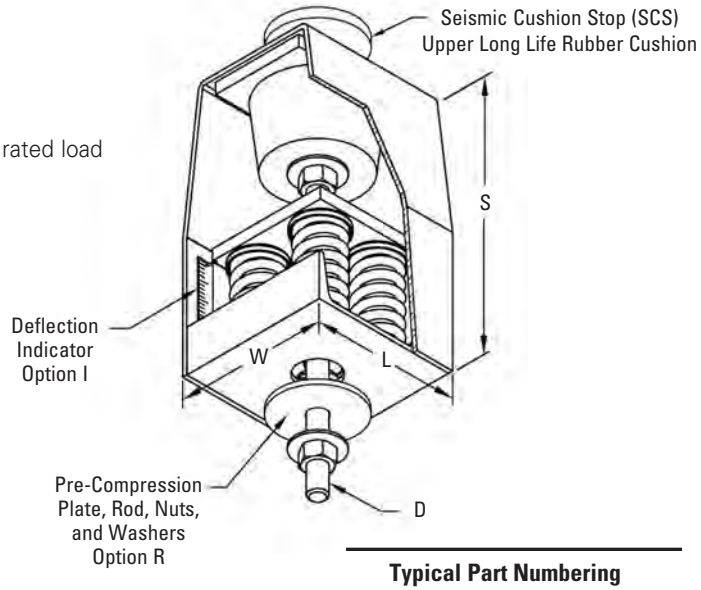
Use: Used to dampen noise and minor vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.Used where uncertain alignment is anticipated during installation. At rated load the hanger rod will operate to a full 15° tilt in any direction from vertical centerline.

- All housing sizes have been tested to carry five times the maximum load without failure
- Spring rated deflection is 2" (50.8mm) + neoprene rated deflection is 1/2" (12.7mm) = 2 1/2" (63.5mm)
- SFH = Free Height NFH = Neoprene Free Height
- Threaded rod, nuts, and washers supplied separately
- Minimum additional travel is 50% of rated deflection at rated load

Basic Hanger
HHSCS-E21 thru HHSCS-E1060



***Extra Strength Hanger**
HHSCS-E1580 thru HHSCS-E2860



Typical Part Numbering

HHSCS E106 R I

- Type
- Spring Load
- Pre-Compression Option
- Deflector Indicator Option

Dimensions

Part Number	Maximum Load lbs.	Maximum Load (kN)	SFH in.	SFH (mm)	NFH in.	NFH (mm)	S in.	S (mm)	W in.	W (mm)	L in.	L (mm)	SCS Diameter	D Diameter
HHSCS-E21-R I	21	(0.09)	2 5/8	(66.7)	1 1/2	(38.1)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	3/8"-16
HHSCS-E55-R I	55	(0.24)	2 3/4	(69.8)	1 1/2	(38.1)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	3/8"-16
HHSCS-E79-R I	79	(0.35)	2 5/8	(66.7)	1 1/2	(38.1)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	3/8"-16
HHSCS-E106-R I	106	(0.47)	2 5/8	(66.7)	1 1/2	(38.1)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	3/8"-16
HHSCS-E143-R I	143	(0.63)	2 5/8	(66.7)	1 1/2	(38.1)	6 1/2	(165.1)	3 5/8	(92.1)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
HHSCS-E187-R I	187	(0.83)	2 5/8	(66.7)	1 3/4	(44.4)	7 1/2	(190.5)	3 1/4	(82.5)	2 3/4	(69.8)	2 3/8	(60.3)	1/2"-13
HHSCS-E244-R I	244	(1.08)	2 3/4	(69.8)	1 3/4	(44.4)	7 1/2	(190.5)	3 1/4	(82.5)	2 3/4	(69.8)	2 3/8	(60.3)	1/2"-13
HHSCS-E318-R I	318	(1.41)	3 1/8	(79.4)	1 3/4	(44.4)	7 1/2	(190.5)	3 1/4	(82.5)	2 3/4	(69.8)	2 3/8	(60.3)	5/8"-11
HHSCS-E415-R I	415	(1.84)	3 1/16	(77.8)	1 3/4	(44.4)	7 1/2	(190.5)	3 1/4	(82.5)	2 3/4	(69.8)	2 3/8	(60.3)	5/8"-11
HHSCS-E500-R I	500	(2.22)	3 1/4	(82.5)	2 1/2	(63.5)	9 3/4	(247.6)	3 7/8	(98.4)	3 1/4	(82.5)	2 3/8	(60.3)	3/4"-10
HHSCS-715-R I	715	(3.18)	4 1/4	(107.9)	2 1/2	(63.5)	9 3/4	(247.6)	3 7/8	(98.4)	3 1/4	(82.5)	2 3/8	(60.3)	3/4"-10
HHSCS-1060-R I	1060	(4.71)	4 1/4	(107.9)	2 1/2	(63.5)	9 3/4	(247.6)	3 7/8	(98.4)	3 1/4	(82.5)	2 3/8	(60.3)	3/4"-10
HHSCS-1430-R I *	1430	(6.36)	4 1/4	(107.9)	2 3/4	(69.8)	11 3/8	(289.9)	6 1/2	(165.1)	6	(152.4)	3	(76.2)	7/8"-9
HHSCS-2120-R I *	2120	(9.43)	4 1/4	(107.9)	2 3/4	(69.8)	11 3/8	(289.9)	6 1/2	(165.1)	6	(152.4)	3	(76.2)	7/8"-9
HHSCS-2860-R I *	2860	(12.72)	4 1/4	(107.9)	2 3/4	(69.8)	11 3/8	(289.9)	6 1/2	(165.1)	6	(152.4)	3	(76.2)	7/8"-9

Insert R for Option R (Pre-Compression Hardware) when required and I for Option I (deflection indicator) when required.

* Housings are specially reinforced for extra strength

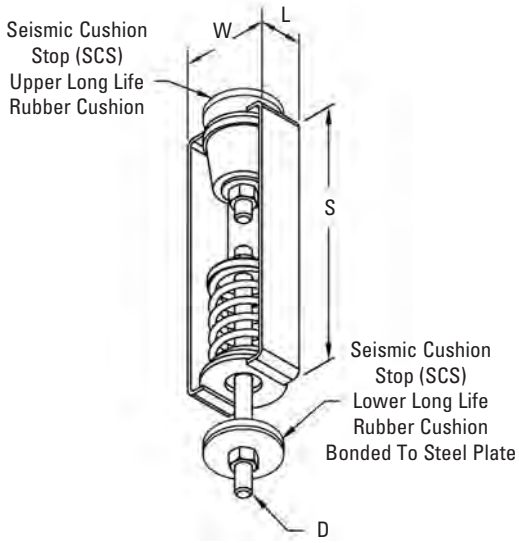
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

HHSCS Type - Combination Hanger Spring & Neoprene with Seismic Cushion Stop - 2 1/2" (63.5mm) Deflection

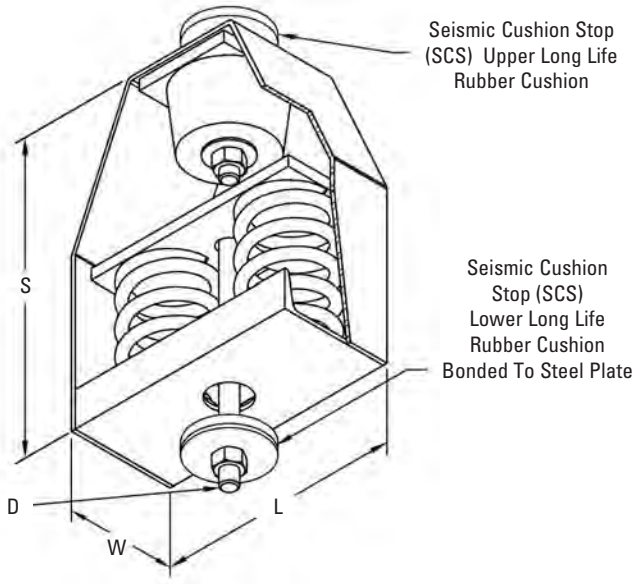
Use: Used to dampen noise and minor vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.Used where uncertain alignment is anticipated during installation. At rated load the hanger rod will operate to a full 15° tilt in any direction from vertical centerline.

- All housing sizes have been tested to carry five times the maximum load without failure
- Spring rated deflection is 2" (50.8mm) + neoprene rated deflection is 1/2" (12.7mm) = 2 1/2" (63.5mm)
- SFH = Free Height NFH = Neoprene Free Height
- Threaded rod, nuts, and washers supplied separately
- Minimum additional travel is 50% of rated deflection at rated load

Basic Hanger
HHSCS-F59 thru HHSCS-F918



***Extra Strength Hanger**
HHSCS-F1159 thru HHSCS-F3420



Typical Part Numbering

HHSCS - F120
Type
Load

Dimensions

Part Number	Maximum Load lbs.	(kN)	SFH in.	(mm)	NFH in.	(mm)	S in.	(mm)	W in.	(mm)	L in.	(mm)	SCS Diameter in.	(mm)	D Diameter
HHSCS-F59	59	(0.26)	4 1/4	(107.9)	1 1/2	(38.1)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
HHSCS-F83	83	(0.37)	4 1/4	(107.9)	1 1/2	(38.1)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
HHSCS-F120	120	(0.53)	4 1/4	(107.9)	1 1/2	(38.1)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
HHSCS-F155	155	(0.69)	4 1/4	(107.9)	1 3/4	(44.4)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
HHSCS-F195	195	(0.87)	4 1/2	(114.3)	1 3/4	(44.4)	9	(228.6)	3	(76.2)	2 1/2	(63.5)	2 3/8	(60.3)	1/2"-13
HHSCS-F241	241	(1.07)	4 1/2	(114.3)	1 3/4	(44.4)	10	(254.0)	5 1/2	(139.7)	4 1/2	(114.3)	2 3/8	(60.3)	1/2"-13
HHSCS-F348	348	(1.55)	5	(127.0)	1 3/4	(44.4)	10	(254.0)	5 1/2	(139.7)	4 1/2	(114.3)	2 3/8	(60.3)	5/8"-11
HHSCS-F453	453	(2.01)	5	(127.0)	1 3/4	(44.4)	10	(254.0)	5 1/2	(139.7)	4 1/2	(114.3)	2 3/8	(60.3)	5/8"-11
HHSCS-F590	590	(2.62)	5	(127.0)	2 1/2	(63.5)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	3/4"-10
HHSCS-F676	676	(3.00)	5	(127.0)	2 1/2	(63.5)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	3/4"-10
HHSCS-F787	787	(3.50)	5	(127.0)	2 1/2	(63.5)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	3/4"-10
HHSCS-F918	918	(4.08)	5	(127.0)	2 1/2	(63.5)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	3/4"-10
HHSCS-F1159 *	1159	(5.15)	6 3/8	(161.9)	2 3/4	(69.8)	11	(279.4)	6	(152.9)	5	(127.0)	3	(76.2)	3/4"-10
HHSCS-F1408 *	1408	(6.26)	6 3/8	(161.9)	2 3/4	(69.8)	11	(279.4)	6	(152.9)	5	(127.0)	3	(76.2)	7/8"-9
HHSCS-F1710 *	1710	(7.60)	6 3/8	(161.9)	2 3/4	(69.8)	11	(279.4)	6	(152.9)	5	(127.0)	3	(76.2)	7/8"-9
HHSCS-F2318 *	2318	(10.31)	6 3/8	(161.9)	2 3/4	(69.8)	11 1/4	(285.7)	11	(279.4)	5	(127.0)	3	(76.2)	7/8"-9
HHSCS-F2816 *	2816	(12.52)	6 3/8	(161.9)	2 3/4	(69.8)	11 1/4	(285.7)	11	(279.4)	5	(127.0)	3	(76.2)	7/8"-9
HHSCS-F3420 *	3420	(15.21)	6 3/8	(161.9)	2 3/4	(69.8)	11 1/4	(285.7)	11	(279.4)	5	(127.0)	3	(76.2)	7/8"-9

* Housings are specially reinforced for extra strength

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

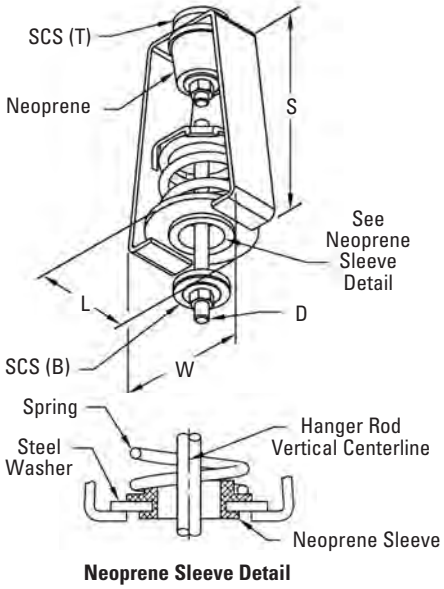
HH30SCS Type - 15° Tilt, 1 1/2" (38.1mm) Deflection Combination Hanger - Spring & Neoprene with Seismic Cushion Stop

Use: Used to dampen noise and minor vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.Used where uncertain alignment is anticipated during installation. At rated load the hanger rod will operate to a full 15° tilt in any direction from vertical centerline.

- All housing sizes have been tested to carry five times the maximum load without failure
- Spring rated deflection is 1" (25.4mm) + neoprene rated deflection is 1/2" (12.7mm) = 1 1/2" (38.1mm)
- SFH = Free Height NFH = Neoprene Free Height
- Threaded rod, nuts, and washers supplied separately•

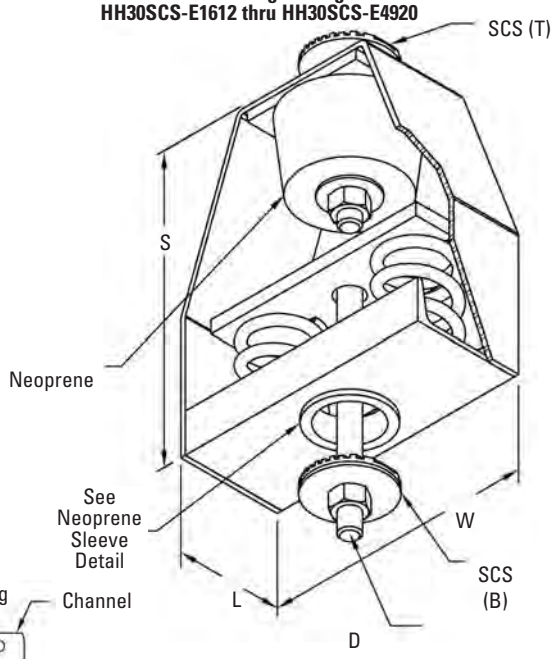
Minimum additional travel is 50% of rated deflection at rated load

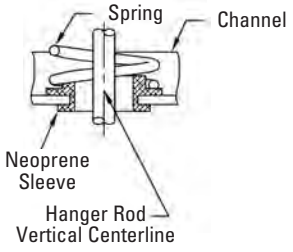
Basic Hanger
HH30SCS-ET20 thru HH30SCS-ET1326



Neoprene Sleeve Detail

*** Extra Strength Hanger**
HH30SCS-E1612 thru HH30SCS-E4920





Neoprene Sleeve Detail

Typical Part Numbering

HH30SCS - ET129
Type Load

Dimensions

Part Number	Maximum Load lbs. (kN)	SFH in. (mm)	NFH in. (mm)	S in. (mm)	W in. (mm)	L in. (mm)	SCS Diameter in. (mm)	D Diameter
HH30SCS-ET20	20 (0.09)	1 7/8 (47.6)	1 1/2 (38.1)	6 1/2 (165.1)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	3/8"-16
HH30SCS-ET42	42 (0.18)	2 (50.8)	1 1/2 (38.1)	6 1/2 (165.1)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	3/8"-16
HH30SCS-ET80	80 (0.35)	2 1/8 (54.0)	1 1/2 (38.1)	6 1/2 (165.1)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	3/8"-16
HH30SCS-ET129	129 (0.57)	2 3/8 (60.3)	1 1/2 (38.1)	6 1/2 (165.1)	3 5/8 (92.1)	2 1/2 (63.5)	2 3/8 (60.3)	3/8"-16
HH30SCS-ET194	194 (0.86)	2 3/8 (60.3)	1 3/4 (44.4)	7 1/2 (190.5)	4 (101.6)	3 (76.2)	2 3/8 (60.3)	1/2"-13
HH30SCS-ET255	255 (1.13)	2 1/2 (63.5)	1 3/4 (44.4)	7 1/2 (190.5)	4 (101.6)	3 (76.2)	2 3/8 (60.3)	1/2"-13
HH30SCS-ET347	347 (1.54)	2 3/4 (69.8)	1 3/4 (44.4)	8 1/2 (215.9)	5 5/16 (134.9)	4 1/4 (107.9)	2 3/8 (60.3)	5/8"-11
HH30SCS-ET473	473 (2.10)	2 7/8 (73.0)	2 1/2 (63.5)	8 1/2 (215.9)	5 5/16 (134.9)	4 1/4 (107.9)	2 3/8 (60.3)	5/8"-11
HH30SCS-ET667	667 (2.96)	3 1/8 (79.4)	2 1/2 (63.5)	10 (254.0)	5 7/8 (149.2)	4 3/4 (120.6)	3 (76.2)	3/4"-10
HH30SCS-ET940	940 (4.18)	3 3/8 (85.7)	2 1/2 (63.5)	10 (254.0)	5 7/8 (149.2)	4 3/4 (120.6)	3 (76.2)	3/4"-10
HH30SCS-ET1326	1326 (5.90)	3 5/8 (92.1)	2 3/4 (69.8)	10 (254.0)	5 7/8 (149.2)	4 3/4 (120.6)	3 (76.2)	7/8"-9
HH30SCS-E1612 *	1612 (7.17)	3 5/8 (92.1)	2 3/4 (69.8)	11 1/4 (285.7)	10 (254.0)	4 (101.6)	3 (76.2)	7/8"-9
HH30SCS-E2060 *	2060 (9.16)	3 7/8 (98.4)	2 3/4 (69.8)	11 1/4 (285.7)	10 (254.0)	4 (101.6)	3 (76.2)	1"-8
HH30SCS-E2460 *	2460 (10.94)	4 1/8 (104.8)	2 3/4 (69.8)	11 1/4 (285.7)	10 (254.0)	4 (101.6)	3 (76.2)	1"-8
HH30SCS-E2980 *	2980 (13.25)	4 1/8 (104.8)	2 3/4 (69.8)	11 1/4 (285.7)	10 (254.0)	4 (101.6)	3 (76.2)	1"-8
HH30SCS-E4120 *	4120 (18.32)	3 7/8 (98.4)	2 3/4 (69.8)	12 (304.8)	9 1/2 (241.3)	7 (177.8)	4 (101.6)	1"-8
HH30SCS-E4920 *	4920 (21.88)	4 1/8 (104.8)	2 3/4 (69.8)	12 (304.8)	9 1/2 (241.3)	7 (177.8)	4 (101.6)	1"-8

SCS (T) = Seismic Cushion Stop (SCS) Upper Long Life Rubber Cushion

SCS (B) = Seismic Cushion Stop (SCS) Lower Long Life Rubber Cushion Bonded To Steel Plate

***** Housings are specially reinforced for extra strength

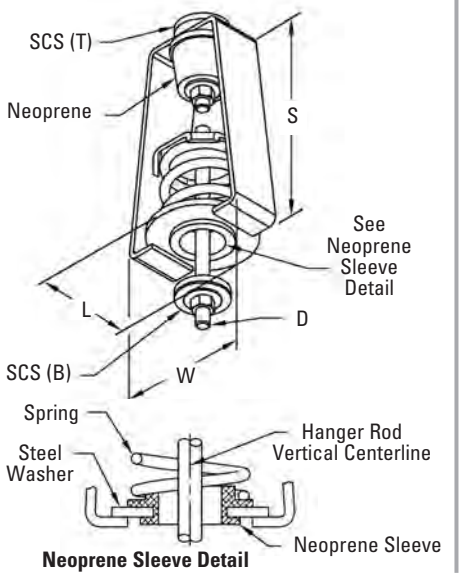
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

HH30SCS Type - 15° Tilt, 2 1/2" (63.5mm) Deflection Combination Hanger - Spring & Neoprene with Seismic Cushion Stop

Use: Used to dampen noise and minor vibration from suspended high speed equipment. To be used with all thread rod for single and trapeze type support systems.Used where uncertain alignment is anticipated during installation. At rated load the hanger rod will operate to a full 15° tilt in any direction from vertical centerline.

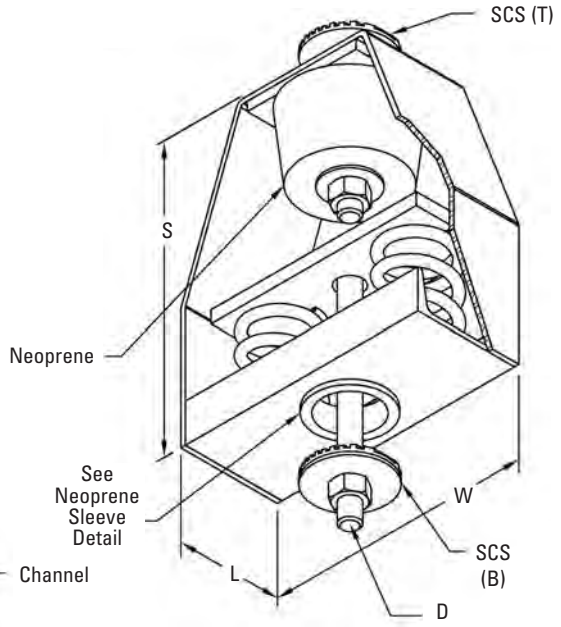
- All housing sizes have been tested to carry five times the maximum load without failure
- Spring rated deflection is 2" (50.8mm) + neoprene rated deflection is 1/2" (12.7mm) = 2 1/2" (63.5mm)
- SFH = Free Height NFH = Neoprene Free Height
- Threaded rod, nuts, and washers supplied separately
- Minimum additional travel is 50% of rated deflection at rated load

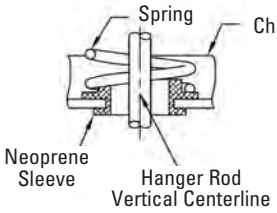
Basic Hanger
HH30SCS-FT30 thru HH30SCS-F590



Neoprene Sleeve Detail

*** Extra Strength Hanger**
HH30SCS-F696 thru HH30SCS-F3420





Neoprene Sleeve Detail

Typical Part Numbering

HH30SCS - FT121
Type
Load

Dimensions

Part Number	Maximum Load lbs.	(kN)	SFH in.	(mm)	NFH in.	(mm)	S in.	(mm)	W in.	(mm)	L in.	(mm)	SCS Diameter in.	(mm)	D Diameter
HH30SCS-FT30	30	(0.13)	3 1/2	(88.9)	1 1/2	(38.1)	8	(203.2)	5	(127.0)	4	(101.6)	2 3/8	(63.5)	1/2"-13
HH30SCS-FT41	41	(0.18)	3 1/2	(88.9)	1 1/2	(38.1)	8	(203.2)	5	(127.0)	4	(101.6)	2 3/8	(63.5)	1/2"-13
HH30SCS-FT60	60	(0.26)	3 3/4	(95.2)	1 1/2	(38.1)	8	(203.2)	5	(127.0)	4	(101.6)	2 3/8	(63.5)	1/2"-13
HH30SCS-FT85	85	(0.38)	3 3/4	(95.2)	1 1/2	(38.1)	8	(203.2)	5	(127.0)	4	(101.6)	2 3/8	(63.5)	1/2"-13
HH30SCS-FT121	121	(0.54)	4	(101.6)	1 1/2	(38.1)	8	(203.2)	5	(127.0)	4	(101.6)	2 3/8	(63.5)	1/2"-13
HH30SCS-FT171	171	(0.76)	4 1/4	(107.9)	1 3/4	(44.4)	10	(254.0)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	1/2"-13
HH30SCS-FT241	241	(1.07)	4 1/2	(114.3)	1 3/4	(44.4)	10	(254.0)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	1/2"-13
HH30SCS-F348	348	(1.55)	5	(127.0)	1 3/4	(44.4)	10	(254.0)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	5/8"-11
HH30SCS-F453	453	(2.01)	5	(127.0)	1 3/4	(44.4)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	5/8"-11
HH30SCS-F590	590	(2.62)	5	(127.0)	2 1/2	(63.5)	11	(279.4)	5 1/4	(133.3)	4 1/2	(114.3)	3	(76.2)	3/4"-10
HH30SCS-F696 *	696	(3.09)	5	(127.0)	2 1/2	(63.5)	11	(279.4)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	3/4"-10
HH30SCS-F906 *	906	(4.03)	5	(127.0)	2 1/2	(63.5)	12	(304.8)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	3/4"-10
HH30SCS-F1180 *	1180	(5.25)	5	(127.0)	2 1/2	(63.5)	12	(304.8)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	3/4"-10
HH30SCS-F1352 *	1352	(6.01)	5	(127.0)	2 3/4	(69.8)	12	(304.8)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	7/8"-9
HH30SCS-F1574 *	1574	(7.00)	5	(127.0)	2 3/4	(69.8)	12	(304.8)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	7/8"-9
HH30SCS-F1836 *	1836	(8.16)	5	(127.0)	2 3/4	(69.8)	12	(304.8)	10 3/8	(263.5)	4	(101.6)	3	(76.2)	7/8"-9
HH30SCS-F2318 *	2318	(10.31)	6 1/2	(165.1)	2 3/4	(69.8)	14 1/4	(361.9)	12 3/8	(314.3)	5	(127.0)	4	(101.6)	7/8"-9
HH30SCS-F2816 *	2816	(12.52)	6 1/2	(165.1)	2 3/4	(69.8)	14 1/4	(361.9)	12 3/8	(314.3)	5	(127.0)	4	(101.6)	7/8"-9
HH30SCS-F3420 *	3420	(15.21)	6 1/2	(165.1)	2 3/4	(69.8)	14 1/4	(361.9)	12 3/8	(314.3)	5	(127.0)	4	(101.6)	7/8"-9

SCS (T) = Seismic Cushion Stop (SCS) Upper Long Life Rubber Cushion

SCS (B) = Seismic Cushion Stop (SCS) Lower Long Life Rubber Cushion Bonded To Steel Plate

***** Housings are specially reinforced for extra strength

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DURA-BLOK Rooftop Supports

DURA-BLOK™ is made from 100% recycled rubber and qualifies for LEED credits. Reflective strips on both sides allow for easy product visibility.

Channels are through bolted on all sizes for added strength and a 1" (25.4mm) gap between blocks allows water to flow freely around longer assemblies.

Product composition is not sharp or abrasive, helping to extend the roof life and no penetration through the roof is required.

The DURA-BLOK dampens vibration, needs no supplemental rubber pad, and will not float or blow away.

The DURA-BLOK is UV resistant and is suitable for any type roofing material or other flat surface. For sloped surfaces see page 289 for adjustable hinge fitting (B634).

The open ends allow for easier adjustments to DBE, DBR, and DBM series supports. A drainage channel through the center of the block keeps water from pooling under the support.

DURA-BLOK can be used to support piping, HVAC/Ducts, roof walkways, conduit and cable tray.

Base Only

Dimensions - 4″ (101mm) High x 6″ (152mm) Wide x Base Length

Material - 100% recycled rubber, UV resistant

Ultimate Load Capacity - (uniform load) *

DBP = 500 lbs. (2.22kN)

DBM = 200 lbs. (0.89kN)

DURA-BLOK™ channel support is designed as an economical support for piping systems, cable tray, HVAC equipment and many other applications. The DURA-BLOK is UV resistant and is suitable for any type of roofing material or other flat surfaces. Material effectively accepts screw fasteners for securing accessories.

DBP

DBM

Part No.	Height in.	(mm)	Width in.	(mm)	Length in.	(mm)	Weight Each lbs.	(kg)
DBP	4″	(101)	6″	(152)	9.6″	(244)	4.48	(2.03)
DBM	4″	(101)	6″	(152)	4.8″	(122)	2.35	(1.07)

*** For Roof Loading, Consult Roofing Manufacturer or Engineer. As with most commercial roofs, the weakest point may be the insulation board beneath the rubber membrane.**

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

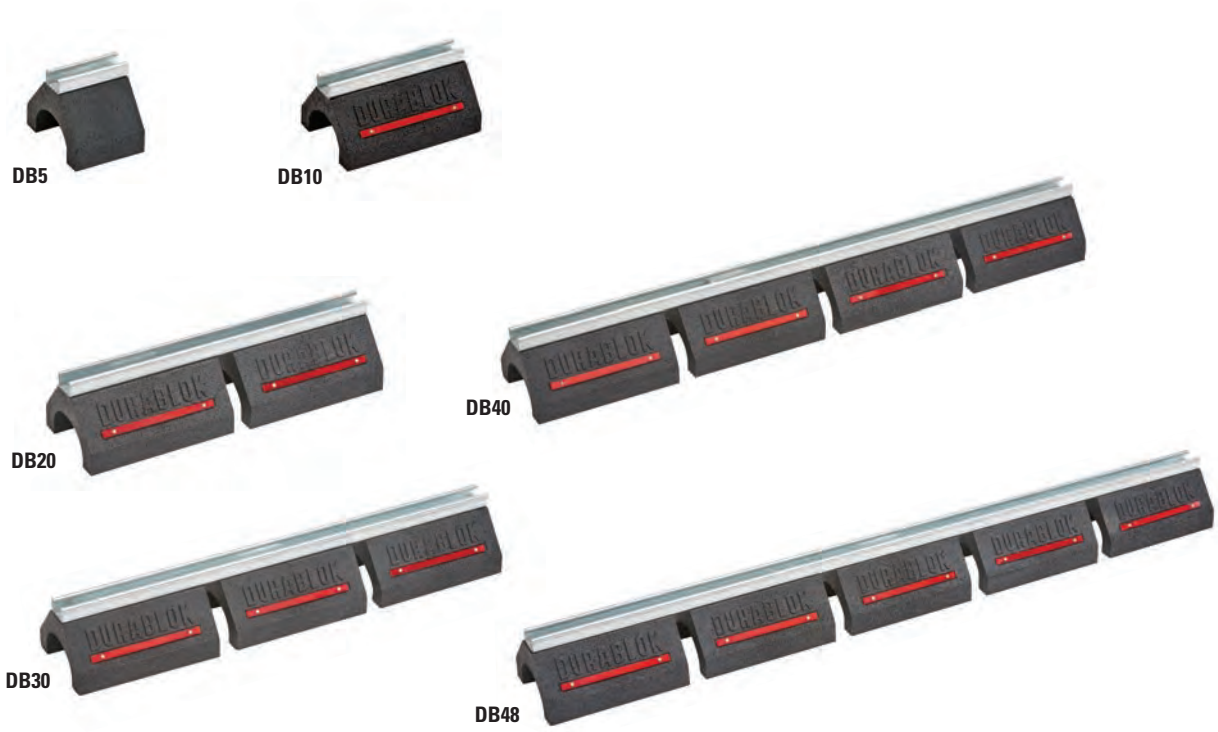
DURA-BLOK Rooftop Supports

DB - Series

Base with Galv. Channel - 1" (25.4mm) high
Dimensions - 5" (127mm) High x 6" (152mm) Wide x Length (overall length)
Material - 100% recycled rubber, UV resistant
Ultimate Load Capacity - (uniform load) *

DB5 = 500 lbs. (2.22kN)
DB10 = 500 lbs. (2.22kN)
DB20 = 1,000 lbs. (4.45kN)
DB30 = 1,500 lbs. (6.67kN)
DB40 = 2,000 lbs. (8.89kN)
DB48 = 2,500 lbs. (11.12kN)

DURA-BLOK™ DB-Series channel support is designed for superior support of piping systems, cable tray, HVAC equipment, walkway systems and many other applications. The DURA-BLOK is UV resistant and suitable for installation on any type of roofing material or other flat surfaces. For sloped roofs see adjustable hinge fitting (B634).



Part No.	Height in.	Height (mm)	Width in.	Width (mm)	Overall Length in.	Overall Length (mm)	Weight Each lbs.	Weight Each (kg)
DB5	5"	(127)	6"	(152)	4.8"	(122)	2.75	(1.25)
DB10	5"	(127)	6"	(152)	9.6"	(244)	5.28	(2.39)
DB20	5"	(127)	6"	(152)	20.2"	(513)	10.63	(4.82)
DB30	5"	(127)	6"	(152)	30.8"	(782)	15.99	(7.25)
DB40	5"	(127)	6"	(152)	41.4"	(1052)	21.34	(9.68)
DB48	5"	(127)	6"	(152)	52.0"	(1321)	26.70	(12.4)

For pipe straps/clamps, rollers and roller supports that can be used with these DURA-BLOK supports, see page 302.

*** For Roof Loading, Consult Roofing Manufacturer or Engineer. As with most commercial roofs, the weakest point may be the insulation board beneath the rubber membrane.**

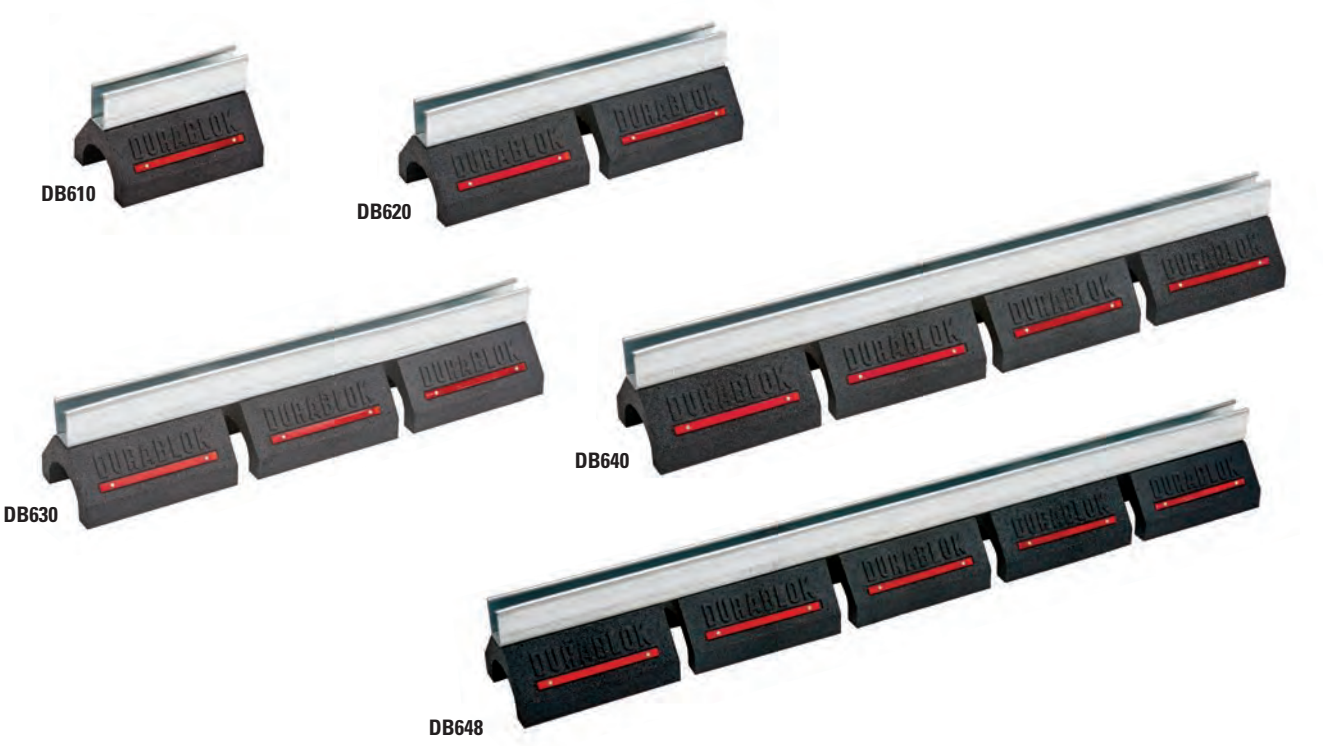
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DB6 - Series

Base with Galv. Channel - 2 7/16" (62mm) high
Dimensions - 6 7/16" (163mm) High x 6" (152mm) Wide x Length (overall length)
Material - 100% recycled rubber, UV resistant
Ultimate Load Capacity - (uniform load) *

DB610 = 500 lbs. (2.22kN)
DB620 = 1,000 lbs. (4.45kN)
DB630 = 1,500 lbs. (6.67kN)
DB640 = 2,000 lbs. (8.89kN)
DB648 = 2,500 lbs. (22.12kN)

DURA-BLOK™ DB6-Series channel support is designed for superior support of piping systems, cable tray, HVAC equipment, walkway systems and many other applications. The DURA-BLOK is UV resistant and suitable for installation on any type of roofing material or other flat surfaces. For sloped roofs see adjustable hinge fitting (B634).



Part No.	Height in. (mm)	Width in. (mm)	Overall Length in. (mm)	Weight Each lbs. (kg)
DB610	6 7/16" (167)	6" (152)	9.6" (244)	6.36 (2.88)
DB620	6 7/16" (167)	6" (152)	20.2" (513)	12.90 (5.85)
DB630	6 7/16" (167)	6" (152)	30.8" (782)	19.45 (8.82)
DB640	6 7/16" (167)	6" (152)	41.4" (1052)	26.00 (11.79)
DB648	6 7/16" (167)	6" (152)	52.0" (1321)	32.55 (14.76)

For pipe straps/clamps, rollers and roller supports that can be used with these DURA-BLOK supports, see page 302.

*** For Roof Loading, Consult Roofing Manufacturer or Engineer. As with most commercial roofs, the weakest point may be the insulation board beneath the rubber membrane.**

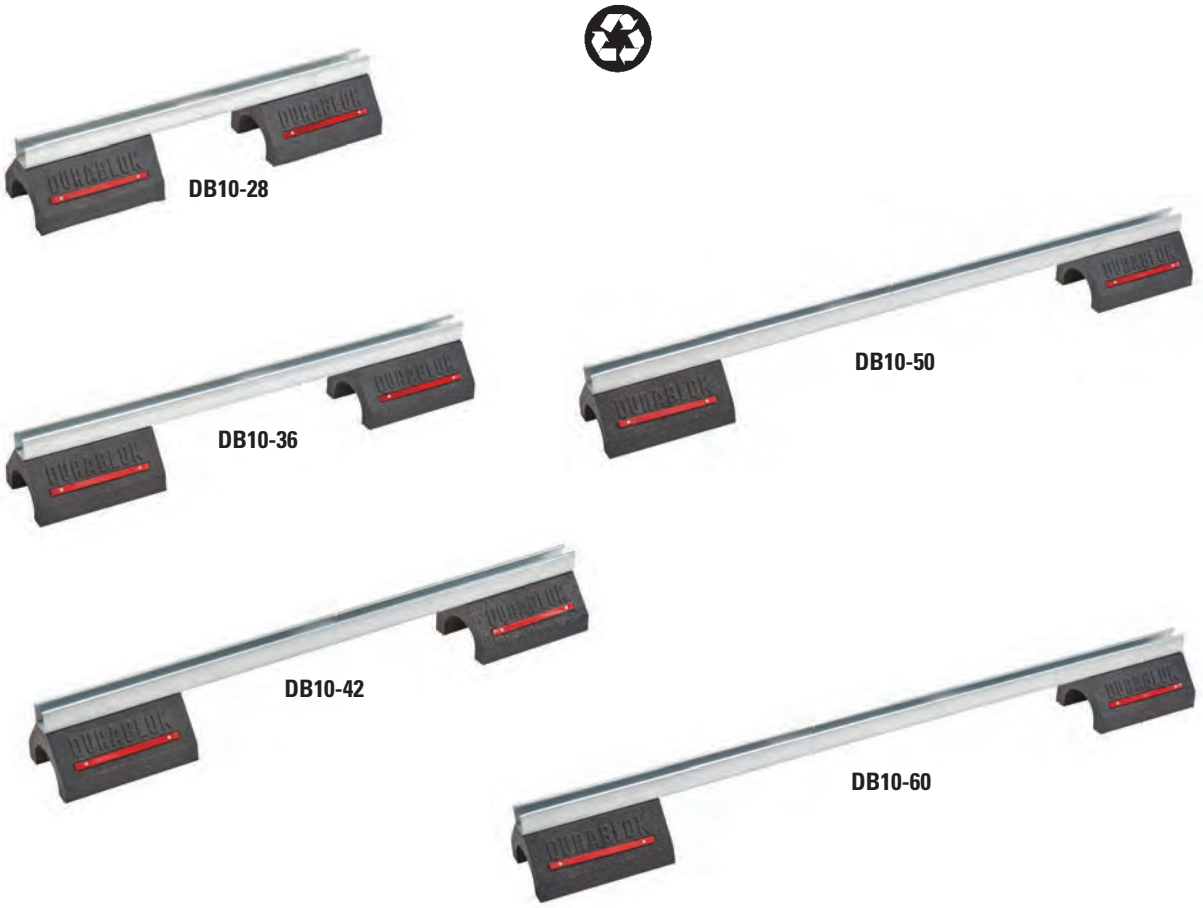
All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DURA-BLOK Rooftop Supports

DB10 - Series

Two (2) Bases with Galv. Channel - 1 5/8" (41mm) high
Dimensions - 5 5/8" (143mm) High x 6" (152mm) Wide x Length (overall length)
Material - 100% recycled rubber, UV resistant
Ultimate Load Capacity - 1,000 lbs. (4.45kN) (uniform load) *

DURA-BLOK™ DB10-Series channel support is designed for superior support of piping systems, cable tray, HVAC equipment, walkway systems and many other applications. The DURA-BLOK is UV resistant and suitable for installation on any type of roofing material or other flat surfaces.



Part No.	Height in.	Height (mm)	Width in.	Width (mm)	Individual Base Length in.	Individual Base Length (mm)	Bridge Length in.	Bridge Length (mm)	Weight Each lbs.	Weight Each (kg)
DB10-28	5 3/8"	(143)	6"	(152)	9.6"	(244)	28"	(711)	13.16	(5.97)
DB10-36	5 3/8"	(143)	6"	(152)	9.6"	(244)	36"	(914)	14.36	(6.51)
DB10-42	5 3/8"	(143)	6"	(152)	9.6"	(244)	42"	(1067)	15.52	(7.04)
DB10-50	5 3/8"	(143)	6"	(152)	9.6"	(244)	50"	(1270)	16.45	(7.46)
DB10-60	5 3/8"	(143)	6"	(152)	9.6"	(244)	60"	(1524)	17.94	(8.14)

For pipe straps/clamps, rollers and roller supports that can be used with these DURA-BLOK supports, see page 302.

*** For Roof Loading, Consult Roofing Manufacturer or Engineer. As with most commercial roofs, the weakest point may be the insulation board beneath the rubber membrane.**

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DBM - Series

Base with one (1) 3/8"-16 Electro Zinc All Threaded Rod and Hinged Pipe Clamp

Dimensions - Height to Pipe Center x 6" (152mm) Wide x 4.8" (122mm) Long (overall length)
Material - 100% recycled rubber, UV resistant
Pipe Clamp Material - Malleable Iron -
Pipe Sizes - Electro Plated
Copper Tubing Sizes - Dura Copper™
Threaded Rod/Hardware - Electro Plated Steel
Ultimate Load Capacity - 50 lbs. (0.22kN) (uniform load) *

DURA-BLOK™ DBM-Series pipe/tubing support is designed for support of single piping systems where elevation adjustment is needed. The DURA-BLOK is UV resistant and suitable for installation on any type of roofing material or other flat surfaces.

DBM-2CT

Part No.	Height (Minimum) * in.	(mm)	Height (Maximum) ** in.	(mm)	Width in.	(mm)	Length in.	(mm)
DBM-1/2CT	9.69"	(246)	11.19"	(284)	6"	(152)	4.80"	(122)
DBM-3/4CT	9.84"	(250)	11.34"	(288)	6"	(152)	4.80"	(122)
DBM-1CT	9.95"	(253)	11.45"	(291)	6"	(152)	4.80"	(122)
DBM-1 1/4CT	10.13"	(257)	11.63"	(295)	6"	(152)	4.80"	(122)
DBM-1 1/2CT	10.28"	(261)	11.78"	(299)	6"	(152)	4.80"	(122)
DBM-2CT	10.53"	(267)	12.03"	(305)	6"	(152)	4.80"	(122)
DBM-1/2	9.86"	(250)	11.36"	(288)	6"	(152)	4.80"	(122)
DBM-3/4	10.06"	(255)	11.56"	(293)	6"	(152)	4.80"	(122)
DBM-1	10.14"	(257)	11.64"	(296)	6"	(152)	4.80"	(122)
DBM-1 1/4	10.25"	(260)	11.75"	(298)	6"	(152)	4.80"	(122)
DBM-1 1/2	10.42"	(265)	11.92"	(303)	6"	(152)	4.80"	(122)
DBM-2	10.66"	(271)	12.16"	(309)	6"	(152)	4.80"	(122)

Part No.	Clamp Part No. †	Weight Each lbs.	(kg)
DBM-1/2CT	B3198HCT-1/2	2.75	(1.25)
DBM-3/4CT	B3198HCT-3/4	2.76	(1.25)
DBM-1CT	B3198HCT-1	2.84	(1.29)
DBM-1 1/4CT	B3198HCT-1 1/4	2.95	(1.34)
DBM-1 1/2CT	B3198HCT-1 1/2	2.96	(1.34)
DBM-2CT	B3198HCT-2	3.03	(1.37)
DBM-1/2	B3198H-1/2	2.78	(1.26)
DBM-3/4	B3198H-3/4	2.84	(1.29)
DBM-1	B3198H-1	2.86	(1.30)
DBM-1 1/4	B3198H-1 1/4	2.93	(1.33)
DBM-1 1/2	B3198H-1 1/2	2.99	(1.36)
DBM-2	B3198H-2	3.10	(1.41)

DBM-1

† See Pipe Hanger Catalog for dimensions and specifications. *** From bottom of rubber block to center of pipe/tubing.*

*** For Roof Loading, Consult Roofing Manufacturer or Engineer. As with most commercial roofs, the weakest point may be the insulation board beneath the rubber membrane.**

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DURA-BLOK Rooftop Supports

DB_DS - Series

Two (2) Base Supports with Galv. Channel - 1 5/8" (41mm) high
Riser Channels (SH Style) - 1 5/8" (41mm) x 1 5/8" (41mm)
Fittings & Hardware - Electro-Plated Steel

Dimensions - Height (overall) x Width (overall) x Length (overall)

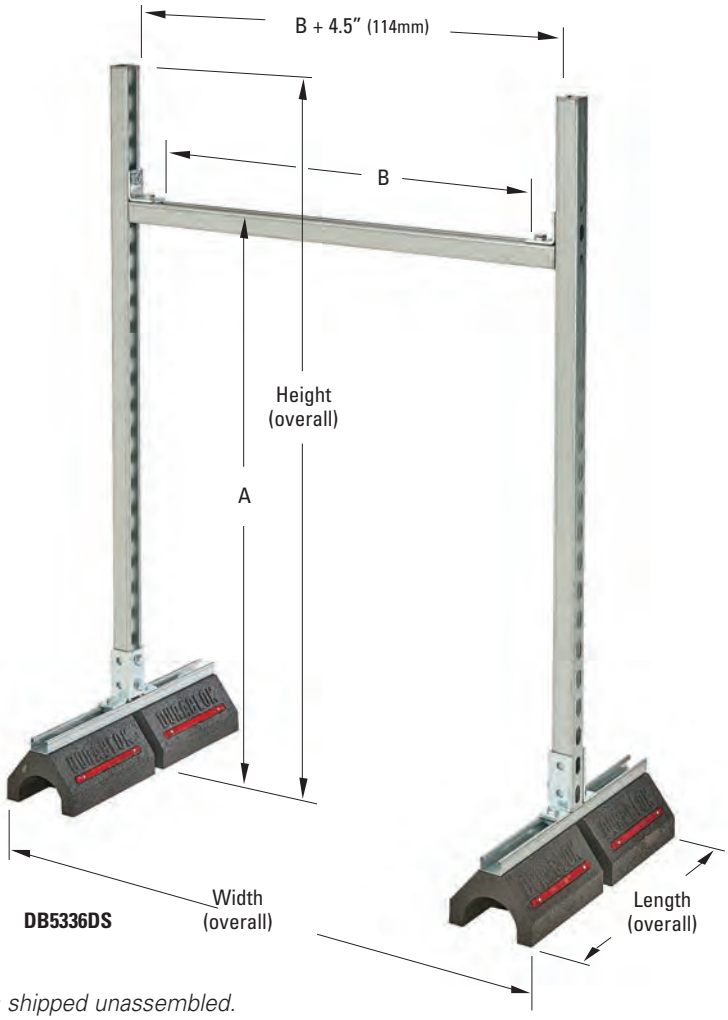
Material - 100% recycled rubber, UV resistant

Ultimate Load Capacity - 1,000 lbs. (4.45kN) (uniform load) *

DURA-BLOK™ DB__DS-Series channel support with risers is designed for superior support of piping systems, cable tray, HVAC equipment, walkway systems and many other applications. The DURA-BLOK is UV resistant and suitable for installation on any type of roofing material or other flat surfaces.

DB2318DS

DB2918DS



DB5336DS

Product is shipped unassembled.

For pipe straps/clamps, rollers and roller supports that can be used with these DURA-BLOK supports, see page 302.

*** For Roof Loading, Consult Roofing Manufacturer or Engineer. As with most commercial roofs, the weakest point may be the insulation board beneath the rubber membrane.**

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DB__DS - Series cont.

Part No.	A (Minimum) in.	(mm)	A (Maximum) in.	(mm)	B in.	(mm)
DB2318DS	10.56″	(268)	20.75″	(527)	13.50″	(343)
DB2918DS	10.56″	(268)	26.75″	(679)	13.50″	(343)
DB4118DS	10.56″	(268)	38.75″	(984)	13.50″	(343)
DB5318DS	10.56″	(268)	50.75″	(1289)	13.50″	(343)
DB2324DS	10.56″	(268)	20.75″	(527)	19.50″	(495)
DB2924DS	10.56″	(268)	26.75″	(679)	19.50″	(495)
DB4124DS	10.56″	(268)	38.75″	(984)	19.50″	(495)
DB5324DS	10.56″	(268)	50.75″	(1289)	19.50″	(495)
DB2336DS	10.56″	(268)	20.75″	(527)	31.50″	(800)
DB2936DS	10.56″	(268)	26.75″	(679)	31.50″	(800)
DB4136DS	10.56″	(268)	38.75″	(984)	31.50″	(800)
DB5336DS	10.56″	(268)	50.75″	(1289)	31.50″	(800)
DB2348DS	10.56″	(268)	20.75″	(527)	43.50″	(1105)
DB2948DS	10.56″	(268)	26.75″	(679)	43.50″	(1105)
DB4148DS	10.56″	(268)	38.75″	(984)	43.50″	(1105)
DB5348DS	10.56″	(268)	50.75″	(1289)	43.50″	(1105)

Part No.	Height (overall) in.	(mm)	Width (overall) in.	(mm)	Length (overall) in.	(mm)	Weight Each lbs.	(kg)
DB2318DS	23″	(584)	25 5/8″	(651)	20.2″	(513)	33.31	(15.11)
DB2918DS	29″	(736)	25 5/8″	(651)	20.2″	(513)	35.00	(15.88)
DB4118DS	41″	(1041)	25 5/8″	(651)	20.2″	(513)	38.40	(17.42)
DB5318DS	53″	(1346)	25 5/8″	(651)	20.2″	(513)	41.80	(18.96)
DB2324DS	23″	(584)	31 5/8″	(803)	20.2″	(513)	34.15	(15.49)
DB2924DS	29″	(736)	31 5/8″	(803)	20.2″	(513)	35.84	(16.26)
DB4124DS	41″	(1041)	31 5/8″	(803)	20.2″	(513)	39.25	(17.80)
DB5324DS	53″	(1346)	31 5/8″	(803)	20.2″	(513)	42.65	(19.34)
DB2336DS	23″	(584)	43 5/8″	(1108)	20.2″	(513)	35.84	(16.26)
DB2936DS	29″	(736)	43 5/8″	(1108)	20.2″	(513)	37.55	(17.03)
DB4136DS	41″	(1041)	43 5/8″	(1108)	20.2″	(513)	40.95	(18.57)
DB5336DS	53″	(1346)	43 5/8″	(1108)	20.2″	(513)	44.34	(20.11)
DB2348DS	23″	(584)	55 5/8″	(1415)	20.2″	(513)	37.55	(17.03)
DB2948DS	29″	(736)	55 5/8″	(1415)	20.2″	(513)	39.25	(17.80)
DB4148DS	41″	(1041)	55 5/8″	(1415)	20.2″	(513)	42.65	(19.34)
DB5348DS	53″	(1346)	55 5/8″	(1415)	20.2″	(513)	46.03	(20.88)

A = Adjustable height from bottom of DURA-BLOK™ to top of horizontal channel.
B = Space between fittings that support horizontal channel.
Height (overall) = Distance from bottom of DURA-BLOK to top of upright channel.
Width (overall) = Distance from outside-to-outside of DURA-BLOK supports.
Length (overall) = Distance from end-to-end of DURA-BLOK supports.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DURA-BLOK Rooftop Supports

DBR - Series (Fixed Height)

Base with Galv. Channel - 1" (25.4mm) high and Pipe Roller Assembly

Dimensions - Height to Bottom of Pipe x 6" (152mm) Wide x Long (overall length)

Material - 100% recycled rubber, UV resistant

Pipe Roller Material - Cast Iron - Electro Plated

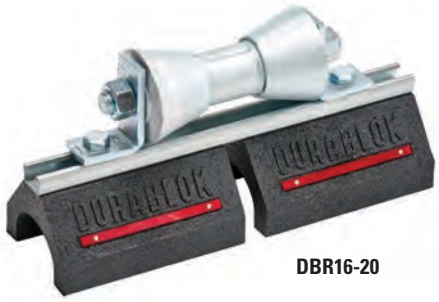
Brackets, Axle, & Hardware - Electro Plated Steel

Ultimate Load Capacity - (uniform load) *

DBR2-3 1/2 = 500 lbs. (2.22kN)
DBR4-6 = 500 lbs. (2.22kN)
DBR8-10 = 1000 lbs. (4.44kN)
DBR12-14 = 1000 lbs. (4.44kN)
DBR16-20 = 1000 lbs. (4.44kN)

DBR2-3 1/2

DURA-BLOK™ DBR-Series support is designed to support pipe where longitudinal movement is expected. The DURA-BLOK is UV resistant and approved for installation on any type of roofing material or other flat surfaces.



DBR16-20

Part No.	Height ** in.	(mm)	Width in.	(mm)	Length in.	(mm)
DBR2-3 1/2	7.09"	(180)	6"	(152)	9.6"	(244)
DBR4-6	7.09"	(180)	6"	(152)	9.6"	(244)
DBR8-10	8.34"	(212)	6"	(152)	20.2"	(513)
DBR12-14	9.38"	(238)	6"	(152)	20.2"	(513)
DBR16-20	9.78"	(248)	6"	(152)	20.2"	(513)

Part No.	Roller Part No. †	Weight Each lbs.	(kg)
DBR2-3 1/2	B3126-2 to 3 1/2	5.28	(2.39)
DBR4-6	B3126-4 to 6	10.63	(4.82)
DBR8-10	B3126-8 to 10	15.99	(7.25)
DBR12-14	B3126-12 to 14	21.34	(9.68)
DBR16-20	B3126-16 to 20	26.70	(12.11)

*† See Pipe Hanger Catalog for dimensions and specifications. ** From bottom of rubber block to bottom of pipe/tubing.*

*** For Roof Loading, Consult Roofing Manufacturer or Engineer. As with most commercial roofs, the weakest point may be the insulation board beneath the rubber membrane.**

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DBR - Series (Adjustable Height)

Base with two (2) 1/2"-13 Electro Zinc All Threaded Rod Risers and a B3114-3 1/2 Pipe Roll with Sockets

Dimensions - Overall Height 12" (305mm) from bottom of base to pipe contact point on roller.
Base - 4" High (101mm) x 6" (152mm) Wide x 9.6" (244mm) Length (base length)

Material - 100% recycled rubber, UV resistant

Pipe Roll & Sockets - For up to 3 1/2" (90mm) pipe sizes.

Ultimate Load Capacity - 200 lbs. (0.89kN) *
(To increase load capacity use CLDP10 load distribution plate.)

DURA-BLOK™ DBR-Series support is designed to support pipe up to 3 1/2" (90mm) nominal size where difference in elevation is required and longitudinal movement is expected. The DURA-BLOK is UV resistant and approved for installation on any type of roofing material or other flat surfaces.

Part No.	Adjustable Height in. (mm)	Width in. (mm)	Length in. (mm)	Weight Each lbs. (kg)
DBR10-12	up to 12" (up to 305)	6" (152)	9.6" (244)	6.46 (2.93)

DBE - Series

Base with two (2) 1/2"-13 Electro Zinc All Threaded Rod Risers and Galv. Channel - 1" (25mm) high

Dimensions - Overall Height as Specified
Base - 4" High (101mm) x 6" (152mm) Wide x 9.6" (244mm) Length (base length)

Material - 100% recycled rubber, UV resistant

Ultimate Load Capacity - 200 lbs. (0.89kN) * (To increase load capacity use CLDP10 load distribution plate.)

DURA-BLOK DBE-Series channel support is designed as a support of piping systems, cable tray, HVAC equipment and many other applications where elevation adjustment is critical. The DURA-BLOK is UV resistant and suitable for installation on any type of roofing material or other flat surfaces.

For pipe straps/clamps, rollers and roller supports that can be used with these DURA-BLOK supports, see page 289.

DBE10-12

Part No.	Adjustable Height in. (mm)	Width in. (mm)	Channel Length in. (mm)	Weight Each lbs. (kg)
DBE10-8	5 1/2" - 8" (140 - 203)	6" (152)	9.35" (238)	5.68 (2.58)
DBE10-12	5 1/2" - 12" (140 - 305)	6" (152)	9.35" (238)	5.72 (2.59)
DBE10-16	5 1/2" - 16" (140 - 406)	6" (152)	9.35" (238)	5.76 (2.61)

** Longer base lengths available.
Note: At heights above 12" (305mm), we suggest using the DB_DS Series Channel Support with Risers for additional stability to piping system.

*** For Roof Loading, Consult Roofing Manufacturer or Engineer. As with most commercial roofs, the weakest point may be the insulation board beneath the rubber membrane.**

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

DURA-BLOK Rooftop Supports

CLDP10 - Load Distribution Plate

Steel Plate with Slots
Dimensions - 1 5/8" (41mm) Wide x 6 1/2" (65mm) Long
Material - 11 Ga. steel (3.0mm)
Increases ultimate uniform load capacity on DBE & DBR Series supports to 500 lbs. (2.22kN)

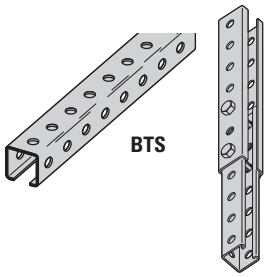
DURA-BLOK™ CLDP10 load bearing stabilizer plate increases load ratings for DBE Series and DBR Series supports by allowing the load from the threaded rods to be distributed over the length of the base instead of the point load where the rods attach to the base.

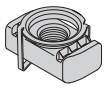
Loosen hex nuts and slide plate under the flat washers

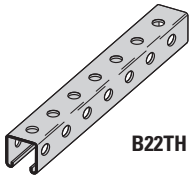
Retighten the hex nuts with plate in place

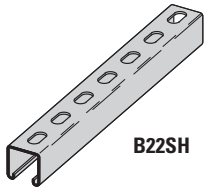
Part No.	Adjustable Height in.	(mm)	Width in.	(mm)	Length in.	(mm)	Weight Each lbs.	(kg)
CLDP10	11 Ga.	(3.05)	1 5/8"	(41)	9 1/2"	(241)	0.53	(0.24)

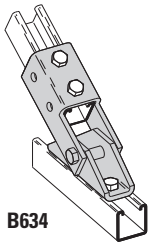
Compatible Components Available to make DURA-BLOK bases more versatile

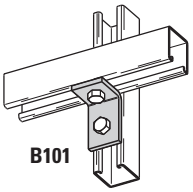


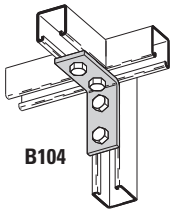


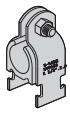


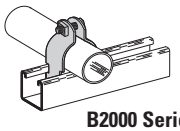


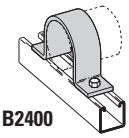


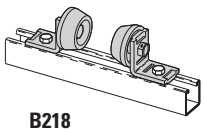


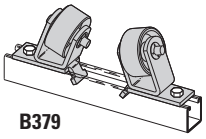


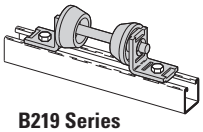


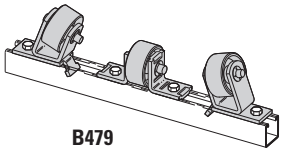


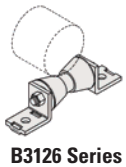












Above rollers can be mounted on DB Series, DB6 Series, and DB10 Series units.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Rooftop Support Specification

SECTION 07720

ROOFTOP SUPPORT SYSTEMS
(Applicable to Section 15060 (Mechanical) and Section 16070 (Electrical)

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The work covered by this specification consists of furnishing all labor, equipment, materials and accessories, and performing all operations required for the correct installation of recycled rubber pipe [conduit] supports for mechanical piping [electrical conduit] systems.

1.02 REFERENCES

A. ASTM A653 G90 SS Gr. 33 - Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dipped Process

B. ASTM B633 - Specification for Electrodeposited Coatings of Zinc on Iron and Steel

C. ASTM C531 – Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical Resistant Mortars, Grouts, Monolithic Surfaces, and Polymer Concretes

D. ASTM C642 – Test Method for Specific Gravity, Absorption, and Voids in Hardened Concrete

E. ASTM C672 – Test Methods for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals

F. ASTM D412 – Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension

G. ASTM D395 – Standard Test Methods for Rubber Property – Compression Set

H. ASTM D573 – Test Method for Rubber – Deterioration in an Air Oven

I. ASTM D746 – Test Method for Brittleness Temperature of Plastics and Elastomers by Impact

J. ASTM D2240 – Test Method for Rubber Property – Durometer Hardness

K. NFPA 70 – National Electrical Code

1.03 QUALITY ASSURANCE

A. Rubber / steel pipe supports shall be manufactured under a strict quality control program assuring quality product delivered to the jobsite. Pipe supports that are damaged shall not be installed.

B. Workmanship: All pipe [conduit] supports to be installed by a qualified piping [electrical] contractor and installed in accordance with manufacturer's recommendations.
   1. All work shall comply with all applicable federal, state, and local codes and laws having jurisdiction.
   2. All work shall conform to accepted industry and trade standards for pipe support [conduit] installations.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with these specifications, pipe support systems shall be DURA-BLOK™ design as supplied by Eaton [or engineer approved equal].

2.02 MATERIALS

A. Curb base must be made of 100% recycled rubber and polyurethane prepolymer with a uniform load capacity of 500 pounds per linear foot of support.* In addition, each base to have a reflective red stripe. (*See 3.01(C))

B. Dimensions: 6-inches wide by [4] [5.0] [6.75] inches tall by [9.6] [20.2] [30.8] [41.4] [52.0] inches long.

C. Steel frame: Steel, strut galvanized per ASTM A653 or strut galvanized per ASTM A653 for bridge series.

D. Attaching hardware: Zinc-plated threaded rod, nuts and attaching hardware per ASTM B633.

E. Any products claiming to be a similar, like, or equal must demonstrate (meet or exceed) the same physical and performance characteristics as specified below:
   1. Density: 0.52 oz/cu in ASTM D575
   2. Durometer Hardness: 67.2A ± 1 ASTM D575
   3. Tensile Strength: 231 psi minimum ASTM D575
   4. Compression Deformation: 5% at 70psi and 72ºF ASTM D575
   5. Brittleness at Low Temp: -50ºF ASTM D746
   6. Weathering: 70 hours at 120ºF ASTM D573
      a. Hardness retained: 100% (±5%)
      b. Compressive strength: 100% (±5%)
      c. Tensile strength: 100% (±5%)
      d. Elongation retained: 100% (±5%)

2.03 TYPE OF ROOFTOP SUPPORTS

A. Rubber block supports – DURA-BLOK™ model # [DBP] [DMB] base dimensions: 6-inch wide by 4-inch tall by [9.6] [4.8]-inch length. Accessories are fastened directly into rubber material with weather resistant type 12 lag screws.

B. Continuous block channel supports – DURA-BLOK™ DB Series or DB6 Series: Dimensions 6-inch wide bt [5.0] [6.5]-inch tall bt [9.6] [20.2] [30.8] [41.4] [52.0]-inch length. Assembly has 1" gaps between blocks for free flow of water. Standard strut accessories can be used for attachment.

C. Bridge channel supports – DURA-BLOK™ DB10 Series; Dimensions 6-inch wide by 5⅝ -inch tall by [28.0] [36.0] [42.0] [50.0] [60.0]-inch length. Standard strut accessories can be used for attachment.

D. Extendible height support – DURA-BLOK™ model DBE 10-[8][12][16], height to suit application: 8-inch, 12-inch or 16-inch (200 pound maximum load). Base to be 9.6 inches in length or otherwise specified sizes available. Heavier loads, may require CLDP load distribution plate.

E. Roller supports– DURA-BLOK™ DBR10 Series & DBR Series: DBR10 Series is sized for pipe up to 3½ inches, with vertical adjustment up to 12 inches. DBR Series is sized for [2-3½] [4-6] [8-10] [12-14] [16-20] inch pipe sizes.

F. Elevated single pipe supports– DURA-BLOK™ DBM Series: [Copper] or [Steel] pipe sizes [½] [¾] [1] [1¼] [1½] [2]-inch.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions an recommendations.

B. If gravel top roof, gravel must be removed around and under pipe support.

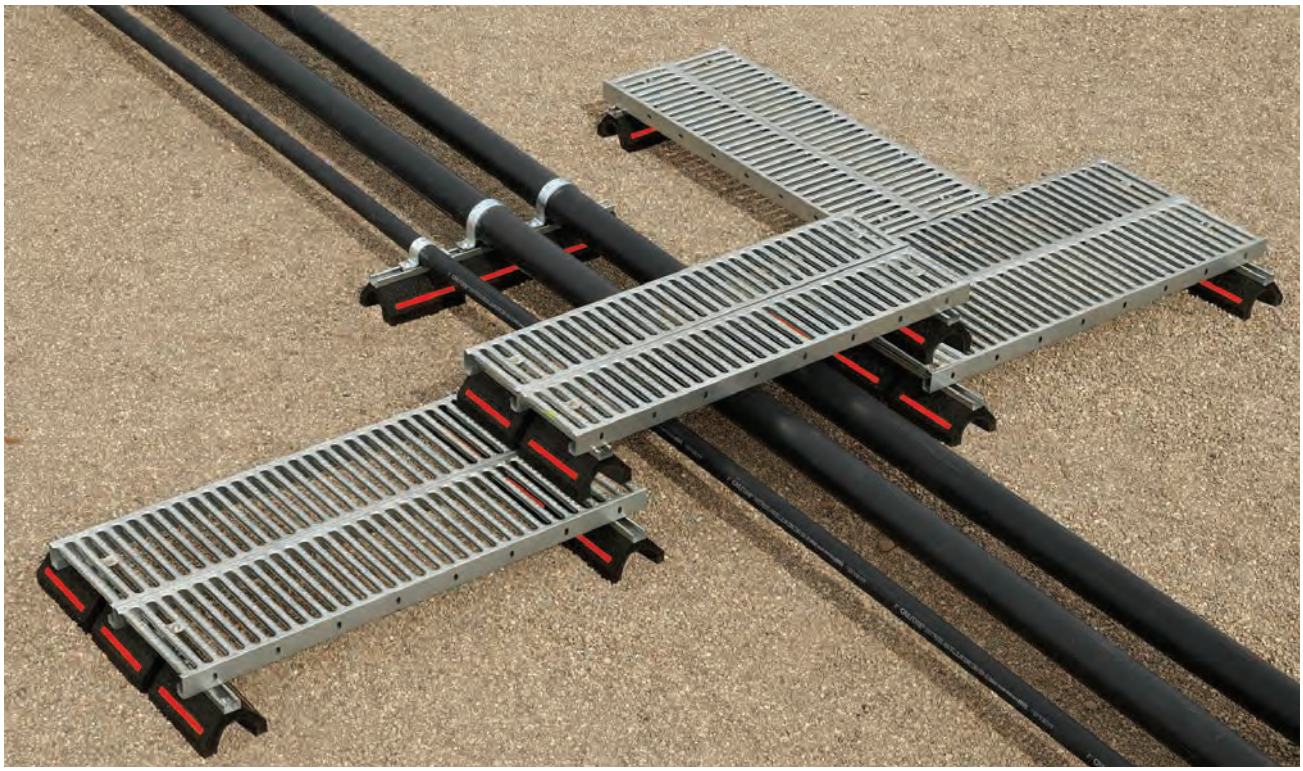
C. Always consult roofing manufacturer for roof membrane compression capacities. If necessary, a compatible sheet of roofing material (rubber pad) may be installed under rooftop support to disperse concentrated loads and add further membrane protection.

D. Gas pipe spacing subject to local gas authorities.

E. Use properly sized clamps to suit pipe [conduit] sizes.

GRATEWALK
Rooftop Walkway with Integrated DURA-BLOK™ Supports

B-Line series GRATEWALK™ Rooftop Walkways with DURA-BLOK™ provides the optimal solution to extend the life of your roof, while providing a safe pathway to roof mounted support equipment.



Features & Benefits of the GRATEWALK Rooftop Walkway

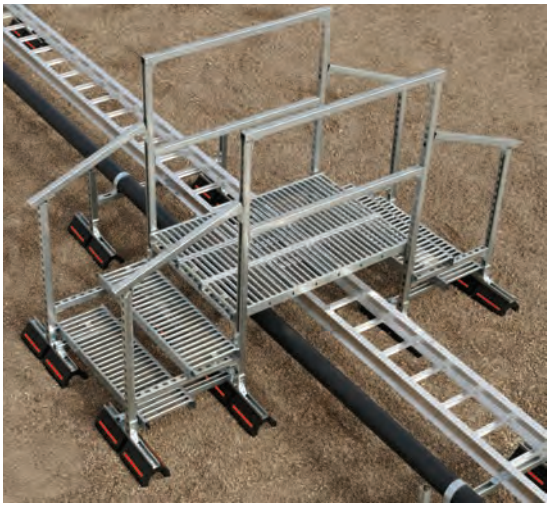
- Available with slip resistant GRATE-LOCK™, helping provide a safe walkway for foot traffic on the roof.
- Easy to install, elevated design, creates an identifiable path for foot traffic helping prevent wear and tear to the roof surface.
- The cross-over design offers safe passage over existing cabling, piping, cable tray or any other interference on the rooftop.
- The self cleaning pattern allows water and dirt to easily flow through, helping make the grating an ideal walkway in all weather conditions.
- Handrail options are available
- Integrated with 100% post-consumer recycled rubber supporting LEED credit qualification.
- Provide solid support for the walkway that stays in place and replaces the need for separate rubber roof mounting pads which tend to float away.

GRATEWALK
Rooftop Walkway with Integrated DURA-BLOK™ Supports

The GRATEWALK™ Rooftop Walkway with Integrated DURA-BLOK™ Supports* is available in a variety of configurations.

- Straight sections for long straight stretches of pathway
- Cross-over options to install over the existing cable trays, piping, and more
- Stairways over the top of existing equipment or leading up to existing equipment
- Handrail options available for additional wallway safety and support
- Platforms to provide access to rooftop mounted equipment
- Accessories available to support unique requirements

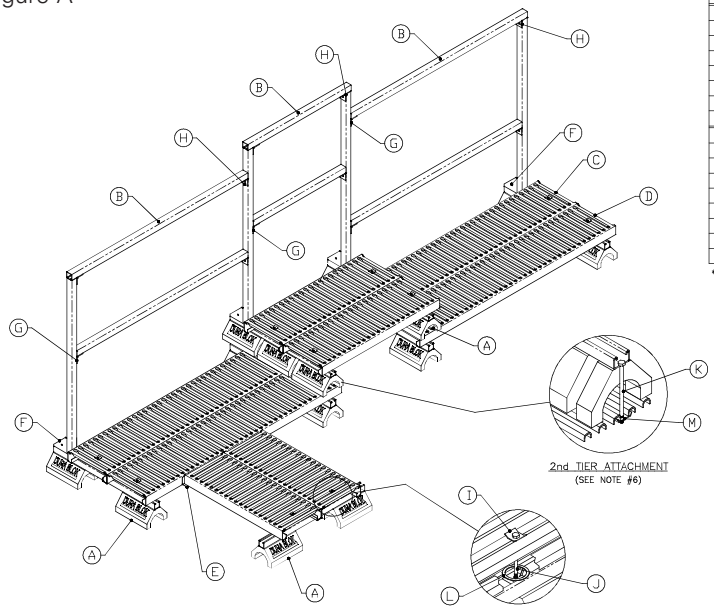
* All Items are shipped individually for field assembly.



Engineering Design Service

- Take-off and estimating
- Specification review and development
- Alternative layout designs
- Technical consultation
- Submittal drawing packages (see Figure A) including assembly instructions

Figure A



OPTIONAL COMPONENTS FOR ASSEMBLY		
TAG No.	PART #	DESCRIPTION
A	VARIES	DURA-BLOK ROOFTOP SUPPORT
B	B22	12 GA. CHANNEL 1 5/8" x 1 5/8"
C	VARIES	2 1/2" GRATE-LOCK PLANK MM
D	VARIES	2 1/2" GRATE-LOCK PLANK FM
E	VARIES	LEDGER ANGLE
F	B844W	UNIVERSAL SHELF BRACKET WELDED
G	B267L	4 HOLE SINGLE CORNER CONNECTION (LH)
H	B267R	4 HOLE SINGLE CORNER CONNECTION (RH)
ACCESSORIES FOR ASSEMBLY		
I	RTM-SW	GRATE-LOCK HOLD DOWN CLAMP
J	*	5/16-18 x 3" HHCS
K	*	1/4-20 x 5 1/2" HHCS
	MSDST	1/4-20 x 1" SELF-TAPPING SCREWS
	*	1/2-13 x 7/8" HHCS
	N225	1/2-13 SPRING NUT
L	TN223	5/16-18 TWIRL-NUT
M	B436	FLUORESCENT FIXTURE NUT

* ORDER PARTS BY DESCRIPTION

GENERAL NOTES:
1) RECOMMENDED TORQUE FOR THE 1/2-13 STRUT FITTING HARDWARE IS 50ft/lbs.
2) MAXIMUM RECOMMENDED SPACING BETWEEN DURA-BLOK SUPPORTS WOULD BE 5'-0" O.C.
3) IF INSTALLED ON A GRAVEL TOP ROOF, GRAVEL MUST BE REMOVED AROUND AND UNDER DURA-BLOK SUPPORT.
4) CLEARANCE HEIGHT UP TO 12" FOR THE DESIGN AS SHOWN, CONSULT THE MANUFACTURER FOR OTHER OPTIONS.
5) APPROXIMATE WEIGHT FOR A 5'-0" STRAIGHT SECTION OF WALKWAY IS 120lbs.
6) REMOVE BOLT FOR DURA-BLOK AND REPLACE WITH PART "K" & PART "M" FOR THE SECOND TIER ATTACHMENT.

COOPER B-Line
GRIP STRUT® FLEXTRAY®
3764 LONGSPUR ROAD
PINCKNEYVILLE, IL 62274
PH:(618) 357-5353
PH:(800) 851-9341

THIS DRAWING IN DESIGN AND DETAIL IS THE PROPERTY OF COOPER B-LINE AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.

DRAWING TITLE:	SUBMITTAL DRAWING FOR DURA-BLOK & GRATING WALKWAY		
DEPT: GS	ITEM CLASS: RTWW	PLOT SCALE: NTS	DATE: 9/18/09
DRAWN: BSL	CHKD./QA/APPR.: JSS	DRAWING NO.: STAIGHT WALKWAY	REV.: A

LETTER	DATE	REVISION	BY	CHK.	DCN
A	5/6/13	CHANGE TO NEW VERSION DBP	BMT	CHK.	BLH-4565

KwikWire Accessories

The new KwikWire™ Hanging System is a flexible replacement for jack chain and all thread rod. The KwikWire System will slash your hanging time and the clamp can be easily adjusted by hand.

Some of the key benefits of using the new KwikWire System include:

- Installs up to 50% faster - can quickly wrap around beam with no drilling required
- Simple height adjustments are made by releasing the clamp's adjustment pin – no tools required
- Aesthetic appeal - blends in with upper structural supports
- Compatibility with many B-Line series fastener, anchor and hanger products
- Ideal for sloped ceiling applications - will support loads at up to a 60° angle from vertical

Applications for the KwikWire Hanging System include light fixture supports, HVAC duct supports, sway bracing, sign/banner supports, wire basket cable tray supports, bus duct supports and air handling equipment supports.

KwikWire Clamps

Part No.	For Use With Wire Rope Diameters	Box Qty.
BKC100	1/16" (1.6mm) & 3/32" (2.3mm)	100
BKC200-1	3/32" (2.4mm), 1/8" (3.2mm), & 3/16" (4.7mm)	50

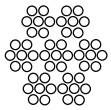
See table below for KwikWire™ Clamp Working Loads

KwikWire Clamp Working Loads*

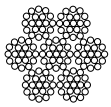
Clamp Part No.	Wire Rope Dia.	Lbs. Safety Factor 4
BKC100	1/16"	0-75
BKC100	3/32"	25-150
BKC200-1	3/32"	25-150
BKC200-1	1/8"	25-250
BKC200-1	3/16"	50-500

Working loads shown are for hanging vertically. For suspending at 15°, 30°, 45° or 60° angles from vertical, use the following percentage of the working loads from the chart:

15° = 96%
30° = 86%
45° = 70%
60° = 50%



7 x 7



7 x 19

KwikWire Wire Rope
(Uncoated Galvanized Wire)

Part No.	Rope Dia. in.	Rope Dia. mm	Working Load Lbs.	Working Load kg	Spool
BKW063 (1)	1/16"	(1.6)	96	(43.5)	500 ft.
BKW094 (1)	3/32"	(2.3)	184	(83.4)	500 ft.
BKW125 (1)	1/8"	(3.2)	340	(154.2)	500 ft.
BKW188 (2)	3/16"	(4.8)	840	(381.0)	250 ft.

(1) Wire Rope Construction Type 7 x 7
(2) Wire Rope Construction Type 7 x 19

Instructions for installing the wire rope in the clamp - No tools are required.

Pass the wire rope through the KwikWire Clamp

Loop wire rope through/ around support

Pass wire rope back through KwikWire Clamp

Push wire rope through clamp leaving 2" to 3" tail, then apply tension on wire rope

To adjust, remove tension and pull wire rope slightly to disengage teeth, slide adjustment pin in direction shown by arrow to release wire rope.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KwikPak Wire Rope & Clamps KwikPak

Part No.	For Use With Wire Rope Diameters	Box Qty.
BKP10063	BKC100 (100 pcs.) 1/16"Ø Wire Rope (500 ft.)	1
BKP10094	BKC100 (100 pcs.) 3/32"Ø Wire Rope (500 ft.)	1
BKP20125	BKC200-1 (50 pcs.) 1/8"Ø Wire Rope (500 ft.)	1
BKP20188	BKC200-1 (50 pcs.) 3/16"Ø Wire Rope (500 ft.)	1

- KwikPak™ includes KwikWire clamps and a spool of wire rope.
- KwikPak is shipped in a specially designed dispenser box to ease field cutting of wire.

KwikWire System Recommendations:

- Do not exceed the safe working load of the products
- KwikWire Clamp load ratings are guaranteed only when used in combination with our supplied wire rope
- Do not use for overhead lifting or hoisting
- Do not use if cable or components are visibly distorted or worn. Remove damaged cable end prior to inserting in KwikWire Clamp
- Do not paint cable near working area of KwikWire Clamp
- Do not apply lubricant
- Keep product clean and free of dirt
- Do not use clamp on coated wire rope
- Do not use in chlorinated or caustic atmospheres
- For use in dry locations
- BKCC tool is recommended for cutting wire rope to prevent fraying

KwikWire Cable Cutter

Part No.	Box Qty.
BKCC	1

- Wire rope cutter for cutting all wire rope sizes

** **Never use cutters on energized circuits, wire, or cable.**

NEVER USE CUTTERS ON ENERGIZED CIRCUITS, WIRE, OR CABLE.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KwikWire Hanger shown with KwikWire

- KwikWire™ hanger combines the versatility of a bolt with an adjustable wire rope solution
- Can be quickly installed in existing anchors or metal brackets with a nut
- ARS, ARC, and ARW anchors are ideal for use with KwikWire Hangers
- Ideal for supporting light fixtures, wire basket cable tray, HVAC ducts, and sign/banner supports
- Allows for tool-less adjustment of wire rope

KwikWire Hanger

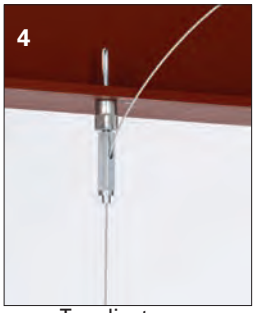
Part No.	Thread Size	Wire Rope Dia. in.	Wire Rope Dia. mm	Loading* SF5 Lbs.	Loading* SF5 kg
BKF100-4	1/4"-20	1/16"	(1.6)	45	(20.4)
		3/32"	(2.3)	90	(40.8)
BKF100-6	3/8"-16	1/16"	(1.6)	45	(20.4)
		3/32"	(2.3)	90	(40.8)

KwikWire Hanger installation

Screw KwikWire Hanger into installed hanger support (ARS anchor pictured)

Push cable wire up through the bottom of KwikWire Hanger

Continue pushing through until 1/4" minimum is extending out the side of the KwikWire Hanger



To adjust up - pull or push more cable wire through KwikWire Hanger

To adjust down - push up on bottom of KwikWire Hanger and allow cable wire to feed down

When hanging the cable wire is complete, cut off any excess cable wire if desired

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KwikWire Accessories

KwikWire Accessory Features

- Reduces on the job installation time
- Can be installed quickly without drilling into existing structure
- Increases versatility in the field
- KwikWire accessory system reduces inventory and shipping costs
- No more sawing, filing, or fixing nuts
- Designed for use with cable tray, lighting, and HVAC
- Eliminates the need for all threaded rod
- Cost effective solution for jack chain
- "Y" style accessories require 50% less drilling

KwikWire Accessory Numbering System

Product Line	Assembly Configuration	Leg Termination	Leg Length	Wire Rope Diameter	Straight Length	Assembly or Kit
BK = KwikWire™	Blank = Single Leg	A = Angle Bracket w/Pin	Blank = See Straight Length	063 = 1/16"	Blank = Loop w/ Plastic Tube	Blank = Assembly Only
	Y = 2 Legs	H = Hook	18 = 18" Leg	094 = 3/32"	18 = 18"	K = Kit (Assembly & BKC100 Clamp)
	3 - 3 Legs	L = Loop	30 = 30" Leg		30 = 30"	
		T = Toggle			40 = 40"	
		W = Fuse Cut			80 = 80"	
		B25 = Bolt w/ 1/4"-20 Thread			120 = 120"	
		B38 = Bolt w/ 3/8"-16 Thread			180 = 180"	
		BM6 = Bolt w/ M6 Thread			240 = 240"	
		BM8 = Bolt w/ M8 Thread			360 = 360"	
		BM10 = Bolt w/ M10 Thread				

Examples

BKYT18-094-120K

BK Y T 18 - 063 - 120 K

KwikWire Accessory
2 legs - toggle leg termination - 18" legs - 1/16" diameter wire - 120" straight length - kit with clamp

BKL-063-120K

BK L - 063 - 120 K

KwikWire Accessory
single leg - looped leg termination - 1/16" diameter wire - 120" straight length - kit with clamp

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KwikWire Loop Termination

Part No.	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKL-063-40	1/16″	(1.6)	40″	(1016)
BKL-063-80	1/16″	(1.6)	80″	(2032)
BKL-063-120	1/16″	(1.6)	120″	(3048)
BKL-063-180	1/16″	(1.6)	180″	(4572)
BKL-063-240	1/16″	(1.6)	240″	(6096)
BKL-063-360	1/16″	(1.6)	360″	(9144)
BKL-094-40	3/32″	(2.3)	40″	(1016)
BKL-094-80	3/32″	(2.3)	80″	(2032)
BKL-094-120	3/32″	(2.3)	120″	(3048)
BKL-094-180	3/32″	(2.3)	180″	(4572)
BKL-094-240	3/32″	(2.3)	240″	(6096)
BKL-094-360	3/32″	(2.3)	360″	(9144)

Box Quantity - 20
5 bags containing 4 pieces per bag

KwikWire Loop Termination Kits

Part No.	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKL-063-40K	1/16″	(1.6)	40″	(1016)
BKL-063-80K	1/16″	(1.6)	80″	(2032)
BKL-063-120K	1/16″	(1.6)	120″	(3048)
BKL-063-180K	1/16″	(1.6)	180″	(4572)
BKL-063-240K	1/16″	(1.6)	240″	(6096)
BKL-063-360K	1/16″	(1.6)	360″	(9144)
BKL-094-40K	3/32″	(2.3)	40″	(1016)
BKL-094-80K	3/32″	(2.3)	80″	(2032)
BKL-094-120K	3/32″	(2.3)	120″	(3048)
BKL-094-180K	3/32″	(2.3)	180″	(4572)
BKL-094-240K	3/32″	(2.3)	240″	(6096)
BKL-094-360K	3/32″	(2.3)	360″	(9144)

Box Quantity - 20
5 bags containing 4 pieces per bag

- Available as a wire rope with loop termination only or as a ready-to-use kit with a BKC100 clamp
- Available in lengths of 40″, 80″, 120″, 180″, 240″, and 360″

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KwikWire Accessories

KwikWire Single Style Hook Termination

Box Quantity - 20
5 bags containing 4 pieces per bag

Part No.	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKH-094-40	3/32″	(2.3)	40″	(1016)
BKH-094-80	3/32″	(2.3)	80″	(2032)
BKH-094-120	3/32″	(2.3)	120″	(3048)
BKH-094-180	3/32″	(2.3)	180″	(4572)
BKH-094-240	3/32″	(2.3)	240″	(6096)
BKH-094-360	3/32″	(2.3)	360″	(9144)

KwikWire Single Style Hook Termination Kits

Box Quantity - 20
5 bags containing 4 pieces per bag

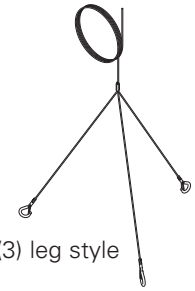
Part No.	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKH-094-40K	3/32″	(2.3)	40″	(1016)
BKH-094-80K	3/32″	(2.3)	80″	(2032)
BKH-094-120K	3/32″	(2.3)	120″	(3048)
BKH-094-180K	3/32″	(2.3)	180″	(4572)
BKH-094-240K	3/32″	(2.3)	240″	(6096)
BKH-094-360K	3/32″	(2.3)	360″	(9144)

KwikWire 'Y' Style Hook Termination With Loop

Box Quantity - 10
5 bags containing 2 pieces per bag

Part No.	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKYH18-094	3/32″	(2.3)	18″	(457)
BKYH30-094	3/32″	(2.3)	30″	(762)

- Hook designed to accept up to 3/8″ diameter wire
- Available as a wire rope with hook termination only or as a ready-to-use kit with a BKC100 clamp
- Available in lengths of 40″, 80″, 120″, 180″, 240″, and 360″
- Available in single, double (Y), and triple (3) leg styles



Triple (3) leg style

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KwikWire 'Y' Style Hook Termination

Part No.	Leg Length in.	Leg Length mm	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKYH18-094-40	18″	(457)	3/32″	(2.3)	40″	(1016)
BKYH18-094-80	18″	(457)	3/32″	(2.3)	80″	(2032)
BKYH18-094-120	18″	(457)	3/32″	(2.3)	120″	(3048)
BKYH18-094-180	18″	(457)	3/32″	(2.3)	180″	(4572)
BKYH18-094-240	18″	(457)	3/32″	(2.3)	240″	(6096)
BKYH18-094-360	18″	(457)	3/32″	(2.3)	360″	(9144)
BKYH30-094-40	30″	(762)	3/32″	(2.3)	40″	(1016)
BKYH30-094-80	30″	(762)	3/32″	(2.3)	80″	(2032)
BKYH30-094-120	30″	(762)	3/32″	(2.3)	120″	(3048)
BKYH30-094-180	30″	(762)	3/32″	(2.3)	180″	(4572)
BKYH30-094-240	30″	(762)	3/32″	(2.3)	240″	(6096)
BKYH30-094-360	30″	(762)	3/32″	(2.3)	360″	(9144)

Box Quantity - 10
5 bags containing 2 pieces per bag

KwikWire 'Y' Style Hook Termination Kits

Part No.	Leg Length in.	Leg Length mm	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKYH18-094-40K	18″	(457)	3/32″	(2.3)	40″	(1016)
BKYH18-094-80K	18″	(457)	3/32″	(2.3)	80″	(2032)
BKYH18-094-120K	18″	(457)	3/32″	(2.3)	120″	(3048)
BKYH18-094-180K	18″	(457)	3/32″	(2.3)	180″	(4572)
BKYH18-094-240K	18″	(457)	3/32″	(2.3)	240″	(6096)
BKYH18-094-360K	18″	(457)	3/32″	(2.3)	360″	(9144)
BKYH30-094-40K	30″	(762)	3/32″	(2.3)	40″	(1016)
BKYH30-094-80K	30″	(762)	3/32″	(2.3)	80″	(2032)
BKYH30-094-120K	30″	(762)	3/32″	(2.3)	120″	(3048)
BKYH30-094-180K	30″	(762)	3/32″	(2.3)	180″	(4572)
BKYH30-094-240K	30″	(762)	3/32″	(2.3)	240″	(6096)
BKYH30-094-360K	30″	(762)	3/32″	(2.3)	360″	(9144)

Box Quantity - 10
5 bags containing 2 pieces per bag

- Hook designed to accept up to 3/8″ diameter wire
- Available as a wire rope with loop termination only or as a ready-to-use kit with a BKC100 clamp
- Available in lengths of 40″, 80″, 120″, 180″, 240″, and 360″

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KwikWire Bolt Termination

Box Quantity - 20
5 bags containing 4 pieces per bag

Part No.	Thread Size	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKB25-063-40	1/4"-20	1/16"	(1.6)	40"	(1016)
BKB25-063-80	1/4"-20	1/16"	(1.6)	80"	(2032)
BKB25-063-120	1/4"-20	1/16"	(1.6)	120"	(3048)
BKB25-063-180	1/4"-20	1/16"	(1.6)	180"	(4572)
BKB25-063-240	1/4"-20	1/16"	(1.6)	240"	(6096)
BKB25-063-360	1/4"-20	1/16"	(1.6)	360"	(9144)
BKB38-094-40	3/8"-16	3/32"	(2.3)	40"	(1016)
BKB38-094-80	3/8"-16	3/32"	(2.3)	80"	(2032)
BKB38-094-120	3/8"-16	3/32"	(2.3)	120"	(3048)
BKB38-094-180	3/8"-16	3/32"	(2.3)	180"	(4572)
BKB38-094-240	3/8"-16	3/32"	(2.3)	240"	(6096)
BKB38-094-360	3/8"-16	3/32"	(2.3)	360"	(9144)

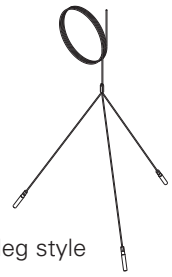
KwikWire Bolt Termination Kits

Box Quantity - 20
5 bags containing 4 pieces per bag

Part No.	Thread Size	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKB25-063-40K	1/4"-20	1/16"	(1.6)	40"	(1016)
BKB25-063-80K	1/4"-20	1/16"	(1.6)	80"	(2032)
BKB25-063-120K	1/4"-20	1/16"	(1.6)	120"	(3048)
BKB25-063-180K	1/4"-20	1/16"	(1.6)	180"	(4572)
BKB25-063-240K	1/4"-20	1/16"	(1.6)	240"	(6096)
BKB25-063-360K	1/4"-20	1/16"	(1.6)	360"	(9144)
BKB38-094-40K	3/8"-16	3/32"	(2.3)	40"	(1016)
BKB38-094-80K	3/8"-16	3/32"	(2.3)	80"	(2032)
BKB38-094-120K	3/8"-16	3/32"	(2.3)	120"	(3048)
BKB38-094-180K	3/8"-16	3/32"	(2.3)	180"	(4572)
BKB38-094-240K	3/8"-16	3/32"	(2.3)	240"	(6096)
BKB38-094-360K	3/8"-16	3/32"	(2.3)	360"	(9144)

- Ideal for use with ARS, ARC, ADI, ACPW, or ACPD anchors
- Available as a wire rope with bolt termination only or as a ready-to-use kit with a BKC100 clamp
- Available in lengths of 40", 80", 120", 180", 240", and 360"
- Available in single, double (Y), and triple leg (3) styles
- All (Y) and triple (3) styles are non-stock, contact us for lead times

Double (Y) leg style



Triple (3) leg style

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

KwikWire Angle Bracket Termination

Part No.	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKA-063-40	1/16″	(1.6)	40″	(1016)
BKA-063-80	1/16″	(1.6)	80″	(2032)
BKA-063-120	1/16″	(1.6)	120″	(3048)
BKA-063-180	1/16″	(1.6)	180″	(4572)
BKA-063-240	1/16″	(1.6)	240″	(6096)
BKA-063-360	1/16″	(1.6)	360″	(9144)

Box Quantity - 20
5 bags containing 4 pieces per bag

KwikWire Angle Bracket Termination Kits

Part No.	Wire Rope Dia. in.	Wire Rope Dia. mm	Length in.	Length mm
BKA-063-40K	1/16″	(1.6)	40″	(1016)
BKA-063-80K	1/16″	(1.6)	80″	(2032)
BKA-063-120K	1/16″	(1.6)	120″	(3048)
BKA-063-180K	1/16″	(1.6)	180″	(4572)
BKA-063-240K	1/16″	(1.6)	240″	(6096)
BKA-063-360K	1/16″	(1.6)	360″	(9144)

Box Quantity - 20
5 bags containing 4 pieces per bag

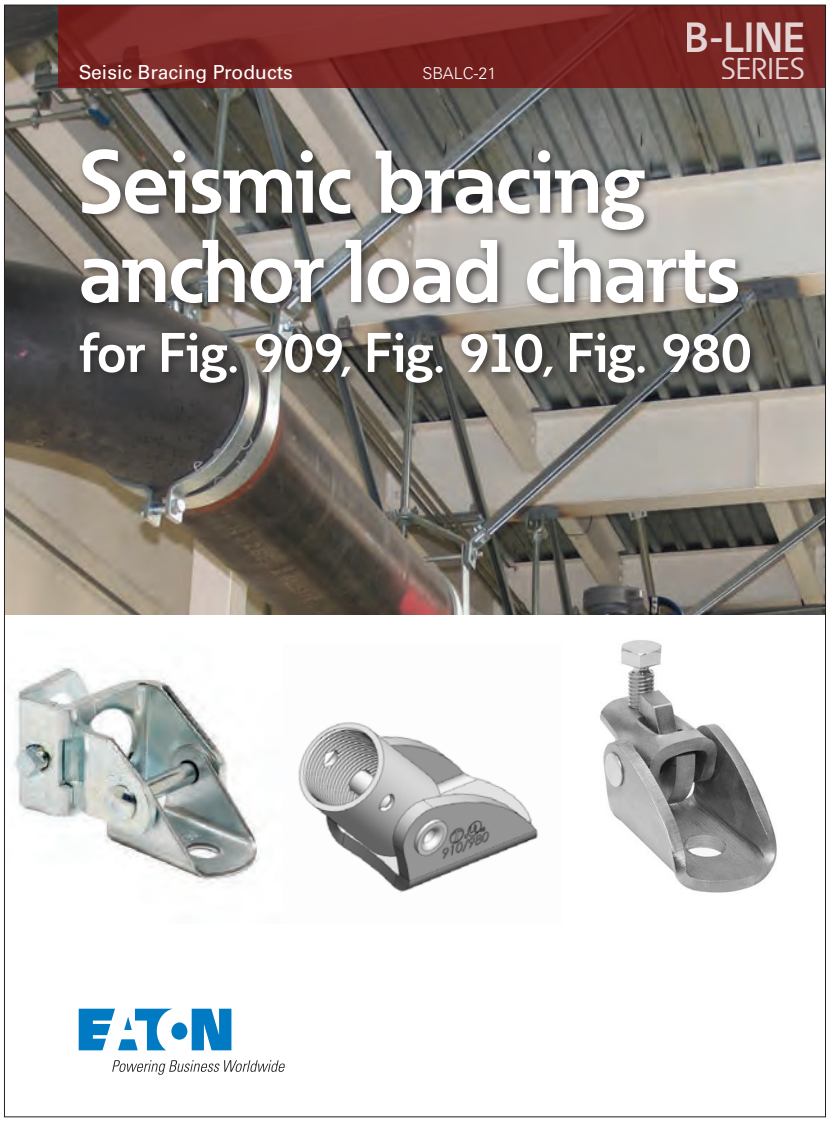
- Available as a wire rope with angle bracket termination only or as a ready-to-use kit with a BKC100 clamp
- Available in lengths of 40″, 80″, 120″, 180″, 240″, and 360″

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

For load information when using Fig. 980, Fig. 910, or Fig. 909 with pre-installed or post-installed concrete anchors in compliance with NFPA 13 (2016) or ASCE 7-10, including prying factors, see load tables on the Eaton website at the following location:

Eaton.com/seismic-resources

If you have any questions, contact TolcoSupport@Eaton.com



To Convert From	To	Multiply By
Angle		
degree	radian (rad)	1.745329×10^{-2}
radian (rad)	degree	$5.729578 \times 10^{+1}$
Area		
foot^2	square meter (m^2)	9.290304×10^{-2}
inch^2	square meter (m^2)	6.451600×10^{-4}
circular mil	square meter (m^2)	5.067075×10^{-10}
sq. centimeter (cm^2)	square inch (in^2)	1.550003×10^{-1}
square meter (m^2)	foot^2	$1.076391 \times 10^{+1}$
square meter (m^2)	inch^2	$1.550003 \times 10^{+3}$
square meter (m^2)	circular mil	$1.973525 \times 10^{+9}$
Temperature		
degree Fahrenheit	degree Celsius	$t°_C = (t°_F - 32) / 1.8$
degree Celsius	degree Fahrenheit	$t°_F = 1.8\ t°_C + 32$
Force		
pounds-force (lbf)	newtons (N)	4.448222

To Convert From	To	Multiply By
Length		
foot (ft)	meter (m)	3.048000×10^{-1}
inch (in)	meter (m)	2.540000×10^{-2}
mil	meter (m)	2.540000×10^{-5}
inch (in)	micrometer (µm)	$2.540000 \times 10^{+4}$
meter (m)	foot (ft)	3.280840
meter (m)	inch (in)	$3.937008 \times 10^{+1}$
meter (m)	mil	$3.937008 \times 10^{+4}$
micrometer (µm)	inch (in)	3.937008×10^{-5}
Volume		
foot^3	cubic meter (m^3)	2.831685×10^{-2}
inch^3	cubic meter (m^3)	1.638706×10^{-5}
cubic centimeter (cm^3)	cubic inch (in^3)	6.102374×10^{-2}
cubic meter (m^3)	foot^3	$3.531466 \times 10^{+1}$
cubic meter (m^3)	inch^3	$6.102376 \times 10^{+4}$
gallon (U.S. liquid)	cubic meter (m^3)	3.785412×10^{-3}

Section Properties		
section modulus S (in^3)	S (m^3)	1.638706×10^{-5}
moment of inertia I (in^4)	I (m^4)	4.162314×10^{-7}
modulus of elasticity E (psi)	E (Pa)	$6.894757 \times 10^{+3}$
section modulus S (m^3)	S (in^3)	$6.102374 \times 10^{+4}$
moment of inertia I (m^4)	I (in^4)	$2.402510 \times 10^{+6}$
modulus of elasticity E (Pa)	E (psi)	1.450377×10^{-4}

To Convert From	To	Multiply By
Bending Moment or Torque		
lbf•ft	newton meter (N•m)	1.355818
lbf•in	newton meter (N•m)	1.129848×10^{-1}
N•m	lbf•ft	7.375621×10^{-1}
N•m	lbf•in	8.850748
Mass		
ounce (avoirdupois)	kilogram (kg)	2.834952×10^{-2}
pound (avoirdupois)	kilogram (kg)	4.535924×10^{-1}
ton (short, 2000 lb)	kilogram (kg)	$9.071847 \times 10^{+2}$
ton (long, 2240 lb)	kilogram (kg)	$1.016047 \times 10^{+3}$
kilogram (kg)	ounce (avoirdupois)	$3.527396 \times 10^{+1}$
kilogram (kg)	pound (avoirdupois)	2.204622
kilogram (kg)	ton (short 2000 lb)	1.102311×10^{-3}
kilogram (kg)	ton (long 2240 lb)	9.842064×10^{-4}
Mass Per Unit Length		
lb/ft	kilogram per meter (kg/m)	1.488164
lb/in	kilogram per meter (kg/m)	$1.785797 \times 10^{+1}$
kg/m	lb/ft	6.719689×10^{-1}
kg/m	lb/in	5.599741×10^{-2}
Mass Per Unit Volume		
lb/ft^3	kilogram per cubic meter (kg/m^3)	$1.601846 \times 10^{+1}$
lb/in^3	kilogram per cubic meter (kg/m^3)	$2.767990 \times 10^{+4}$
kg/m^3	lb/ft^3	6.242797×10^{-2}
kg/m^3	lb/in^3	3.612730×10^{-5}
lbs/ft^3	lbs/in^3	$1.728000 \times 10^{+3}$
Mass Per Area Unit		
lb/ft^2	kilogram per square meter (kg/m^2)	4.882428
kg/m^2	pound per square foot (lb/ft^2)	2.048161×10^{-1}
Pressure or Stress		
lbf/in^2 (psi)	pascal (Pa)	$6.894757 \times 10^{+3}$
kip/in^2 (ksi)	pascal (Pa)	$6.894757 \times 10^{+6}$
lbf/in^2 (psi)	megapascals (MPa)	6.894757×10^{-3}
pascal (Pa)	pound force per sq. inch (psi)	1.450377×10^{-4}
pascal (Pa)	kip per sq. inch (ksi)	1.450377×10^{-7}
megapascals (MPa)	lbf/in^2 (psi)	$1.450377 \times 10^{+2}$

Abbreviations

AISC	= American Institute of Steel Construction
AISI	= American Iron & Steel Institute
ANSI	= American National Standards Institute
ASTM	= American Society for Testing & Materials
AWWA	= American Water Works Association
Dia.	= Diameter
Ft.	= Feet
Ga.	= Gauge
I.D.	= Inside Diameter
In.	= Inch
Lbs.	= Pounds
Max.	= Maximum
Min.	= Minimum
MSS	= Manufacturers Standardization Society
NFPA	= National Fire Protection Association
O.D.	= Outside Diameter
Oz.	= Ounces
Pre-Galv.	= Pre-galvanized
psi	= Pounds Per Square Inch
PVC	= Polyvinyl Chloride
UL	= Underwriters' Laboratories, Inc.
UNC	= Unified Coarse Threads
UNCR	= Unified Coarse Threads (Rounded Root)
Wt./C	= Weight per 100

Metric Symbols

cm	= centimeter
kg	= kilogram
kN	= kilonewton
m	= meter
µm	= micrometer
mm	= millimeter
MPa	= megapascal
N	= newton
Nm	= newton-meter
Pa	= pascal

Decimals of a Foot

Inch	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"
0	.0000	.0833	.1667	.2500	.3330	.4167	.5000	.5833	.6667	.7500	.8333	.9167
1/16	.0052	.0085	.1719	.2552	.3385	.4219	.5052	.5885	.6719	.7552	.8385	.9219
1/8	.0104	.0938	.1771	.2604	.3438	.4271	.5104	.5938	.6771	.7604	.8438	.9271
3/16	.0156	.0990	.1823	.2656	.3490	.4323	.5156	.5990	.6823	.7656	.8490	.9323
1/4	.0208	.1042	.1875	.2708	.3542	.4375	.5208	.6042	.6875	.7708	.8542	.9375
5/16	.0260	.1094	.1927	.2760	.3594	.4427	.5260	.6094	.6927	.7760	.8594	.9427
3/8	.0313	.1146	.1979	.2812	.3646	.4479	.5313	.6146	.6979	.7813	.8646	.9479
7/16	.0365	.1198	.2031	.2891	.3724	.4557	.5391	.6224	.7057	.7891	.8724	.9557
1/2	.0417	.1250	.2083	.2917	.3750	.4583	.5417	.6250	.7083	.7917	.8750	.9583
9/16	.0469	.1302	.2135	.2969	.3802	.4635	.5469	.6302	.7135	.7969	.8802	.9635
5/8	.0521	.1354	.2188	.3021	.3854	.4688	.5521	.6354	.7188	.8021	.8854	.9688
11/16	.0573	.1406	.2240	.3073	.3906	.4740	.5573	.6406	.7240	.8073	.8906	.9740
3/4	.0625	.1458	.2292	.3125	.3958	.4792	.5625	.6458	.7292	.8125	.8958	.9792
13/16	.0677	.1510	.2344	.3177	.4010	.4844	.5677	.6510	.7344	.8177	.9010	.9844
7/8	.0729	.1563	.2396	.3229	.4063	.4896	.5729	.6563	.7396	.8229	.9063	.9896
15/16	.0781	.1615	.2448	.3281	.4118	.4948	.5781	.6615	.7448	.8221	.9115	.9948

Fractions of a Inch

Fraction	Decimal
1/32	.0312
1/16	.0625
3/32	.0937
1/8	.1250
5/32	.1562
3/16	.1875
7/32	.2187
1/4	.2500
9/32	.2812
5/16	.3125
11/32	.3437
3/8	.3750
13/32	.4062
7/16	.4375
15/32	.4687
1/2	.5000

Fraction	Decimal
17/32	.5312
9/16	.5625
19/32	.5937
5/8	.6250
21/32	.6562
11/16	.6875
23/32	.7187
3/4	.7500
25/32	.7812
13/16	.8125
27/32	.8437
7/8	.8750
29/32	.9062
15/16	.9375
31/32	.9687
1	1.0000

Schedule 40 Steel Pipe Data

Nominal Pipe Size In.	(mm)	Pipe O.D. In.	(mm)	Wall Thickness In.	(mm)	Weight of Pipe Lbs./Ft.	(kg/m)	Weight of Pipe Filled With Water Lbs./Ft.	(kg/m)	Maximum Span* Ft.	(Meter)	Recommended Hanger Rod Sizes
3/8"	(10)	.675	(17.1)	.091	(2.3)	.6	(0.9)	.7	(1.0)	7	(2.13)	3/8"-16
1/2"	(15)	.840	(21.3)	.109	(2.7)	.8	(1.2)	.9	(1.2)	7	(2.13)	3/8"-16
3/4"	(20)	1.050	(26.7)	.113	(2.9)	1.1	(1.7)	1.3	(2.0)	7	(2.13)	3/8"-16
1"	(25)	1.315	(33.4)	.133	(3.4)	1.7	(2.5)	2.1	(3.0)	7	(2.13)	3/8"-16
1 1/4"	(32)	1.660	(42.1)	.140	(3.5)	2.3	(3.4)	2.9	(4.3)	7	(2.13)	3/8"-16
1 1/2"	(40)	1.900	(48.2)	.145	(3.7)	2.7	(4.0)	3.6	(5.3)	9	(2.74)	3/8"-16
2"	(50)	2.375	(60.3)	.154	(3.9)	3.6	(5.4)	5.0	(7.5)	10	(3.05)	3/8"-16
2 1/2"	(65)	2.875	(73.0)	.203	(5.1)	5.8	(8.6)	7.9	(11.7)	11	(3.35)	1/2"-13
3"	(80)	3.500	(88.9)	.216	(5.5)	7.6	(11.2)	10.8	(15.9)	12	(3.66)	1/2"-13
3 1/2"	(90)	4.000	(101.6)	.226	(5.7)	9.1	(13.5)	13.4	(19.8)	13	(3.96)	1/2"-13
4"	(100)	4.500	(114.3)	.237	(6.0)	10.8	(16.0)	16.3	(24.2)	14	(4.27)	5/8"-11
5"	(125)	5.563	(141.3)	.258	(6.5)	14.6	(21.7)	23.2	(34.6)	16	(4.87)	5/8"-11
6"	(150)	6.625	(168.3)	.280	(7.1)	19.0	(28.2)	31.5	(46.8)	17	(5.18)	3/4"-10
8"	(200)	8.625	(219.1)	.322	(8.2)	28.5	(42.5)	50.1	(74.6)	19	(5.79)	3/4"-10
10"	(250)	10.750	(273.0)	.365	(9.3)	40.5	(60.2)	74.6	(110.9)	22	(6.69)	7/8"-9
12"	(300)	12.750	(323.8)	.406	(10.3)	51.1	(75.9)	102.1	(151.9)	23	(7.01)	7/8"-9
14"	(350)	14.000	(355.6)	.437	(11.1)	63.0	(93.7)	121.5	(180.7)	25	(7.62)	1"-8
16"	(400)	16.000	(406.4)	.500	(12.7)	83.0	(123.5)	159.5	(237.3)	27	(8.23)	1"-8
18"	(450)	18.000	(457.2)	.563	(14.3)	105.0	(156.2)	202.2	(300.8)	28	(8.53)	1"-8
20"	(500)	20.000	(508.0)	.593	(15.1)	123.0	(183.0)	243.4	(361.8)	30	(9.14)	1 1/4"-7
24"	(600)	24.000	(609.6)	.687	(17.4)	171.0	(254.5)	345.2	(513.7)	32	(9.75)	1 1/4"-7

Based on ASTM A53-86.
1 cubic ft. of water weighs 62.41 lbs.
1 gallon (U.S.) weighs 8.335 lbs.
1 cubic meter of water weighs 999.97 kg.
1 liter weighs .999 kg.

Based on MSS SP-69 Table 3 & 4.
*Many codes require pipe hangers to be spaced every 10' (3.048 meters) regardless of size. Check local codes. Spacing and capacities are based on water filled pipe. Closer hanger spacing may be required where additional valves and fittings increase the load.

Schedule 80 Steel Pipe Data

Nominal Pipe Size In.	(mm)	Pipe O.D. In.	(mm)	Wall Thickness In.	(mm)	Weight of Pipe Lbs./Ft.	(kg/m)	Weight of Pipe Filled With Water Lbs./Ft.	(kg/m)	Maximum Span* Ft.	(Meter)	Recommended Hanger Rod Sizes
3/8"	(10)	.675	(17.1)	.126	(3.2)	.7	(1.1)	.8	(1.2)	7	(2.13)	3/8"-16
1/2"	(15)	.840	(21.3)	.147	(3.7)	1.1	(1.6)	1.2	(1.7)	7	(2.13)	3/8"-16
3/4"	(20)	1.050	(26.7)	.154	(3.9)	1.5	(2.2)	1.7	(2.5)	7	(2.13)	3/8"-16
1"	(25)	1.315	(33.4)	.179	(4.5)	2.2	(3.2)	2.5	(3.6)	7	(2.13)	3/8"-16
1 1/4"	(32)	1.660	(42.1)	.191	(4.8)	3.0	(4.4)	3.5	(5.2)	7	(2.13)	3/8"-16
1 1/2"	(40)	1.900	(48.2)	.200	(5.1)	3.6	(5.4)	4.3	(6.5)	9	(2.74)	3/8"-16
2"	(50)	2.375	(60.3)	.218	(5.5)	5.0	(7.5)	6.3	(9.4)	10	(3.05)	3/8"-16
2 1/2"	(65)	2.875	(73.0)	.276	(7.0)	7.6	(11.4)	9.4	(14.1)	11	(3.35)	1/2"-13
3"	(80)	3.500	(88.9)	.300	(7.6)	10.2	(15.2)	13.0	(19.4)	12	(3.66)	1/2"-13
3 1/2"	(90)	4.000	(101.6)	.318	(8.1)	12.5	(18.6)	16.3	(24.3)	13	(3.96)	1/2"-13
4"	(100)	4.500	(114.3)	.337	(8.5)	15.0	(22.3)	20.0	(29.7)	14	(4.27)	5/8"-11
5"	(125)	5.563	(141.3)	.375	(9.5)	20.8	(30.9)	28.7	(42.6)	16	(4.87)	5/8"-11
6"	(150)	6.625	(168.3)	.432	(11.0)	28.6	(42.5)	39.9	(59.3)	17	(5.18)	3/4"-10
8"	(200)	8.625	(219.1)	.500	(12.7)	43.4	(64.5)	63.1	(93.9)	19	(5.79)	3/4"-10
10"	(250)	10.750	(273.0)	.593	(15.0)	64.4	(95.8)	95.5	(142.1)	22	(6.69)	7/8"-9
12"	(300)	12.750	(323.8)	.687	(17.4)	88.6	(131.8)	132.6	(197.3)	23	(7.01)	7/8"-9
14"	(350)	14.000	(355.6)	.750	(19.0)	107.0	(159.2)	158.2	(235.4)	25	(7.62)	1"-8
16"	(400)	16.000	(406.4)	.843	(21.4)	137.0	(203.9)	206.7	(306.6)	27	(8.23)	1"-8
18"	(450)	18.000	(457.2)	.937	(23.8)	171.0	(254.5)	259.5	(386.2)	28	(8.53)	1"-8
20"	(500)	20.000	(508.0)	1.031	(26.2)	209.0	(311.0)	318.4	(473.8)	30	(9.14)	1 1/4"-7
24"	(600)	24.000	(609.6)	1.218	(30.9)	297.0	(442.0)	455.2	(677.4)	32	(9.75)	1 1/4"-7

Based on ASTM A53-86.
1 cubic ft. of water weighs 62.41 lbs.
1 gallon (U.S.) weighs 8.335 lbs.
1 cubic meter of water weighs 999.97 kg.
1 liter weighs .999 kg.

Based on MSS SP-69 Table 3 & 4.
*Many codes require pipe hangers to be spaced every 10' (3.048 meters) regardless of size. Check local codes. Spacing and capacities are based on water filled pipe. Closer hanger spacing may be required where additional valves and fittings increase the load.

AWWA Ductile Iron Pipe Data

Nominal Pipe Size In.	(mm)	Class	O.D. of Ductile Iron Pipe In.	(mm)	Wall Thickness In.	(mm)	Weight of Pipe Lbs./Ft.	(kg/m)	Weight of Pipe Filled With Water Lbs./Ft.	(kg/m)
3"	(80)	53	3.96	(100.6)	.31	(7.9)	11.2	(16.6)	15.0	(22.2)
4"	(100)	53	4.80	(121.9)	.32	(8.1)	14.2	(21.1)	20.1	(29.9)
6"	(150)	53	6.90	(175.2)	.34	(8.6)	22.0	(32.7)	35.1	(52.2)
8"	(200)	53	9.05	(229.9)	.36	(9.1)	31.0	(46.1)	54.0	(80.3)
10"	(250)	53	11.10	(281.9)	.38	(9.6)	40.4	(60.1)	76.8	(114.2)
12"	(300)	53	13.20	(335.3)	.40	(10.1)	50.7	(75.4)	103.0	(153.2)
14"	(350)	53	15.30	(388.6)	.42	(10.6)	62.4	(92.8)	133.5	(198.6)
16"	(400)	53	17.40	(441.9)	.43	(10.9)	72.8	(108.3)	165.9	(246.8)
18"	(450)	53	19.50	(495.3)	.44	(11.1)	83.6	(124.4)	201.5	(299.8)
20"	(500)	53	21.60	(548.6)	.45	(11.4)	95.2	(141.7)	241.0	(358.7)
24"	(600)	53	25.80	(655.3)	.47	(11.9)	119.2	(177.4)	329.4	(490.2)
30"	(750)	53	32.00	(812.8)	.51	(12.9)	161.3	(240.0)	487.8	(597.1)
36"	(900)	53	38.30	(972.8)	.58	(14.7)	219.5	(326.6)	688.8	(1025.0)
42"	(1050)	53	44.50	(1130.3)	.65	(16.5)	285.2	(424.4)	920.1	(1369.2)
48"	(1200)	53	50.80	(1290.3)	.72	(18.3)	360.3	(536.2)	1189.2	(1769.7)
54"	(1350)	53	57.10	(1450.3)	.81	(20.6)	455.0	(677.1)	1502.2	(2135.5)

Based on AWWA C108-70, Table 8.2.
Add flange weight for flanged cast iron pipe.

Ductile Iron Pipe Size

Ductile Iron Pipe Size In.	(mm)	B3110	B3114	B3120	B3122	B3122A	B3124	B3126	B3117SL
3"	(80)	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	2 to 3 1/2	2 to 3 1/2	2 to 3 1/2
4"	(100)	4	4	4	4	4	4 to 6	4 to 6	4 to 6
6"	(150)	6	6	6	6	6	4 to 6	4 to 6	4 to 6
8"	(200)	10	8	8	8	8	8 to 10	8 to 10	8 to 10
10"	(250)	12	10	10	10	10	8 to 10	8 to 10	8 to 10
12"	(300)	12	12	12	12	12	12 to 14	12 to 14	12 to 14
14"	(350)	16	14	14	14	14	12 to 14	12 to 14	12 to 14
16"	(400)	18	16	16	16	16	16 to 20	16 to 20	16 to 20
18"	(450)	20	18	18	18	18	16 to 20	16 to 20	16 to 20
20"	(500)	24	20	20	20	20	16 to 20	16 to 20	16 to 20
24"	(600)	30	24	24	24	24	—	—	24

Ductile Iron Pipe Size In.	(mm)	B3118SL	B3119SL	B218	B219	B379	B479	B3114R	B3117R
3"	(80)	2 to 3 1/2	2 to 3 1/2	B218	B219-1	—	—	3 1/2	2 to 3 1/2
4"	(100)	4 to 6	4 to 6	B218	B219-2	—	—	4	4 to 6
6"	(150)	4 to 6	4 to 6	B218	B219-3	B379	—	6	4 to 6
8"	(200)	8 to 10	8 to 10	—	B219-4	B379	—	8	8 to 10
10"	(250)	8 to 10	8 to 10	—	B219-4	B379	—	10	8 to 10
12"	(300)	12 to 14	12 to 14	—	B219-5	B379	—	12	12 to 14
14"	(350)	12 to 14	12 to 14	—	—	B379	—	14	12 to 14
16"	(400)	16 to 20	16 to 20	—	—	B379	B479	16	16 to 20
18"	(450)	16 to 20	16 to 20	—	—	—	B479	18	16 to 20
20"	(500)	16 to 20	16 to 20	—	—	—	B479	20	16 to 20
24"	(600)	24	24	—	—	—	B479	24	24

Service Weight Cast Iron Soil Pipe Data (Bell and Spigot Type)

Nominal Pipe Size In.	(mm)	O.D. of Cast Iron Pipe In.	(mm)	Wall Thickness In.	(mm)	Weight of Pipe Lbs./Ft.	(kg/m)	Weight of Pipe Filled With Water Lbs./Ft.	(kg/m)
2"	(50)	2.25	(57.1)	.17	(4.3)	4.0	(5.9)	5.5	(8.1)
3"	(80)	3.25	(82.5)	.17	(4.3)	6.0	(8.9)	9.4	(13.9)
4"	(100)	4.25	(107.9)	.18	(4.6)	8.0	(11.9)	14.2	(21.1)
5"	(125)	5.25	(133.3)	.18	(4.6)	10.4	(15.5)	22.7	(33.8)
6"	(150)	6.25	(158.7)	.18	(4.6)	13.0	(19.3)	26.9	(40.0)
8"	(200)	8.38	(212.8)	.23	(5.8)	20.0	(29.7)	45.7	(67.9)
10"	(250)	10.50	(266.7)	.28	(7.1)	29.0	(43.1)	69.6	(103.5)
12"	(300)	12.50	(317.5)	.28	(7.1)	38.0	(56.5)	96.2	(143.1)
15"	(380)	15.62	(396.7)	.31	(7.9)	51.0	(75.9)	147.6	(219.6)

Based on ASTM A74 - Table 2.

Extra Weight Cast Iron Soil Pipe Data (Bell and Spigot Type)

Nominal Pipe Size In.	(mm)	O.D. of Cast Iron Pipe In.	(mm)	Wall Thickness In.	(mm)	Weight of Pipe Lbs./Ft.	(kg/m)	Weight of Pipe Filled With Water Lbs./Ft.	(kg/m)
2"	(50)	2.38	(60.4)	.190	(4.8)	5.0	(7.2)	6.6	(9.5)
3"	(80)	3.50	(88.9)	.250	(6.3)	9.0	(13.0)	12.7	(18.3)
4"	(100)	4.50	(114.3)	.250	(6.3)	12.0	(17.4)	18.5	(26.8)
5"	(125)	5.50	(139.7)	.250	(6.3)	15.0	(21.7)	25.2	(36.5)
6"	(150)	6.50	(165.1)	.250	(6.3)	19.0	(27.5)	33.7	(48.8)
8"	(200)	8.62	(218.9)	.310	(7.9)	30.0	(43.4)	56.1	(81.2)
10"	(250)	10.75	(273.0)	.375	(9.5)	43.0	(62.3)	83.8	(121.4)
12"	(300)	12.75	(323.8)	.375	(9.5)	54.0	(78.2)	112.8	(163.3)
15"	(380)	15.88	(403.3)	.440	(11.2)	75.0	(108.6)	166.8	(241.5)

Based on ASTM A74 - Table 1.

No-Hub Cast Iron Soil Pipe Data

Nominal Pipe Size In.	(mm)	O.D. of Cast Iron Pipe In.	(mm)	Wall Thickness In.	(mm)	Weight of Pipe Lbs./Ft.	(kg/m)	Weight of Pipe Filled With Water Lbs./Ft.	(kg/m)
1½"	(40)	1.90	(48.2)	.16	(4.0)	2.7	(4.0)	6.2	(9.2)
2"	(50)	2.35	(59.7)	.16	(4.0)	3.6	(5.3)	8.6	(12.5)
3"	(80)	3.35	(85.1)	.16	(4.0)	5.2	(7.7)	13.5	(20.0)
4"	(100)	4.38	(111.2)	.19	(4.8)	7.4	(11.0)	20.2	(30.0)
5"	(125)	5.30	(134.6)	.19	(4.8)	9.6	(14.3)	27.5	(41.0)
6"	(150)	6.30	(160.0)	.19	(4.8)	11.0	(16.3)	34.0	(50.5)
8"	(200)	8.38	(212.8)	.23	(5.8)	18.0	(26.8)	57.5	(85.6)

Based on Cast Iron Soil Pipe Institute Standards 301-72, Table 1.

Copper Tubing (Type L) Data

Nominal Pipe Size In.	(mm)	O.D. Size In.	(mm)	Wall Thickness In.	(mm)	Weight of Tubing Lbs./Ft.	(kg/m)	Weight of Tubing Filled With Water Lbs./Ft.	(kg/m)
1/4"	(6)	.375	(9.5)	.030	(.7)	.12	(.17)	.15	(.21)
3/8"	(10)	.500	(12.7)	.035	(.9)	.20	(.30)	.26	(.39)
1/2"	(15)	.625	(15.9)	.040	(1.0)	.28	(.41)	.38	(.56)
5/8"	(17)	.750	(19.0)	.042	(1.0)	.36	(.53)	.51	(.75)
3/4"	(20)	.875	(22.2)	.045	(1.1)	.45	(.67)	.66	(.98)
1"	(25)	1.125	(28.6)	.050	(1.3)	.65	(.97)	1.01	(1.50)
1 1/4"	(32)	1.375	(34.9)	.055	(1.4)	.88	(1.31)	1.42	(2.11)
1 1/2"	(40)	1.625	(41.3)	.060	(1.5)	1.14	(1.69)	1.91	(2.83)
2"	(50)	2.125	(54.0)	.070	(1.8)	1.75	(2.60)	3.09	(4.59)
2 1/2"	(65)	2.625	(66.7)	.080	(2.0)	2.48	(3.69)	4.54	(6.75)
3"	(80)	3.125	(79.4)	.090	(2.3)	3.33	(4.95)	6.28	(9.34)
3 1/2"	(90)	3.625	(92.1)	.100	(2.5)	4.29	(6.38)	8.28	(12.32)
4"	(100)	4.125	(104.8)	.110	(2.8)	5.38	(8.00)	10.57	(15.72)
5"	(125)	5.125	(130.2)	.125	(3.2)	7.61	(11.32)	15.69	(23.34)
6"	(150)	6.125	(155.6)	.140	(3.5)	10.20	(15.18)	21.81	(32.46)
8"	(200)	8.125	(206.4)	.200	(5.1)	19.29	(28.70)	39.49	(58.89)

Dimensions taken from ASTM B88-83.

Copper Tubing (Type K) Data

Nominal Pipe Size In.	(mm)	O.D. Size In.	(mm)	Wall Thickness In.	(mm)	Weight of Tubing Lbs./Ft.	(kg/m)	Weight of Tubing Filled With Water Lbs./Ft.	(kg/m)
1/4"	(6)	.375	(9.5)	.035	(.9)	.14	(.21)	.17	(.25)
3/8"	(10)	.500	(12.7)	.049	(1.2)	.27	(.40)	.32	(.47)
1/2"	(15)	.625	(15.9)	.049	(1.2)	.34	(.50)	.43	(.63)
5/8"	(17)	.750	(19.0)	.049	(1.2)	.42	(.62)	.56	(.83)
3/4"	(20)	.875	(22.2)	.065	(1.6)	.64	(.95)	.83	(1.23)
1"	(25)	1.125	(28.6)	.065	(1.6)	.84	(1.25)	1.18	(1.75)
1 1/4"	(32)	1.375	(34.9)	.065	(1.6)	1.04	(1.55)	1.57	(2.34)
1 1/2"	(40)	1.625	(41.3)	.072	(1.8)	1.36	(2.02)	2.10	(3.12)
2"	(50)	2.125	(54.0)	.083	(2.1)	2.06	(3.06)	3.37	(5.01)
2 1/2"	(65)	2.625	(66.7)	.095	(2.4)	2.92	(4.34)	4.92	(7.31)
3"	(80)	3.125	(79.4)	.109	(2.8)	4.00	(5.95)	6.96	(10.35)
3 1/2"	(90)	3.625	(92.1)	.120	(3.0)	5.12	(7.62)	9.02	(13.42)
4"	(100)	4.125	(104.8)	.134	(3.4)	6.51	(9.69)	11.57	(17.22)
5"	(125)	5.125	(130.2)	.160	(4.0)	9.67	(14.39)	17.67	(26.29)
6"	(150)	6.125	(155.6)	.192	(4.9)	13.87	(20.60)	25.07	(37.27)
8"	(200)	8.125	(206.4)	.271	(6.9)	25.90	(38.50)	45.40	(67.52)

Dimensions taken from ASTM B88-83.
1 cubic ft. of water weighs 62.41 lbs.
1 cubic meter of water weighs 999.97 kg.
1 gallon (U.S.) weighs 8.335 lbs.
1 liter weighs .999 kg.

Recommended Hanger Spacing And Rod Size For Copper Tubing

Nominal Tubing Size In. (mm)	Maximum Span Ft. (Meter)	Recommended Hanger Rod Size
1/2" (15)	5 (1.52)	3/8" - 16
3/4" (20)	5 (1.52)	3/8" - 16
1" (25)	6 (1.83)	3/8" - 16
1 1/4" (32)	7 (2.13)	3/8" - 16
1 1/2" (40)	8 (2.44)	3/8" - 16
2" (50)	8 (2.44)	3/8" - 16
2 1/2" (65)	9 (2.74)	1/2" - 13
3" (80)	10 (3.05)	1/2" - 13
3 1/2" (90)	11 (3.35)	1/2" - 13
4" (100)	12 (3.66)	1/2" - 13
5" (125)	13 (3.96)	1/2" - 13
6" (150)	14 (4.27)	5/8" - 11
8" (200)	16 (4.87)	3/4" - 10

Based on MSS-SP-69, Table 3 & 4.

Glass Pipe Data

Regular Schedule

Nominal Pipe Size In. (mm)	O.D. Size In. (mm)	Wall Thickness In. (mm)	Weight of Pipe Lbs./Ft.(kg/m)	Weight of Pipe Filled With Water Lbs./Ft. (kg/m)
1 1/2" (40)	1.84 (46.7)	.12 (3.0)	.6 (.9)	1.5 (2.2)
2" (50)	2.34 (59.4)	.14 (3.5)	.9 (1.4)	2.3 (3.5)
3" (80)	3.41 (86.6)	.17 (4.3)	1.6 (2.4)	4.8 (7.1)
4" (100)	4.53 (115.0)	.20 (5.1)	2.6 (3.8)	8.4 (12.4)
6" (150)	6.66 (169.1)	.24 (6.1)	4.7 (7.0)	17.5 (26.0)

Consult manufacturer for support spacing requirements.

Heavy Schedule

Nominal Pipe Size In. (mm)	O.D. Size In. (mm)	Wall Thickness In. (mm)	Weight of Pipe Lbs./Ft.(kg/m)	Weight of Pipe Filled With Water Lbs./Ft. (kg/m)
1" (25)	1.31 (33.3)	.16 (4.0)	.6 (.9)	.9 (1.4)
1 1/2" (40)	1.84 (46.7)	.17 (4.3)	.8 (1.3)	1.5 (2.4)
2" (50)	2.34 (59.4)	.17 (4.3)	1.1 (1.6)	2.4 (3.6)
3" (80)	3.41 (86.6)	.20 (5.1)	2.0 (3.0)	5.0 (7.5)
4" (100)	4.53 (115.0)	.26 (6.6)	3.4 (5.0)	8.8 (13.1)
6" (150)	6.66 (169.1)	.33 (8.4)	6.3 (9.4)	18.7 (27.9)

Consult manufacturer for support spacing requirements.

1 cubic ft. of water weighs 62.41 lbs.
1 cubic meter of water weighs 999.97 kg.
1 gallon (U.S.) weighs 8.335 lbs.
1 liter weighs .999 kg.

Schedule 40 PVC Plastic Pipe Data

Nominal Pipe Size In.	(mm)	Pipe O.D. In.	(mm)	Wall Thickness In.	(mm)	Weight of Pipe Lbs./Ft.	(kg/m)	Weight of Pipe Filled With Water Lbs./Ft.	(kg/m)
1/8"	(3)	.405	(10.3)	.068	(1.7)	.04	(.06)	.06	(.09)
1/4"	(6)	.540	(13.7)	.088	(2.2)	.07	(.11)	.11	(.17)
3/8"	(10)	.675	(17.1)	.091	(2.3)	.10	(.14)	.18	(.26)
1/2"	(15)	.840	(21.3)	.109	(2.7)	.15	(.20)	.25	(.40)
3/4"	(20)	1.050	(26.7)	.113	(2.9)	.20	(.30)	.40	(.60)
1"	(25)	1.315	(33.4)	.133	(3.4)	.30	(.40)	.70	(.90)
1 1/4"	(32)	1.660	(42.1)	.140	(3.5)	.40	(.60)	1.00	(1.50)
1 1/2"	(40)	1.900	(48.2)	.145	(3.7)	.50	(.70)	1.40	(2.00)
2"	(50)	2.375	(60.3)	.154	(3.9)	.60	(90)	2.00	(3.00)
2 1/2"	(65)	2.875	(73.0)	.203	(5.1)	1.00	(1.50)	3.10	(4.51)
3"	(80)	3.500	(88.9)	.216	(5.5)	1.30	(2.00)	4.50	(6.70)
3 1/2"	(90)	4.000	(101.6)	.226	(5.7)	1.60	(2.40)	5.90	(8.70)
4"	(100)	4.500	(114.3)	.237	(6.0)	1.90	(2.80)	7.40	(11.00)
5"	(125)	5.563	(141.3)	.258	(6.5)	2.80	(4.10)	11.40	(17.00)
6"	(150)	6.625	(168.3)	.280	(7.1)	3.30	(4.90)	15.40	(23.00)
8"	(200)	8.625	(219.1)	.322	(8.2)	5.30	(7.80)	26.90	(39.90)
10"	(250)	10.750	(273.0)	.366	(9.3)	7.50	(11.10)	41.60	(61.80)
12"	(300)	12.750	(323.8)	.406	(10.3)	10.00	(14.90)	58.50	(87.00)

Schedule 80 PVC Plastic Pipe Data

Nominal Pipe Size In.	(mm)	Pipe O.D. In.	(mm)	Wall Thickness In.	(mm)	Weight of Pipe Lbs./Ft.	(kg/m)	Weight of Pipe Filled With Water Lbs./Ft.	(kg/m)
1/8"	(3)	.405	(10.3)	.095	(2.4)	.05	(.08)	.06	(.10)
1/4"	(6)	.540	(13.7)	.119	(3.0)	.09	(.14)	.12	(.18)
3/8"	(10)	.675	(17.1)	.126	(3.2)	.10	(.19)	.16	(.28)
1/2"	(15)	.840	(21.3)	.147	(3.7)	.10	(.20)	.20	(.30)
3/4"	(20)	1.050	(26.7)	.154	(3.9)	.20	(.40)	.40	(.70)
1"	(25)	1.315	(33.4)	.179	(4.5)	.40	(.50)	.70	(.90)
1 1/4"	(32)	1.660	(42.1)	.191	(4.8)	.50	(.80)	1.00	(1.60)
1 1/2"	(40)	1.900	(48.2)	.200	(5.1)	.60	(.90)	1.30	(2.00)
2"	(50)	2.375	(60.3)	.218	(5.5)	.90	(1.30)	2.20	(3.20)
2 1/2"	(65)	2.875	(73.0)	.276	(7.0)	1.30	(2.00)	3.10	(4.70)
3"	(80)	3.500	(88.9)	.300	(7.6)	1.80	(2.70)	4.60	(6.90)
3 1/2"	(90)	4.000	(101.6)	.318	(8.1)	2.20	(3.20)	6.00	(8.90)
4"	(100)	4.500	(114.3)	.337	(8.5)	2.60	(3.90)	7.60	(11.30)
5"	(125)	5.563	(141.3)	.375	(9.5)	4.10	(6.10)	12.00	(17.80)
6"	(150)	6.625	(168.3)	.432	(11.0)	5.00	(7.50)	16.30	(24.30)
8"	(200)	8.625	(219.1)	.500	(12.7)	8.00	(11.90)	27.80	(41.30)
10"	(250)	10.750	(273.0)	.593	(15.0)	11.90	(17.70)	43.20	(77.60)
12"	(300)	12.750	(323.8)	.687	(17.4)	16.30	(24.30)	60.30	(89.80)

1 cubic ft. of water weighs 62.41 lbs.
1 cubic meter of water weighs 999.97 kg.
1 gallon (U.S.) weighs 8.335 lbs.
1 liter weighs .999 kg.

Spacing Of Hangers For Schedule 40 PVC Plastic Pipe

Temperature	Support Spacing in Ft. (Meter) For Pipe Sizes of						
	½"-¾" (15-20mm)	1"-1¼" (25-32mm)	1½"-2" (40-50mm)	2½"(65mm)	3" (80mm)	4" (100mm)	6" (150mm)
20°F (-6.6°C)	5.00 (1.52)	5.50 (1.67)	5.80 (1.77)	6.66 (2.03)	6.80 (2.07)	7.33 (2.23)	7.80 (2.38)
40°F (4.4°C)	4.75 (1.45)	5.25 (1.60)	5.50 (1.67)	6.33 (1.93)	6.50 (1.98)	7.00 (2.13)	7.50 (2.28)
60°F (15.5°C)	4.50 (1.37)	5.00 (1.52)	5.25 (1.60)	6.00 (1.83)	6.25 (1.90)	6.50 (1.98)	7.00 (2.13)
80°F (26.6°C)	4.25 (1.29)	4.66 (1.42)	5.00 (1.52)	5.50 (1.67)	5.80 (1.77)	6.25 (1.90)	6.80 (2.07)
100°F (37.8°C)	4.00 (1.22)	4.33 (1.32)	4.66 (1.42)	5.25 (1.60)	5.50 (1.67)	5.80 (1.77)	6.33 (1.93)
110°F (43.3°C)	3.75 (1.14)	4.00 (1.22)	4.33 (1.32)	4.80 (1.46)	5.25 (1.60)	5.50 (1.67)	5.80 (1.77)
120°F (48.9°C)	3.33 (1.01)	3.75 (1.14)	3.80 (1.16)	4.50 (1.37)	4.75 (1.45)	5.00 (1.52)	5.33 (1.62)
130°F (54.4°C)	3.00 (.91)	3.33 (1.01)	3.50 (1.06)	4.00 (1.22)	4.25 (1.29)	4.50 (1.37)	4.80 (1.46)
140°F (60.0°C)	2.66 (.81)	2.80 (.85)	3.00 (.91)	3.50 (1.16)	3.66 (1.11)	3.80 (1.16)	4.25 (1.29)
150°F (65.5°C)	2.00 (.61)	2.25 (.68)	2.50 (.76)	2.80 (.85)	3.00 (.91)	3.25 (.99)	3.50 (1.06)

Spacing Of Hangers For Schedule 80 PVC Plastic Pipe

Temperature	Support Spacing in Ft. (Meter) For Pipe Sizes of							
	½"-¾" (15-20)	1" (25)	1¼"-1½" (32-40)	2" (50)	2½" (65)	3" (80)	4" (100)	6" (150)
20°F (-6.6°C)	5.75 (1.75)	6.33 (1.93)	6.66 (2.03)	7.00 (2.13)	7.80 (2.38)	8.20 (2.50)	8.66 (2.64)	9.80 (2.99)
40°F (4.4°C)	5.50 (1.67)	6.00 (1.83)	6.33 (1.93)	6.50 (1.98)	7.50 (2.28)	7.75 (2.36)	8.25 (2.51)	9.33 (2.84)
60°F (15.5°C)	5.25 (1.60)	5.75 (1.75)	6.00 (1.83)	6.25 (1.90)	7.00 (2.13)	7.33 (2.23)	7.80 (2.38)	8.80 (2.68)
80°F (26.6°C)	4.80 (1.46)	5.33 (1.62)	5.66 (1.72)	6.00 (1.83)	6.66 (2.03)	7.00 (2.13)	7.33 (2.23)	8.33 (2.54)
100°F (37.8°C)	4.50 (1.37)	5.00 (1.52)	5.25 (1.60)	5.50 (1.67)	6.33 (1.93)	6.50 (1.98)	6.80 (2.07)	7.80 (2.38)
110°F (43.3°C)	4.33 (1.32)	4.60 (1.40)	4.80 (1.46)	5.12 (1.56)	5.80 (1.77)	6.00 (1.83)	6.33 (1.93)	7.33 (2.23)
120°F (48.9°C)	3.80 (1.16)	4.33 (1.32)	4.50 (1.37)	4.75 (1.45)	5.33 (1.62)	5.50 (1.67)	5.80 (1.77)	6.50 (1.98)
130°F (54.4°C)	3.50 (1.06)	3.80 (1.16)	4.00 (1.22)	4.33 (1.32)	4.75 (1.45)	5.00 (1.52)	5.25 (1.60)	6.00 (1.83)
140°F (60.0°C)	3.00 (.91)	3.33 (1.01)	3.50 (1.06)	3.66 (1.11)	4.25 (1.29)	4.33 (1.32)	4.66 (1.42)	5.12 (1.55)
150°F (65.5°C)	2.50 (.76)	2.75 (.84)	3.00 (.91)	3.12 (.95)	3.33 (1.01)	3.50 (1.06)	3.75 (1.14)	4.25 (1.29)

Hanger spacing for PVC plastic Pipe assumes fluid loads up to 1.35 specific gravity [85 Lbs./Ft.^{3} (136.5 kg/m^3)] but not concentrated heavy loads.

Load Chart For Threaded Rod (ATR)

Rod Size	Root Area Thread In.²	(cm²)	Maximum Safe Loads 650°F (349°C) Lbs.	(kN)	750°F (399°C) Lbs.	(kN)
3/8"-16	0.068	(.43)	730	(3.24)	572	(2.54)
1/2"-13	0.126	(.81)	1350	(6.00)	1057	(4.70)
5/8"-11	0.202	(1.30)	2160	(9.60)	1692	(7.52)
3/4"-10	0.302	(1.95)	3230	(14.37)	2530	(11.25)
7/8"-9	0.419	(2.70)	4480	(19.93)	3508	(15.60)
1"-8	0.551	(3.55)	5900	(26.24)	4620	(20.55)
1 1/8"-7	0.693	(4.47)	7450	(33.14)	5830	(25.93)
1 1/4"-7	0.890	(5.74)	9500	(42.25)	7440	(33.09)
1 1/2"-6	1.29	(8.32)	13800	(61.38)	10807	(48.07)
1 3/4"-5	1.74	(11.22)	18600	(82.73)	14566	(64.79)
2"-4 1/2	2.30	(14.84)	24600	(109.42)	19625	(87.29)
2 1/4"-4 1/2	3.02	(19.48)	32300	(143.67)	25295	(112.51)
2 1/2"-4	3.72	(24.00)	39800	(177.03)	31169	(138.64)
2 3/4"-4	4.62	(29.80)	49400	(219.73)	38687	(172.08)
3"-4	5.62	(36.26)	60100	(267.32)	47066	(209.35)
3 1/4"-8UN	6.72	(43.35)	71900	(319.81)	56307	(250.45)
3 1/2"-8UN	7.92	(51.09)	84700	(376.74)	66331	(295.04)
3 3/4"-8UN	9.21	(59.42)	98500	(438.13)	77139	(138.64)

Extracted from MSS SP-58, 2002, with permission of the publisher, the Manufacturers Standardization Society.

Rod Size As Determined By Steel Pipe Size For Fire Protection

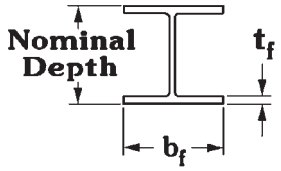
Steel Pipe Size In.	(mm)	Maximum Span Ft.	(m)	Rod Size
1"-1 1/4"	(25-30)	12	(3.66)	3/8"-16
1 1/2"-4"	(40-100)	15	(4.57)	3/8"-16
5"-8"	(125-200)	15	(4.57)	1/2"-13
10"-12"	(250-300)	15	(4.57)	5/8"-11

Based on NFPA 13-1999, Table 6-2.2 & Table 6-1.4.1

Rod Size As Determined By Copper Tubing Size For Fire Protection

Copper Tubing Size In.	(mm)	Maximum Span Ft.	(m)	Rod Size
3/4"-1"	(20-35)	8	(2.44)	3/8"-16
1 1/4"-1 1/2"	(32-40)	15	(3.05)	3/8"-16
2"-3"	(50-80)	15	(3.66)	3/8"-16
3 1/2"-4"	(90-100)	15	(4.57)	3/8"-16
5"-8"	(125-200)	15	(4.57)	1/2"-13

Based on NFPA 13-1999, Table 6-2.2 & Table 6-1.4.1



Wide Flange I-Beams

Designation Nominal Depth & Weight In. x Lbs./Ft.	(mm x kg/m)	Flange Width b_f In.	(mm)	Flange Thickness t_f In.	(mm)
W4 x 13	(W100 x 19.3)	4 1/16"	(103)	0.345	(8.8)
W5 x 16	(W130 x 23.8)	5"	(127)	0.360	(9.1)
W5 x 19	(W130 x 28.1)	5"	(128)	0.430	(10.9)
W6 x 9	(W150 x 13.5)	3 15/16"	(100)	0.215	(5.5)
W6 x 12	(W150 x 18.0)	4"	(101)	0.280	(7.1)
W6 x 16	(W150 x 24.0)	4"	(101)	0.405	(10.3)
W6 x 20	(W150 x 29.8)	6"	(153)	0.365	(9.3)
W6 x 25	(W150 x 37.1)	6 1/16"	(154)	0.455	(11.6)
W8 x 10	(W200 x 15.0)	3 15/16"	(100)	0.205	(5.2)
W8 x 13	(W200 x 19.3)	4"	(101)	0.255	(6.5)
W8 x 15	(W200 x 22.5)	4"	(101)	0.315	(8.0)
W8 x 18	(W200 x 26.6)	5 1/4"	(133)	0.330	(8.4)
W8 x 21	(W200 x 31.3)	5 1/4"	(133)	0.400	(10.2)
W8 x 24	(W200 x 35.9)	6 1/2"	(165)	0.400	(10.2)
W8 x 28	(W200 x 41.7)	6 1/2"	(166)	0.465	(11.8)
W8 x 31	(W200 x 46.1)	8"	(203)	0.435	(11.0)
W8 x 35	(W200 x 52)	8"	(203)	0.495	(12.6)
W8 x 40	(W200 x 59)	8 1/16"	(205)	0.560	(14.2)
W8 x 48	(W200 x 71)	8 1/8"	(206)	0.685	(17.4)
W8 x 58	(W200 x 86)	8 1/4"	(209)	0.810	(20.6)
W8 x 67	(W200 x 100)	8 1/4"	(210)	0.935	(23.7)
W10 x 12	(W250 x 17.9)	4"	(101)	0.210	(5.3)
W10 x 15	(W250 x 22.3)	4"	(101)	0.270	(6.9)
W10 x 17	(W250 x 25.3)	4"	(101)	0.330	(8.4)
W10 x 19	(W250 x 28.4)	4"	(101)	0.395	(10.0)
W10 x 22	(W250 x 32.7)	5 3/4"	(146)	0.360	(9.1)
W10 x 26	(W250 x 38.5)	5 3/4"	(147)	0.440	(11.2)
W10 x 30	(W250 x 44.8)	5 13/16"	(148)	0.510	(13.0)
W10 x 33	(W250 x 49.1)	7 15/16"	(202)	0.435	(11.0)
W10 x 39	(W250 x 58)	8"	(203)	0.530	(13.5)
W10 x 45	(W250 x 67)	8"	(203)	0.620	(15.7)
W10 x 49	(W250 x 73)	10"	(254)	0.560	(14.2)
W10 x 54	(W250 x 80)	10 1/16"	(255)	0.615	(15.6)
W10 x 60	(W250 x 89)	10 1/16"	(256)	0.680	(17.3)
W10 x 68	(W250 x 101)	10 1/8"	(257)	0.770	(19.6)
W10 x 77	(W250 x 115)	10 3/16"	(259)	0.870	(22.1)
W10 x 88	(W250 x 131)	10 1/4"	(261)	0.990	(25.1)
W10 x 100	(W250 x 149)	10 3/8"	(263)	1.120	(28.4)
W10 x 112	(W250 x 167)	10 7/16"	(265)	1.250	(31.8)

Designation Nominal Depth & Weight In. x Lbs./Ft.	(mm x kg/m)	Flange Width b_f In.	(mm)	Flange Thickness t_f In.	(mm)
W12 x 14	(W310 x 21.0)	4"	(101)	0.225	(5.7)
W12 x 16	(W310 x 23.8)	4"	(101)	0.265	(6.7)
W12 x 19	(W310 x 28.3)	4"	(101)	0.350	(8.9)
W12 x 22	(W310 x 32.7)	4"	(101)	0.425	(10.8)
W12 x 26	(W310 x 38.7)	6 1/2"	(165)	0.380	(9.7)
W12 x 30	(W310 x 44.5)	6 1/2"	(165)	0.440	(11.2)
W12 x 35	(W310 x 52)	6 9/16"	(167)	0.520	(13.2)
W12 x 40	(W310 x 60)	8"	(203)	0.515	(13.1)
W12 x 45	(W310 x 67)	8 1/16"	(205)	0.575	(14.6)
W12 x 50	(W310 x 74)	8 1/16"	(205)	0.640	(16.3)
W12 x 53	(W310 x 79)	10"	(254)	0.575	(14.6)
W12 x 58	(W310 x 86)	10"	(254)	0.640	(16.3)
W12 x 65	(W310 x 97)	12"	(306)	0.605	(15.4)
W12 x 72	(W310 x 107)	12"	(306)	0.670	(17.0)
W12 x 79	(W310 x 117)	12 1/16"	(307)	0.735	(18.7)
W12 x 87	(W310 x 129)	12 1/8"	(308)	0.810	(20.6)
W12 x 96	(W310 x 143)	12 1/8"	(308)	0.900	(22.9)
W12 x 106	(W310 x 158)	12 1/4"	(310)	0.990	(25.1)
W12 x 120	(W310 x 179)	12 5/16"	(313)	1.105	(28.1)
W12 x 136	(W310 x 202)	12 3/8"	(315)	1.250	(31.8)
W12 x 152	(W310 x 226)	12 1/2"	(317)	1.400	(35.6)
W12 x 170	(W310 x 253)	12 9/16"	(319)	1.560	(39.6)
W12 x 190	(W310 x 283)	12 11/16"	(322)	1.735	(44.1)
W12 x 210	(W310 x 313)	12 3/4"	(325)	1.900	(48.3)
W12 x 230	(W310 x 342)	12 7/8"	(328)	2.070	(52.6)
W12 x 252	(W310 x 375)	13"	(330)	2.250	(57.2)
W14 x 22	(W360 x 32.9)	5"	(127)	0.335	(8.5)
W14 x 26	(W360 x 39.0)	5"	(127)	0.420	(10.7)
W14 x 30	(W360 x 44.8)	6 3/4"	(172)	0.385	(9.8)
W14 x 34	(W360 x 51)	6 3/4"	(172)	0.455	(11.6)
W14 x 38	(W360 x 57)	6 3/4"	(172)	0.515	(13.1)
W14 x 43	(W360 x 64)	8"	(202)	0.530	(13.5)
W14 x 48	(W360 x 72)	8"	(202)	0.595	(15.1)
W14 x 53	(W360 x 79)	8 1/16"	(205)	0.660	(16.8)
W14 x 61	(W360 x 91)	10"	(254)	0.645	(16.4)
W14 x 68	(W360 x 101)	10"	(254)	0.720	(18.3)
W14 x 74	(W360 x 110)	10 1/16"	(256)	0.785	(19.9)
W14 x 82	(W360 x 122)	10 1/8"	(257)	0.855	(21.7)
W14 x 90	(W360 x 134)	14 1/2"	(369)	0.710	(18.0)

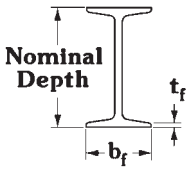
Dimensions taken from ASTM A6-86.

(Continued on next page)

Wide Flange I-Beams (Continued)

Designation Nominal Depth & Weight In. x Lbs./Ft.	(mm x kg/m)	Flange Width b_f In.	(mm)	Flange Thickness t_f In.	(mm)
W14 x 99	(W360 x 147)	14 9/16"	(370)	0.780	(19.8)
W14 x 109	(W360 x 162)	14 5/8"	(371)	0.860	(21.8)
W14 x 120	(W360 x 179)	14 11/16"	(373)	0.940	(23.9)
W14 x 132	(W360 x 196)	14 3/4"	(374)	1.030	(26.2)
W14 x 145	(W360 x 216)	15 1/2"	(394)	1.090	(27.7)
W14 x 159	(W360 x 237)	15 9/16"	(395)	1.190	(30.2)
W14 x 176	(W360 x 262)	15 5/8"	(397)	1.310	(33.3)
W14 x 193	(W360 x 287)	15 3/4"	(400)	1.440	(36.6)
W14 x 211	(W360 x 314)	15 3/4"	(400)	1.560	(39.6)
W14 x 233	(W360 x 347)	15 7/8"	(403)	1.720	(43.7)
W14 x 257	(W360 x 382)	16"	(406)	1.890	(48.0)
W14 x 283	(W360 x 421)	16 1/8"	(409)	2.070	(52.6)
W14 x 311	(W360 x 463)	16 1/4"	(413)	2.260	(57.4)
W14 x 342	(W360 x 509)	16 3/8"	(416)	2.470	(62.7)
W14 x 370	(W360 x 551)	16 1/2"	(419)	2.660	(67.6)
W14 x 398	(W360 x 592)	16 9/16"	(421)	2.845	(72.3)
W14 x 426	(W360 x 634)	16 11/16"	(424)	3.035	(77.1)
W16 x 26	(W410 x 38.8)	5 1/2"	(140)	0.345	(8.8)
W16 x 31	(W410 x 46.1)	5 1/2"	(140)	0.440	(11.2)
W16 x 36	(W410 x 53)	7"	(178)	0.430	(10.9)
W16 x 40	(W410 x 60)	7"	(178)	0.505	(12.8)
W16 x 45	(W410 x 67)	7"	(178)	0.565	(14.4)
W16 x 50	(W410 x 75)	7 1/16"	(179)	0.630	(16.0)
W16 x 57	(W410 x 85)	7 1/8"	(181)	0.715	(18.2)
W16 x 67	(W410 x 100)	10 1/4"	(260)	0.665	(16.9)
W16 x 77	(W410 x 114)	10 5/16"	(262)	0.760	(19.3)
W16 x 89	(W410 x 132)	10 3/8"	(263)	0.875	(22.2)
W16 x 100	(W410 x 149)	10 7/16"	(265)	0.985	(25.0)
W18 x 35	(W460 x 52)	6"	(152)	0.425	(10.8)
W18 x 40	(W460 x 60)	6"	(152)	0.525	(13.3)
W18 x 46	(W460 x 68)	6 1/16"	(154)	0.605	(15.4)
W18 x 50	(W460 x 74)	7 1/2"	(190)	0.570	(14.5)
W18 x 55	(W460 x 82)	7 1/2"	(190)	0.630	(16.0)
W18 x 60	(W460 x 89)	7 9/16"	(192)	0.695	(17.7)
W18 x 65	(W460 x 97)	7 9/16"	(192)	0.750	(19.0)
W18 x 71	(W460 x 106)	7 5/8"	(193)	0.810	(20.6)
W18 x 76	(W460 x 113)	11"	(279)	0.680	(17.3)
W18 x 86	(W460 x 128)	11 1/16"	(281)	0.770	(19.6)
W18 x 97	(W460 x 144)	11 1/8"	(282)	0.870	(22.1)
W18 x 106	(W460 x 158)	11 3/16"	(284)	0.940	(23.9)
W18 x 119	(W460 x 177)	11 1/4"	(286)	1.060	(26.9)
W21 x 44	(W530 x 66)	6 1/2"	(165)	0.450	(11.4)
W21 x 50	(W530 x 74)	6 1/2"	(165)	0.535	(13.6)
W21 x 57	(W530 x 85)	6 9/16"	(167)	0.650	(16.5)
W21 x 62	(W530 x 92)	8 1/4"	(209)	0.615	(15.6)
W21 x 68	(W530 x 101)	8 1/4"	(209)	0.685	(17.4)

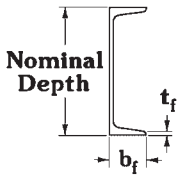
Designation Nominal Depth & Weight In. x Lbs./Ft.	(mm x kg/m)	Flange Width b_f In.	(mm)	Flange Thickness t_f In.	(mm)
W21 x 73	(W530 x 109)	8 1/4"	(209)	0.740	(18.8)
W21 x 83	(W530 x 123)	8 7/8"	(213)	0.835	(21.2)
W21 x 93	(W530 x 138)	8 7/16"	(214)	0.930	(23.6)
W21 x 101	(W530 x 150)	12 1/4"	(311)	0.800	(20.3)
W21 x 111	(W530 x 165)	12 3/8"	(314)	0.875	(22.2)
W21 x 122	(W530 x 182)	12 3/8"	(314)	0.960	(24.4)
W21 x 132	(W530 x 196)	12 7/16"	(316)	0.035	(26.3)
W21 x 147	(W530 x 219)	12 1/2"	(317)	0.150	(29.2)
W24 x 55	(W610 x 82)	7"	(178)	0.505	(12.8)
W24 x 62	(W610 x 92)	7 1/16"	(179)	0.590	(15.0)
W24 x 68	(W610 x 101)	8 15/16"	(227)	0.585	(14.9)
W24 x 76	(W610 x 113)	9"	(228)	0.680	(17.3)
W24 x 84	(W610 x 125)	9"	(228)	0.770	(19.6)
W24 x 94	(W610 x 140)	9 1/16"	(230)	1.875	(22.2)
W24 x 104	(W610 x 155)	12 3/4"	(324)	1.750	(19.0)
W24 x 117	(W610 x 174)	12 3/4"	(324)	0.850	(21.6)
W24 x 131	(W610 x 195)	12 7/8"	(327)	0.960	(24.4)
W24 x 146	(W610 x 217)	12 7/8"	(327)	1.090	(27.7)
W24 x 162	(W610 x 241)	12 15/16"	(328)	1.220	(31.0)
W27 x 84	(W690 x 125)	9 15/16"	(252)	0.640	(16.3)
W27 x 94	(W690 x 140)	10"	(254)	0.745	(18.9)
W27 x 102	(W690 x 152)	10"	(254)	0.830	(21.1)
W27 x 114	(W690 x 170)	10 1/16"	(255)	0.930	(23.6)
W27 x 146	(W690 x 217)	13 15/16"	(354)	0.975	(24.8)
W27 x 161	(W690 x 240)	14"	(355)	1.080	(27.4)
W27 x 178	(W690 x 265)	14 1/16"	(357)	1.190	(30.2)
W30 x 99	(W760 x 147)	10 7/16"	(265)	0.670	(17.0)
W30 x 108	(W760 x 161)	10 1/2"	(267)	0.760	(19.3)
W30 x 116	(W760 x 173)	10 1/2"	(267)	0.850	(21.6)
W30 x 124	(W760 x 185)	10 1/2"	(267)	0.930	(23.6)
W30 x 132	(W760 x 196)	10 9/16"	(268)	1.000	(25.4)
W30 x 173	(W760 x 257)	15"	(381)	1.065	(27.1)
W30 x 191	(W760 x 284)	15"	(381)	1.185	(30.1)
W30 x 211	(W760 x 314)	15 1/8"	(384)	1.315	(33.4)
W33 x 118	(W840 x 176)	11 1/2"	(292)	0.740	(18.8)
W33 x 130	(W840 x 193)	11 1/2"	(292)	0.855	(21.7)
W33 x 141	(W840 x 210)	11 1/2"	(292)	0.960	(24.4)
W33 x 152	(W840 x 226)	11 9/16"	(294)	1.055	(26.8)
W33 x 201	(W840 x 299)	15 3/4"	(400)	1.150	(29.2)
W36 x 135	(W920 x 201)	11 15/16"	(303)	0.790	(20.1)
W36 x 150	(W920 x 223)	12"	(305)	0.940	(23.9)
W36 x 160	(W920 x 238)	12"	(305)	1.020	(25.9)
W36 x 170	(W920 x 253)	12"	(305)	1.100	(27.9)
W36 x 182	(W920 x 271)	12 1/16"	(306)	1.180	(30.0)
W36 x 194	(W920 x 289)	12 1/8"	(308)	1.260	(32.0)
W36 x 210	(W920 x 313)	12 3/16"	(309)	1.360	(34.5)



American Standard 'S' Shape I-Beams

Designation Nominal Depth & Weight In. x Lbs./Ft.	(mm x kg/m)	Flange Width b_f In.	(mm)	Flange Thickness t_f In.	(mm)
S3 x 5.7	(S75 x 8.5)	2 3/8"	(59)	0.260	(6.6)
S3 x 7.5	(S75 x 11.2)	21/2"	(63)	0.260	(6.6)
S4 x 7.7	(S100 x 11.5)	2 5/8"	(68)	0.293	(7.4)
S4 x 9.5	(S100 x 14.1)	2 3/4"	(71)	0.293	(7.4)
S5 x 10	(S130 x 15)	3"	(76)	0.326	(8.3)
S5 x 14.75	(S130 x 22)	3 1/4"	(83)	0.326	(8.3)
S6 x 12.5	(S150 x 18.6)	3 3/8"	(85)	0.359	(9.1)
S6 x 17.25	(S150 x 25.7)	3 11/16"	(91)	0.359	((9.1)
S7 x 15.3	(S180 x 22.8)	3 5/8"	(93)	0.392	(10.0)
S7 x 20	(S180 x 29.8)	3 7/8"	(98)	0.392	(10.0)
S8 x 18.4	(S200 x 27.4)	4"	(102)	0.425	(10.8)
S8 x 23	(S200 x 34)	4 1/8"	(106)	0.425	(10.8)
S10 x 25.4	(S250 x 37.8)	4 5/8"	(118)	0.491	(12.5)
S10 x 35	(S250 x 52)	4 15/16"	(126)	0.491	(12.5)
S12 x 31.8	(S310 x 47.3)	5"	(127)	0.544	(13.8)
S12 x 35	(S310 x 52)	5 1/16"	(129)	0.544	(13.8)
S12 x 40.8	(S310 x 60.7)	5 1/4"	(133)	0.659	(16.7)
S12 x 50	(S310 x 74)	5 1/2"	(139)	0.659	(16.7)
S15 x 42.9	(S380 x 64)	5 1/2"	(140)	0.622	(15.8)
S15 x 50	(S380 x 74)	5 5/8"	(143)	0.622	(15.8)
S18 x 54.7	(S460 x 81.4)	6"	(152)	0.691	(17.6)
S18 x 70	(S460 x 104)	6 1/4"	(159)	0.691	(17.6)
S20 x 66	(S510 x 98.2)	6 1/4"	(159)	0.795	(20.2)
S20 x 75	(S510 x 112)	6 3/8"	(162)	0.795	(20.2)
S20 x 86	(S510 x 128)	7 1/16"	(179)	0.920	(23.4)
S20 x 96	(S510 x 143)	7 3/16"	(183)	0.920	(23.4)
S24 x 80	(S610 x 119)	7"	(178)	0.870	(22.1)
S24 x 90	(S610 x 134)	7 1/8"	(181)	0.870	(22.1)
S24 x 100	(S610 x 149)	7 1/4"	(184)	0.870	(22.1)
S24 x 106	(S610 x 158)	7 7/8"	(200)	1.090	(27.7)
S24 x 121	(S610 x 180)	8 1/16"	(204)	1.090	(27.7)

Dimensions taken from ASTM A6-86.



American Standard 'C' Shape I-Beams

Designation Nominal Depth & Weight In. x Lbs./Ft.	(mm x kg/m)	Flange Width b_f In.	(mm)	Flange Thickness t_f In.	(mm)
C3 x 4.1	(C75 x 6.1)	1 3/8"	(35)	0.273	(6.9)
C3 x 5	(C75 x 7.4)	1 1/2"	(37)	0.273	(6.9)
C3 x 6	(C75 x 8.9)	1 5/8"	(40)	0.273	(6.9)
C4 x 5.4	(C100 x 8)	1 9/16"	(40)	0.296	(7.5)
C4 x 7.25	(C100 x 10.8)	1 3/4"	(44)	0.296	(7.5)
C5 x 6.7	(C130 x 10)	1 3/4"	(44)	0.320	(8.1)
C5 x 9	(C130 x 13.4)	1 7/8"	(47)	0.320	(8.1)
C6 x 8.2	(C150 x 12.2)	1 15/16"	(48)	0.343	(8.7)
C6 x 10.5	(C150 x 15.6)	2"	(51)	0.343	(8.7)
C6 x 13	(C150 x 19.3)	2 1/8"	(54)	0.343	(8.7)
C7 x 9.8	(C180 x 14.6)	2 1/16"	(54)	0.366	(9.3)
C7 x 12.25	(C180 x 18.2)	2 3/16"	(55)	0.366	(9.3)
C7 x 14.75	(C180 x 22)	2 1/4"	(57)	0.366	(9.3)
C8 x 11.5	(C200 x 17.1)	2 1/4"	(57)	0.390	(9.9)
C8 x 13.75	(C200 x 20.5)	2 3/8"	(59)	0.390	(9.9)
C8 x 18.75	(C200 x 27.9)	2 1/2"	(63)	0.390	(9.9)
C9 x 13.4	(C230 x 19.9)	2 7/16"	(61)	0.413	(10.5)
C9 x 15	(C230 x 22)	2 1/2"	(63)	0.413	(10.5)
C9 x 20	(C230 x 30)	2 5/8"	(67)	0.413	(10.5)
C10 x 15.3	(C250 x 22.8)	2 5/8"	(67)	0.436	(11.1)
C10 x 20	(C250 x 30)	2 3/4"	(69)	0.436	(11.1)
C10 x 25	(C250 x 37)	2 7/8"	(72)	0.436	(11.1)
C10 x 30	(C250 x 45)	3"	(76)	0.436	(11.1)
C12 x 20.7	(C310 x 30.8)	2 15/16"	(74)	0.501	(12.7)
C12 x 25	(C310 x 37)	3"	(76)	0.501	(12.7)
C12 x 30	(C310 x 45)	3 1/8"	(80)	0.501	(12.7)
C15 x 33.9	(C380 x 50.4)	3 3/8"	(86)	0.650	(16.5)
C15 x 40	(C380 x 60)	3 1/2"	(89)	0.650	(16.5)
C15 x 50	(C380 x 74)	3 3/4"	(94)	0.650	(16.5)
C18 x 42.7	(C460 x 63.5)	4"	(102)	0.625	(15.8)
C18 x 45.8	(C460 x 68.1)	4"	(102)	0.625	(15.8)
C18 x 51.9	(C460 x 77.2)	4 1/8"	(106)	0.625	(15.8)
C18 x 58	(C460 x 86.3)	4 1/4"	(112)	0.625	(15.8)

Trapeze Hangers Using B-Line series Strut Or Angle Iron

Trapeze Length in. (mm)	Nominal Pipe Size 2½" (65) or less	3" (80)	3½" (90)	4" (100)
18" (457.2)	1½" x 1½" x 3/16" B26SH	1½" x 1½" x 3/16" B26SH	1½" x 1½" x 3/16" B26SH	2" x 1½" x 3/16" B22SH
24" (609.6)	1½" x 1½" x 3/16" B26SH	2" x 1½" x 3/16" B22SH	2" x 1½" x 3/16" B22SH	2" x 1½" x 3/16" B22SH
30" (762.0)	2" x 1½" x 3/16" B22SH	2" x 1½" x 3/16" B22SH	2" x 1½" x 3/16" B22SH	2" x 1½" x 3/16" B22SH
36" (914.4)	2" x 1½" x 3/16" B22SH	2" x 1½" x 3/16" B22SH	2½" x 1½" x 3/16" B12SH	2½" x 1½" x 3/16" B12SH
48" (1219.2)	2½" x 1½" x 3/16" B12SH	2½" x 1½" x 3/16" B12SH	2½" x 1½" x 3/16" B12SH	3" x 2" x 3/16" B11SH
60" (1524.0)	2½" x 1½" x 3/16" B12SH	2½" x 1½" x 3/16" B12SH	3" x 2" x 3/16" B11SH	3" x 2" x 3/16" B11SH
72" (1828.8)	2½" x 1½" x 3/16" B12SH	3" x 2" x 3/16" B11SH	3" x 2" x 3/16" B11SH	3" x 2" x 1/4" B11SH
84" (2133.6)	3" x 2" x 3/16" B11SH	3" x 2" x 3/16" B11SH	3" x 2" x 1/4" B11SH	3" x 2" x 1/4" B11SH
96" (2438.4)	3" x 2" x 3/16" B11SH	3" x 2" x 1/4" B11SH	3" x 2" x 1/4" B11SH	3½" x 2½" x 5/16" B12SHA
108" (2743.2)	3" x 2" x 3/16" B11SH	3" x 2" x 1/4" B11SH	3½" x 2½" x 5/16" B12SHA	3½" x 2½" x 5/16" B12SHA
120" (3048.0)	3" x 2" x 1/4" B11SH	3" x 2" x 1/4" B11SH	3½" x 2½" x 5/16" B12SHA	3½" x 2½" x 5/16" B12SHA

Based on NFPA 13-1999, Table 6-1.1.3 (a) & Table 6-1.1.3 (b).

Trapeze Hangers Using B-Line series Strut or Angle Iron *cont'd.*

Trapeze Length in. (mm)	Nominal Pipe Size 2½" (65) or less	3" (80)	3½" (90)	4" (100)
18" (457.2)	2" x 1½" x 3/16" B22SH	2½" x 1½" x 3/16" B12SH	3" x 2" x 3/16" B11SH	3" x 2" x 1/4" B11SH
24" (609.6)	2½" x 1½" x 3/16" B12SH	2½" x 1½" x 3/16" B12SH	3" x 2" x 3/16" B11SH	3" x 2" x 1/4" B11SH
30" (762.0)	2½" x 1½" x 3/16" B12SH	3" x 2" x 3/16" B11SH	3" x 2" x 1/4" B11SH	3" x 2" x 1/4" B11SH
36" (914.4)	3" x 2" x 3/16" B11SH	3" x 2" x 3/16" B11SH	3½" x 2½" x 1/4" B12SHA	3½" x 2½" x 5/16" B12SHA
48" (1219.2)	3" x 2" x 3/16" B11SH	3" x 2" x 1/4" B11SH	3½" x 2½" x 5/16" B12SHA	4" x 3" x 5/16" B12SHA
60" (1524.0)	3" x 2" x 1/4" B11SH	3½" x 2½" x 5/16" B12SHA	4" x 3" x 5/16" B12SHA	5" x 3½" x 5/16" B11SHA
72" (1828.8)	3½" x 2½" x 5/16" B12SHA	4" x 3" x 5/16" B12SHA	4" x 3" x 5/16" B12SHA	5" x 3½" x 5/16" B11SHA
84" (2133.6)	3½" x 2½" x 5/16" B12SHA	4" x 3" x 5/16" B12SHA	5" x 3½" x 5/16" B11SHA	6" x 4" x 1/4" B12SHA4
96" (2438.4)	3½" x 2½" x 5/16" B12SHA	4" x 3" x 5/16" B12SHA	5" x 3½" x 5/16" B11SHA	6" x 4" x 1/4" B12SHA4
108" (2743.2)	3½" x 2½" x 5/16" B12SHA	4" x 3" x 5/16" B12SHA	5" x 3½" x 5/16" B11SHA	6" x 4" x 3/8" B11SHA4
120" (3048.0)	4" x 3" x 5/16" B12SHA	5" x 3½" x 5/16" B11SHA	6" x 4" x 1/4" B12SHA4	6" x 4" x 3/8" B11SHA4

Based on NFPA 13-1999, Table 6-1.1.3 (a) & Table 6-1.1.3 (b).

MSS To B-Line series & Federal Specification Cross Reference

MSS SP-69 MSS SP-58	B-Line series Part No.	A-A-1192A WW-H-171E
Type 1	B3100	Type 1
Type 1	B3100C	Type 1
Type 1	B3100F	Type 1
Type 1	B3102	Type 1
Type 1*	B3104	Type 12
Type 1	B3104CT	Type 12
Type 1	B3106	—
Type 1	B3108	Type 1
Type 1	B3109	—
Type 3	B3144	Type 3
Type 3	B3146	Type 3
Type 4	B3140	Type 4
Type 4	B3141	Type 4
Type 4	B3142	Type 4
Type 5	B3690	—
Type 5	B3690C	—
Type 5	B3690F	—
Type 6	B3171	Type 6
Type 8	B3373	Type 8
Type 8	B3373C	Type 8
Type 8	B3373CT	Type 8
Type 8	B3373CTC	Type 8
Type 10	200	Type 10
Type 10	200C	Type 10
Type 10	200F	Type 10
Type 10	200H	Type 10
Type 10	2	Type 10
Type 10	B3170CT	Type 10
Type 10	B3170CTC	Type 10
Type 10	2F	Type 10
Type 12	B3198H	Type 25
Type 12	B3198HCT	Type 25
Type 12	B3198R	Type 25
Type 12	B3198RCT	Type 25
Type 13	B3202	Type 13
Type 14	B3201	Type 14
Type 15	B3224	Type 15
Type 15	B3224CT	Type 15
Type 16	B3222	Type 16
Type 17	B3200	Type 17
Type 18	B22I, B32I, B52I	—
Type 18	B2500	Type 19
Type 18	B2503	—
Type 18	B2505-B2508	—
Type 18	B3014	Type 18
Type 19	65	Type 23
Type 19	65XT	Type 23
Type 19	66	Type 23
Type 19	67SS	—
Type 19	68S	Type 23
Type 19	68SS	—
Type 19	68W	Type 23
Type 19	B303-B309	Type 19

* For all finishes excluding plain.

MSS SP-69 MSS SP-58	B-Line series Part No.	A-A-1192A WW-H-171E
Type 19	B321	Type 19
Type 19	B3031	Type 19
Type 19 & 23	B3033	Type 19 & 23
Type 19 & 23	B3034	Type 19 & 23
Type 21	B3050	Type 21
Type 21	B3055	Type 21
Type 22	B3083	Type 22
Type 23	B351L	Type 23
Type 23	B3036L	Type 23
Type 23	B3037	Type 23
Type 24	B3188	Type 24
Type 24	B3188C	Type 24
Type 25	B3045	Type 53
Type 26	B2400	Type 26
Type 26	B3180	Type 26
Type 26	B3180FL	Type 26
Type 27	B3040	Type 54
Type 28	B3291, B3292 B3294, B3296 B3298	Type 28
Type 29	B3293, B3295 B3297	Type 29
Type 30	B3054	Type 30
Type 31	B3065	Type 32
Type 31	B3068	Type 32
Type 32	B3066	Type 33
Type 33	B3067	Type 34
Type 34	B3058	Type 35
Type 34	B3060	Type 35
Type 34	B3060L	Type 35
Type 34	B3062	Type 35
Type 34	B3070	Type 35
Type 35	B3891-B3897	Type 35
Type 35	B3991 & B3993	Type 35
Type 36	B3095	Type 37
Type 37	B3090	Type 38
Type 37	B3092	Type 38
Type 37	B3094	Type 38
Type 37	B3097	Type 38
Type 38	B3093	Type 39
Type 38	B3096	Type 39
Type 39A & 39B	B3160-B3165	Type 40A & 40B
Type 40	B3151	Type 41
Type 41	B3114	Type 42
Type 41	B3122	Type 42
Type 41	B3122A	Type 42
Type 43	B3110	Type 44
Type 44	B3117SL	Type 45
Type 44	B3120	Type 45
Type 45	B3119SL	Type 46
Type 46	B3118SL	Type 47
Type 48	B3262	Type 49
Type 49	B3264	Type 50
Type 57	B3080S & L	—

Federal Specification To B-Line series & MSS Cross Reference

MSS SP-69 MSS SP-58	B-Line series Part No.	A-A-1192A WW-H-171E
Type 1	B3109	—
Type 5	B3690	—
Type 5	B3690C	—
Type 5	B3690F	—
Type 18	B22I, B32I, B52I	—
Type 18	B2503	—
Type 18	B2505-B2508	—
Type 19	67SS	—
Type 19	68SS	—
Type 57	B3080 S & L	—
Type 1	1NFPA	Type 1
Type 1	B3100	Type 1
Type 1	B3100C	Type 1
Type 1	B3100F	Type 1
Type 1	B3102	Type 1
Type 1	B3104	Type 1
Type 1	B3108	Type 1
Type 3	B3144	Type 3
Type 3	B3146	Type 3
Type 4	B3140	Type 4
Type 4	B3141	Type 4
Type 4	B3142	Type 4
Type 6	B3171	Type 6
Type 8	B3373	Type 8
Type 8	B3373C	Type 8
Type 8	B3373CT	Type 8
Type 8	B3373CTC	Type 8
Type 10	200	Type 10
Type 10	200C	Type 10
Type 10	200F	Type 10
Type 10	200H	Type 10
Type 10	2 & 2F	Type 10
Type 10	B3170CT	Type 10
Type 10	B3170CTC	Type 10
Type 1*	B3104	Type 12
Type 1*	B3104C	Type 12
Type 1	B3104CT	Type 12
Type 13	B3202	Type 13
Type 14	B3201	Type 14
Type 15	B3224	Type 15
Type 15	B3224CT	Type 15
Type 16	B3222	Type 16
Type 17	B3200	Type 17
Type 18	B3014	Type 18
Type 19	B303-B309	Type 19
Type 19	B321	Type 19
Type 18	B2500	Type 19
Type 19	B3031	Type 19
Type 19 & 23	B3033	Type 19 & 23
Type 19 & 23	B3034	Type 19 & 23
Type 21	B3050	Type 21
Type 21	B3055	Type 21
Type 22	B3083	Type 22

MSS SP-69 MSS SP-58	B-Line series Part No.	A-A-1192A WW-H-171E
Type 19	65 & 65XT	Type 23
Type 19	66	Type 23
Type 19	68S & 68W	Type 23
Type 23	B351L	Type 23
Type 23	B3036L	Type 23
Type 23	B3037	Type 23
Type 24	B3188	Type 24
Type 24	B3188C	Type 24
Type 12	B3198H	Type 25
Type 12	B3198HCT	Type 25
Type 12	B3198R	Type 25
Type 12	B3198RCT	Type 25
Type 26	B2400	Type 26
Type 26	B3180	Type 26
Type 26	B3180FL	Type 26
Type 28	B3291, B3292 B3294, B3296 B3298	Type 28
Type 29	B3293, B3295 B3297	Type 29
Type 30	B3054	Type 30
Type 31	B3065	Type 32
Type 31	B3068	Type 32
Type 32	B3066	Type 33
Type 33	B3067	Type 34
Type 34	B3058	Type 35
Type 34	B3060	Type 35
Type 34	B3060L	Type 35
Type 34	B3062	Type 35
Type 34	B3070	Type 35
Type 35	B3891-B3897	Type 35
Type 35	B3991 & B3993	Type 35
Type 36	B3095	Type 37
Type 37	B3090	Type 38
Type 37	B3092	Type 38
Type 37	B3094	Type 38
Type 37	B3097	Type 38
Type 38	B3093	Type 39
Type 38	B3096	Type 39
Type 39A & 39B	B3160-3165	Type 40A & 40B
Type 40	B3151	Type 41
Type 41	B3114	Type 42
Type 41	B3122	Type 42
Type 41	B3122A	Type 42
Type 43	B3110	Type 44
Type 44	B3117SL	Type 45
Type 44	B3120	Type 45
Type 45	B3119SL	Type 46
Type 46	B3118SL	Type 47
Type 48	B3262	Type 49
Type 49	B3264	Type 50
Type 25	B3045	Type 53
Type 27	B3040	Type 54

* For all finishes excluding plain.

B-Line series Compliances & Approvals

Part No.	ANSI/MSS SP-69 ANSI/MSS SP-58	A-A-1192A WW-H-171E	UL Listed	FM Approved
1NFPA	Type 1	Type 1	Yes	Yes
2	Type 10	Type 10	Yes	Yes
2F	Type 10	Type 10	Yes	Yes
4A (Disc.)	—	—	Yes	—
4B	—	—	Yes	—
4L	—	—	Yes	Yes
4LA (Disc.)	—	—	Yes	Yes
22	—	—	Yes	—
22L2	—	—	Yes	—
23	—	—	Yes	—
24	—	—	Yes	—
25	—	—	Yes	—
28	—	—	Yes	—
28M	—	—	Yes	—
29	—	—	Yes	—
50	—	—	Yes	Yes
51	—	—	Yes	Yes
56	—	—	Yes	Yes
58	—	—	Yes	Yes
65	—	—	Yes	—
65XT	—	—	Yes	Yes
66	—	—	Yes	—
67SS	—	—	Yes	—
68S	Type 19 & 23	Type 19 & 23	Yes	Yes
68SS	—	—	Yes	—
68W	Type 19 & 23	Type 19 & 23	Yes	Yes
69	—	—	Yes	—
69R	—	—	Yes	—
75	—	—	Yes	—
78	—	—	Yes	—
109A	—	—	Yes	—
109AF	—	—	Yes	—
120RWA	—	—	Yes	—
130	—	—	Yes	Yes
200	Type 10	Type 10	Yes	Yes
200C	Type 10	Type 10	—	—
200F	Type 10	Type 10	—	—
200H	Type 10	Type 10	Yes	—
200M	Type 10	Type 10	Yes	Yes
800	—	—	Yes	Yes
825	—	—	Yes	Yes
825A	—	—	Yes	—
828	—	—	Yes	Yes
906	—	—	Yes	—
909	—	—	Yes	—
910	—	—	Yes	—
975	—	—	Yes	—
980	—	—	Yes	Yes
980H	—	—	Yes	Yes
1000	—	—	Yes	Yes
1001	—	—	Yes	Yes
2002	—	—	Yes	—
B22I	Type 18	—	—	—
B32I	Type 18	—	—	—
B52I	Type 18	—	—	—
B351L	Type 23	Type 23	Yes	—
B2400	Type 26	Type 26	Yes	—
B2500	Type 18	Type 19	Yes	—
B2503	Type 18	—	—	—
B2505-B2508	Type 18	—	Yes	—
B3014	Type 18	Type 18	Yes	—
B3031	Type 19	Type 19	Yes	—
B3033	Type 19 & 23	Type 19 & 23	Yes	Yes
B3034	Type 19 & 23	Type 19 & 23	Yes	Yes
B3036L	Type 23	Type 23	Yes	—
B3037	Type 23	Type 23	Yes	—
B3040	Type 27	Type 27	—	—
B3042T	—	—	Yes	—
B3045	Type 25	Type 53	—	—
B3050	Type 21	Type 21	—	—
B3054	Type 30	Type 30	Yes	—
B3055	Type 21	Type 21	—	—
B3058	Type 34	Type 35	—	—
B3060	Type 34	Type 35	—	—
B3060L	Type 34	Type 35	—	—
B3062	Type 34	Type 35	—	—
B3065	Type 31	Type 32	—	—
B3066	Type 32	Type 33	—	—
B3067	Type 33	Type 34	—	—
B3068	Type 31	Type 32	—	—
B3070	Type 34	Type 35	—	—
B3080S & L	Type 57	—	—	—
B3083	Type 22	Type 22	—	—
B3090	Type 37	Type 38	—	—
B3092	Type 37	Type 38	—	—
B3093	Type 38	Type 39	—	—
B3094	Type 37	Type 38	—	—
B3095	Type 36	Type 37	—	—

Note: Refer to the catalog page for specific sizes that are UL Listed and/or FM Approved.

B-Line series Compliances & Approvals

Part No.	ANSI/MSS SP-69 ANSI/MSS SP-58	A-A-1192A WW-H-171E	UL Listed	FM Approved
B3096	Type 38	Type 39	—	—
B3097	Type 37	Type 38	—	—
B3100	Type 1	Type 1	Yes	Yes
B3100C	Type 1	Type 1	—	—
B3100F	Type 1	Type 1	—	—
B3102	Type 1	—	—	—
B3104	Type 1*	Type 12	Yes	—
B3104C	Type 1*	Type 12	—	—
B3104CT	Type 1	Type 12	—	—
B3104CTC	Type 1	Type 12	—	—
B3104F	Type 1*	Type 12	—	—
B3106	Type 1	—	—	—
B3108	Type 1	Type 1	—	—
B3109	Type 1	—	—	—
B3110	Type 43	Type 44	—	—
B3114	Type 41	Type 42	—	—
B3117SL	Type 44	Type 45	—	—
B3118SL	Type 46	Type 47	—	—
B3119SL	Type 45	Type 46	—	—
B3120	Type 44	Type 45	—	—
B3122	Type 41	Type 42	—	—
B3122A	Type 41	Type 42	—	—
B3140	Type 4	Type 4	Yes	Yes
B3141	Type 4	Type 4	—	—
B3142	Type 4	Type 4	—	—
B3144	Type 3	Type 3	—	—
B3146	Type 3	Type 3	—	—
B3151	Type 40	Type 41	—	—
B3160-B3165	Type 39A & 39B	Type 40A & 40B	—	—
B3170CT	Type 10	Type 10	—	—
B3170CTC	Type 10	Type 10	—	—
B3180	Type 26	Type 26	—	—
B3180FL	Type 26	Type 26	—	—
B3184	—	—	Yes	—
B3188	Type 24	Type 24	Yes	—
B3188C	Type 24	Type 24	—	—
B3198H	Type 12	Type 25	—	—
B3198HCT	Type 12	Type 25	—	—
B3198R	Type 12	Type 25	—	—
B3198RCT	Type 12	Type 25	—	—
B3200	Type 17	Type 17	—	—
B3201	Type 14	Type 14	—	—
B3202	Type 13	Type 13	—	—
B3203	—	—	Yes	—

Part No.	ANSI/MSS SP-69 ANSI/MSS SP-58	A-A-1192A WW-H-171E	UL Listed	FM Approved
B3222	Type 16	Type 16	Yes	—
B3223	—	—	Yes	—
B3224	Type 15	Type 15	—	—
B3224CT	Type 15	Type 15	—	—
B3262	Type 48	Type 49	—	—
B3264	Type 49	Type 50	—	—
B3291, B3292 B3294, B3296 B3298	Type 28	Type 28	—	—
B3293, B3295 B3297	Type 29	Type 29	—	—
B3373	Type 8	Type 8	Yes	Yes
B3373C	Type 8	Type 8	—	—
B3373CT	Type 8	Type 8	—	—
B3373CTC	Type 8	Type 8	—	—
B3373F	Type 8	Type 8	—	—
B3690	Type 5	Type 5	—	—
B3690C	Type 5	Type 5	—	—
B3690F	Type 5	Type 5	—	—
B3891-B3897	Type 35	Type 35	—	—
B3991	Type 35	Type 35	—	—
B3993	Type 35	Type 35	—	—
B3993A	Type 35	Type 35	—	—

Note: Refer to the catalog page for specific sizes that are UL Listed and/or FM Approved.

Reference Data - Crosses

B-Line series	TOLCO
1CBS	1CBS
1U (Disc.)	1U (Disc.)
4A (Disc.)	4A (Disc.)
4B	4B
4L	4L
4LA (Disc.)	4LA (Disc.)
22	22
22L2	22L2
23	23
24	24
25	25
27B	27B
28	28
28M	28M
29	29
50	60
51	51
56	56
58	58
65	65
65XT	65XT
66	66
67S	67S
67SS	67SS
68SS	68SS
68W	68W
69	69
69R	69R
75	75
78	78
98	98
98B	98B
109A	109A
109AF	109AF
120	120
120MJ	120MJ
120RWA	120RWA
120W	120W
200	200
200C	200C
200F	200H
200H	200H
800	800
825	825
825A	825A
828	828
906	906
907	907

B-Line series	TOLCO
909	909
910	910
975	975
980	980
980H	980H
981	981
985	985
986	986
990	990
990H	990H
991	991
1000	1000
1001	1001
2002	2002
ATR	99
ATR	100 (Disc.)
AWA	209 (Disc.)
B22I	N/A
B32I	N/A
B52I	N/A
B200	F13
B201	F14
B202	F15
B202-1	F16
B202-2	F17
B218	ROL-12
B219	ROL-13
B303 - B309	N/A
B312 Series	N/A
B321 Series	N/A
B351L	64 (Disc.)
B379	ROL-14
B386 (Disc.)	4B
B479	ROL-14
B501	111 (Disc.)
B655	70 (Disc.)
B656	70R (Disc.)
B1999	N/A
B2400	2STR
B2417	N/A
B2499	107F (Disc.)
B2500	310 (Disc.)
B2501 (Disc.)	109AF
B2503	N/A
B2505 - B2508	N/A
B3014	309 (Disc.)
B3014N	309N (Disc.)
B3019	109A

B-Line series	TOLCO
B3031	N/A
B3033	68, 68W
B3034	68S
B3036L	N/A
B3037	N/A
B3040	336 (Disc.)
B3042	61 (Disc.)
B3042T	61T (Disc.)
B3045	335 (Disc.)
B3050	62 (Disc.)
B3052 (Disc.)	130
B3054	329 (Disc.)
B3055	N/A
B3058	N/A
B3060	50
B3060L	N/A
B3061	42 (Disc.)
B3062	N/A
B3064	N/A
B3065	30L (Disc.)
B3066	30M (Disc.)
B3067	30H (Disc.)
B3068	30 (Disc.)
B3069E	31-O (Disc.)
B3069W	31-M (Disc.)
B3070	52 (Disc.)
B3080 L & S	343 (Disc.)
B3082	337 (Disc.)
B3083	305 (Disc.)
B3083WO	304 (Disc.)
B3084	33 (Disc.)
B3085	35 (Disc.)
B3086	34 (Disc.)
B3088	316 (Disc.)
B3088S	N/A
B3088ST	N/A
B3088T	316T (Disc.)
B3089	319 (Disc.)
B3090	318 (Disc.)
B3092	318A (Disc.)
B3093	317A (Disc.)
B3094	314 (Disc.)
B3095	317 (Disc.)
B3096	312 (Disc.)
B3097	311 (Disc.)
B3098	313 (Disc.)
B3100	1 (Disc.)
B3100C	1PVC (Disc.)

(Disc.) = Discontinued Item

B-Line series	TOLCO
B3100F	1F (Disc.)
B3100PS (Disc.)	1CBS
B3102	1CI (Disc.)
B3104	1LD (Disc.)
B3104C	N/A
B3104CT	81 (Disc.)
B3104CTC	81PVC (Disc.)
B3104F	N/A
B3106	1V (Disc.)
B3106V	1VT (Disc.)
B3108	1A (Disc.)
B3109	N/A
B3110	324 (Disc.)
B3114	322 (Disc.)
B3114R	N/A
B3117R	N/A
B3117SL	327 (Disc.)
B3118SL	328 (Disc.)
B3119SL	N/A
B3120	325 (Disc.)
B3122	326 (Disc.)
B3122A	N/A
B3124	N/A
B3126	ROL-16
B3132	9 (Disc.)
B3132W-1 &11/2	9X (Disc.)
B3134	14 (Disc.)
B3134W	14X (Disc.)
B3140	4 (Disc.)
B3140C	4PVC (Disc.)
B3140F	4F (Disc.)
B3141	4CI (Disc.)
B3142	4H (Disc.)
B3144	5 (Disc.)
B3146	5H (Disc.)
B3147A-1/2 thru 4	32-1/2 thru 4 (Disc.)
B3147B 4 thru 24	32-5 thru 34 (Disc.)
B3148	7 (Disc.)
B3149	8 (Disc.)
B3151	220 (Disc.)
B3153	219 (Disc.)
B3154	220 (Disc.)
B3155	219 (Disc.)
B3160	260 (Disc.)
B3161	261 (Disc.)
B3162	262 (Disc.)
B3163	263 (Disc.)
B3164	264 (Disc.)

(Disc.) = Discontinued Item

B-Line series	TOLCO
B3165	265 (Disc.)
B3170 (Disc.)	2
B3170CT	202 (Disc.)
B3170CTC	N/A
B3170F (Disc.)	2F
B3170NF (Disc.)	200
B3170NF (Disc.)	200R (Disc.)
B3170NFC (Disc.)	200C
B3170NFF (Disc.)	200F
B3171	N/A
B3175	N/A
B3175CT	N/A
B3180	20 (Disc.)
B3180FL	20S (Disc.)
B3181 (Disc.)	22
B3182 (Disc.)	23
B3183 (Disc.)	24
B3184	N/A
B3188	110 (Disc.)
B3188C	N/A
B3190	40 (Disc.)
B3191	41 (Disc.)
B3195	84 (Disc.)
B3195CT	83 (Disc.)
B3198H	302 (Disc.)
B3198HCT	301CT (Disc.)
B3199R	78
B3199RCT	N/A
B3200	330 (Disc.)
B3201	332 (Disc.)
B3202	331 (Disc.)
B3203	333 (Disc.)
B3205	103 (Disc.)
B3210	102 (Disc.)
B3210X	102L (Disc.)
B3211	101 (Disc.)
B3211X	101L (Disc.)
B3212	104 (Disc.)
B3213	105 (Disc.)
B3214	106 (Disc.)
B3220	71 (Disc.)
B3222	307 (Disc.)
B3223	N/A
B3224	306 (Disc.)
B3227 (Disc.)	N/A
B3234	116 (Disc.)
B3248	118 (Disc.)
B3256	405 (Disc.)

B-Line series	TOLCO
B3257	406 (Disc.)
B3262	506 (Disc.)
B3264	500 (Disc.)
B3281 - B3287	420 (Disc.)
B3281 - B3287	421 (Disc.)
B3281 - B3287	422 (Disc.)
B3281 - B3287	422C (Disc.)
B3291 - B3298	N/A
B3362 - B3365	N/A
B3367 (Disc.)	69
B3373	6 (Disc.)
B3373C	6PVC (Disc.)
B3373CT	82 (Disc.)
B3373CTC	82PVC (Disc.)
B3373F	6F (Disc.)
B3380 - B3387	N/A
B3690	3 (Disc.)
B3690C	3PVC (Disc.)
B3690F	3F (Disc.)
B3891	425 (Disc.)
B3891	426 (Disc.)
B3891	429 (Disc.)
B3892	430 (Disc.)
B3894	N/A
B3895	N/A
B3993-10	428 (Disc.)
B3393-10/B3393-10B	431 (Disc.)
DS15x2	125 (Disc.)
DURA-BLOK™	Pipe Pier (Disc.)
FFW	119 (Disc.)
FW	115 (Disc.)
HHN	114 (Disc.)
HN	113 (Disc.)
ISO	N/A
KwikClips™	N/A
LW	117 (Disc.)
N2500	310N (Disc.)
Snap 'N Shields™ Clevis Hangers	N/A
Snap 'N Shields™	N/A
Toggle Bolts	123 (Disc.)

Reference Data - Crosses

TOLCO	B-Line series
1 (Disc.)	B3100
1A (Disc.)	B3108
1CBS	B3100PS (Disc.)
1CI (Disc.)	B3102
1F (Disc.)	B3100F
1LD (Disc.)	B3104
1NFPA	1NFPA
1PVC (Disc.)	B3100C
1U (Disc.)	1U (Disc.)
1V (Disc.)	B3106
1VT (Disc.)	B3106V
2	B3170 (Disc.)
2F	B3170F (Disc.)
2FWON (Disc.)	N/A
2WON	N/A
3 (Disc.)	B3690
3F (Disc.)	B3690F
3PVC (Disc.)	B3690C
4 (Disc.)	B3140
4A (Disc.)	4A (Disc.)
4B	B386 (Disc.)
4CI (Disc.)	B3141
4F (Disc.)	B3140F
4H (Disc.)	B3142
4L	4L
4LA (Disc.)	4LA (Disc.)
4PVC (Disc.)	B3140C
5 (Disc.)	B3144
5H (Disc.)	B3146
6 (Disc.)	B3373
6F (Disc.)	B3373F
6PVC (Disc.)	B3373C
7 (Disc.)	B3148
8 (Disc.)	B3149
9 (Disc.)	B3132
9X (Disc.)	B3132W-1 &1½
14 (Disc.)	B3134
14X (Disc.)	B3134W
20 (Disc.)	B3180
20S (Disc.)	B3180FL
21 (Disc.)	N/A
22	B3181 (Disc.)
22L2	22L2
23	B3182 (Disc.)
24	B3183 (Disc.)
25	25
27B	27B
28	28
28M	28M
29	29
30 (Disc.)	B3068
30H (Disc.)	B3067
30L (Disc.)	B3065
30M (Disc.)	B3066
31-M (Disc.)	B3069W
31-O (Disc.)	B3069E
32-½ thru 4 (Disc.)	B3147A-½ thru 4
32-5 thru 34 (Disc.)	B3147B 5 thru 24
33 (Disc.)	B3084
34 (Disc.)	B3086
35 (Disc.)	B3085
40 (Disc.)	B3190
41 (Disc.)	B3191
42 (Disc.)	B3061
50	50
51	51
52 (Disc.)	B3070
56	56
58	58
60 (Disc.)	N/A
61 (Disc.)	B3042
61T (Disc.)	B3042T
62 (Disc.)	B3050
64 (Disc.)	B351L
65	65
65XT	65XT
66	66
67SS	67SS
68S	B3034
68SS	68SS
68W	B3033
69	B3367 (Disc.)
69R	69R
70 (Disc.)	B655
70R (Disc.)	B656
70S (Disc.)	B655
71	B3220
75	75
78	78 & B3199R
81 (Disc.)	B3104CT
81PVC (Disc.)	B3104CTC
82 (Disc.)	B3373CT
82PVC (Disc.)	B3373CTC
83 (Disc.)	B3195CT
84 (Disc.)	B3195
98	98
98B	98B
99	ATR
100 (Disc.)	ATR
101 (Disc.)	B3211
101L (Disc.)	B3211X
102 (Disc.)	B3210
102L (Disc.)	B3210X
103 (Disc.)	B3205
104 (Disc.)	B3212
105 (Disc.)	B3213
106 (Disc.)	B3214
107F (Disc.)	B2499
109A	B3019
109AF	B2501 (Disc.)
110 (Disc.)	B3188
111 (Disc.)	B501
113 (Disc.)	HN
114 (Disc.)	HHN
115 (Disc.)	FW
116 (Disc.)	B3234
117 (Disc.)	LW
118 (Disc.)	B3248
119 (Disc.)	FFW
120	120
120MJ	120MJ
120RWA	120RWA
120W	120W
122 (Disc.)	N/A
123 (Disc.)	Toggle Bolts
124 (Disc.)	Toggle Bolt Head
125 (Disc.)	DS15x2
126 (Disc.)	N/A
130	B3052 (Disc.)
150 (Disc.)	N/A
200	B3170NF (Disc.)
200C	B3170NFC (Disc.)
200F	B3170NFF (Disc.)
200H	200H
200R (Disc.)	B3170NF (Disc.)
200WON (Disc.)	N/A
202 (Disc.)	B3170CT
203 (Disc.)	B3170NFC (Disc.)
207 (Disc.)	N/A
209 (Disc.)	AWA
219 (Disc.)	B3153
219 (Disc.)	B3155
220 (Disc.)	B3151
220 (Disc.)	B3154
260 (Disc.)	B3160
261 (Disc.)	B3161
262 (Disc.)	B3162
263 (Disc.)	B3163
264 (Disc.)	B3164
265 (Disc.)	B3165
301CT (Disc.)	B3198HCT
302 (Disc.)	B3198H
304 (Disc.)	B3083WO

(Disc.) = Discontinued Item

TOLCO	B-Line series
305 (Disc.)	B3083
306 (Disc.)	B3224
307 (Disc.)	B3222
309 (Disc.)	B3014
309N (Disc.)	B3014N
310 (Disc.)	B2500
310N (Disc.)	N2500
311 (Disc.)	B3097
312 (Disc.)	B3096
313 (Disc.)	B3098
314 (Disc.)	B3094
315 (Disc.)	N/A
316 (Disc.)	B3088
316T (Disc.)	B3088T
317 (Disc.)	B3095
317A (Disc.)	B3093
318 (Disc.)	B3090
318A (Disc.)	B3092
319 (Disc.)	B3089
322 (Disc.)	B3114
323 (Disc.)	N/A
324 (Disc.)	B3110
325 (Disc.)	B3120
326 (Disc.)	B3122
327 (Disc.)	B3117SL
328 (Disc.)	B3118SL
329 (Disc.)	B3054
330 (Disc.)	B3200
331 (Disc.)	B3202
332 (Disc.)	B3201
333 (Disc.)	B3203
335 (Disc.)	B3045
336 (Disc.)	B3040
337 (Disc.)	B3082
343 (Disc.)	B3080 L & S
405 (Disc.)	B3256
406 (Disc.)	B3257
420 (Disc.)	B3281 - B3287
421 (Disc.)	B3281 - B3287
422 (Disc.)	B3281 - B3287
422C (Disc.)	B3281 - B3287
425 (Disc.)	B3891
426 (Disc.)	B3891
426A (Disc.)	N/A
426AC (Disc.)	N/A
426AG (Disc.)	N/A
426C (Disc.)	N/A
426G (Disc.)	N/A
427 (Disc.)	N/A
428 (Disc.)	B3993-10

TOLCO	B-Line series
429 (Disc.)	B3891
430 (Disc.)	B3892
431 (Disc.)	B3393-10/B3393-10B
432 (Disc.)	N/A
433 (Disc.)	N/A
434 (Disc.)	N/A
500 (Disc.)	B3264
506 (Disc.)	B3262
800	800
825	825
825A	825A
828	828
906	906
907	907
909	909
910	910
975	975
980	980
981	981
985	985
986	986
990	990
991	991
1000	1000
1001	1001
2002	2002
Pipe Pier (Disc.)	DURA-BLOK

TOLCO	B-Line series

Reference Data - Crosses

Anvil/Grinnell®†	B-Line series/TOLCO
14	B3040 (Fig. 336)
40	Consult Factory
47	B3084 (Fig. 33)
49	B3086 (Fig. 34)
51	B422
52	B3085 (Fig. 35)
54	Consult Factory
55	B3080 L & S (Fig. 343 LONG & FG 343 SHORT)
60	B3248 (Fig. 118)
62	Consult Factory
63	Consult Factory
CT65	B3104CT (Fig. 81)
66	B3083 (Fig.305)/ B3083WO (Fig. 304)
67	B3690 (Fig. 3)
68	Consult Factory
69	Fig. 200 (B3170NF)
69C	Fig. 200C (B3170NFC)
89, 87	B3367 (Fig. 69)
92	Fig. 65/Fig. 65XT
93	Fig. 66
95	B351L (Fig. 64)
100	B3149 (Fig. 8)
103	B3148 (Fig. 7)
110R	B3222 (Fig. 307)
112	Fig. 910
114	B3224 (Fig. 306)
CT121	B3373CT (Fig. 82)
CT138R	B3198HCT (Fig. 301CT)
128R	B3199 (Fig. 78)
133-134	B3050 (Fig. 62)
135	B655 (Fig. 70) & B3220 (Fig. 71)
136R	B656 (Fig. 70R)
137	B3188 (Fig. 110)
138R	B3198H (Fig. 302)
140	B3205 (Fig. 103)
142	B3213 (Fig. 105)
146	ATR (Fig. 99 & Fig. 100)
157	B3203 (Fig. 333)
160	B3160 (Fig. 260)
161	B3161 (Fig. 261)
162	B3162 (Fig. 262)
163	B3163 (Fig. 263)
164	B3164 (Fig. 264)

Anvil/Grinnell®†	B-Line series/TOLCO
165	B3165 (Fig. 265)
167	B3151 (Fig. 220)
168	B3153 (Fig. 219)
171	B3114 (Fig. 322)
175	B3120 (Fig. 325)
177	B3122 (Fig. 326)
178	B3264 (Fig. 500)
181	B3110 (Fig. 324)
191	B3098 (Fig. 313)
192	B3096 (Fig. 312)
194	B3068 (Fig. 30)
195	B3066 (Fig. 30M)
199	B3067 (Fig. 30H)
202	B3060 (Fig. 50)
206	Fig. 51
212	B3140 (Fig. 4)
212FP	Fig. 4A (Disc.)
216	B3142 (Fig. 4H)
217	B3045 (Fig. 335)
227	B3042 (Fig. 61)
230	B3202 (Fig. 331)
247	B3262 (Fig. 506)
248	B3210 (Fig. 102)
248X	B3210X (Fig. 102L)
255	B3281 - B3287 (Fig. 422)
256	B3281 - B3287 (Fig. 421)
257	B3891 (Fig. 426)
259	B3090 (Fig. 318)
260	B3100 (Fig. 1)
261	B3373 (Fig. 6)
262	B3180 (Fig. 20)
264	B3093 (Fig. 317A)
271	B3117SL (Fig. 327)
274	B3118SL (Fig. 328)
278	B3211 (Fig. 101)
278X	B3211X (Fig. 101L)
280	B3891 (Fig. 426)
282	B3014 (FG 309) & B3014N (Fig. 309N)
285N	N2500 (Fig. 310N)
290	B3200 (Fig. 330)
295	B3144 (Fig. 5)
299	B3201 (Fig. 332)
300	B3108(Fig. 1A)
436	Consult Factory
437	Consult Factory

Anvil/Grinnell®†	B-Line series/TOLCO
438-1	Consult Factory
438-2	Consult Factory
438-3	Consult Factory
590	B3102 (Fig. 1CI)
594	B3134W (Fig. 14X)
595	B3134 (Fig. 14)
599	B3132W-1 & 1½ (Fig. 9X)
600	B3132 (Fig. 9)
218, 229	B3054 (Fig. 329)

† Mark shown is the property of its respective owner.
Chart provides a cross reference to help determine equivalent products.

Erico®†	B-Line series/TOLCO
10	HN (Fig. 113)
10H	HHN (Fig. 114)
11	FW (Fig. 115)
12	FFW (Fig. 119)
13	LW (Fig. 117)
25	B655 (Fig. 70)
25R	B656 (Fig. 70R)
25S	B655S (Fig. 70S)
26	B3203 (Fig. 333)
30	B3202 (Fig. 331)
31	B3201 (Fig. 332)
35	B3200 (Fig. 330)
40	B3210 (Fig. 102)
40W	B3211 (Fig. 101)
43	DS15x2 (Fig. 125)
46	B3214 (Fig. 106)
47	B3222 (Fig. 307)
50	ATR (Fig. 99 & 100)
51	ATR (Fig. 99 & 100)
100	B3170 (Fig. 2)
125	B3151 (Fig. 220)
130	Fig. 200
150	B3188 (Fig. 110)
200	B351L (Fig. 64)
255C	B3367 (Fig. 69)
282	B3014 (Fig. 309)
282N	B3014N (Fig. 309N)
300	B351L (Fig. 64)
310	Fig. 66
319	B3061 (Fig. 42)
320L	B3083WO (Fig. 304)
320W	B3083 (Fig. 305)
321	B3082 (Fig. 337)
325	B3060 (Fig. 50)
326	B3070 (Fig. 52)
335A	Fig. 975
335AB	Fig. 910
340	B3248 (Fig. 118)
348	B3068 (Fig. 30)
351	B3065 (Fig. 30L)
352	B3066 (Fig. 30M)
353	B3067 (Fig. 30H)
355	B2500 (Fig. 310)
355N	N2500 (Fig. 310N)
356	Fig. 130
359	B3042 (Fig. 61)

Erico®†	B-Line series/TOLCO
360	B3054 (Fig. 329)
361	B3050 (Fig. 62)
363	B3040 (Fig. 336)
367	B3045 (Fig. 335)
370A	Fig. 109A (B3019)
371	B3080 L & S (Fig. 343 LONG & Fig. 343 SHORT)
373	B3084 (Fig. 33)
374	B3086 (Fig. 34)
374A	B3085 (Fig. 35)
400	B3100 (Fig. 1)
400FL	B3100F (Fig. 1F)
402	B3104CT (Fig. 81)
40	B3102 (Fig. 1CI)
410	B3104
41	B3108 (Fig. 1A)
418	B3690 (Fig. 3)
418FL	B3690F (Fig. 3F)
450	B3140 (Fig. 4)
451	B3142 (Fig. 4H)
452	B3144 (Fig. 5)
455	B3198H (Fig. 302)
456	B3198HCT (Fig. 301CT)
457	B3190 (FFig. 40)
458	B3191 (Fig. 41)
470	B3180 (Fig. 20)
510	B3373 (Fig. 6)
511	B3373CT (FFig. 82)
516	B3132W-1 &1½ (FFig. 9X)
517	B3132 (Fig. 9)
605	B3114 (FFig. 322)
610	B3110 (Fig. 324)
615	B3120 (Fig. 325)
617	B3117SL (Fig. 327)
619	B3118SL (Fig. 328)
620	B3122 (Fig. 326)
625	B3264 (Fig. 500)
630	B3160 (Fig. 260)
631	B3161 (Fig. 261)
632	B3162 (Fig. 262)
633	B3163 (Fig. 263)
634	B3164 (Fig. 264)
635	B3165 (Fig. 265)
640	B3891 (Fig. 426)
640-1	B3891

Erico®†	B-Line series/TOLCO
640-2	B3892
640-3	B3393-10/B3393-10B
651	B3281 - B3287 (Fig. 421)
651	B3281 - B3287 (Fig. 421)
700	B3148 (Fig. 7)
705	B3149 (Fig. 8)
720	B3095 (Fig. 317)
721	B3090 (Fig. 318)
724	B3098 (Fig. 313)
420	B3100C (Fig. 1PVC)
520	B3373C (Fig. 6PVC)
107	Fig. 22
108	Fig. 23
109	Fig. 24

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Chart provides a cross reference to help determine equivalent products.

Reference Data - Crosses

PHD®†	B-Line series/TOLCO
10	ATR (Fig. 99 & 100)
15	B3205 (Fig. 103)
20	ATR (Fig. 99 & 100)
25	B3203 (Fig. 333)
32	B3222 (Fig. 307)
35	B3200 (Fig. 330)
38	B3201 (Fig. 332)
40	B3213 (Fig. 105)
44	B3224 (Fig. 306)
47W	AWA (Fig. 209)
48	DS15x2 (Fig. 125)
50	B3210 (Fig. 102)
55	B3211 (Fig. 101)
60	B3212 (Fig. 104)
70	B2499 (Fig. 107F)
80	Fig. 120
90	B3188 (Fig. 110)
95, 110	B501 (Fig. 111)
100	B655 (Fig. 70)
104	B655S (Fig. 70S)
105	B656 (Fig. 70R)
110	HN (Fig. 113)
110H	HHN (Fig. 114)
130	FW (Fig. 115)
134	LW (Fig. 117)
135	B3234 (Fig. 116)
136	FFW (Fig. 119)
151	B3170 (Fig. 2)
160	B3153 (Fig. 219)
170	B3151 (Fig. 220)
250	B351L (Fig. 64)
350	Fig. 65
359	B3367 (Fig. 69)
360	B3367 (Fig. 69)
420	B3102 (Fig. 1CI)
430	B3108 (Fig. 1A)
440	B3104
450	B3100 (Fig. 1)
450F	B3100F (Fig. 1F)
450V	B3106 (Fig. 1V)
453	B3100C (Fig. 1PVC)
460	B3120 (Fig. 325)
470	B3110 (Fig. 324)
480	B3122 (Fig. 326)
486	B3117SL (Fig. 327)
487	B3118SL (Fig. 328)

PHD®†	B-Line series/TOLCO
490	B3114 (Fig. 322)
508	B3198H (Fig. 302)
512H	B3198HCT (Fig. 301CT)
520	B3140 (Fig. 4)
522	B3142 (Fig. 4H)
525	B3144 (Fig. 5)
535	B3148 (Fig. 7)
545	B3149 (Fig. 8)
550	B3373 (Fig. 6)
552	B3373CT (Fig. 82)
553	B3373C (Fig. 6PVC)
554	B3373CTC (Fig. 82PVC)
580	B3132 (Fig. 9)
585	B3132W-1 &1½ (Fig. 9X)
590	B3134 (Fig. 14)
595	B3134W (Fig. 14X)
610, 620	B3050 (Fig. 62)
630	B3054 (Fig. 329)
635	B3040 (Fig. 336)
651	B3160 (Fig. 260)
653	B3161 (Fig. 261)
654	B3162 (Fig. 262)
655	B3163 (Fig. 263)
656	B3164 (Fig. 264)
658	B3165 (Fig. 265)
670-678	B3281 - B3287 (Fig. 421)
690	B3891 (Fig. 426)
690-1	B3891
690-2	B3892
690-3	B3393-10/B3393-10B
810	B3191 (Fig. 41)
820	B3190 (Fig. 40)
825	B3180 (Fig. 20)
830	B3180FL (Fig. 20S)
840	B3147A-½ thru 4 (Fig. 32-½ thru 4)
840	B3147B 4 thru 24 (Fig. 32-5 thru 34)
850	B3065 (Fig. 30L)
855	B3066 (Fig. 30M)
860	B3067 (Fig. 30H)
871	B3088T (Fig. 316T)
875	B3093 (Fig. 317A)
876	B3092 (Fig. 318A)
880	B3095 (Fig. 317)
882	B3090 (Fig. 318)

PHD®†	B-Line series/TOLCO
885	Fig 109A (B3019)
890	Fig. 975
900	B3083 (Fig. 305)
900-1	B3083WO (Fig. 304)
903	B3085 (Fig. 35)
904	B3086 (Fig. 34)
910	B3061 (Fig. 42)
925	B3070 (Fig. 52)
930	B3248 (Fig. 118)
936	B3080 L & S (Fig. 343 LONG & Fig. 343 SHORT)
940	B3199 (Fig. 78)
950	B3014 (Fig. 309)
950N	B3014N (Fig. 309N)
960	B3202 (Fig. 331)
970	B3690 (Fig. 3)
970F	B3690F (Fig. 3F)
980	B3195 (Fig. 84)
982	B3195CT (Fig. 83)

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Chart provides a cross reference to help determine equivalent products.

Super Strut®†	B-Line series/TOLCO
164	B3180 (Fig. 20)
452	B2500 (Fig. 310)
540	B3060 (Fig. 50)
542	B3070 (Fig. 52)
AB102	N2500 (Fig. 310N)
AB201	Fig. 51
C475	Fig 109A (B3019)
C704	B3191(Fig. 41)
C704A	B3190 (Fig. 40)
C710	B3100 (Fig. 1)
C710F	B3100F (Fig. 1F)
C710P	B3100C (Fig. 1PVC)
C720P	B3373C (Fig. 6PVC)
C724	B3132 (Fig. 9)
C725	B3140 (Fig. 4)
C726	B3144 (Fig. 5)
C727	B3170 (Fig. 2)
C729-2	B3110 (Fig. 324)
C730C	B3117SL (Fig. 327)
C730D	B3118SL (Fig. 328)
C736	B3068 (Fig. 30)
C739H	B3067 (Fig. 30H)
C739M	B3066 (Fig. 30M)
C747	B3082 (Fig. 337)
C755T-C757T	B3050 (Fig. 62)
C769	B3045 (Fig. 335)
C775L	B351L (Fig. 64)
C777	Fig. 65/Fig. 65XT
C778	Fig. 66
C711	B3690 (Fig. 3)
C711F	B3690F (Fig. 3F) B3690C (FG 3PVC)
C716	B3195CT (Fig. 83)
C720	B3373 (Fig. 6)
C720L	B3148 (Fig. 7)
C780W/HW	B3083 (Fig. 305)
C780W/O	B3083WO (Fig. 304)
C781	B3248 (Fig. 118)
C785	B3090 (Fig. 318)
C786	B3093 (Fig. 317A)
C789	B3160 (Fig. 260)
C789A	B3160 (Fig. 260)
C789B	B3162 (Fig. 262)
C789C	B3163 (Fig. 263)
C789D	B3164 (Fig. 264)
C789E	B3165 (Fig. 265)

Super Strut®†	B-Line series/TOLCO
C790	B3151 (Fig. 220)
CF729A	B3120 (Fig. 325)
CI710	B3102 (Fig. 1CI)
CL710	B3104
CT720	B3373CT (Fig. 82)
CTL710	B3104CT (Fig. 81)
CX710	B3108 (Fig. 1A)
E120	B3222 (Fig. 307)
E120A	B3200 (Fig. 330)
E145	HN (Fig. 113)
E147	FW (Fig. 115)
EF147	FFW (Fig. 119)
E148	LW (Fig. 117)
E151	B3213 (Fig. 105)
E151D	DS15x2 (Fig. 125)
E156	B3210 (Fig. 102)
E157	B3211 (Fig. 101)
F111	B3201 (Fig. 332)
F112	B3202 (Fig. 331)
H104	ATR (Fig. 99 & 100)
H115	B3188 (Fig. 110)
H119	B655 (Fig. 70)
H119R	B656 (Fig. 70R)
HL115	B501 (Fig. 111)
M129	B3203 (Fig. 333)
M718	B3198H (Fig. 302)
M724R	B3199 (Fig. 78)
M732	B3054 (Fig. 329)
M778	B3034 (Fig. 68S) & B3033 (Fig. 68W)
PG794	B3281 - B3287 (Fig. 21)
RC729	B3122 (Fig. 326)
RCS	B3147A-½ thru 4 (Fig. 32-½ thru 4)
RCS	B3147B 4 thru 24 (Fig. 32-5 thru 34)
U568	B3367 (Fig. 69)
W724	B3132W-1 &1½ (Fig. 9X)

Super Strut®†	B-Line series/TOLCO

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Reference Data - Crosses

Carpenter & Paterson®†	B-Line series/TOLCO
6	B3042 (Fig. 61)
12	B3222 (Fig. 307)
14	B3040 (Fig. 336)
15	B3050 (Fig. 62)
18	B3367 (Fig. 69)
28	B3213 (Fig. 105)
31	B3212 (Fig. 104)
33	B3210 (Fig. 102)
38	B3224 (Fig. 306)
39	B3120 (Fig. 325)
44	Fig. 120
53	B3118SL (Fig. 328)
59	Toggle Bolts (Fig. 123)
69	B3068 (Fig. 30)
84	B3066 (Fig. 30M)
85	B3199 (Fig. 78)
92	B3045 (Fig. 335)
93	B3211 (Fig. 101)
94	ATR (Fig. 99 & 100)
100	B3100 (Fig. 1)
102	B3248 (Fig. 118)
103	FW (Fig. 115)
109	B3122 (Fig. 326)
114	B3180 (Fig. 20)
123	B655 (Fig. 70)
125	B3090 (Fig. 318)
126	B3373 (Fig. 6)
132	B3202 (Fig. 331)
133	B3205 (Fig. 103)
137	B3096 (Fig. 312)
139	B3067 (Fig. 30H)
140	B3110 (Fig. 324)
152	B3061 (Fig. 42)
158	B3132 (Fig. 9)
165	HN (Fig. 113)
166	DS15x2 (Fig. 125)
175	B3140 (Fig. 4)
176	LW (Fig. 117)
179	B3148 (Fig. 7)
192	Fig. 65
200	B3104
220	B3080 L & S (Fig. 343 LONG & Fig. 343 SHORT)
222	B501 (Fig. 111)
227	B3190 (Fig. 40)

Carpenter & Paterson®†	B-Line series/TOLCO
258	B3132W-1 &1½ (Fig. 9X)
260	B3134W (Fig. 14X)
267	B3149 (Fig. 8)
276	B3201 (Fig. 332)
283	B3188 (Fig. 110)
293	B3054 (Fig. 329)
298	B3142 (Fig. 4H)
303	B3060 (Fig. 50)
304	B3144 (Fig. 5)
306	B3210X (Fig. 102L)
341	B3211X (Fig. 101L)
351	B3160 (Fig. 260)
352	B3160 (Fig. 260)
353	B3162 (Fig. 262)
354	B3163 (Fig. 263)
355	B3164 (Fig. 264)
356	B3165 (Fig. 265)
478	B3264 (Fig. 500)
706	B3234 (Fig. 116)
800	B3170 (Fig. 2)
800	Fig. 200
100C.I.	B3102 (Fig. 1CI)
100CT	B3104CT (Fig. 81)
100EL	B3108 (Fig. 1A)
100PVC	B3100C (Fig. 1PVC)
100PVC	B3104CTC (Fig. 81PVC)
123R	B656 (Fig. 70R)
123W	B3220 (Fig. 71)
126CT	B3373CT (Fig. 82)
126PVC	B3373C (Fig. 6PVC)
158DB	B3134 (Fig. 14)
200VT	B3106 (Fig. 1V)
227S	B3191 (Fig. 41)
265P	B3151 (Fig. 220)
650-266-75	B3014N (Fig. 309N)
81CT	B3198HCT (Fig. 301CT)

Carpenter & Paterson®†	B-Line series/TOLCO

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Empire®†	B-Line series/TOLCO
11	B3100 (Fig. 1)
11CI	B3102 (Fig. 1CI)
11V	B3106 (Fig. 1V)
11X	B3108 (Fig. 1A)
21L	B351L (Fig. 64)
22R	B3367 (Fig. 69)
26	B3210 (Fig. 102)
26W	B3211 (Fig. 101)
31	B3170 (Fig. 2)
31	Fig. 200
35	B3262 (Fig. 506)
41H	B3198H (Fig. 302)
41HCT	B3198HCT (Fig. 301CT)
47	B3222 (Fig. 307)
49PC	B3373C (Fig. 6PVC)
50	B3373 (Fig. 6)
50CT	B3373CT (Fig. 82)
50CTI or 49PC	B3373CTC (Fig. 82PVC)
51	B655 (Fig. 70)
51R	B656 (Fig. 70R)
52	FW (Fig. 115)
52F	FFW (Fig. 119)
52L	LW (Fig. 117)
53	B3061 (Fig. 42)
54	ATR (Fig. 99 & 100)
55	B3213 (Fig. 105)
56	HN (Fig. 113)
57	B3205 (Fig. 103)
59	DS15x2 (Fig. 125)
61	Fig. 66
62	Fig. 65/Fig. 65XT
67	B3086 (Fig. 34)
68	B3085 (Fig. 35)
69	B3080 L & S (Fig. 343 LONG & Fig. 343 SHORT)
72	B3234 (Fig. 116)
75	B3134W (Fig. 14X)
75	B3248 (Fig. 118)
77	B2499 (Fig. 107F)
80	AWA (Fig. 209)
81N	B3014N (Fig. 309N)
83	Toggle Bolts (Fig. 123)
95	B3148 (Fig. 7)
97	B3149 (Fig. 8)
110	B3104
110CT	B3104CT (Fig. 81)
110PC	B3100C (Fig. 1PVC)
110PC	B3104CTC (Fig. 81PVC)
114	B3224 (Fig. 306)
131	B3200 (Fig. 330)
137	B3188 (Fig. 110)
145	B3191 (Fig. 41)
146	B3190 (Fig. 40)
150	Fig. 130
155	B3040 (Fig. 336)
156	B3045 (Fig. 335)
157	B3203 (Fig. 333)
158	B3042 (Fig. 61)
167	B3151 (Fig. 220)
180	B3180FL (Fig. 20S)
189	B3144 (Fig. 5)
202	B3060 (Fig. 50)
212	B3140 (Fig. 4)
216	B3142 (Fig. 4H)
218	B3050 (Fig. 62)
229	B3054 (Fig. 329)
231	B3180 (Fig. 20)
256	B3281 - B3287 (Fig. 421)
272	B3110 (Fig. 324)
273	B3122 (Fig. 326)
275	B3120 (Fig. 325)
277	B3114 (Fig. 322)
320	B3202 (Fig. 331)
420	B3095 (Fig. 317)
422	B3096 (Fig. 312)
426	B3093 (Fig. 317A)
427	B3092 (Fig. 318A)
427	B3090 (Fig. 318)
595	B3134 (Fig. 14)
599	B3132W-1 &1½ (Fig. 9X)
600	B3132 (Fig. 9)
801	B3066 (Fig. 30M)
802	B3067 (Fig. 30H)
820	B3068 (Fig. 30)
909	B3201 (Fig. 332)
279S	B3117SL (Fig. 327)
280S	B3118SL (Fig. 328)
425 or 427	B3098 (Fig. 313)
1900	B3160 (Fig. 260)
1901	B3160 (Fig. 260)
1902	B3162 (Fig. 262)
1903	B3163 (Fig. 263)
1904	B3164 (Fig. 264)
1905	B3165 (Fig. 265)
4000 Series	B3891 (Fig. 426)

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For more information, visit Eaton.com/b-lineseries.

Eaton
509 West Monroe Street
Highland, IL 62249
United States
Phone: (800) 851-7415
www.cooperbline.com/contactus

Cooper Industries Middle East LLC
PO Box 70160
Al Khobar - 31952
Kingdom of Saudi Arabia
Phone: +966 506 395 973
www.eaton.com/b-lineseries

Eaton
5925 McLaughlin Road
Mississauga, ON L5R 1B8
Canada
Phone: (800) 569-3660
www.cooperbline.com/contactca

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

B-Line Division
509 West Monroe Street
Highland, IL 62249
Phone: 800-851-7415
Fax: 618-654-1917
www.cooperbline.com

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