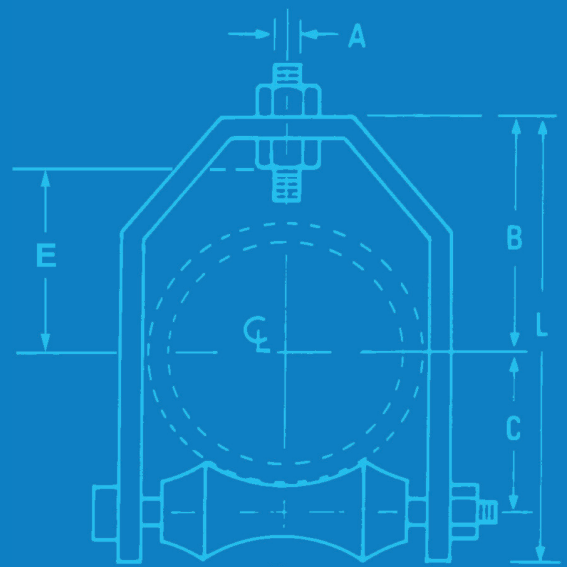
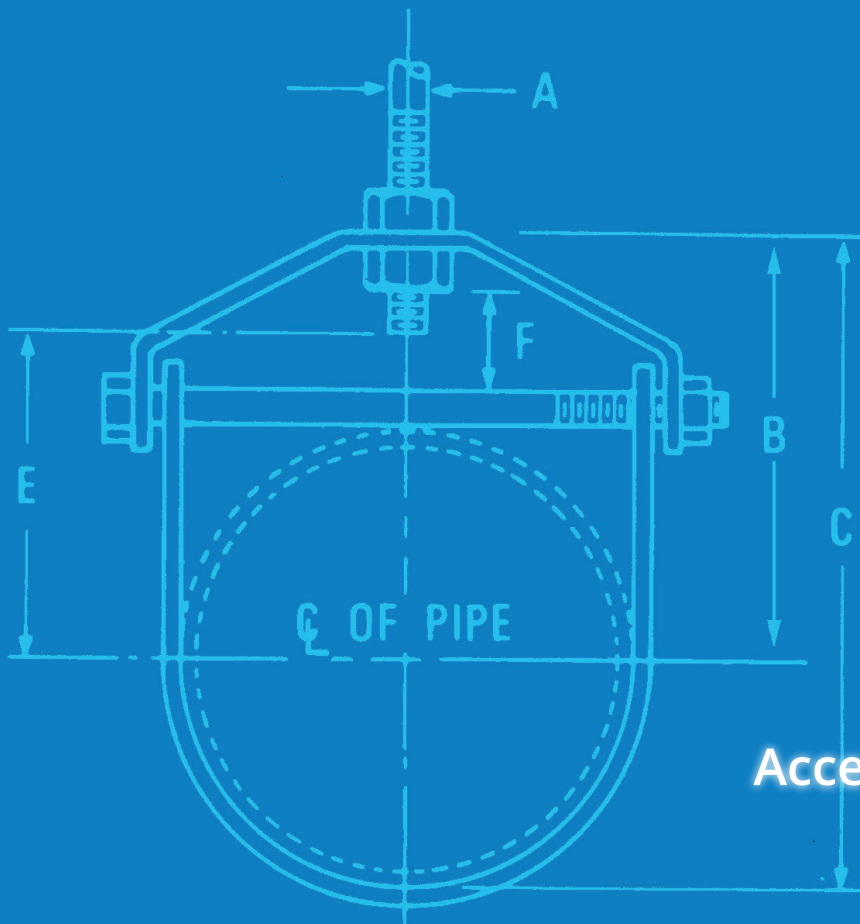
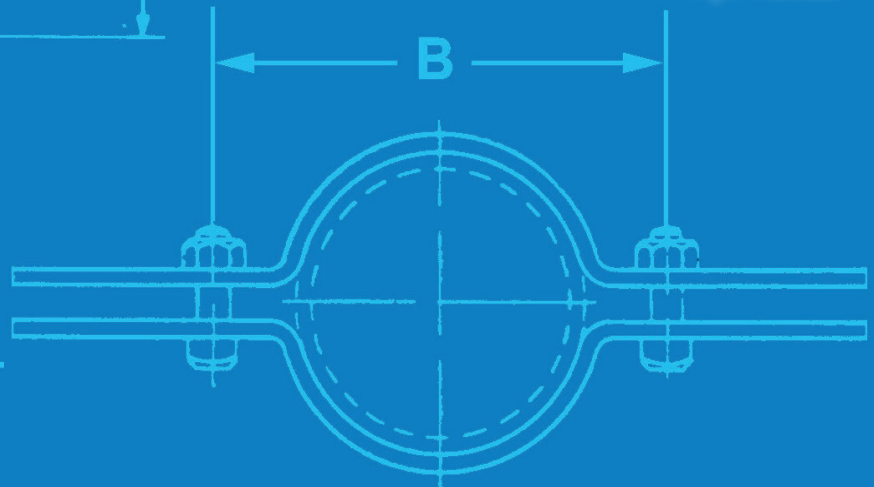
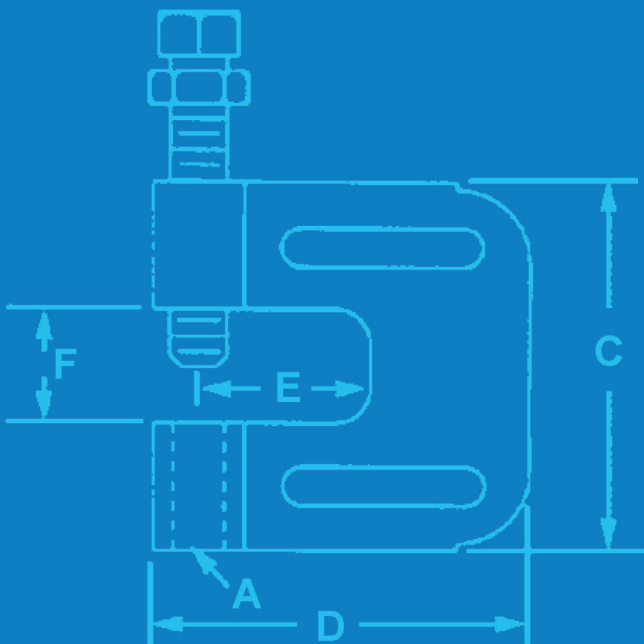
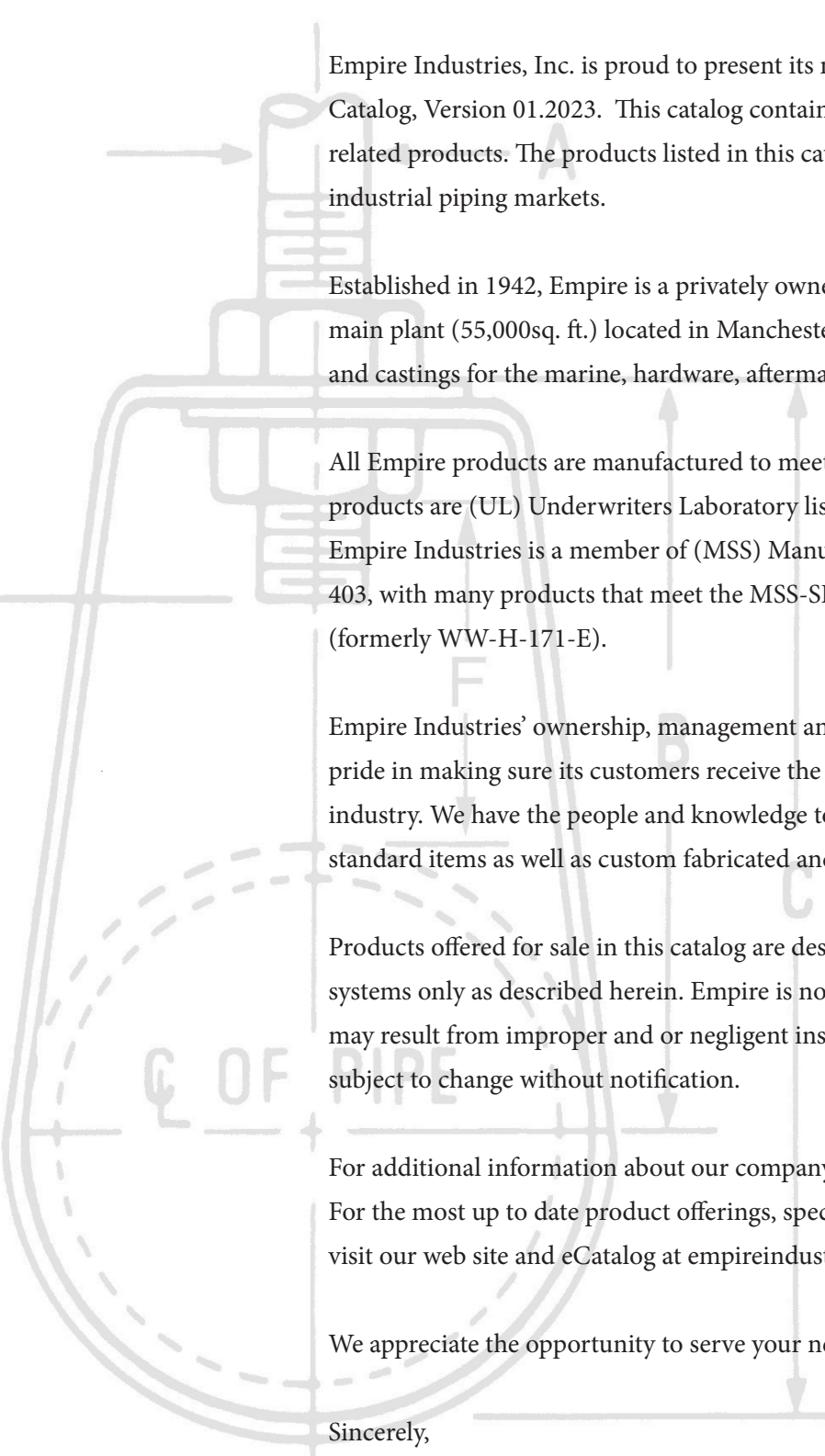




Pipe Hangers, Supports and
Accessories Engineering Catalog.

v|01.2023



A faint, light gray technical drawing of a pipe hanger assembly is visible in the background. It shows a vertical pipe with various fittings, flanges, and support brackets. Arrows and dimension lines are present, indicating the assembly's structure and components. The drawing is centered on the page, behind the main text blocks.

Empire Industries, Inc. is proud to present its new Pipe Hanger and Support Engineering Catalog, Version 01.2023. This catalog contains a complete line of pipe hangers, supports and related products. The products listed in this catalog service the residential, commercial and industrial piping markets.

Established in 1942, Empire is a privately owned, third generation family business with its main plant (55,000sq. ft.) located in Manchester, CT. Empire also supplies specialty stampings and castings for the marine, hardware, aftermarket automotive and sporting goods industries.

All Empire products are manufactured to meet or exceed industry standards. Many of Empire's products are (UL) Underwriters Laboratory listed and meet (FM) Factory Mutual approvals. Empire Industries is a member of (MSS) Manufacturers' Standardization Society Committee 403, with many products that meet the MSS-SP-69 and Federal Specification A-A-1192 A (formerly WW-H-171-E).

Empire Industries' ownership, management and employees take a tremendous amount of pride in making sure its customers receive the best quality product and customer service in the industry. We have the people and knowledge to respond quickly to customer requirements for standard items as well as custom fabricated and specialty finished products.

Products offered for sale in this catalog are designed and manufactured for use in piping systems only as described herein. Empire is not responsible for injuries and damage which may result from improper and or negligent installation of these products. Product design is subject to change without notification.

For additional information about our company or products, please call our factory direct. For the most up to date product offerings, specifications and industry relevant documentation, visit our web site and eCatalog at empireindustries.com.

We appreciate the opportunity to serve your needs.

Sincerely,

Empire Industries, Inc and its Employees

FINISHES

Empire can coat any product it manufactures with plastic, epoxy, PIPE GARD, hot-dip zinc, electro zinc, copper, COPPER GARD, chrome, color coordinated finishes and just about any coating required.

ZINC COATING

Electro-Plated Zinc (ASTM B633)

This type of coating is recommended for indoor use in relatively dry areas. This process deposits a coating of zinc on the steel or iron by electrolysis from a bath of zinc salts. This coating is pure zinc and adheres to the steel or iron with a molecular bond. A maximum of .5 mills of zinc can be applied using this method.

Pre-Galvanized Zinc (ASTM A653)

This type of coating is suitable for extended exposure in dry or mildly corrosive atmospheres, but not generally recommended for outdoor use, or in industrial environments. This coating is also referred to as “mill galvanized” or “hot-dip mill galvanized”. This process continuously rolls steel coils or sheets through molten zinc. The steel is then cut or slit to size. Coating thickness of .90 ounces per square foot of steel surface (referred to as G90) is used on Empire’s Figures 310G and 310NFPA. Cut edges are not zinc coated, however, zinc near the uncoated steel becomes a sacrificial anode, which protects the bare areas after a short period of time.

Hot-Dip Galvanized (ASTM 123)

This type of coating provides extended corrosion protection for steel and iron products exposed to extreme humidity commonly evident in outdoor exposure or in uncontrolled atmospheric conditions. This coating provides superior corrosion resistance to that of electro-plating. The process calls for the steel or iron product to be completely immersed into a bath of molten zinc, which creates a metallurgical bond. The minimum coating thickness is 1.5 ounces per square foot per side (3 ounces per square foot of steel or iron). Caution should be taken when specifying Hot-Dip Galvanizing on certain products. Products with threaded components should either have the threads protected from the galvanizing process or chase the threads subsequent to hot-dipping. Products with critical size tolerances should account for the thickness of the coating.

PLASTIC COATING

Vinyl coating of the metal prevents galvanic reaction between dissimilar metals, provides corrosion resistance, reduces noise, and can be used where glass or plastic pipe contact with metal is not desired.

PIPE GARD

Pipe Gard is one of the most versatile and durable coatings for piping products on the market today. It provides superior resistance to environmental exposure, wear and tear, damage, and malicious attack with no effect to its performance.

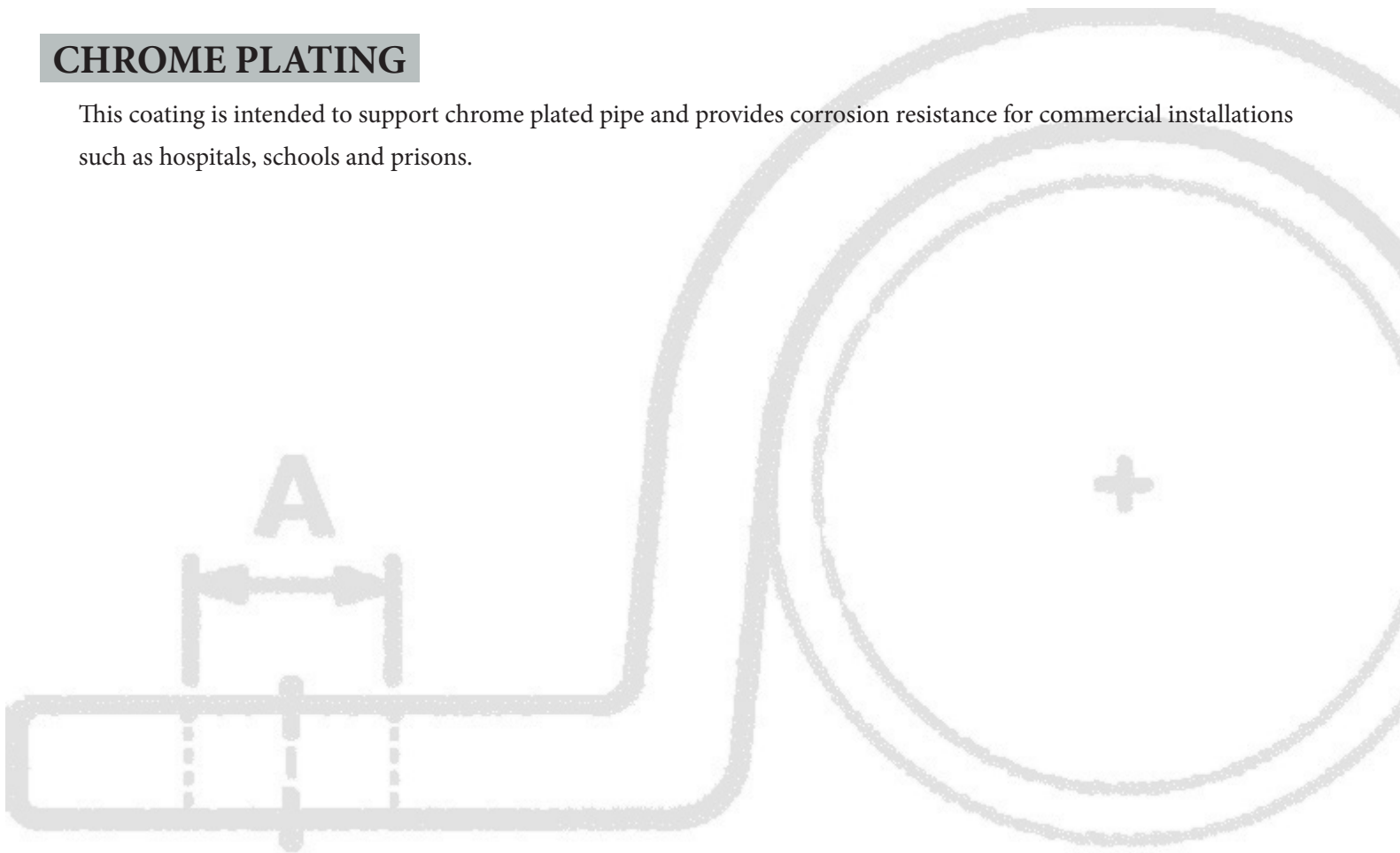
EPOXY COATING

Empire Industries offers various epoxy finishes in both commercial and military grades. These finishes offer a high degree of corrosion resistance.

Empire Industries provides its COPPER-GARD finish for copper tubing installations. The finish provides superior corrosion protection and insulates against dissimilar metal contact, thus preventing electrolysis. The process applies a baked-on epoxy paint to steel stampings and iron castings. In the three-step process, the parts are zinc plated to .0002" thick, an epoxy copper colored powder is then applied by an electrostatic method, and finally, the coated parts are baked at 180 degrees for 20 minutes.

CHROME PLATING

This coating is intended to support chrome plated pipe and provides corrosion resistance for commercial installations such as hospitals, schools and prisons.



PICTORAL INDEX

8



FIG. 10J
j-hanger

8



FIG. 11DIP
adjustable clevis hanger for
awwa ductile iron pipe and
c-900 pvc pipe
MSS SP-58 and SP-69 (Type# 1)

9



FIG. 11
adjustable clevis hanger
MSS SP-58 and SP-69 (Type# 1)

10



FIG. 11F
flat top clevis hanger

10

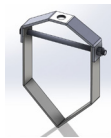


FIG. 11V
v bottom clevis hanger

11

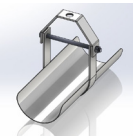


FIG. 11WS
clevis with welded shield

11



FIG. 11X
extended bottom clevis
MSS SP-58 and SP-69 (Type# 1)

12

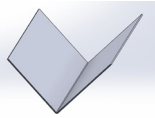


FIG. 12
v channel

12

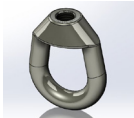


FIG. 13I
weldless eye nut
MSS SP-58 and SP-69 (Type# 17)

13



FIG. 21
steel c-clamp
MSS SP-58 and SP-69 (Type# 23)

13

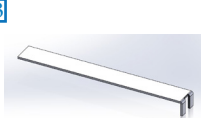


FIG. 21R
c-clamp retaining strap

14

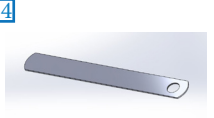


FIG. 22R
beam clamp retaining strap

14

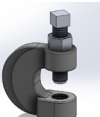


FIG. 23L
Malleable iron c-clamp
MSS SP-58 and SP-69 (Type# 23)

14



FIG. 24
purlin clamp

15

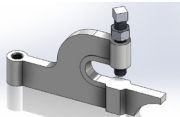


FIG. 25L
extended c-clamp

15

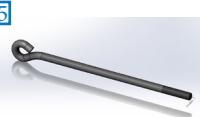


FIG. 26 & 26W
plain & welded eye rod

16



FIG. 31
adjustable band hanger
MSS SP-58 and SP-69 (Type# 7)

16



FIG. 31CT
adjustable band hanger for
copper tubing
MSS SP-58 and SP-69 (Type# 7)

17

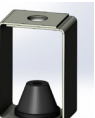


FIG. 34
vibration hanger - neoprene

17



FIG. 35
vibration hanger - spring-flex

18



FIG. 36
vibration hanger -
spring-flex and neoprene

18

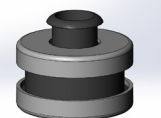


FIG. 37
anti-vibration hanger
mount

19



FIG. 40HS
"handy" split ring hanger

19



FIG. 41
split ring extension hanger
MSS SP-58 and SP-69 (Type# 12)

20



FIG. 41CT
copper split ring extension hanger
MSS SP-58 and SP-69 (Type# 12)

20



FIG. 41A
hanger flange plate

20

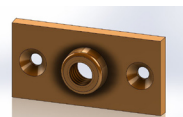


FIG. 41ACT
hanger flange plate,
copper epoxy coated

21



FIG. 41H
split ring extension hanger,
hinge design
MSS SP-58 and SP-69 (Type# 12)

21



FIG. 41HCT
copper split ring extension
hanger, hinge design
MSS SP-58 and SP-69 (Type# 12)

22

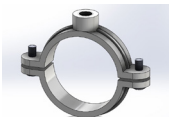


FIG. 41OD
split ring extension hanger,
for o.d. tubing
MSS SP-58 and SP-69 (Type# 12)

22



FIG. 41SSI / 41SXI
stainless steel split ring
extension hanger
MSS SP-58 and SP-69 (Type# 12)

23



FIG. 47
eye socket
MSS SP-58 and SP-69 (Type# 16)

23



FIG. 48
plastic pipe and plastic coated
pvc riser clamp
MSS SP-58 and SP-69 (Type# 8)

24



FIG. 50
riser clamp
MSS SP-58 and SP-69 (Type# 8)

24



FIG. 50DIP
riser clamp for ductile iron pipe
MSS SP-58 and SP-69 (Type# 8)

25

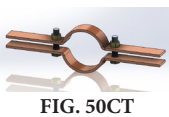


FIG. 50CT
riser clamp for
copper tubing
MSS SP-58 and SP-69 (Type# 8)

25



FIG. 50H
heavy duty riser clamp
MSS SP-58 (Type# 8)

26



FIG. 50SA
short arm riser clamp
MSS SP-58 and SP-69 (Type# 8)

26



FIG. 51
rod coupling

26

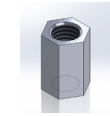


FIG. 51R
reducing rod coupling

27

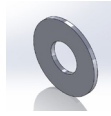


FIG. 52
round steel washer

27

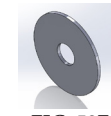
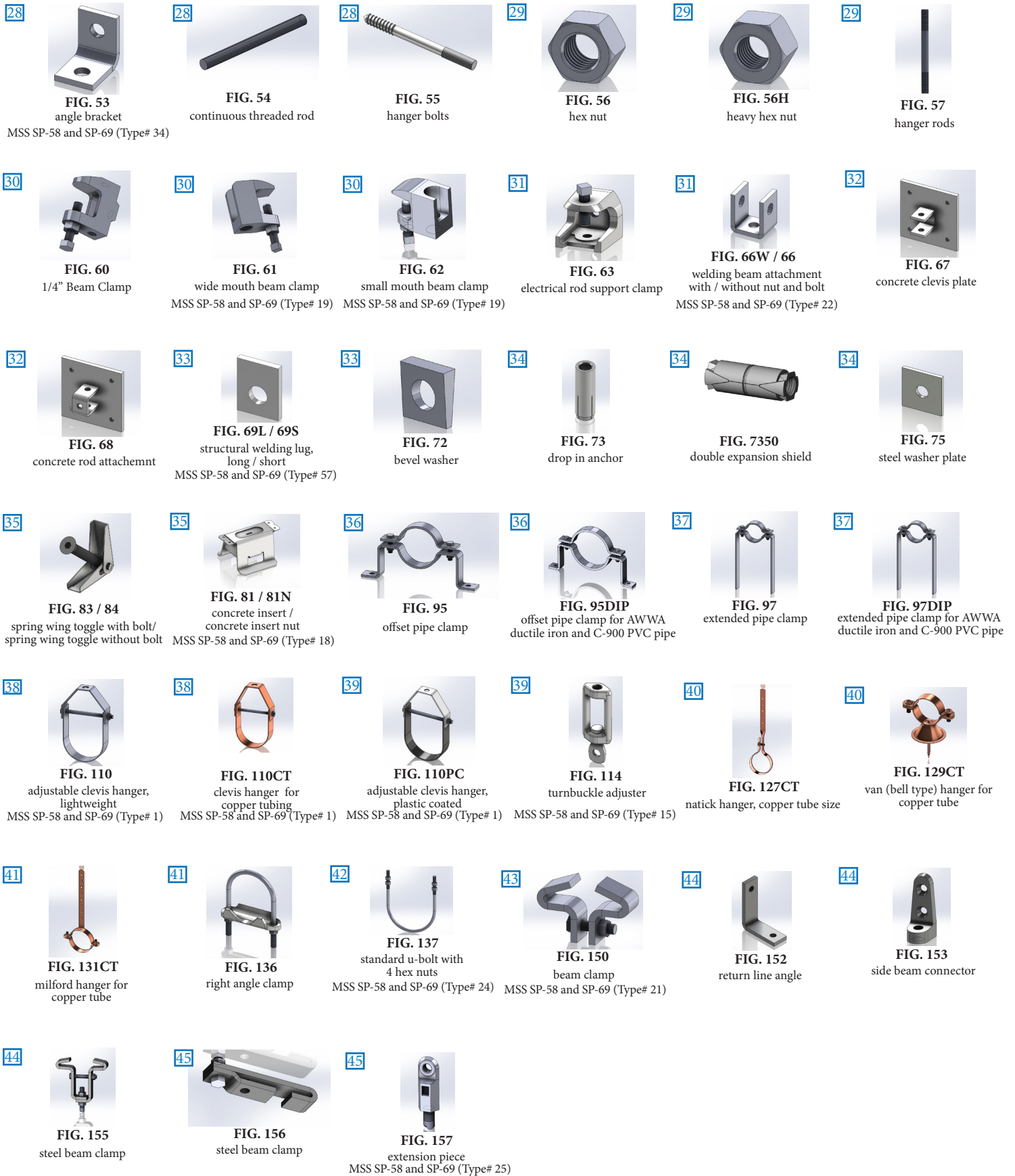
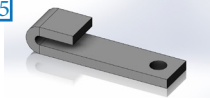
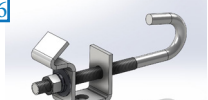
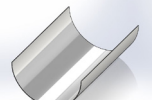
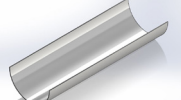
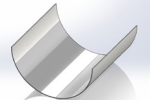
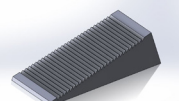
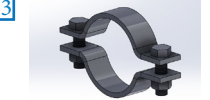
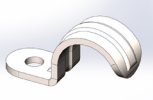
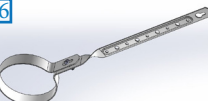
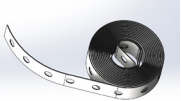
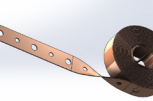
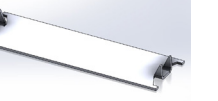
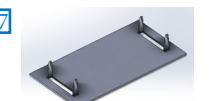
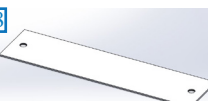
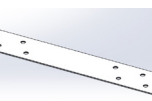
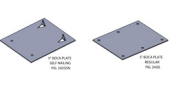
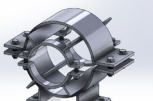
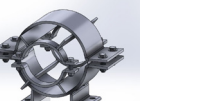
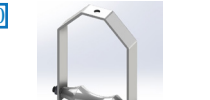
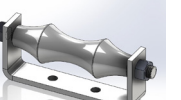
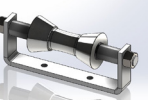
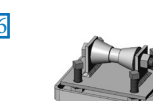


FIG. 52F
fender washer



PICTORAL INDEX

 FIG. 158 top beam hook	 FIG. 159 adjustable rod beam clamp MSS SP-58 and SP-69 (Type# 27)	 FIG. 167 pipe covering protection shield MSS SP-58 and SP-69 (Type# 40)	 FIG. 167MSS MSS pipe covering protection shield MSS SP-58 and SP-69 (Type# 40)	 FIG. 168 short pipe covering protection shield MSS SP-58 and SP-69 (Type# 40)	 FIG. 180 short clip
 FIG. 189 double bolt pipe clamp MSS SP-58 and SP-69 (Type# 3)	 FIG. 189A alloy double bolt pipe clamp MSS SP-58 and SP-69 (Type# 3)	 FIG. 189H heavy double bolt pipe clamp MSS SP-58 and SP-69 (Type# 3)	 FIG. 200 bath tub wedge	 FIG. 212 standard steel pipe clamp MSS SP-58 and SP-69 (Type# 4)	 FIG. 212DIP steel pipe clamp for ductile iron pipe
 FIG. 216 heavy duty two bolt pipe clamp MSS SP-58 and SP-69 (Type# 4)	 FIG. 218 malleable iron center load beam clamp	 FIG. 231 / 231SS two hole pipe strap / stainless steel two hole pipe strap	 FIG. 231CT two hole pipe strap for copper tubing	 FIG. 233 / 233SS one hole pipe strap / stainless steel one hole pipe strap	 FIG. 235 wire pipe hook
 FIG. 235CT wire pipe hook for copper tubing	 FIG. 237 DWV (drain, waste, vent) hanger	 FIG. 237CT DWV (drain, waste, vent) hanger for copper tubing	 FIG. 239 perforated hanger strapping	 FIG. 239CT perforated hanger strapping for copper tubing	 FIG. 240 stud guard, triangle point
 FIG. 245 stud guard, twist point	 FIG. 241 nail plate	 FIG. 243 FHA nail plate	 FIG. 242 / 242GSN boca safety plates	 FIG. 255 pipe alignment guide (single spider clamp)	 FIG. 256 pipe alignment guide
 FIG. 272 adjustable roller hanger MSS SP-58 (Type# 43)	 FIG. 272SR adjustable roller hanger stainless steel w/ short roll MSS SP-58 (Type# 43)	 FIG. 272NCR adjustable roller hanger w/ nonconductive roll MSS SP-58 (Type# 43)	 FIG. 275 roller chair	 FIG. 275SR roller chair, stainless steel w/ short roll	 FIG. 275NCR roller chair w/ nonconductive roll
 FIG. 277 adjustable two rod roller hanger MSS SP-58 and SP-69 (Type# 41)	 FIG. 277SR adjustable two rod roller hanger stainless steel w/ short roll MSS SP-58 and SP-69 (Type# 41)	 FIG. 277NCR adjustable two rod roller hanger w/ nonconductive roll MSS SP-58 and SP-69 (Type# 41)	 FIG. 279S / 279SS pipe roll stand, carbon steel / stainless steel MSS SP-58 and SP-69 (Type# 44)	 FIG. 280S / 280SS pipe roll stand, carbon steel / stainless steel MSS SP-58 and SP-69 (Type# 46)	 FIG. 310 "emlok" adjustable swivel ring hanger MSS SP-58 and SP-69 (Type# 10)

67



FIG. 310CT

"emlok" adjustable swivel ring hanger for copper tubing

MSS SP-58 and SP-69 (Type# 10)

67



FIG. 310NF

"emlok" adjustable swivel ring hanger, NFPA

MSS SP-58 and SP-69 (Type# 10)

68



FIG. 310SS

"emlok" adjustable swivel ring hanger, stainless steel

MSS SP-58 and SP-69 (Type# 10)

68

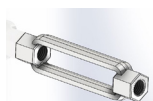


FIG. 320

turnbuckle adjuster

MSS SP-58 and SP-69 (Type# 13)

69



FIG. 420

pipe saddle support

MSS SP-58 and SP-69 (Type# 36)

69



FIG. 421

adjustable pipe saddle support with coupling

70



FIG. 422

adjustable pipe support

70



FIG. 422U

adjustable pipe support w/ u-bolt

70



FIG. 422UDIP

adjustable pipe support w/ u-bolt for ductile iron pipe

72



FIG. 425

pipe saddle support with u-bolt

MSS SP-58 and SP-69 (Type# 37)

73



FIG. 426

adjustable pipe saddle support

MSS SP-58 and SP-69 (Type# 38)

73



FIG. 427

adjustable pipe saddle support with u-bolt

74



FIG. 428

adjustable pipe saddle support kit

75



FIG. 429

adjustable pipe saddle support kit with u-bolt

76



FIG. 430

adjustable flange support kit

77



FIG. 431

adjustable bolt on flange support kit

78



FIG. 450

heavy beam clamp assembly
MSS SP-58 and SP-69 (Type# 28
w/o links, #29 w/ links)

78



FIG. 575

corporation eye bolt

79



FIG. 585

ductile lug

79

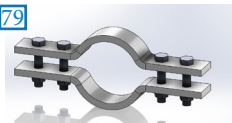


FIG. 595

four bolt socket clamp

80

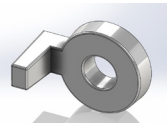


FIG. 599

socket clamp washer

80



FIG. 600DIP

socket clamp

81

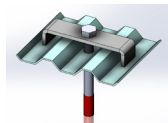


FIG. 685

metal deck anchor

81



FIG. 800

light welded bracket
MSS SP-58 and SP-69 (Type# 32)

83



FIG. 801

medium welded bracket

MSS SP-58 and SP-69 (Type# 32)

83



FIG. 802

heavy welded bracket

MSS SP-58 and SP-69 (Type# 33)

85



FIG. 820

light welded steel bracket & clip

MSS SP-58 and SP-69 (Type# 31)

85



FIG. 900

nailing sleeve

85



FIG. 909

forged steel clevis

MSS SP-58 and SP-69 (Type# 14)

85



FIG. 910

pipe sleeve with welded lugs

85

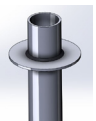


FIG. 915

waterproof sleeve

86

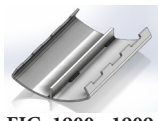


FIG. 1900 - 1909

pipe covering protection saddle
MSS SP-58 and SP-69
(Type# 39)

91



FIG. 4000 series

pipe slide tees
slide plates

92

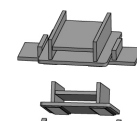


FIG. 4300H

h-slides and guides
types s, g, l, and u

MSS SP-58, FS A-A-1192A type 35

100

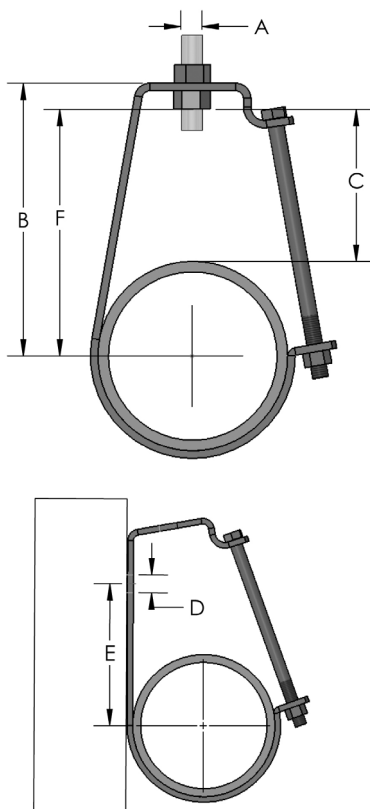


FIG. DPCSS

manhole drop pipe clamp

FIG. 10J

j-hanger



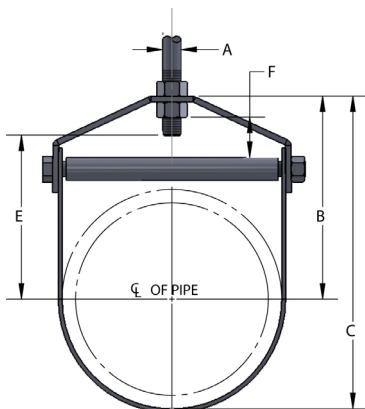
Materials/Finishes:	Electro-Galvanized: Imported (10JGI)	
	Electro-Galvanized: Imported, 3/16" Felt-lined (10JGIFL)	
Variants:	T-304 Stainless (10JSS)	T-316 Stainless (10JSX)
Service:	Designed for the suspension of non-insulated, stationary pipe lines.	
Approvals:	Complies with Manufactures' Standardization Society (MSS) SP-58 & SP-69 (Type 5)	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Stainless steel hangers are recommended for applications where protection from a corrosive environment is required.	

ELECTRO-GALVANIZED (10JGI)										
PIPE SIZE	PIPE OD	BOLT	A	B	C	D	E	F	WGT EACH (LBS)	MAX REC LOAD (LBS)
1/2	0.840	1/4	3/8"-16	2-5/8	1-3/4	7/16	1-1/2	1-15/16	0.15	400
3/4	1.050	1/4	3/8"-16	2-7/8	1-7/8	7/16	1-3/4	2-1/8	0.20	400
1	1.315	1/4	3/8"-16	2-15/16	1-15/16	7/16	1-7/8	2-5/16	0.20	400
1-1/4	1.660	1/4	3/8"-16	3-1/4	2	7/16	2-3/16	2-5/8	0.20	400
1-1/2	1.900	1/4	3/8"-16	3-9/16	2-3/16	7/16	2-1/2	2-7/8	0.25	400
2	2.375	1/4	3/8"-16	3-11/16	2-1/8	7/16	2-11/16	3-1/16	0.25	400
2-1/2	2.875	3/8	1/2"-13	4-7/16	2-7/16	9/16	2-7/8	3-5/8	0.60	500
3	3.500	3/8	1/2"-13	4-13/16	2-9/16	9/16	3-1/2	4-1/16	0.78	500
3-1/2	4.000	3/8	1/2"-13	5-1/8	2-5/8	9/16	3-3/4	4-3/8	1.00	500
4	4.500	3/8	5/8"-11	6-7/8	3-3/16	9/16	4-1/4	5-3/16	1.10	550
5	5.563	3/8	5/8"-11	6-3/4	3-1/4	9/16	5-7/16	5-3/4	1.25	550
6	6.625	3/8	3/4"-10	7-3/4	3-9/16	9/16	5-5/8	6-5/8	2.25	600
8	8.625	3/8	7/8"-9	9-3/16	3-15/16	9/16	6-3/16	8	2.90	760
10	10.750	3/8	7/8"-9	11-3/16	4-13/16	9/16	7-13/16	10-3/16	3.45	760

T-304 STAINLESS (10JSS) AND T-316 STAINLESS (10JSX)										
PIPE SIZE	PIPE OD	BOLT	A	B	C	D	E	F	WGT EACH (LBS)	MAX REC LOAD (LBS)
1/2	0.840	1/4	3/8"-16	2-5/8	1-3/4	7/16	1-1/2	1-15/16	0.21	400
3/4	1.050	1/4	3/8"-16	2-7/8	1-7/8	7/16	1-11/16	2-1/8	0.22	400
1	1.315	1/4	3/8"-16	2-15/16	1-15/16	7/16	1-13/16	2-5/16	0.25	400
1-1/4	1.660	1/4	3/8"-16	3-1/4	2	7/16	2-1/16	2-5/8	0.27	400
1-1/2	1.900	1/4	3/8"-16	3-9/16	2-3/16	7/16	2-7/16	2-7/8	0.29	400
2	2.375	1/4	3/8"-16	3-11/16	2-1/8	7/16	2-9/16	3-1/16	0.31	400
2-1/2	2.875	3/8	1/2"-13	4-7/16	2-7/16	9/16	3-3/16	3-5/8	0.71	500
3	3.500	3/8	1/2"-13	4-13/16	2-9/16	9/16	3-1/2	4-1/16	0.78	500
3-1/2	4.000	3/8	1/2"-13	5-1/8	2-5/8	9/16	3-3/4	4-3/8	0.84	500
4	4.500	3/8	5/8"-11	6-1/8	3-3/16	9/16	4-5/8	5-3/16	1.39	550
5	5.563	3/8	5/8"-11	6-3/4	3-1/4	9/16	5-1/16	5-3/4	1.66	550
6	6.625	3/8	3/4"-10	7-3/4	3-9/16	9/16	5-13/16	6-5/8	2.26	600
8	8.625	3/8	7/8"-9	9-3/16	3-15/16	9/16	6-15/16	8	3.32	760

FIG. 11DIP

clevis hanger for awwa ductile iron and pvc c-900 pipe



"E" dimension includes exposed rod threads beyond bottom of the hex nut. Exposed rod thread dimension is equal to the diameter of the rod used.

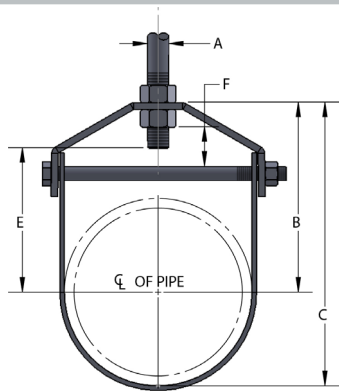


Materials/Finishes:	Plain Carbon Steel (11DIPB)	Hot-Dip Galvanized (11DIPHDG)
	T-304 Stainless (11DIPSS)	T-316 Stainless (11DIPSSX)
Service:	Designed for the suspension of stationary AWWA ductile iron pipe and PVC C-900 pipe.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 1).	
Ordering:	Specify figure number, material, finish and pipe size.	
Notes:	For 3" DIP, use standard 11G0350. For sizes 8" and larger a spacer sleeve is added over the cross bolt. Upper locknut must be tightened securely to assure proper hanger performance. Stainless steel hangers are recommended for applications where protection from a corrosive environment is required.	

PIPE SIZE AWWA	PIPE OD	BOLT	A	B	C	E	F	WGT EACH (LBS)	MAX REC LOAD (LBS)
4	4.800	3/8	5/8	6	8-1/2	4-5/8	2-1/8	1.32	1430
6	6.900	1/2	3/4	6-13/16	10-1/8	5-3/16	1-3/4	2.86	1940
8	9.050	5/8	3/4	8-5/16	13	6-7/8	1-7/8	4.56	2000
10	11.100	3/4	7/8	10-1/2	16-1/4	8-1/2	2-1/4	8.70	3600
12	13.200	3/4	7/8	11-3/4	18-3/4	9-3/4	2-13/16	11.08	3800
14	15.300	1	1	13	20-3/4	11-3/4	2-1/2	17.57	4200
16	17.400	1	1	15-1/4	25	13-1/2	3-3/8	25.38	4600
18	19.500	1-1/4	1	17-1/2	27-1/2	15-1/8	3-3/4	47.00	4800
20	21.600	1-1/4	1-1/4	18-1/2	29-1/2	16-3/8	3-3/4	50.50	4800
24	25.800	1-1/4	1-1/4	20-3/4	34	18-5/8	4	58.00	4800
30	32.000	1-1/4	1-1/4	26-5/8	43	24	5-3/16	75.00	6000

FIG. 11

adjustable clevis hanger, standard



"E" dimension includes exposed rod threads beyond bottom of the hex nut. Exposed rod thread dimension is equal to the diameter of the rod used.



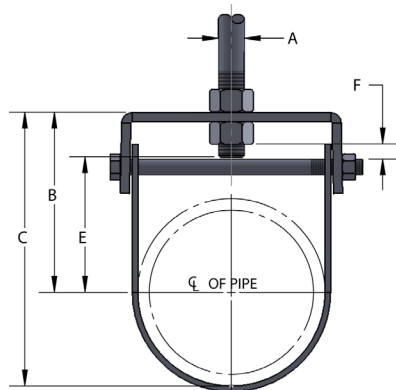
Materials/Finishes:	Plain Carbon Steel (11B)	Electro-Galvanized (11G)
	Hot-Dip Galvanized (11HDG)	T-304 Stainless (11SS)
Variants:	T-316 Stainless (11SX)	
	Pipe Gard: 2" - 30" (11PG)	Pipe Gard, Imported 3/4" - 12" (11PG)
	Electro-Galvanized, Imported: 1/2" - 12" (11GI)	
	Electro-Galvanized, 3/16" thick Felt-Lined, Imported: 1/2" - 8" (11GIFL)	
Service:	Hot-Dip Galvanized, Imported: 1/2"-2", 3", 4"-6", 8" (11HDGI)	
	Designed for the suspension of non-insulated, stationary pipe lines. If being used on an insulated line, please use in conjunction with an insulation shield (fig. 167). For Clevis Hanger with Welded Shield, see FIG. 11WS.	
	Approvals:	
	U.L. - U.L.C. listed (sizes 2-1/2" - 8" excluding 7") and FM approved (3/4" - 2" galv only. 2-1/2" - 4" plain and galv.). If required, Empire offers a modified 5", 6", and 8" FM Approved Clevis Hanger. Please contact Sales for more information. Complies with Manufacturers' Standardization Society MSS SP-58 (Type# 1).	
Ordering:	Specify figure number, material, finish type and pipe size.	
Notes:	For sizes 20" and larger a spacer sleeve is added over the cross bolt. Upper locknut must be tightened securely to assure proper hanger performance. Stainless steel hangers are recommended for applications where protection from a corrosive environment is required. For sizes 3" and up (Imported) and 14" and up (Domestic), a double-end stud and two hex nuts are used. A double-end stud and hex nuts may be used as an alternative fastener in replacement of a bolt and nut.	

PIPE SIZE	PIPE OD	BOLT	A	B	C	E	F	WGT EACH (LBS)	MAX REC LOAD (LBS)
1/2	0.840	1/4	3/8	1-11/16	2-1/16	5/16	7/16	0.18	730
3/4	1.050	1/4	3/8	1-11/16	2-9/16	1-5/16	7/16	0.20	730
1	1.315	1/4	3/8	2-1/16	2-11/16	1-1/4	5/8	0.22	730
1-1/4	1.660	1/4	3/8	2-1/2	3-3/16	1-11/16	7/8	0.26	730
1-1/2	1.900	1/4	3/8	2-7/8	3-11/16	2-1/16	1-1/16	0.32	730
2	2.375	1/4	3/8	3-5/16	4-7/16	2-1/2	1-1/4	0.41	730
2-1/2	2.875	5/16	1/2	4-1/2	5-7/8	3-3/8	1-15/16	0.84	1130
3	3.500	5/16	1/2	4-3/4	6-1/2	3-11/16	1-3/4	0.94	1130
3-1/2 *	4.000	5/16	1/2	5-7/8	7-15/16	4-13/16	2-9/16	1.19	1350
4	4.500	3/8	5/8	5-5/16	8-3/16	4-9/16	2-1/8	1.32	1430
5	5.563	1/2	5/8	5-11/16	8-7/16	4-5/16	1-7/16	2.11	1430
6	6.625	1/2	3/4	6-13/16	10-1/8	5-3/16	1-3/4	2.96	1940
7 *	7.625	1/2	3/4	7-13/16	11-5/8	6-3/16	2	3.24	2000
8	8.625	5/8	3/4	8-1/16	12-7/16	6-1/4	1-7/8	4.53	2000
10	10.750	3/4	7/8	10	15-7/16	8	2-1/4	8.23	3600
12	12.750	3/4	7/8	11-9/16	18	9-9/16	2-13/16	10.35	3800
14	14.000	7/8	1	12-9/16	19-9/16	10-9/16	2-9/16	14.19	4200
16	16.000	1	1	13-15/16	21-15/16	11-15/16	2-13/16	20.06	4600
18	18.000	1	1	16	25	13-7/8	3-3/4	23.07	4800
20	20.000	1-1/4	1-1/4	17-1/2	27-1/2	15-1/8	3-3/4	46.75	4800
24	24.000	1-1/4	1-1/4	19-3/4	31-3/4	17-3/8	4	53.00	4800
30	30.000	1-1/4	1-1/4	24-1/8	39-1/8	21-1/2	4-3/4	69.50	6000
36	36.000	1-1/4	1-1/4	29	47	23-3/4	6-1/2	86.70	6000

* NOT AVAILABLE IN T-304 STAINLESS STEEL

FIG. 11F

flat top clevis hanger



"E" dimension includes exposed rod threads beyond bottom of the hex nut. Exposed rod thread dimension is equal to the diameter of the rod used.

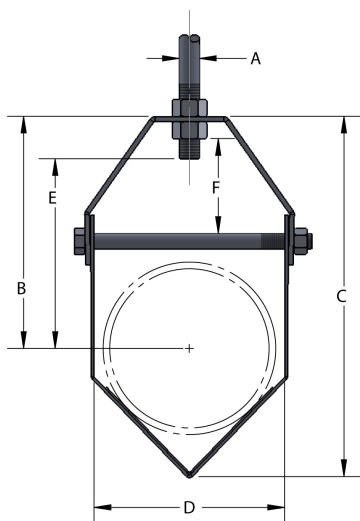


Materials/Finishes:	Plain Carbon Steel (11FB)	Electro-Galvanized (11FG)
	Hot-Dip Galvanized (11FHDG)	T-304 Stainless (11FSS)
	T-316 Stainless (11FSX)	
Service:	Designed for the suspension of non-insulated stationary pipe where space is limited.	
Approvals:	Complies with MSS SP-58 and SP-69 (Type #1).	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Upper locknut must be tightened securely to assure proper hanger performance.	

PIPE SIZE	PIPE OD	BOLT	A	B	C	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
1-1/2	1.900	1/4	3/8	2-1/8	3-1/8	1-5/16	5/16	0.42	250
2	2.375	1/4	3/8	2-1/2	3-11/16	1-5/8	7/16	0.46	300
2-1/2	2.875	5/16	1/2	2-7/8	4-3/16	1-7/8	7/16	0.78	500
3	3.500	5/16	1/2	3-5/8	5-3/8	2-9/16	11/16	0.98	500
3-1/2	4.000	5/16	1/2	4-1/16	6-1/16	2-15/16	3/4	1.36	500
4	4.500	3/8	5/8	4-1/16	6-5/16	3-1/8	3/16	1.38	700
5	5.563	1/2	5/8	4-7/8	7-5/8	3-1/2	5/8	2.08	700
6	6.625	1/2	3/4	5-1/2	8-7/8	3-7/8	7/16	2.82	900
8	8.625	5/8	3/4	6-3/8	10-7/8	4-5/8	5/16	4.34	1000
10	10.75	3/4	7/8	8-5/8	14	6-7/8	1-1/2	8.06	1800
12	12.50	3/4	7/8	9-5/8	16	7-5/8	2-9/16	18.05	1800

FIG. 11V

v bottom clevis hanger



"E" dimension includes exposed rod threads beyond bottom of the hex nut. Exposed rod thread dimension is equal to the diameter of the rod used.

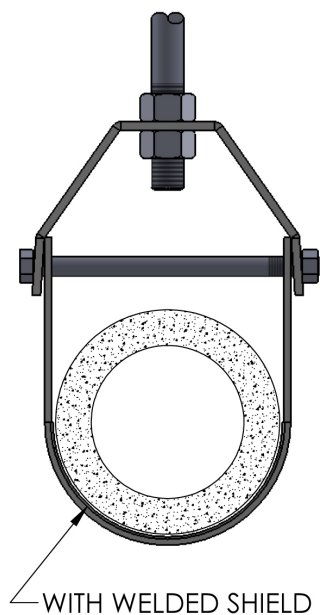


Materials/Finishes:	Plain Carbon Steel (11VB)	Electro-Galvanized (11VG)
	Hot-Dip Galvanized (11VHDG)	T-304 Stainless (11VSS)
	T-316 Stainless (11VSX)	
Service:	Designed for the suspension of flexible plastic pipe lines. Used in conjunction with figure #12 channel.	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Hanger and channel sold separately. Upper locknut must be tightened securely to assure proper hanger performance.	

PIPE SIZE	SIZE NO.	BOLT	A	B	C	D	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	1	1/4	3/8	5-3/16	5-7/8	2-9/16	47-1/16	1-1/4	.30	250
3/4	1	1/4	3/8	5	5-7/8	2-9/16	4-1/4	1-1/4	.30	250
1	1	1/4	3/8	4-7/8	5-7/8	2-9/16	4-1/16	1-1/4	.30	250
1-1/4	1	1/4	3/8	4-5/8	5-7/8	2-9/16	3-7/8	1-1/4	.30	250
1-1/2	1	1/4	3/8	4-7/16	5-7/8	2-9/16	3-11/16	1-1/4	.30	250
2	1	1/4	3/8	4-1/8	5-7/8	2-9/16	3-3/8	1-1/4	.30	250
2-1/2	2	3/8	1/2	6-13/16	8-15/16	4-11/16	5-3/4	2-3/8	.96	300
3	2	3/8	1/2	6-3/8	8-15/16	4-11/16	5-5/16	2-3/8	.96	300
4	2	3/8	1/2	5-11/16	8-15/16	4-11/16	4-1/2	2-3/8	.96	300
5	3	1/2	3/4	7-3/4	11-3/4	6-7/8	6-1/2	1-3/4	3.05	350
6	3	1/2	3/4	6-13/16	11-3/4	6-7/8	5-3/16	1-3/4	3.05	350
7	4	5/8	3/4	8-13/16	14-1/2	9-1/4	7-9/16	1-7/8	4.65	400
8	4	5/8	3/4	6-5/16	14-1/2	9-1/4	7-1/16	1-7/8	4.65	400
10	5	3/4	7/8	10-5/8	18-3/8	11-1/4	9-1/8	2-1/4	9.05	550

FIG. 11WS

clevis with welded shield

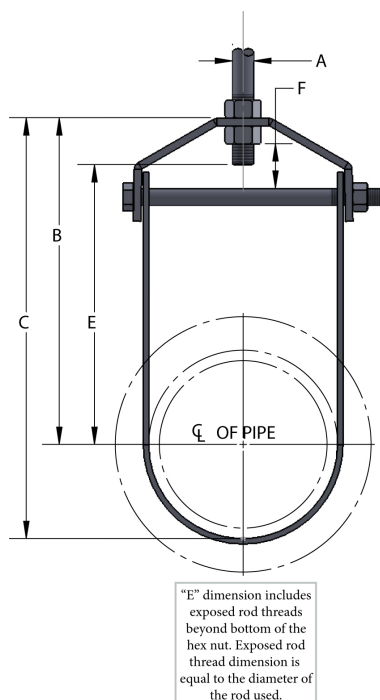


Materials/Finishes:	Electro-Galvanized (11GWS)	T-304 Stainless (11SSWS)
	T-316 Stainless (11SXWS)	
Service:	Designed for the suspension of stationary insulated pipe lines. Insulation protection shield is spot welded in place.	
Ordering:	Specify figure number, finish and hanger size.	
Notes:	To determine proper hanger size, use hanger selection guide below. Upper locknut must be tightened securely to assure proper hanger performance.	

PIPE SIZE	THICKNESS OF PIPE INSULATION					
	1/2"	1"	1-1/2"	2"	2-1/2"	3"
1/2	1-1/2	2-1/2	3-1/2	5	6	7
3/4	2	3	3-1/2	5	6	7
1	2	3	4	5	6	7
1-1/4	2-1/2	3-1/2	4	5	6	7
1-1/2	2-1/2	3-1/2	5	6	7	8
2	3	4	5	6	7	8
2-1/2	3-1/2	5	6	7	8	10
3	4	5	6	7	8	10
3-1/2	5	6	7	8	10	10
4	5	6	7	8	10	10
5	6	7	8	10	10	12
6	7	8	10	10	12	12
8	10	10	12	12	14	16
10	12	12	14	16	16	18
12	14	14	16	18	18	20
14	16	16	18	18	20	20
16	18	18	20	20	24	24

FIG. 11X

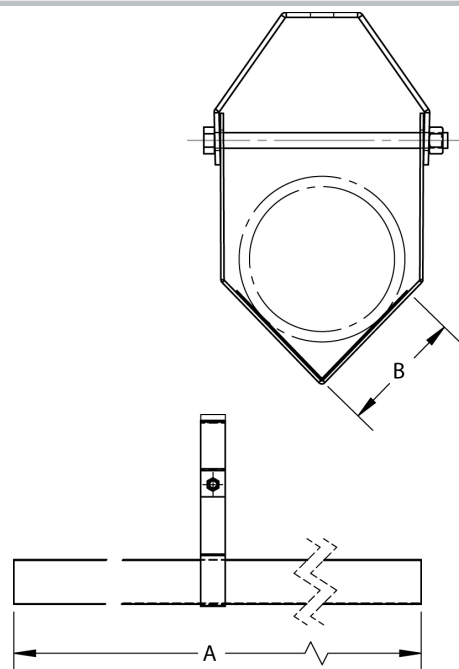
adjustable clevis hanger with extended bottom



Materials/Finishes:	Plain Carbon Steel (11XB)	Electro-Galvanized (11XG)
	Hot-Dip Galvanized (11XHDG)	T-304 Stainless (11XSS)
	T-316 Stainless (11XSX)	
Service:	Designed for the suspension of insulated stationary pipe lines. The bottom section of the hanger is elongated to allow for easier installation of insulation.	
Approvals:	Complies with Federal Specifications WW-H-171-E (Type# 1), A-A-1192 A (Type# 1), and Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 1).	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Upper locknut must be tightened securely to assure proper hanger performance.	

PIPE SIZE	PIPE OD	BOLT	A	B	C	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.840	1/4	3/8	3-13/16	4-1/4	3	7/16	.30	730
3/4	1.050	1/4	3/8	3-3/4	4-3/16	2-15/16	7/16	.33	730
1	1.315	1/4	3/8	4-1/8	4-3/4	3-5/16	5/8	.34	730
1-1/4	1.660	1/4	3/8	4-7/16	5-1/4	3-5/8	7/8	.39	730
1-1/2	1.900	1/4	3/8	4-3/4	5-3/4	3-15/16	1-1/16	.47	730
2	2.375	1/4	3/8	7-1/4	8-7/16	6-7/16	1-1/4	.65	730
2-1/2	2.875	5/16	1/2	8-13/16	10-3/16	7-3/4	1-15/16	1.24	1130
3	3.500	5/16	1/2	9	10-3/4	7-15/16	1-3/4	1.34	1130
4	4.500	3/8	5/8	12-3/8	12-3/8	8-13/16	2-1/8	1.92	1430
5	5.563	1/2	5/8	9-7/8	12-9/16	8-7/16	1-7/16	2.58	1430
6	6.625	1/2	3/4	10-7/8	14-1/8	9-1/4	1-3/4	3.36	1940
8	8.625	5/8	3/4	12-1/4	16-9/16	10-7/16	1-7/8	5.08	2000
10	10.750	3/4	7/8	14-1/2	19-7/8	12-1/2	2-1/4	9.08	3600
12	12.750	3/4	7/8	15-7/8	22-1/4	13-7/8	2-13/16	11.54	3800
14	14.000	7/8	1	16-7/8	22-13/16	14-7/8	2-9/16	14.80	4200

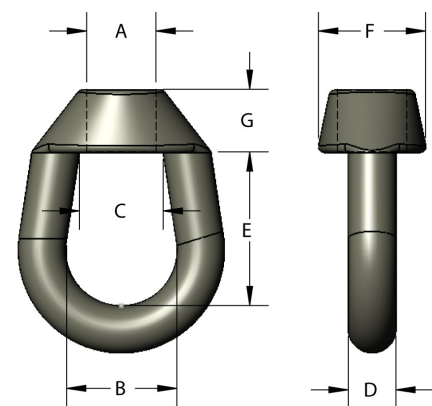
FIG. 12
v-channel



Materials/Finishes:	Pre-Galvanized (12V)
Service:	Designed for the support of plastic or other flexible pipe systems. Use with FIG. 11V "V" bottom clevis hanger. Hangers should be placed as close to channel joints as possible.
Ordering:	Specify figure number and size number

SIZE NO.	FOR PIPE SIZE	CHANNEL LENGTH A	B	WGT EACH (lbs)	MAX REC LOAD (lbs)
1	1/2 TO 2	10'	1-1/2	5.4	150
2	2-1/2 TO 4	10'	3	10.8	250

FIG. 13I
weldless eyenut

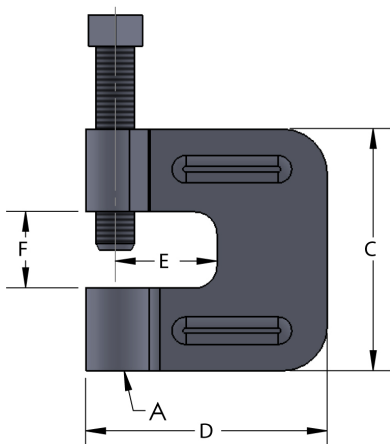


Materials/Finishes:	Plain Carbon Steel, Imported (13BI) T-304 Stainless, Imported (13SSI)	Hot-Dip Galvanized, Imported (13HDGI)
Variants:	Plain Carbon Steel (13B) T-316 Stainless (13SX) Hot-Dip Galvanized, L.H. Threads (13LHDG)	Hot-Dip Galvanized (13HDG) Plain Carbon Steel, L.H. Threads (13LB) T-316 Stainless, L.H. Threads (13LSX)
Service:	Designed for use on high temperature piping applications.	
Approvals:	Complies with Federal Specifications WW-H-171-E (Type# 17), A-A-1192 A (Type# 17), and Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 17).	
Ordering:	Specify figure number, finish and rod size.	
Notes:	Supports loads equal to the full limitation of the hanger rod. When figure 13I is supplied in hot-dip galvanized finish, it is not tapped oversized.	

SIZE A	B	C	D	E	F	G	WGT EACH (lbs)	MAX REC LOAD (lbs)	
								650°F	750°F
3/8-16	1-1/4	13/16	3/8	1-3/8	15/16	5/8	0.23	730	540
1/2-13	1-1/4	13/16	3/8	1-3/8	15/16	5/8	0.55	1350	1010
5/8-11	1-1/2	1-1/4	1/2	2	1-7/16	11/16	0.52	2160	1610
3/4-10	1-1/2	1-1/4	1/2	2	1-7/16	11/16	1.70	3230	2420
7/8-9	2	1-3/4	3/4	2-3/8	2	1	1.70	4480	3360
1-8	2	1-3/4	3/4	2-3/8	2	1	1.70	5900	4420
1-1/8-7	2-1/2	1-7/8	1	3-3/8	2-3/8	1-1/4	3.70	6230	5560
1-1/4-7	2-1/2	1-7/8	1	3-3/8	2-3/8	1-1/4	3.50	9500	7140
1-1/2-6	2-1/2	1-7/8	1	3-3/8	2-3/8	1-1/4	3.50	13800	10370

FIG. 21 / 21L

steel c-clamp

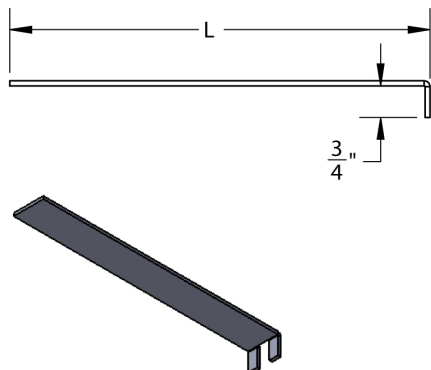


Materials/Finishes:	Plain Carbon Steel (21B)	Electro-Galvanized (21G)
Variants:	Plain Carbon Steel W/ Locknut (21LB) Electro-Galvanized W/ Locknut (21LG) T-304 Stainless Steel W/ Locknut (21LSS) T-316 Stainless Steel W/ Locknut (21LSX)	
Service:	Designed for attaching hanger rod to the bottom flange of a beam. Features the ribbed design for added strength. Hardened steel cup point set screw secures clamp to beam.	
Approvals:	UL - U.L.C. listed 3/8 and 1/2 (1/2 for 4" IPS max) with lock nut only. FM approved for 3/8 only with and without locknut. Complies with Manufacturers' Standard Society SP-58 and MSS SP-69 (Type# 23).	
Ordering:	Specify figure number, finish and rod size.	
Notes:	See MSS SP-58 and SP-69 for proper set screw torque recommendations	

ROD SIZE A	SET SCREW	C	D	E	F	MAX PIPE SIZE	WGT EACH (lbs)		MAX REC LOAD (lbs)
							21 (W/O NUT)	21L (W/ NUT)	
3/8-16	3/8-16	2-3/8	2-3/8	1	3/4	4	.38	.40	400
1/2-13	3/8-16	2-3/8	2-3/8	1	3/4	4	.38	.40	500
5/8-11	1/2-13	2-3/8	2-5/16	7/8	3/4	5	.56	.60	550
3/4-10	5/8-11	2-3/8	2-5/16	7/8	3/4	6	.60	.68	630

FIG. 21R

retaining strap

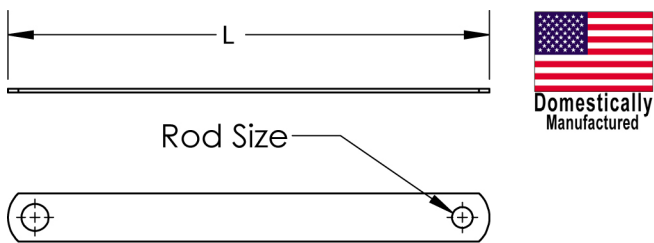


Materials/Finishes:	Plain Carbon Steel (21RB)	Electro-Galvanized (21RG)
	T-304 Stainless Steel (21RSS)	T-316 Stainless Steel (21RSX)
Service:	Designed for use with figure FIG. 21, FIG. 21L (3/8"-3/4") and FIG. 23L (3/8" and 1/2") to eliminate movement of the beam clamp due to vibration.	
Approvals:	FM Approved (3/8")	
Ordering:	Specify figure number, finish and length	
Notes:	Add 2" minimum to flange width to determine length.	

MATERIAL	WGT EACH (lbs)					
	LENGTH L					
	4-1/2	6	8	10	12	14
11GA X 1-1/4	.22	.30	.36	.44	.48	.66

FIG. 22R

retaining strap

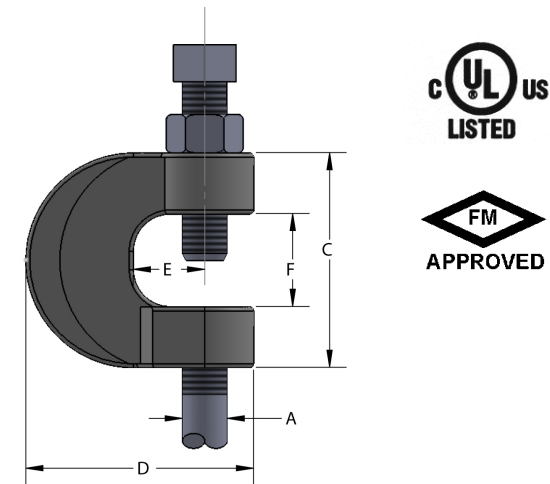


Materials/Finishes:	Pre-Galvanized (22RG) T-304 Stainless Steel: 3/8" - 1/2", 13ga x 1" (22RSS) T-316 Stainless Steel: 3/8" - 1/2", 13ga x 1" (22RSX)
Service:	Designed for use with FIG. 61 and FIG. 62.
Ordering:	Specify figure number, finish and length
Notes:	Add 2" minimum to flange width to determine length. Custom lengths available.

ROD SIZE A	MATERIAL	WGT EACH (lbs)					
		LENGTH L					
		4-1/2	6	8	10	12	14
3/8	14ga x 1	.14	.18	.26	.32	.40	.46
1/2	14ga x 1	.14	.18	.26	.32	.38	.44
5/8	14ga x 1-3/16	.17	.22	.30	.40	.47	.55
3/4	14ga x 1-3/16	.17	.22	.30	.40	.47	.55
7/8	14ga x 2	.28	.36	.48	.64	.76	.88

FIG. 23L

malleable iron c-clamp with locknut

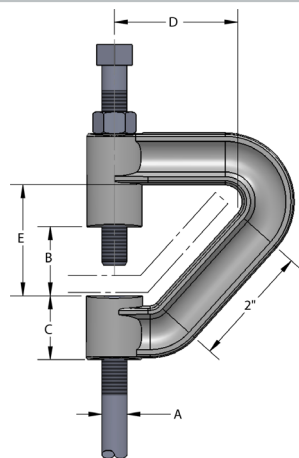


Materials/Finishes:	Plain Ductile Iron (23LB)	Electro-Galvanized (23LG)
Service:	Designed for attaching hanger rod to the bottom flange of a beam.	
Approvals:	U.L. - U.L.C. listed and FM approved 3/8 and 1/2 ONLY. Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 23).	
Ordering:	Specify figure number, finish and rod size.	
Notes:	See MSS SP-58 and SP-69 for proper set screw torque recommendations	

ROD SIZE A	SET SCREW	C	D	E	F	MAX PIPE SIZE	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8-16	3/8-16	1-3/4	1-3/4	5/8	3/4	4	0.40	400
1/2-13	3/8-16	1-3/4	1-3/4	5/8	3/4	4	0.39	500
5/8-11	3/8-16	2	2	5/8	3/4	5	0.65	550
3/4-10	3/8-16	2	2	5/8	3/4	6	0.76	630

FIG. 24

purlin clamp

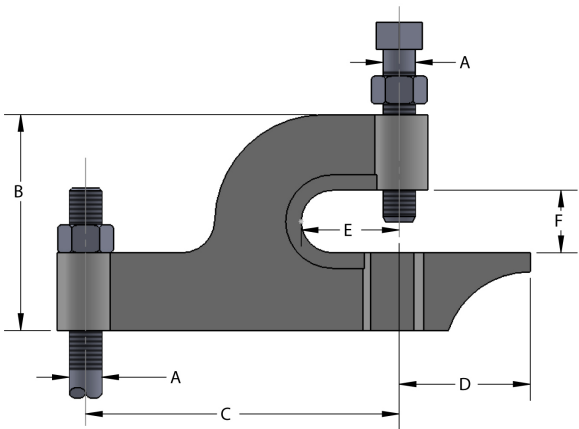


Materials/Finishes:	Plain Ductile Iron (24LB)	Electro-Galvanized (24LG)
Service:	Designed for use with large-lip steel Purlin beams	
Ordering:	Specify figure number and finish	
Notes:	See MSS SP-58 and SP-69 for proper set screw torque recommendations	

SIZE A	SET SCREW	B	C	D	E	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8-16	3/8-16 x 3	1	1	1-7/8	1-5/8	0.92	400

FIG. 25L

extended c-clamp with locknut

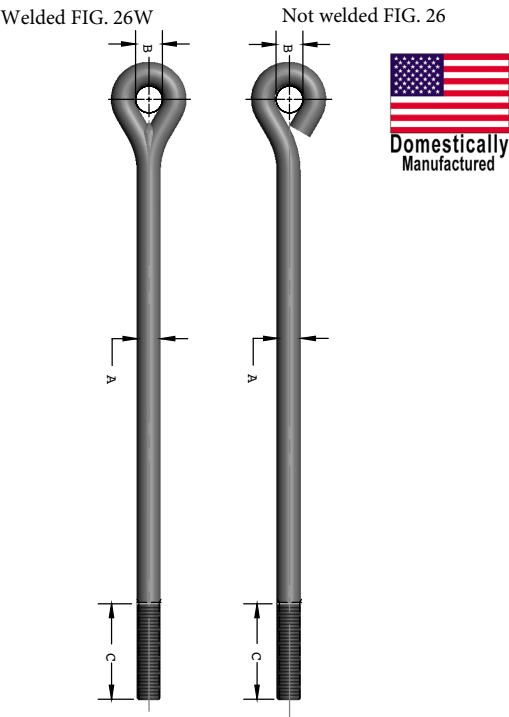


Materials/Finishes:	Plain Ductile Iron (25LB)	Electro-Galvanized (25LG)
Service:	Designed for attachment to beams where flange thickness does not exceed 3/4" and where it is desired to have the rod support offset from the beam.	
Ordering:	Specify figure number and finish	
Notes:	See MSS SP-58 and SP-69 for proper set screw torque recommendations	

SIZE A	SET SCREW	B	C	D	E	F	WGT EACH (lbs)
3/8 - 16	3/8 - 16 x 2	2.362	3.600	1.515	1.000	0.787	0.716

FIG. 26

eye rod

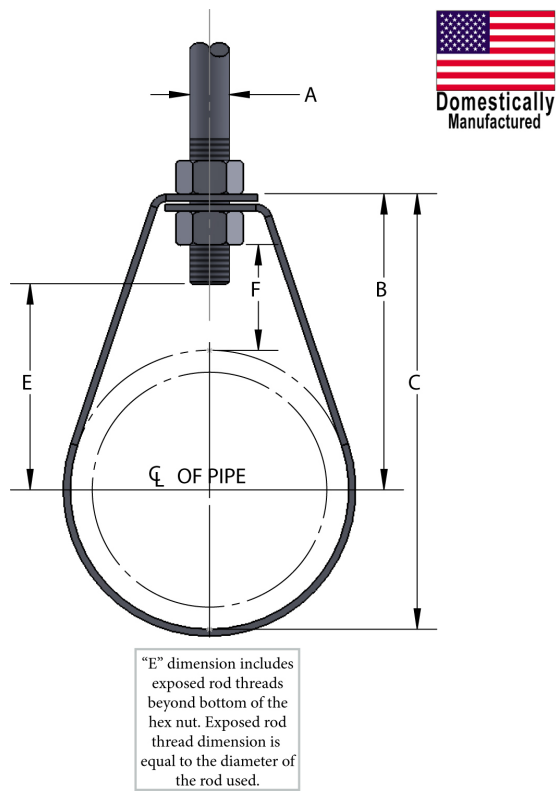


Materials/Finishes:	Plain Carbon Steel (26B)	Electro-Galvanized (26G)
	Hot-Dip Galvanized (26HDG)	T-304 Stainless Steel (26SS)
	T-316 Stainless Steel (26SX)	
Variants:	Plain Carbon Steel, Welded (26WB)	Electro-Galvanized, Welded (26WG)
	Hot-Dip Galvanized, Welded (26WHDG)	T-304 Stainless Steel, Welded (26WSS)
	T-316 Stainless Steel, Welded (26WSX)	
Service:	Designed for for use in hanger assemblies and supports.	
Ordering:	Specify figure number, finish and rod size.	
Notes:	Other lengths, rod diameters and thread lengths available upon request.	

ROD SIZE A	B	C	MAX REC LOAD (lbs)		
			FIG# 26 (NOT WELDED) 650°F	FIG# 26W (WELDED)	
				650°F	750°F
3/8-16	0.500	2.500	240	610	540
1/2-13	0.625	2.500	440	1130	1010
5/8-11	0.750	2.500	705	1810	1610
3/4-10	0.875	3.000	1050	2710	2420
7/8-9	1.000	3.500	1470	3770	3360
1-8	1.125	4.000	1940	4960	4420
1-1/8" - 7	1.250	4.500	2430	6230	5560
1-1/4" - 7	1.375	5.000	3120	8000	7140
1-1/2" - 6	1.625	6.000	4650	11630	10370

FIG. 31

band hanger

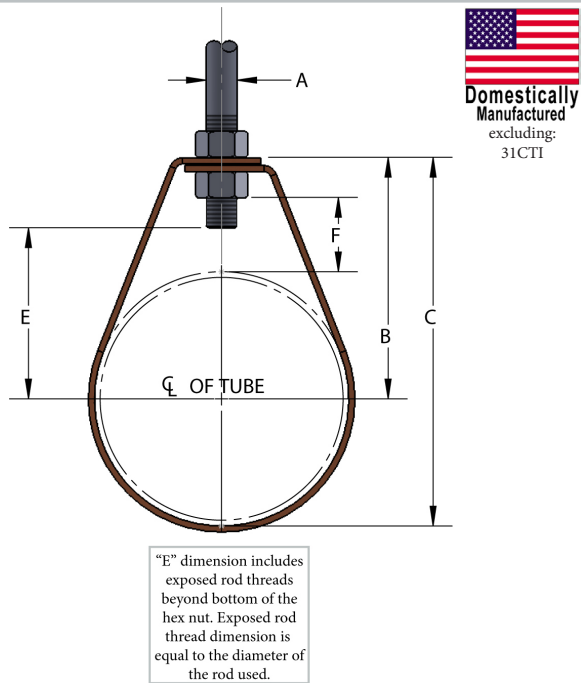


Materials/Finishes:	Plain Carbon Steel (31B)	Electro-Galvanized (31G)
	Plastic Coated (31PC)	T-304 Stainless (31SS)
	T-316 Stainless (31SX)	
Variants:	Pipe Gard (31PG) - Please contact factory for details.	
Service:	Designed for the suspension of non-insulated stationary pipe lines. The plastic coated band hanger protects the pipe from the steel surface of the hanger and is designed to reduce noise, vibration and prevents electrolysis between pipe and the hanger. Stainless steel hangers are recommended for applications where protection from corrosive environments is needed.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 7).	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Upper locknut must be tightened securely to assure proper hanger performance.	

PIPE SIZE	PIPE OD	A	B	C	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8	0.675	3/8	2-1/4	2-5/8	1-7/16	1-1/2	.100	610
1/2	0.840	3/8	2-1/4	2-11/16	1-7/16	1-3/8	.100	610
3/4	1.050	3/8	2-3/16	2-11/16	1-3/8	1-3/16	.100	610
1	1.315	3/8	2-3/16	2-7/8	1-3/8	1-1/8	.120	610
1-1/4	1.660	3/8	2-7/16	3-1/4	1-9/16	1-1/8	.120	610
1-1/2	1.900	3/8	2-9/16	3-1/2	1-3/4	1-3/16	.140	610
2	2.375	3/8	2-7/8	4-1/16	2-1/6	1-1/4	.160	610
2-1/2	2.875	1/2	3-3/8	4-13/16	2-1/4	1-3/8	.280	970
3	3.500	1/2	3-3/4	5-1/2	2-5/8	1-3/8	.380	970
3-1/2	4.000	1/2	4-1/16	6-1/16	3-1/4	1-3/4	.420	970
4	4.500	1/2	4-1/8	6-3/8	3-5/16	1-9/16	.600	1130
5	5.563	1/2	5-1/4	8-1/6	4-7/16	2-3/16	.700	1130
6	6.625	3/4	6-7/16	9-3/4	5-5/8	3-1/16	1.340	1600
8	8.625	3/4	8-1/4	12-9/16	7-7/16	3-7/8	1.640	1800

FIG. 31CT

band hanger for copper tubing



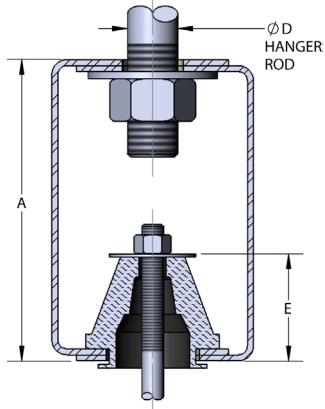
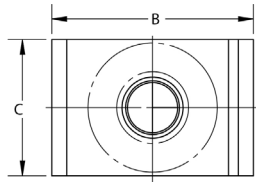
Materials/Finishes:	Copper Epoxy Coated <i>Copper Gard</i> : Domestic (31CT)
Variants:	Copper Epoxy Coated <i>Copper Gard</i> : Imported (31CTI)
Service:	Designed for the suspension of non-insulated stationary pipe.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 7).
Ordering:	Specify figure number, finish and tube size
Notes:	Upper locknut must be tightened securely to assure proper hanger performance. COPPER-GARD products offer superior corrosion protection due to the epoxy coating over phosphate zinc coated steel. The alternative, copper plating that has been done historically is for identification purposes only and is not intended for corrosion protection. Refer to MSS-SP58 13.3.

PIPE SIZE	PIPE OD	A	B	C	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.625	3/8	2-3/8	2-11/16	1-9/16	1-5/8	.10	610
3/4	0.875	3/8	2-1/4	2-11/16	1-5/16	1-1/4	.10	610
1	1.125	3/8	2-1/8	2-11/16	1-5/16	3/4	.10	610
1-1/4	1.375	3/8	2-3/16	2-7/8	1-9/16	1-1/4	.12	610
1-1/2	1.625	3/8	2-3/8	3-3/16	2	1-9/16	.12	610
2	2.125	3/8	2-3/4	3-13/16	2-3/8	1-11/16	.14	610
2-1/2	2.625	1/2	3-1/8	4-7/16	2	1-1/4	.30	610
3	3.125	1/2	3-3/16	4-3/4	1-7/8	13/16	.32	970
3-1/2	3.625	1/2	3-13/16	5-9/16	2-11/16	1-3/8	.38	970
4	4.125	1/2	3-7/8	5-5/16	2-3/4	1-3/16	.44	1130
* 5	5.125	1/2	5	7-9/16	3-13/16	1-3/4	.68	1130
* 6	6.125	1/2	5-5/8	8-11/16	4-7/16	1-7/8	.84	1130

* NOT AVAILABLE AS IMPORTED

FIG. 34

vibration hanger - neoprene

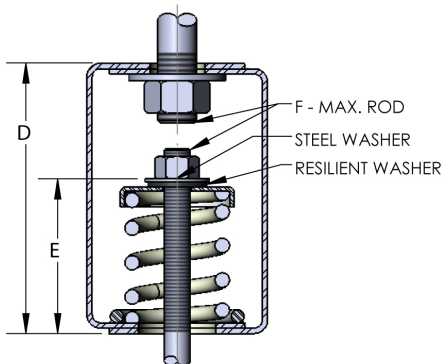
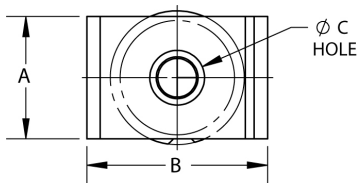


Materials/Finishes:	Painted Carbon Steel Housing with Neoprene Rubber Element (34)
Service:	Designed for effective vibration isolation for piping or suspended equipment. Typical applications include fans, air handling units, piping and suspended ceilings.
Ordering:	Specify figure number, isolator size, rod size and load.

ISOLATOR SIZE	MAX REC LOAD (lbs)	DEFLECTION	DIMENSIONS				
			A	B	C	D	E
EMP-1-A	60	0.50	4	2-7/8	2-1/2	1/2	1-7/8
EMP-1-B	130	0.50	4	2-7/8	2-1/2	1/2	1-7/8
EMP-1-C	250	0.50	4	2-7/8	2-1/2	1/2	1-7/8
EMP-1-D	430	0.50	4	2-7/8	2-1/2	1/2	1-7/8
EMP-2-A	380	0.50	5-1/2	3-3/4	4	3/4	2-3/8
EMP-2-B	520	0.50	5-1/2	3-3/4	4	3/4	2-3/8
EMP-2-C	840	0.50	5-1/2	3-3/4	4	3/4	2-3/8
EMP-2-D	1070	0.50	5-1/2	3-3/4	4	3/4	2-3/8
EMP-3-A	750	0.50	6-1/4	4-1/4	5-3/8	1	2-3/8
EMP-3-B	1350	0.50	6-1/4	4-1/4	5-3/8	1	2-3/8
EMP-3-C	1900	0.50	6-1/4	4-1/4	5-3/8	1	2-3/8
EMP-3-D	3050	0.50	6-1/4	4-1/4	5-3/8	1	2-3/8

FIG. 35

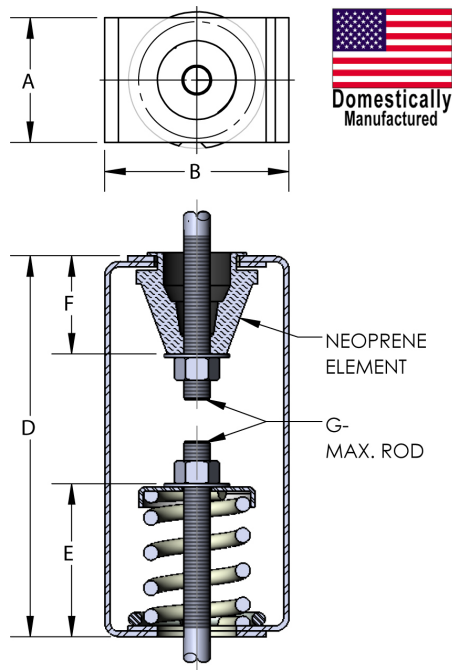
vibration spring-flex hanger



Materials/Finishes:	Painted Carbon Steel Housing with Steel Spring (35)
Service:	Designed to isolate low frequency vibrations for piping or suspended equipment. Typical applications include fans, duct work, air handling units, piping, and suspended ceilings.
Ordering:	Specify figure number, isolator size, rod size and load.

ISOLATOR SIZE	RATED LOAD LBS @ 1" DEFL	SOLID LOAD (lbs)	DIMENSIONS					
			A	B	C	D	E	F
EMP-1-15	15	27	3-1/2	2-1/2	1/2	5-5/8	3-1/8	2
EMP-1-25	25	39	3-1/2	2-1/2	1/2	5-5/8	3-1/8	2
EMP-1-50	50	83	3-1/2	2-1/2	1/2	5-5/8	3-1/8	2
EMP-1-100	100	160	3-1/2	2-1/2	1/2	5-5/8	3-1/8	2
EMP-1-150	150	242	3-1/2	2-1/2	1/2	5-5/8	3-1/8	2
EMP-1-200	200	293	3-1/2	2-1/2	1/2	5-5/8	3-1/8	2
EMP-1-300	300	442	3-1/2	2-1/2	1/2	5-5/8	3-1/8	2
EMP-1-400	400	585	3-1/2	2-1/2	1/2	5-5/8	3-1/8	2
EMP-1-500	500	782	4-1/2	3-1/2	1	10-1/8	4-5/8	3-1/4
EMP-1-600	600	925	4-1/2	3-1/2	1	10-1/8	4-5/8	3-1/4
EMP-1-800	800	1257	4-1/2	3-1/2	1	10-1/8	4-5/8	3-1/4
EMP-1-1000	1000	1565	4-1/2	3-1/2	1	10-1/8	4-5/8	3-1/4
EMP-1-1200	1200	1829	4-1/2	3-1/2	1	10-1/8	4-5/8	3-1/4
EMP-1-1400	1400	2131	4-1/2	3-1/2	1	10-1/8	4-5/8	3-1/4
EMP-1-1600	1600	2419	4-1/2	3-1/2	1	10-1/8	4-5/8	3-1/4
EMP-1-1800	1800	2662	4-1/2	3-1/2	1	10-1/8	4-5/8	3-1/4

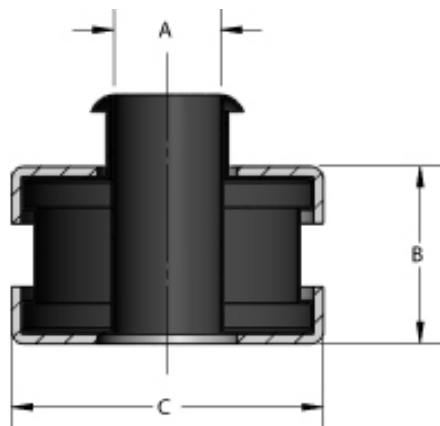
FIG. 36
vibration spring-flex and neoprene hanger



Materials/Finishes:	Painted Carbon Steel Housing and spring with neoprene rubber element (36)
Service:	Designed to isolate both noise and vibration for piping or suspended equipment.
Ordering:	Specify figure number, isolator size, rod size and load.

ISOLATOR SIZE	RATED LOAD LBS @ 1" DEFL	SOLID LOAD (lbs)	DIMENSIONS					
			A	B	D	E	F	G
EMP-1-15	15	27	3-1/2	2-1/2	5-5/8	3-1/8	2	1/2
EMP-1-25	25	39	3-1/2	2-1/2	5-5/8	3-1/8	2	1/2
EMP-1-50	50	83	3-1/2	2-1/2	5-5/8	3-1/8	2	1/2
EMP-1-100	100	160	3-1/2	2-1/2	5-5/8	3-1/8	2	1/2
EMP-1-150	150	242	3-1/2	2-1/2	5-5/8	3-1/8	2	1/2
EMP-1-200	200	293	3-1/2	2-1/2	5-5/8	3-1/8	2	1/2
EMP-1-300	300	442	3-1/2	2-1/2	5-5/8	3-1/8	2	1/2
EMP-1-400	400	585	3-1/2	2-1/2	5-5/8	3-1/8	2	1/2
EMP-1-500	500	782	4-1/2	3-1/2	10-1/8	4-5/8	3-1/4	1
EMP-1-600	600	925	4-1/2	3-1/2	10-1/8	4-5/8	3-1/4	1
EMP-1-800	800	1257	4-1/2	3-1/2	10-1/8	4-5/8	3-1/4	1
EMP-1-1000	1000	1565	4-1/2	3-1/2	10-1/8	4-5/8	3-1/4	1
EMP-1-1200	1200	1829	4-1/2	3-1/2	10-1/8	4-5/8	3-1/4	1
EMP-1-1400	1400	2131	4-1/2	3-1/2	10-1/8	4-5/8	3-1/4	1
EMP-1-1600	1600	2419	4-1/2	3-1/2	10-1/8	4-5/8	3-1/4	1
EMP-1-1800	1800	2662	4-1/2	3-1/2	10-1/8	4-5/8	3-1/4	1

FIG. 37
anti-vibration hanger mount

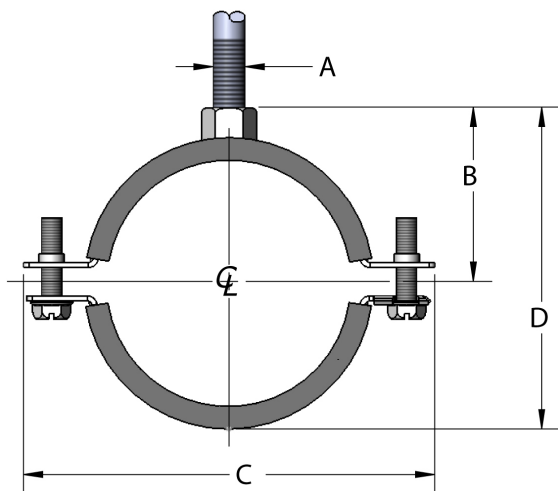


Materials/Finishes	Electro-Galvanized W/ Elastomer Element (37AVHM)
Service:	Designed to isolate both noise and vibration for piping or suspended equipment.
Ordering:	Specify figure number.
Notes:	Can be used with threaded rods up to 3/8".

ITEM NUMBER	LOAD RANGE (lbs)	DEFLECTION (inch)	DIMENSIONS		
			A	B	C
37AVHM50	1 - 100	1/5	.43	.73	1.28
37AVHM100	111 - 220	1/5	.43	1.02	1.67

FIG. 40HS

"handy" split ring hanger

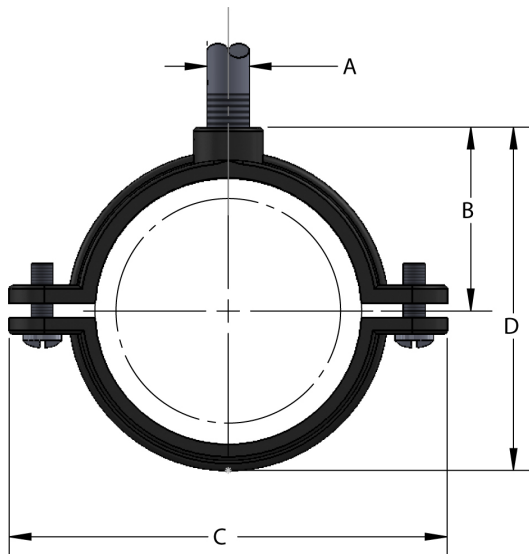


Materials/Finishes:	Electro-Galvanized with EPDM Insulation Liner (40HS)
Service:	Designed for the suspension of insulated and non-insulated pipe lines.
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 12).
Ordering	Specify figure number and CT or IPS Size.
Notes:	The "Handy Split" hinge device allows single handed installation. UV resistant EPDM ubber provides noise reduction. Temperature range is from -50° F through 230° F.

HANGER SIZE	PIPE SIZE (IPS)	PIPE SIZE (CTS)	METRIC SIZE (MM)	SCREW	A	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs)
1	1/4	3/8	10-14	M6	3/8-16	7/8	2-3/16	1-3/8	.11	180
2	3/8	1/2	15-18	M6	3/8-16	15/16	2-3/8	1-1/2	.12	180
3	-	5/8	19	M6	3/8-16	1	2-3/8	1-5/8	.12	180
4	1/2	3/4	20-23	M6	3/8-16	1-1/16	2-9/16	1-3/4	.14	180
5	3/4	1	25-29	M6	3/8-16	1-3/16	2-3/4	2	.15	180
6	1	1-1/4	31-35	M6	3/8-16	1-1/4	3-1/8	2-1/4	.17	180
7	1-1/4	1-1/2	40-43	M6	3/8-16	1-7/16	3-1/2	2-1/2	.19	180
8	1-1/2	-	46-51	M6	3/8-16	1-9/16	3-3/4	2-3/4	.20	180
9	-	2	53-59	M6	3/8-16	1-11/16	3-15/16	3	.26	180
10	2	-	59-64	M6	3/8-16	1-3/4	4-1/8	3-1/4	.27	180
11	-	2-1/2	65-70	M6	3/8-16	1-15/16	4-7/16	3-1/2	.29	300
12	2-1/2	-	72-78	M6	3/8-16	2-1/16	4-3/4	3-3/4	.36	300
13	-	3	79-82	M6	3/8-16	2-1/4	5	4-1/16	.38	300
14	3	-	86-92	M6	3/8-16	2-7/16	5-7/16	4-7/16	.41	300
15	-	3-1/2	90-95	M6	3/8-16	2-1/2	5-9/16	4-9/16	.41	300
16	3-1/2	4	100-105	M6	3/8-16	2-3/4	6-1/8	5-1/16	.67	300
17	4	-	108-116	M6	3/8-16	2-15/16	6-7/16	5-7/16	.70	300

FIG. 41

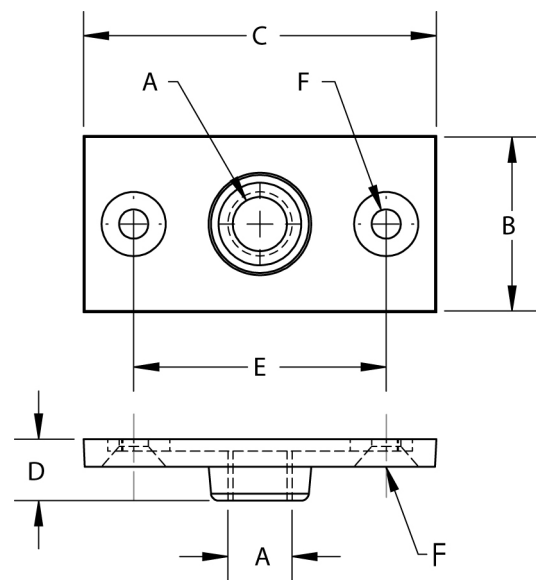
split ring extension hanger



Materials/Finishes:	Plain Malleable Iron (41B)	Electro-Galvanized (41G)
	Chrome Plated (41CR)	
Service:	Designed for the suspension of non-insulated stationary copper tubing, horizontally or vertically.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 12).	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Split ring extension hangers with hinged design available in 3/8 - 4" (41H)	

PIPE SIZE	PIPE OD	SCREW	A	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.840	10-24	3/8-16	3/4	2-1/8	1-3/16	0.098	180
3/4	1.050	10-24	3/8-16	7/8	2-1/2	1-9/16	0.112	180
1	1.315	10-24	3/8-16	1-1/8	2-3/4	2	0.147	180
1-1/4	1.660	10-24	3/8-16	1-5/16	3-3/16	2-3/8	0.181	180
1-1/2	1.900	10-24	3/8-16	1-7/16	3-3/8	2-5/8	0.214	180
2	2.375	10-24	3/8-16	1-5/8	3-15/16	3-1/16	0.300	180

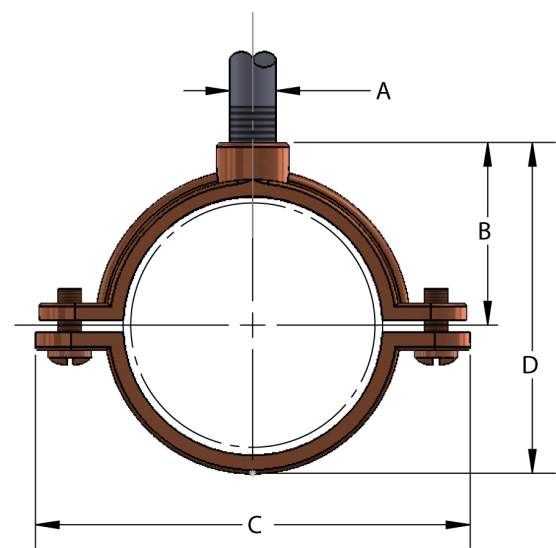
FIG. 41A
hanger flange plate



Materials/Finishes:	Plain Malleable Iron (41AB)	Electro-Galvanized (41AG)
	Chrome Plated (41ACR)	Copper Epoxy Coated (41ACT)
	Solid Brass (41ASB)	T-304 Stainless (41ASSI)
	T-316 Stainless (41ASXI)	
Service:	Designed for attaching hanger rod to wood beams, ceilings, walls and floor.	
Ordering:	Specify figure number, finish and rod size.	
Notes:	Stainless flange plates are recommended for applications where protection from a corrosive environment is required. <i>COPPER-GARD</i> Products offer superior corrosion protection due to the epoxy coating over electro-galvanized material. The alternative copper plating that has been done traditionally is for identification purposes and is not intended for corrosion protection. Refer to MSS SP-58, 13.3.	

ROD SIZE A	B	C	D	E	SCREW SIZE F	WGT EACH (lbs)
3/8-16 1/2-13	1-3/8 1-3/8	2-5/8 2-5/8	7/16 7/16	2 2	#12 #12	0.18 0.18

FIG. 41CT
split ring for copper tubing

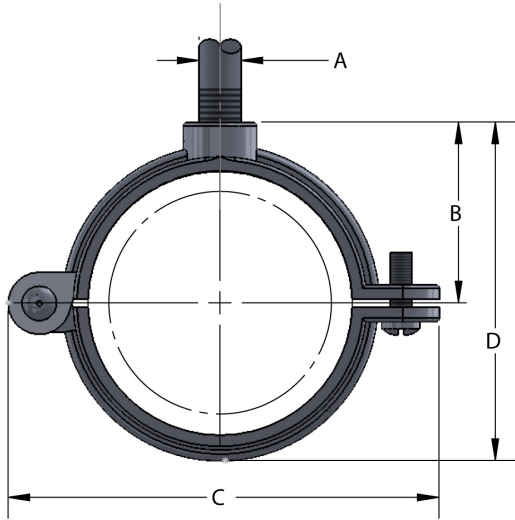


Materials/Finishes:	Copper Epoxy Coated (<i>COPPER-GARD</i>) Malleable Iron (41CT)
	Solid Brass (41CTSB)
Service:	Designed for the suspension of non-insulated stationary copper tubing, horizontally or vertically.
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 12).
Ordering:	Specify figure number, finish and pipe size.
Notes:	Copper epoxy coated (<i>COPPER-GARD</i>). <i>COPPER-GARD</i> products offer superior corrosion protection due to the epoxy coating over electro-galvanized material. The alternative copper plating that has been done historically identifies the product and is not intended for protection. Refer to MSS SP58, 13.3.

TUBE SIZE	TUBE OD	SCREW	A	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.625	10-24	3/8-16	11/16	1-7/8	1-1/8	0.087	180
3/4	0.875	10-24	3/8-16	13/16	2-1/4	1-3/8	0.096	180
1	1.125	10-24	3/8-16	15/16	2-1/2	1-5/8	0.128	180
1-1/4	1.375	10-24	3/8-16	1-1/16	2-7/8	1-7/8	0.141	180
1-1/2	1.625	10-24	3/8-16	1-3/16	3	2-3/16	0.179	180
2	2.125	10-24	3/8-16	1-7/16	3-1/2	2-11/16	0.229	180

FIG. 41H

split ring extension hanger, hinge design

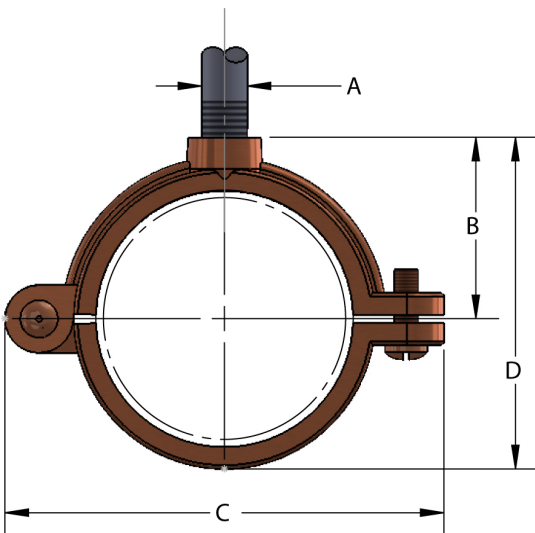


Materials/Finishes:	Plain Malleable Iron (41HB)	Electro-Galvanized (41HG)
	Chrome Plated (41HCR)	
Service:	Designed for the suspension of non-insulated stationary pipe lines horizontally or vertically.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 12).	
Ordering:	Specify figure number, finish and pipe size	

PIPE SIZE	PIPE OD	SCREW	A	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8	0.675	10-24	3/8-16	11/16	1-13/16	1-3/16	0.084	180
1/2	0.840	10-24	3/8-16	3/4	2-1/8	1-3/16	0.098	180
3/4	1.050	10-24	3/8-16	7/8	2-1/2	1-9/16	0.112	180
1	1.315	10-24	3/8-16	1-1/8	2-3/4	2	0.147	180
1-1/4	1.660	10-24	3/8-16	1-5/16	3-3/16	2-3/8	0.181	180
1-1/2	1.900	10-24	3/8-16	1-7/16	3-3/8	2-5/8	0.214	180
2	2.375	10-24	3/8-16	1-5/8	3-15/16	3-1/16	0.299	180
2-1/2	2.875	1/4	1/2-13	2-1/8	5-3/16	3-13/16	0.583	300
3	3.500	1/4	1/2-13	2-1/2	5-11/16	4-5/8	0.713	300
4	4.500	1/4	1/2-13	2-7/8	6-3/4	5-9/16	1.019	300

FIG. 41HCT

split ring extension hanger, hinge design for copper tubing

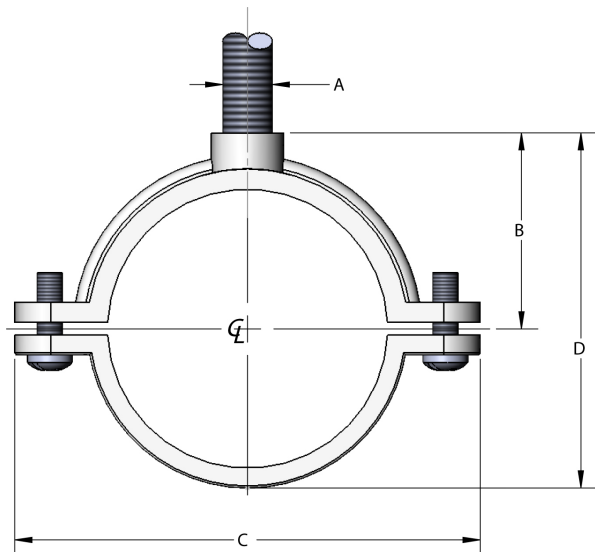


Materials/Finishes:	Copper Epoxy Coated (<i>COPPER-GARD</i>) Malleable Iron (41HCT)
Service:	Designed for the suspension of non-insulated stationary copper tubing, horizontally or vertically.
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 12).
Ordering:	Specify figure number, finish and tube size.
Notes:	COPPER-GARD products offer superior corrosion protection due to the epoxy coating over electro-galvanized material. The alternative copper plating that has been done historically identifies the product and is not intended for protection. Refer to MSS SP58, 13.3.

TUBE SIZE	TUBE OD	SCREW	A	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/4	0.375	10-24	3/8-16	9/16	1-3/4	7/8	0.073	180
3/8	0.500	10-24	3/8-16	5/8	1-3/4	1-1/16	0.080	180
1/2	0.625	10-24	3/8-16	11/16	1-7/8	1-3/16	0.084	180
3/4	0.875	10-24	3/8-16	1-3/16	2-5/16	1-7/16	0.106	180
1	1.125	10-24	3/8-16	1-5/16	2-7/16	1-5/8	0.122	180
1-1/4	1.375	10-24	3/8-16	1-1/16	2-13/16	1-15/16	0.152	180
1-1/2	1.625	10-24	3/8-16	1-3/16	3-1/16	2-3/16	0.172	180
2	2.125	10-24	3/8-16	1-7/16	3-5/8	2-11/16	0.233	180
2-1/2	2.625	1/4	1/2-13	1-7/8	4-15/16	2-7/16	0.449	300
3	3.125	1/4	1/2-13	2-1/8	5-1/2	4-1/16	0.663	300
4	4.125	1/4	1/2-13	2-5/8	6-5/8	5-1/16	0.753	300

FIG. 41OD

split ring extension hanger for o.d. tubing

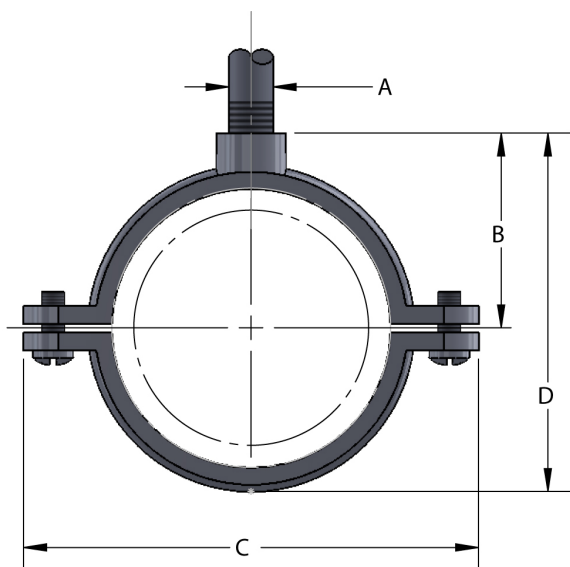


Materials/Finishes:	T-316 Stainless (41ODSXI)
Service:	Designed for the suspension of non-insulated stationary pipe lines, horizontally or vertically.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 12).
Ordering:	Specify figure number, finish and pipe size.
Notes:	Stainless steel hangers are recommended for applications where protection from a corrosive environment is required.

OD SIZE	SCREW	A	B	C	D	WGT EACH (LBS)	MAX REC LOAD (LBS)
3/8	10-24	3/8-16	9/16	1-13/16	7/8	0.07	180
1/2	10-24	3/8-16	5/8	1-13/16	1-1/16	0.08	180
5/8	10-24	3/8-16	11/16	1-15/16	1-1/16	0.09	180
3/4	10-24	3/8-16	3/4	2-1/6	1-1/4	0.09	180
7/8	10-24	3/8-16	13/16	2-1/4	1-7/16	0.12	180
1	10-24	3/8-16	15/16	2-3/8	1-9/16	0.13	180
1-1/8	10-24	3/8-16	15/16	2-9/16	1-5/8	0.14	180
1-3/8	10-24	3/8-16	1-1/8	2-7/8	1-15/16	0.15	180
1-1/2	10-24	3/8-16	1-3/16	3	2	0.16	180
1-5/8	10-24	3/8-16	1-1/4	3	2-3/16	0.18	180
2	10-24	3/8-16	1-3/8	3-7/16	2-9/16	0.23	180
2-1/8	10-24	3/8-16	1-1/2	3-9/16	2-5/8	0.25	300
2-5/8	1/4	1/2-13	2	4-11/16	3-9/16	0.40	300
3-1/8	1/4	1/2-13	2-1/4	5-13/16	4-3/16	0.77	300
4-1/8	1/4	1/2-13	2-13/16	6-3/8	5-1/4	1.20	300

FIG. 41SSI/SXI

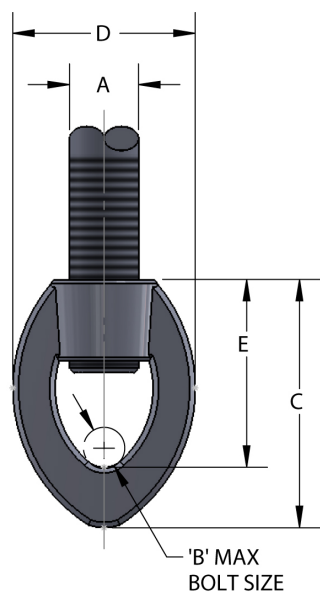
t-304 & t-316 stainless steel split ring extension hanger



Materials/Finishes:	T-304 Stainless (41SSI)	T-316 Stainless (41SXI)
Service:	Designed for the suspension of non-insulated stationary pipe lines, horizontally or vertically.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 12).	
Ordering:	Specify figure number, material and pipe size.	
Notes:	Stainless steel hangers are recommended for applications where protection from a corrosive environment is required.	

PIPE SIZE	PIPE OD	SCREW	A	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8	0.675	10-24	3/8-16	11/16	1-13/16	1-3/16	0.084	180
1/2	0.840	10-24	3/8-16	3/4	2-1/8	1-3/16	0.098	180
3/4	1.050	10-24	3/8-16	7/8	2-1/2	1-9/16	0.112	180
1	1.315	10-24	3/8-16	1-1/8	2-3/4	2	0.147	180
1-1/4	1.660	10-24	3/8-16	1-5/16	3-3/16	2-3/8	0.181	180
1-1/2	1.900	10-24	3/8-16	1-7/16	3-3/8	2-5/8	0.214	180
2	2.375	10-24	3/8-16	1-5/8	3-15/16	3-1/16	0.300	180
2-1/2	2.875	1/4	1/2-13	2-1/8	5-3/16	3-13/16	0.580	300
3	3.500	1/4	1/2-13	2-1/2	5-11/16	4-5/8	0.720	300
4	4.500	1/4	1/2-13	2-7/8	6-3/4	5-9/16	1.020	300

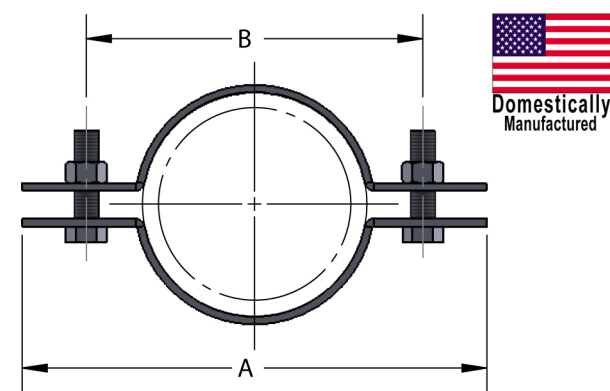
FIG. 47
eye socket



Materials/Finishes:	Plain Ductile Iron (47B)	Electro-Galvanized (47G)
Service:	Designed for attaching hanger rod to various types of hangers.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 16).	
Ordering:	Specify figure number, finish and rod size	

SIZE A	PIPE SIZE	B	C	D	E	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/4-20	3/8	1/4	1-3/8	7/8	1-1/8	0.05	230
3/8-16	1/2 to 2	1/4	1-9/16	1-1/8	1-1/4	0.07	610
1/2-13	2-1/2 to 3-1/2	1/4	1-7/8	1-1/4	1-1/2	0.14	1000
5/8-11	4 to 5	3/8	2-1/4	1-9/16	1-3/4	0.22	1400
3/4-10	6	1/2	2-7/16	1-7/8	2-1/16	0.32	2200
7/8-9	8	1/2	2-3/4	1-1/8	2-5/16	0.53	2300

FIG. 48
riser clamp for plastic pipe

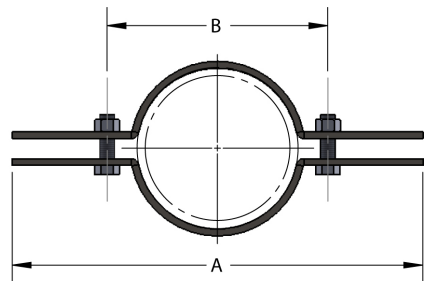


Materials/Finishes:	Plain Carbon Steel (48B)	Electro-Galvanized (48G)
	Plastic Coated (48PC)	
Service:	Designed for the support of plastic DWV pipe.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 8).	
Ordering:	Specify figure number, finish and pipe size.	

PIPE SIZE	PIPE OD	BOLT	A	B	WGT EACH (lbs)	MAX REC LOAD (lbs)
1-1/2	1.900	5/16	5-1/2	3-1/2	.56	225
2	2.375	5/16	6-1/16	4-1/16	.60	225
3	3.500	3/8	7-1/4	5-1/4	.80	225
4	4.500	3/8	8-1/2	6-1/2	.98	225

FIG. 50

standard riser clamp

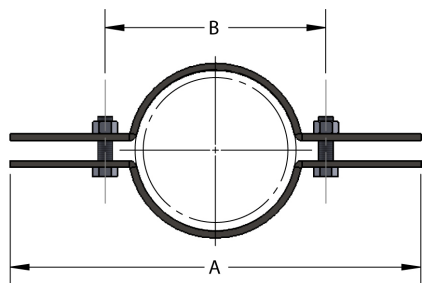


Materials/Finishes:	Plain Carbon Steel (50B)	Electro-Galvanized (50G)
	Hot-Dip Galvanized (50HDG)	Plastic Coated (50PC)
	T-304 Stainless (50SS)	T-316 Stainless (50SX)
Service:	Designed for supporting and stabilizing vertical pipe runs.	
Approvals:	U.L. - U.L.C. listed (sizes 2" - 8"). Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 8).	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Plastic coated riser clamps are completely plastic coated with zinc plated hardware. The plastic coating prevents pipe from coming in contact with the clamp and is designed to reduce noise, vibration and prevent electrolysis between pipe and clamp. Stainless steel riser clamps are recommended for applications where protection from a corrosive environment is required. Hot-Dip Galvanized clamps (size 18" - 36") use Electro-Galvanized hardware.	

PIPE SIZE IPS	PIPE OD	BOLT	A	B	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.840	3/8	8-5/8	2-1/8	0.88	255
3/4	1.050	3/8	8-13/16	2-5/16	0.92	255
1	1.315	3/8	9-1/16	2-5/8	0.94	255
1-1/4	1.660	3/8	9-7/16	2-15/16	1.00	255
1-1/2	1.900	3/8	10	3-7/16	1.04	255
2	2.375	3/8	10-9/16	4	1.14	300
2-1/2	2.875	3/8	11-1/8	4-9/16	1.60	400
3	3.500	3/8	11-13/16	5-1/4	1.70	530
3-1/2	4.000	1/2	12-3/4	5-3/4	2.06	670
4	4.500	1/2	13-5/8	6-5/8	2.20	810
5	5.563	1/2	14-1/8	7-5/8	3.40	1500
6	6.625	1/2	15-3/8	8-7/8	3.72	1600
8	8.625	5/8	18-5/8	12	7.22	2500
10	10.750	5/8	21-1/4	14-3/4	10.94	2500
12	12.750	5/8	22-3/4	16-3/4	16.10	2700
14	14.000	5/8	24	17-7/8	17.00	2700
16	16.000	3/4	26	21	29.16	2900
18	18.000	3/4	28	23	32.40	2900
20	20.000	3/4	30	25	35.00	2900
24	24.000	7/8	36	29-1/4	43.00	2900
30	30.000	7/8	42	35-1/4	95.00	2900

FIG. 50DIP

riser clamp for ductile iron pipe

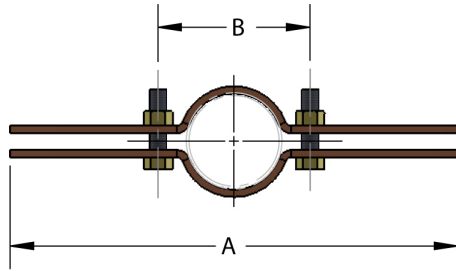


Materials/Finishes	T-304 Stainless (50DIPSS)	T-316 Stainless (50DIPSX)
Variants:	N/A	
Service:	Designed for supporting and stabilizing vertical pipe runs.	
Approvals:	Complies with Federal Specification WW-H-171-E (Type# 8), A-A-1192 A (Type# 8) and Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 8).	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	N/A	

DIP PIPE SIZE	PIPE OD	BOLT	A	B	WGT EACH (LBS)
4	4.800	1/2	13-7/8	6-7/8	2.50
6	6.900	1/2	16	9-1/2	3.75
8	9.050	5/8	19-1/8	12-5/8	7.45
10	11.100	5/8	23-1/8	16-5/8	11.00
12	13.200	5/8	28-7/8	22-7/8	16.10

FIG. 50CT

riser clamp for copper tubing

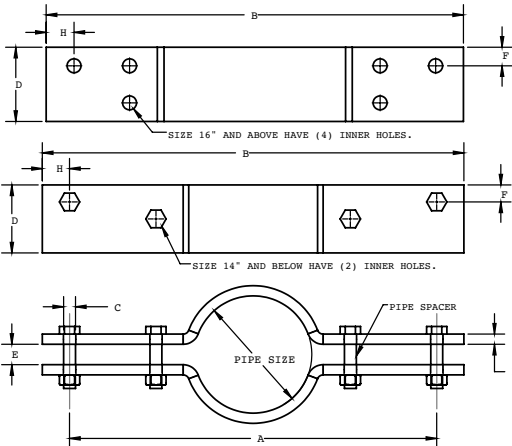


Materials/Finishes:	Copper Epoxy Coated <i>Copper Gard</i> : Domestic (50CT)
Variants:	Copper Epoxy Coated <i>Copper Gard</i> : Imported (50CTI)
Service:	Designed for supporting and stabilizing vertical tubing runs.
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 8).
Ordering:	Specify figure number, finish and pipe size.
Notes:	COPPER-GARD products offer superior corrosion protection due to the epoxy coating over phosphate zinc steel. The alternative copper plating that has been done historically identifies the product and is not intended for protection. Refer to MSS SP58, 13.3.

TUBE SIZE	TUBE OD	BOLT	A	B	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.625	1/4	6-11/16	1-11/16	0.48	225
3/4	0.875	1/4	7	2	0.50	225
1	1.125	1/4	8-3/4	2-1/4	0.64	250
1-1/4	1.375	1/4	9	2-1/2	0.66	250
1-1/2	1.625	1/4	9-3/8	2-7/8	0.68	250
2	2.125	3/8	9-15/16	3-3/8	1.06	500
2-1/2	2.625	3/8	10-1/2	4	1.08	500
3	3.125	3/8	11	4-7/16	1.16	500
3-1/2	3.625	3/8	12-3/16	5-1/8	1.58	500
4	4.125	3/8	12-5/8	5-9/16	1.66	500
5	5.125	1/2	14-1/8	7-1/8	3.42	815
6	6.125	1/2	15	8	3.76	815

FIG. 50H

heavy duty riser clamp



Materials/Finishes:	Plain Carbon Steel (50HB)	Hot-Dip Galvanized (50HHDG)
	T-304 Stainless (50HSS)	T-316 Stainless (50HSX)
Service:	Designed for supporting and stabilizing vertical pipe runs.	
Approvals:	Complies with MSS SP-58 and SP-69 TYPE 42.	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Hot-Dip Galvanized clamps use Electro-Galvanized hardware.	

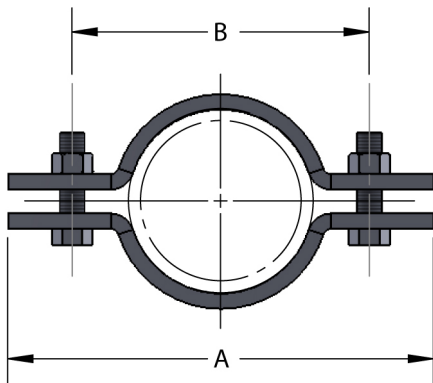
PIPE SIZE	SHEAR LUG	# LUGS INCLUDED
2 - 2-1/2	1/2 X 1/2 X 3	2
3	5/8 X 5/8 X 3	2
4 - 8	3/4 X 3/4 X 3	2
10 - 14	1 X 1 X 3	4
16 - 24	1-1/4 X 1-1/4 X 3	4



PIPE SIZE	A	B	C	D	E	F	H	I	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	18	22	1/2	2-1/2	3/4	1-1/4	2	1/2	16.00	900
2-1/2	20	24	1/2	2-1/2	3/4	1-1/4	2	1/2	18.00	900
3	20	24	5/8	3	1	1-1/4	2	5/8	27.30	1500
4	22	26	3/4	4	1-1/4	1-1/4	2	3/4	46.70	2200
5	22	26	3/4	4	1-1/4	1-1/4	2	3/4	47.40	2200
6	24	28	7/8	5	1-1/2	1-1/4	2	3/4	66.00	3000
8	27	31	7/8	5	1-1/2	1-1/4	2	3/4	74.00	3000
10	30	36	1-1/4	6	2-1/4	1-5/8	3	1	141.00	5500
12	32	38	1-1/2	7	2-1/2	1-7/8	3	1	185.00	7800
14	34	40	1-1/2	7	2-1/2	1-7/8	3	1	195.00	7800
16	36	42	1-1/2	8	2-1/2	2	3	1-1/4	283.00	9000
18	39	45	1-1/2	8	2-1/2	2	3	1-1/4	302.00	9000
20	42	50-1/2	2	8	3-1/2	2-5/8	4-1/4	1-1/4	364.48	13500
24	45	53-1/2	2	8	3-1/2	2-5/8	4-1/4	1-1/4	391.00	13500

FIG. 50SA

short arm riser clamp

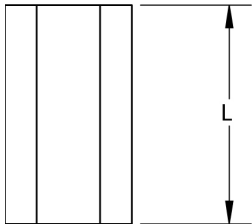
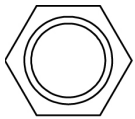


Materials/Finishes:	Plain Carbon Steel (50SAB)	Electro-Galvanized (50SAG)
Service:	Designed for supporting and stabilizing vertical pipe runs. Overall length of clamp is shorter than standard to accommodate field requirements.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 and MSS SP-69 (Type# 8).	
Ordering:	Specify figure number, finish and pipe size.	

PIPE SIZE	PIPE OD	BOLT	A	B	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/4	1.050	5/16	4-5/16	2-5/16	0.45	255
1	1.315	5/16	4-11/16	2-11/16	0.50	255
1-1/4	1.660	5/16	5-3/16	3-3/16	0.55	255
1-1/2	1.900	5/16	5-1/2	3-1/2	0.60	255
2	2.375	5/16	6	4	0.65	255
2-1/2	2.875	3/8	6-5/8	4-5/8	1.05	255
3	3.500	3/8	7-5/16	5-5/16	1.15	530
4	4.500	1/2	8-9/16	6-9/16	1.55	810
5	5.563	1/2	9-3/4	7-3/4	2.50	1500
6	6.625	1/2	10-7/8	8-7/8	2.85	1600

FIG. 51

rod coupling



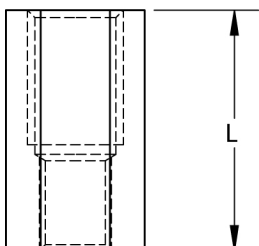
Materials/Finishes:	Plain Carbon Steel (51B)	Electro-Galvanized (51G)
	T-304 Stainless (51SS)	T-316 Stainless (51SX)
Service:	Designed for connecting two lengths of rod with equal diameters.	
Ordering:	Specify figure number, finish and rod size.	

PLAIN (51B) AND ELECTRO-GALV (51G)				
SIZE	LENGTH L	HEX WIDTH	WGT EACH (LBS)	MAX REC LOAD (LBS)
1/4-20	7/8	3/8	.02	230
3/8-16	1-3/4	5/8	.11	730
1/2-13	1-3/4	11/16	.10	1350
5/8-11	2-1/8	13/16	.18	2160
3/4-10	2-1/4	1	.28	3230
7/8-9	2-1/2	1-1/4	.55	4480
1-8	2-1/2	1-1/4	1.00	5900
1-1/4-7	3	1-5/8	1.08	9500

T-304 (51SS) AND T-316 (51SX) STAINLESS			
SIZE	LENGTH L	HEX WIDTH	WGT EACH (LBS)
1/4-20	7/8	3/8	.02
3/8-16	1-1/8	1/2	.11
1/2-13	1-1/4	5/8	.10
5/8-11	1-3/4	7/8	.18
3/4-10	2	1	.28
7/8-9	2-1/2	1-1/4	.55

FIG. 51R

reducing rod coupling

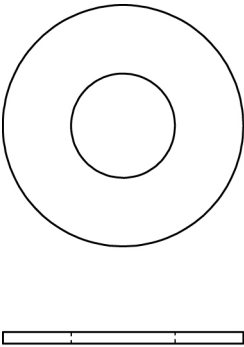


Materials/Finishes:	Electro-Galvanized (51RG)
Service:	Designed for connecting two lengths of rod with different diameters
Ordering:	Specify figure number, finish and rod size.

SIZE	LENGTH L	HEX WIDTH	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8-16 x 1/4-20	1	1/2	.04	225
1/2-13 x 3/8-16	1-1/4	5/8	.07	610
5/8-11 x 1/2-13	1-1/4	13/16	.14	1130
3/4-10 x 5/8-11	1-1/2	1	.21	1810

FIG. 52

round steel washer

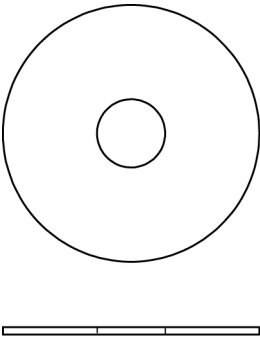


Materials/Finishes:	Plain Carbon Steel (52B)	Electro-Galvanized (52G)
	T-304 Stainless (52SS)	T-304 Stainless (52SS)
Service:	Designed to produce a greater bearing surface.	
Ordering:	Specify figure number, finish and rod size.	
Notes:	Full box quantity only.	

SIZE	OD	ID	WGT EACH (lbs)
1/4	3/4	5/16	.01
3/8	1	7/16	.02
1/2	1-3/8	9/16	.04
5/8	1-3/4	11/16	.08
3/4	2	13/16	.11
7/8	2-1/4	15/16	.15

FIG. 52F

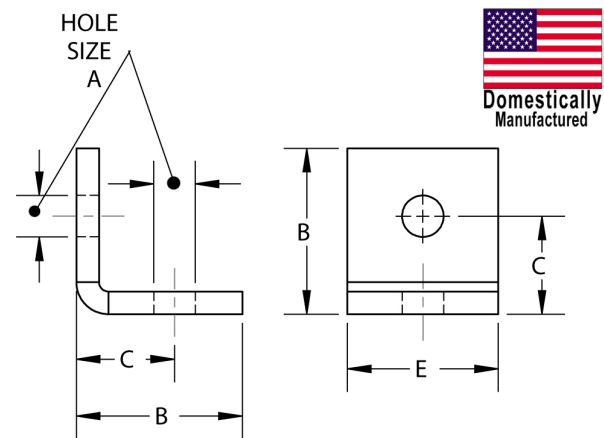
fender washer



Materials/Finishes:	Electro-Galvanized (52FG)
Service:	Designed to produce a greater bearing surface.
Ordering:	Specify figure number, finish and rod size.

SIZE	OD	ID	PCS/50 lbs (approx)	WGT EACH (lbs)
1/4	1-1/4	9/32	1575	.03
3/8	1-1/2	13/32	1650	.03
1/2	1-1/2	17/32	925	.05

FIG. 53
angle bracket



Materials/Finishes:	Plain Carbon Steel (53B)	Electro-Galvanized (53G)
	Hot-Dip Galvanized (53HDG)	T-304 Stainless (53SS)
	T-316 Stainless (53SX)	
Service:	Designed for attaching hanger rod to the side of beams or walls.	
Approvals:	Complies with Manufacturers' Standardization SocietyMSS SP-58 and SP-69 (Type# 34).	
Ordering:	Specify figure number, finish and rod size.	

SIZE	HOLE SIZE A	B	C	E	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8-16	7/16	2-1/16	1-5/16	1-1/2	0.225	300
1/2-13	9/16	2-1/8	1-3/8	1-1/2	0.330	560
5/8-11	11/16	2-3/4	1-5/8	2-1/2	1.130	900
3/4-10	13/16	3-1/4	2-3/16	2-1/2	1.390	900
7/8-9	15/16	3-5/8	2-1/4	2-1/2	1.435	900

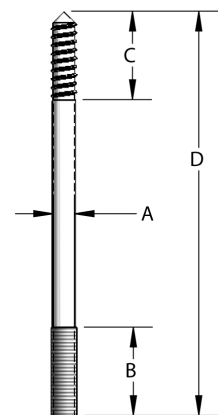
FIG. 54
continuous threaded rod



Materials/Finishes:	Plain Carbon Steel (54B)	Electro-Galvanized (54G)
	T-304 Stainless (54SS)	T-316 Stainless (54SX)
Service:	Useful in applications for attaching hangers to structural attachments.	
Ordering:	Specify figure number, finish and rod size.	
Notes:	Stainless steel rod is recommended for applications where protection from a corrosive environment is required.	

SIZE A	WGT/FT (lbs)	MAX REC LOAD (lbs)	
		650°F	750°F
1/4-20	0.12	240	210
3/8-16	0.29	730	540
1/2-13	0.54	1350	1010
5/8-11	0.83	2160	1610
3/4-10	1.25	3230	2420
7/8-9	1.70	4480	3360
1-8	2.23	5900	4420
1-1/8-7	2.81	6230	5560
1-1/4-7	3.54	9500	7140
1-1/2-6	5.12	13800	10370

FIG. 55
hanger bolts

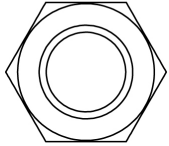
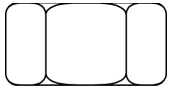


Materials/Finishes:	Plain Carbon Steel (55B)	Electro-Galvanized (55G)
Service:	Designed for suspending pipe supports from wood structures.	
Ordering:	Specify figure number, finish and rod size.	

SIZE A	MINIMUM LENGTH		WGT EACH (lbs) X LENGTH D						
	MACHINE B	COACH C	3-1/2	4	4-1/2	6	8	10	12
1/4-20	1-5/8	1-3/4	0.04	-	-	-	-	-	-
3/8-16	1-5/8	1-3/4	0.08	-	0.11	0.14	0.19	0.23	0.29
1/2-13	1-5/8	1-3/4	-	0.14	-	0.22	-	-	-

FIG. 56 / 56H

standard hex nut / heavy hex nut, packaged

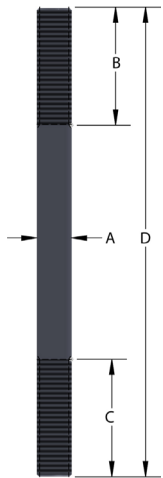


SIZE	WGT EACH (lbs)	
	56	56H
1/4-20	0.01	0.01
3/8-16	0.02	0.03
1/2-13	0.04	0.07
5/8-11	0.07	0.12
3/4-10	0.12	0.19
7/8-9	0.19	0.30

Materials/Finishes:	Plain Carbon Steel (56B)	Electro-Galvanized (56G)
	T-304 Stainless (56SS)	T-316 Stainless (56SX)
Variants:	Plain Carbon Steel (56HB)	Electro-Galvanized (56HG)
	T-304 Stainless (56HSS)	T-316 Stainless (56HSX)
Service:	Fastener	
Ordering:	Specify figure number, finish and rod size.	
Notes:	Full box quantities only.	

FIG. 57

hanger rod

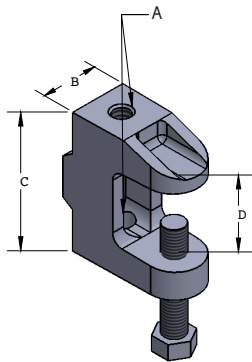


Materials/Finishes:	Plain Carbon Steel (57B)	Electro-Galvanized (57G)
	T-304 Stainless (57SS)	T-316 Stainless (57SX)
Variants:	Double Right Hand Threads (57RR)	Double Left Hand Threads(57LL)
	Left and Right Hand Threads (57LR)	
Service:	Designed for use in pipe hanger assemblies.	
Ordering:	Specify figure number, finish, thread direction, rod size, length and thread length.	

SIZE A	THREAD LENGTH B & C	LENGTH D	WGT/FT (lbs)	MAX REC LOAD (lbs)	
				650°F	750°F
1/4-20	SPECIFY	SPECIFY	0.12	240	210
3/8-16	SPECIFY	SPECIFY	0.29	730	540
1/2-13	SPECIFY	SPECIFY	0.54	1350	1010
5/8-11	SPECIFY	SPECIFY	0.83	2160	1610
3/4-10	SPECIFY	SPECIFY	1.25	3230	2420
7/8-9	SPECIFY	SPECIFY	1.70	4480	3360
1-8	SPECIFY	SPECIFY	2.23	5900	4420
1-1/8 - 7	SPECIFY	SPECIFY	2.81	6230	560
1-1/4/ - 7	SPECIFY	SPECIFY	3.54	9500	7140
1-1/2 - 6	SPECIFY	SPECIFY	5.12	1380	10370

FIG. 60G

1/4" beam clamp

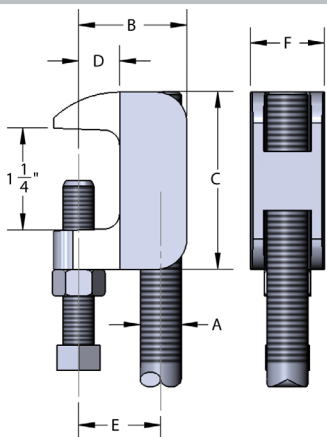


Materials/Finishes:	Electro-Galvanized Ductile Iron (60G)
Service:	Designed to attach 1/4" hanger rod from metal beams, channel or angle iron.
Ordering:	Specify figure number, finish and rod size

ROD SIZE A	SET SCREW	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs) TOP	MAX REC LOAD (lbs) BOTTOM
1/4-20	1/4-20	5/8	1-9/16	15/16	0.18	250	100

FIG. 61

wide mouth beam clamp



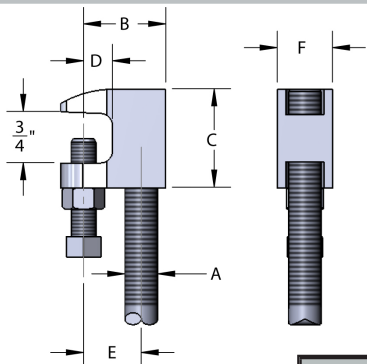
Materials/Finishes:	Plain Ductile Iron (61B)	Electro-Galvanized (61G)
	T-316 Stainless Steel (61SX)	
Service:	Designed to attach hanger rod to the top or bottom flange of a beam or bar.	
Approvals:	U.L. - U.L.C. listed 3/8" and 1/2" (1/2 for 4" IPS max) (excluding stainless). FM approved for 3/8" only (excluding stainless). Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 19).	
Ordering:	Specify figure number, finish and rod size	
Notes:	See MSS SP-58 and SP-69 for proper set screw torque recommendations	

ROD SIZE A	SET SCREW	B	C	D	E	F	MAX PIPE SIZE	WGT EACH (lbs)	MAX REC LOAD (lbs) INVERTED	MAX REC LOAD (lbs) STANDARD
3/8-16	3/8-16	1-3/8	2	1/2	1	7/8	4	0.55	610	610
1/2-13	3/8-16	1-3/8	2	1/2	1	7/8	4	0.56	750	1130

ROD SIZE A	SET SCREW	B	C	D	E	F	MAX PIPE SIZE	WGT EACH (lbs)	MAX REC LOAD (lbs) STANDARD
5/8-11	3/8-16	1-7/8	2-3/8	5/8	1-3/8	1-1/4	5	0.66	1130
3/4-10	3/8-16	1-7/8	2-3/8	5/8	1-3/8	1-1/4	6	0.83	1130

FIG. 62

small mouth beam clamp



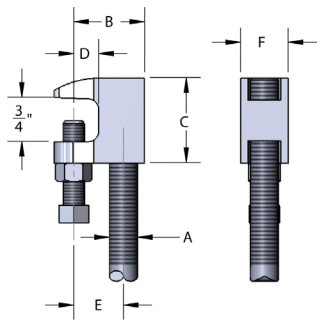
Materials/Finishes:	Plain Ductile Iron: 3/8" - 7/8" (62B)	Electro-Galvanized: 3/8" - 7/8" (62G)
Service:	Designed to attach hanger rod to the top or bottom flange of a beam or bar joist where flange thickness does not exceed 5/8 of an inch.	
Approvals:	U.L. - U.L.C. listed 3/8 and 1/2 (1/2 for 4" IPS max). FM approved for 3/8 only. Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 19).	
Ordering:	Specify figure number, finish and rod size.	
Notes:	Set screw is of hardened steel. See MSS SP-58 and SP-69 for proper set screw torque recommendations. Stainless steel beam clamps are recommended for corrosive environments.	

ROD SIZE A	SET SCREW	B	C	D	E	F	MAX PIPE SIZE	WGT EACH (lbs)	MAX REC LOAD (lbs) INVERTED	MAX REC LOAD (lbs) STANDARD
3/8-16	3/8-16	1-5/16	1-1/2	1/2	1	7/8	4	0.320	610	610
1/2-13	3/8-16	1-5/16	1-1/2	1/2	1	7/8	4	0.320	750	1130

ROD SIZE A	SET SCREW	B	C	D	E	F	MAX PIPE SIZE	WGT EACH (lbs)	MAX REC LOAD (lbs) STANDARD
5/8-11	3/8-16	1-3/4	1-3/4	5/8	1-3/8	1-1/8	5	0.580	1130
3/4-10	3/8-16	1-7/8	1-7/8	5/8	1-3/8	1-3/8	6	0.820	1130
7/8-9	1/2-13	2-3/8	1-7/8	5/8	1-3/8	1-3/8	8	0.795	1130

FIG. 62SS/62SX

stainless small mouth beam clamp

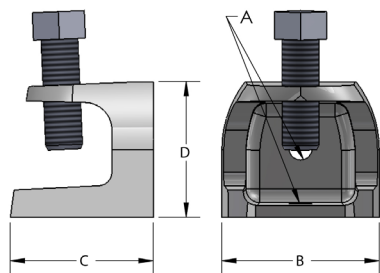


Materials/Finishes	T-304 Stainless: (62SS)	T-316 Stainless: (62SX)
Service:	Designed to attach hanger rod to the top or bottom flange of a beam or bar joist where flange thickness does not exceed 5/8 of an inch.	
Approvals:	U.L. - U.L.C. listed 3/8 and 1/2 (1/2 for 4" IPS max). Complies with Manufacturers' Standardization Society MSS SP-58 (Type# 19).	
Ordering:	Specify figure number, finish and rod size.	
Notes:	See MSS SP-58 and SP-69 for proper set screw torque recommendations. Stainless steel beam clamps are recommended for corrosive environments.	

ROD SIZE A	SET SCREW	B	C	D	E	F	MAX PIPE SIZE	WGT EACH (lbs)	MAX REC LOAD (lbs) STANDARD
1/4-20	3/8-16	1-5/16	1-1/2	1/2	1	7/8		0.340	250
3/8-16	3/8-16	1-5/16	1-1/2	1/2	1	7/8	4	0.320	610
1/2-13	3/8-16	1-5/16	1-1/2	1/2	1	7/8	4	0.320	1130
5/8-11	3/8-16	1-3/4	1-3/4	5/8	1-3/8	1-1/8	5	0.580	1130
3/4-10	3/8-16	1-7/8	1-7/8	5/8	1-3/8	1-3/8	6	0.820	1130

FIG. 63

electrical rod support clamp

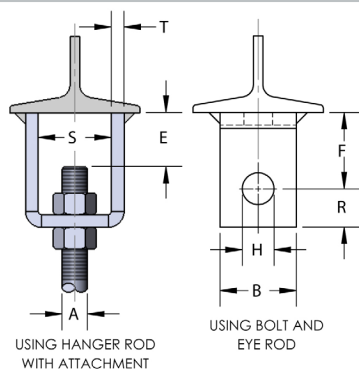


Materials/Finishes:	Electro-Galvanized Ductile Iron (63G)	T-316 Stainless: 1/4", 3/8" and 1/2" (63SX)
Service:	Designed to attach hanger rod to beam or framework where thickness does not exceed 1/2 inch. Rod tap on both bottom and back of clamp.	
Ordering:	Specify figure number, finish and rod size	

ROD SIZE A	SET SCREW	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/4-20	5/16-18	1-3/16	1-3/8	1-3/8	0.260	335
* 5/16-18	5/16-18	1-3/16	1-3/8	1-3/8	0.250	335
3/8-16	1/2-13	2-1/16	1-7/8	1-3/4	0.700	525
1/2-13	1/2-13	2-1/2	2-3/8	2-3/16	1.260	750

FIG. 66W / 66L

welding beam attachment with and without nut and bolt



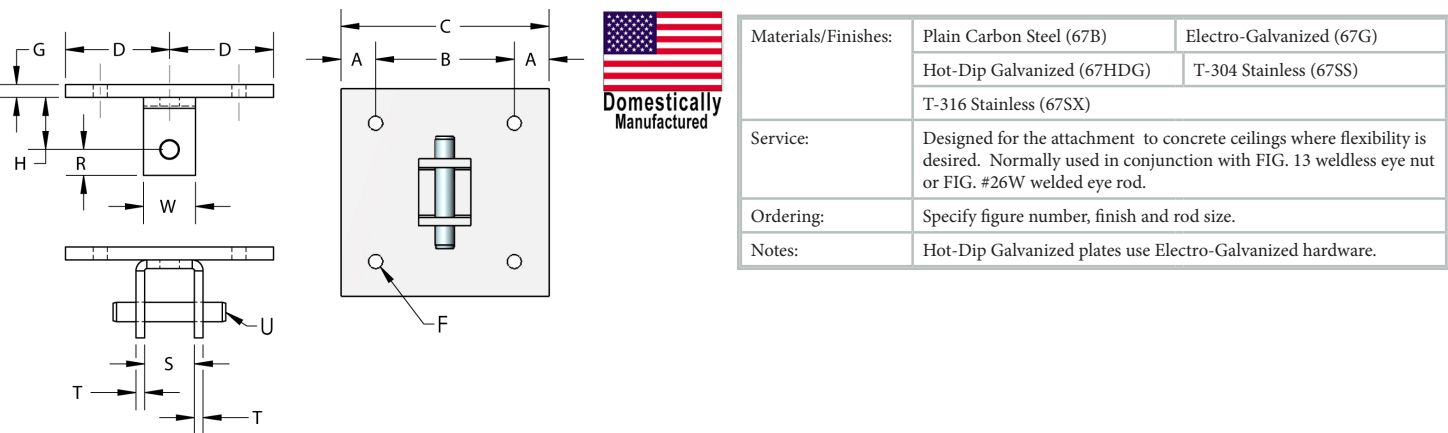
Materials/Finishes:	Plain Carbon Steel (66LB)	Electro-Galvanized (66LG)
	Hot-Dip Galvanized (66LHDG)	T-304 Stainless (66LSS)
	T-316 Stainless (66LSX)	
Variants:	Plain Carbon Steel (66WB)	Electro-Galvanized (66WG)
	Hot-Dip Galvanized (66WHDG)	T-304 Stainless (66WSS)
	T-316 Stainless (66WSX)	
Service:	Designed for the attachment of hanger rod to the bottom flange of steel beams where heavy loads and large hanger rod sizes are required.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 22).	
Notes:	Can be welded in either the upright or inverted position when ordered with hardware. 3/8 to 1-1/8 supplied with bolts and nuts. 1-1/4 and larger supplied with pins and cotters. FIG. 66L and 66W size 2 beam attachment will be welded rather than formed. Hot-Dip Galvanized attachment uses Electro-Galvanized hardware.	

"E" dimension includes exposed rod threads beyond bottom of the hex nut. Exposed rod thread dimension is equal to the diameter of the rod used.

SIZE A	BOLT OR PIN SIZE	B	E	F	H	R	S	T	WGT EACH (lbs)		MAX REC LOAD (lbs)	
									W/O BOLT AND NUT	WITH BOLT AND NUT	650°F	750°F
3/8	1/2 x 2-3/4	2	1-7/8	2	9/16	7/8	1-1/2	3ga	0.835	1.055	730	510
1/2	5/8 x 2-3/4	2	1-5/8	2	11/16	7/8	1-1/2	3ga	0.790	1.150	1350	940
5/8	3/4 x 3	2	1-3/8	2	13/16	7/8	1-1/2	3ga	0.770	1.350	2160	1510
3/4	7/8 x 4	2-1/2	1-3/8	2	15/16	1-1/8	1-15/16	3/8	1.640	2.560	3230	2260
7/8	1 x 4	2-1/2	2-1/4	3	1-1/16	1-1/4	2-1/16	3/8	2.240	3.600	4480	3150
1	1-1/8 x 5-1/2	3	2-3/4	3	1-1/4	1-1/2	2-3/4	1/2	4.270	6.290	5900	4150
1-1/4	1-3/8 x 6	4	2-7/8	3	1-1/2	2	3	5/8	8.090	10.220	9500	6660
1-1/2	1-5/8 x 6-1/2	5	4	4	1-3/4	2-1/2	3-1/2	3/4	15.600	19.020	13800	9700
1-3/4	1-7/8 x 6-7/8	5	5	5	2	2-3/4	3-3/4	3/4	16.530	21.860	18600	14000
2	2-1/4 X 6-7/8	6	5-1/4	5	2-3/8	3-1/4	3-3/4	3/4	24.940	32.840	24600	18460

FIG. 67

concrete clevis plate



ROD SIZE	A	B	C	D	F	G	H	R	S	T	U	W	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8	1	8	10	5	9/16	3/8	2	7/8	1-1/2	1/4	1/2	2	11.90	730
1/2	1	8	10	5	9/16	3/8	2	7/8	1-1/2	1/4	5/8	2	12.00	1350
5/8	1	8	10	5	9/16	1/2	2	7/8	1-1/2	1/4	3/4	2	15.80	2160
3/4	1	8	10	5	11/16	1/2	2	1-1/8	1-3/4	3/8	7/8	2-1/2	17.00	3230
7/8	1	8	10	5	11/16	1/2	3	1-1/4	2-1/4	3/8	1	2-1/2	18.10	4480
1	2	8	12	6	13/16	3/4	3	1-1/2	2-3/4	1/2	1-1/8	3	36.90	5900
1-1/8	2	8	12	6	15/16	3/4	3	1-3/4	2-3/4	5/8	1-3/8	3	37.90	6230
1-1/4	2	8	12	6	15/16	3/4	3	2	3	5/8	1-3/8	4	43.00	9500
1-1/2	2	8	12	6	1-1/8	1	4	2-1/2	3-1/2	3/4	1-5/8	5	60.00	13800

FIG. 68

concrete rod attachment

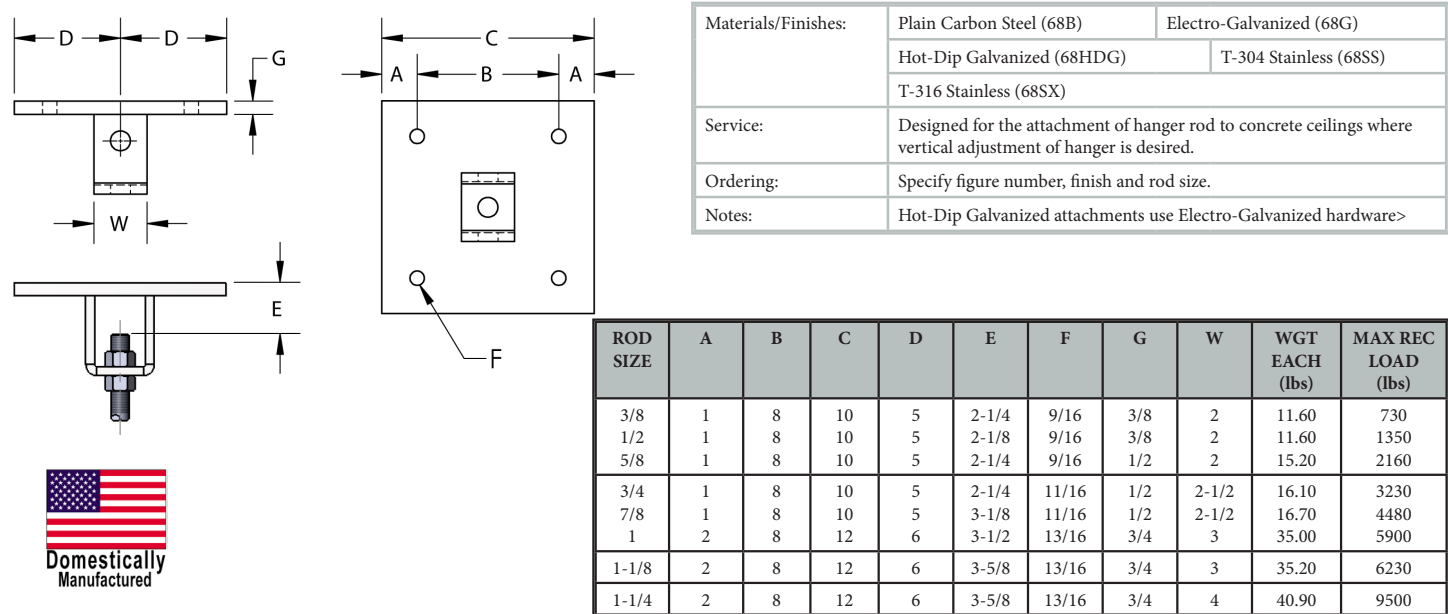
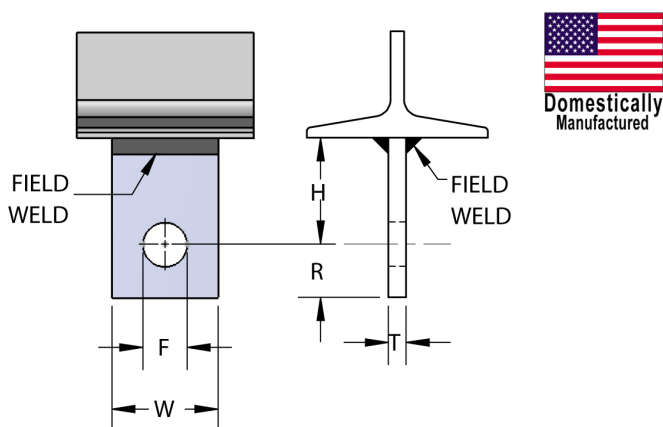


FIG. 69L / 69S

structural welding lug, long / short

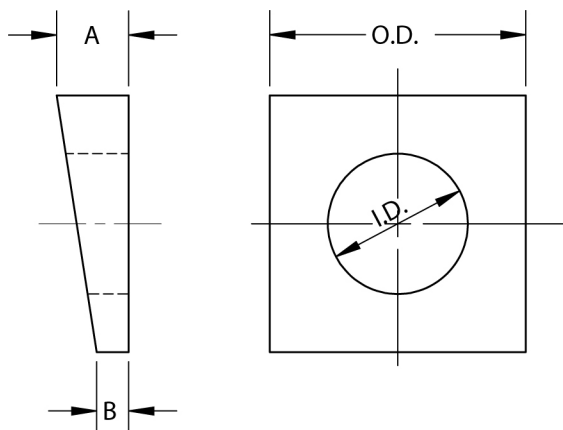


Materials/Finishes:	Plain Carbon Steel (69SB)	Electro-Galvanized (69SG)
	Hot-Dip Galvanized (69SHDG)	T-304 Stainless (69SSS)
	T-316 Stainless (69SSX)	
Variants:	Plain Carbon Steel (69LB)	Electro-Galvanized (69LG)
	Hot-Dip Galvanized (69LHDG)	T-304 Stainless (69LSS)
	T-316 Stainless (69LSX)	
Service:	Designed to be welded to structural members and used in conjunction with figure #909 forged steel clevis with pin and cotters.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 57).	
Ordering:	Specify figure number, finish and rod size.	
Notes:	Radiused edge available.	

FIG. 69S, 69L								FIG. 69S (short)		FIG.69L (long)	
ROD SIZE A*	PIN OR BOLT DIA	F	R	T	W	MAX REC LOAD (lbs)		ROD TAKE OUT H	WGT (lbs)	ROD TAKE OUT H	WGT (lbs)
						650°F	750°F				
1/2	5/8	11/16	1-1/4	1/4	2-1/2	1350	1057	1-1/2	0.48	3	0.75
5/8	3/4	13/16		3/8		2160	1692		0.41		0.68
3/4	7/8	15/16				3230	2530		0.60		1.0
7/8	1	1-1/8				4480	3508	2	0.71		0.98
1	1-1/8	1-1/4	1-1/2	1/2	3	5900	4620		1.2		1.6
1-1/4	1-3/8	1-1/2	2	5/8	4	9500	7440	3	3.0	4	3.7
1-1/2	1-5/8	1-3/4	2-1/2	3/4	5	13800	10807		4.8		6.4
1-3/4	1-7/8	2				18600	14566		4.7		6.3
2	2-1/4	2-3/8	3	1	8	24600	19265	4	7.2		8.8
2-1/4	2-1/2	2-5/8	4			32300	25295	4-1/2	7.6	-	-
2-1/2	2-3/4	2-7/8				39800	31169		15.5	-	-
2-3/4	3	3-1/8				49400	38687		15.1	-	-
3	3-1/4	3-3/8	4-1/2	1-1/2	9	60100	47066	5	16.0	-	-
3-1/4	3-1/2	3-5/8				71900	56307	18.9	-	-	
3-1/2	3-3/4	3-7/8				84700	66331	6	31.3	-	-
3-3/4	4	4-1/8				98500	77139		35.9	-	-
* Note: Rod size "A" is the assembly rod diameter. Dimension not shown on drawing.											

FIG. 72

bevel washer



Materials/Finishes:	Plain Carbon Steel (72B)	Electro-Galvanized (72G)
Service:	Designed to compensate for taper of "S" shape beam flanges so that bearing surface of bolt or nut will seat flush.	
Ordering:	Specify figure number and bolt size.	

BOLT SIZE	OD	ID	THICKNESS		WGT EACH (lbs)
			A	B	
3/8	1-1/4	7/16	11/32	5/32	0.09
1/2	1-1/4	9/16	11/32	5/32	0.09
5/8	1-1/2	11/16	13/32	5/32	0.14
3/4	1-1/2	13/16	15/32	7/32	0.16
7/8	2	15/16	9/16	7/32	0.34

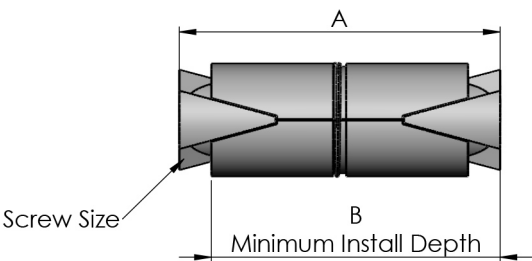
FIG. 73
drop in anchor



Materials/Finishes:	Electro-Galvanized (73G)	T-304 Stainless (73SS)
	T-316 Stainless (73SX)	
Service:	Designed to be inserted into a pre-drilled hole and set by means of a setting tool to provide attachment point for bolts or hanger rods.	
Ordering:	Specify figure number, finish and bolt or rod size.	

SIZE	DRILL DIA.	MIN DEPTH	THREAD DEPTH	WGT EACH (lbs)
3/8	1/2	1-7/8	5/8	0.060
1/2	5/8	2-3/8	13/16	0.120
5/8	7/8	3	1-3/16	0.320
3/4	1	3-1/2	1-3/8	0.480

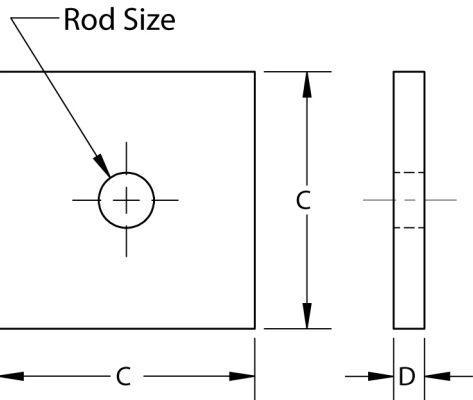
FIG. 7350
double expansion shield



Materials/Finishes	Electro-Galvanized (7350G)
Variants:	N/A
Service:	Designed to be inserted into a pre-drilled hole. The expansions cones are drawn in at each end when a corresponding machine screw is tightened. Recommended for anchoring into base materials of questionable strength.
Approvals:	N/A
Ordering:	Specify figure number and screw size.
Notes:	N/A

SCREW SIZE	A	B
3/8 - 16	2	1-3/4
1/2 - 13	2-3/8	2-1/4

FIG. 75
steel washer plate

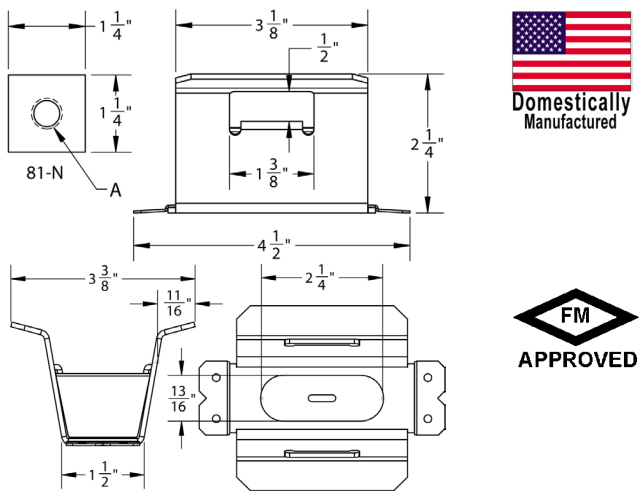


Materials/Finishes:	Plain Carbon Steel (75B)	Electro-Galvanized (75G)
	T-304 Stainless (75SS)	T-316 Stainless (75SX)
Service:	Designed as a heavy duty washer to suspend hanger rods.	
Ordering:	Specify figure number, finish, thickness, length, width and rod size.	
Notes:	Other dimensions and sizes available upon request.	

PLATE SIZE D x C x C	WGT EACH (lbs) ROD SIZE					
	3/8	1/2	5/8	3/4	7/8	1
1/8 x 2 x 2	0.14	0.14	0.13	-	-	-
1/4 x 2 x 2	0.26	0.26	-	-	-	-
1/4 x 2-1/2 x 2-1/2	0.44	0.43	0.42	0.41	-	-
1/4 x 3 x 3	0.64	0.64	0.64	0.64	0.63	0.63
1/4 x 4 x 4	1.15	1.15	1.15	1.10	1.10	1.06
3/8 x 4 x 4	1.72	1.72	1.72	1.71	1.70	1.70

FIG. 81

concrete insert

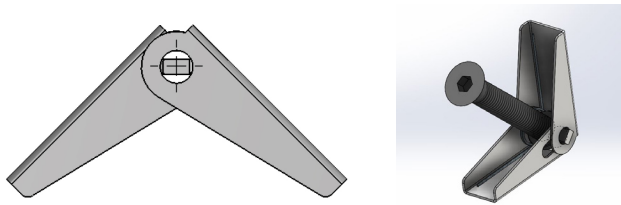


Materials/Finishes:	Plain Carbon Steel (81B)	Electro-Galvanized (81G)
Variants:	Plain Carbon Steel Insert Nut (81NB) Electro-Galvanized Insert Nut (81NG)	
Service:	Heavy gauge insert box is nailed to concrete form. When concrete has set, knock out plug can be removed and insert nut installed. Side openings accommodate up to 1/2" reinforcing rods.	
Approvals:	FM approved on sizes 3/8" and 1/2". Complies with Manufacturers' Standardization Society MSS SP-58 (Type# 18) and SP-69 (Type# 18).	
Ordering:	Specify figure number and finish. For insert nuts, specify figure number, rod size and finish	

SIZE A	WGT EACH (lbs)		MAX REC LOAD (lbs)
	INSERT (FIG. 81)	NUT (FIG. 81N)	
1/4-20	0.61	0.12	610
3/8-16	0.61	0.12	610S
1/2-13	0.61	0.12	800
5/8-11	0.61	0.10	800
3/4-10	0.61	0.10	800

FIG. 83 / 84

spring wing toggle with bolt / without bolt



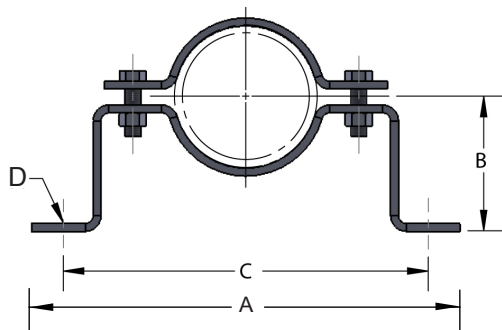
Materials/Finishes:	Electro-Galvanized (83G)
Variants:	Electro-Galvanized: Toggle only (84G)
Service:	Designed to be used with threaded rod in hollow walls.
Ordering:	Specify figure number and size.

FIG. 83 SPRING WING TOGGLE AND BOLT	
BOLT SIZE	WGT EACH (lbs)
1/4 x 3	.06
3/8 x 4	.18

FIG. 83 SPRING WING FIG. 84 SPRING WING TOGGLE HEAD ONLY	
BOLT SIZE	WGT EACH (lbs)
1/4	.03
3/8	.06
1/2	.14

FIG. 95

offset pipe clamp



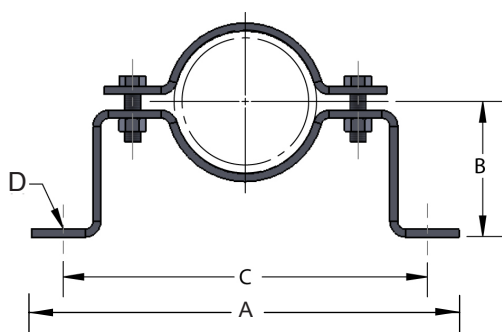
Materials/Finishes	Plain Carbon Steel (95B)	Electro-Galvanized (95G)
	Hot-Dip Galvanized (95HDG)	T-304 Stainless Steel (95SS)
	T-316 Stainless Steel (95SX)	
Service:	For use in supporting horizontal piping away from the wall or floor (not to be used as a riser type support).. This clamp can be furnished with "B" dimensions to suit field conditions.	
Ordering:	Specify figure number, pipe type, finish and pipe size	
Notes:	Available in IPS (95) and Ductile Iron Pipe (95DIP) Sizes. Custom B dimension available.	

PIPE SIZE	IPS OD	BOLT	B	A	C	D	WGT EACH (lbs)	* MAX REC LOAD (lbs)
1/2	0.84	3/8	2-9/16	8-3/4	7-3/16	7/16	1.51	200
3/4	1.050	3/8	2-5/8	8-7/8	7-3/8	7/16	1.62	200
1	1.315	3/8	2-5/8	9-1/8	7-5/8	7/16	1.70	200
1-1/4	1.660	3/8	2-13/16	9-1/2	8	7/16	1.75	200
1-1/2	1.900	3/8	2-15/16	9-5/8	8-1/16	7/16	1.82	200
2	2.375	3/8	3-3/16	10-3/4	9-3/8	7/16	2.07	410
2-1/2	2.875	3/8	3-7/16	11-5/8	10-1/4	7/16	2.24	410
3	3.500	3/8	3-3/4	12-3/4	11	7/16	2.52	410
3-1/2	4.000	3/8	4	13	11-1/4	7/16	2.64	410
4	4.500	1/2	4-1/4	13-1/2	11-1/2	9/16	3.61	600
5	5.563	1/2	4-3/4	15-3/8	13-3/8	9/16	4.00	600
6	6.625	1/2	5-5/16	16-3/8	14-1/2	9/16	6.51	850
8	8.625	1/2	6-5/16	19-1/4	17-1/4	9/16	7.92	850
10	10.75	3/4	7-3/4	25	23-1/8	13/16	20.03	900
12	12.75	3/4	8-3/4	27	25	13/16	23.24	900

* Stated load ratings are for horizontal installations only

FIG. 95DIP

offset pipe clamp for AWWA ductile iron and C-900 PVC pipe



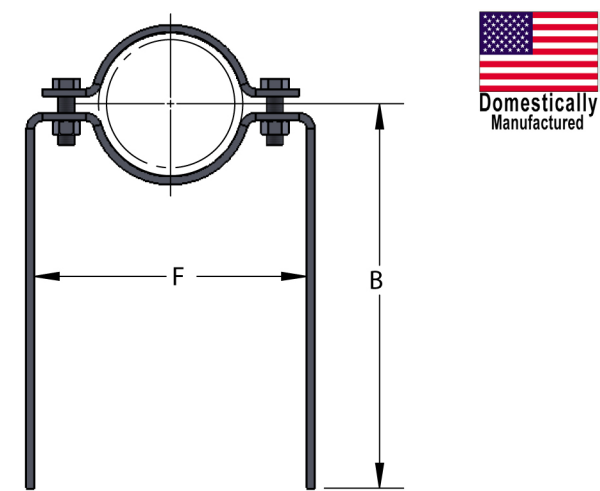
Materials/Finishes	Electro-Galvanized (95DIPG)	Hot-Dip Galvanized (95DIPHDG)
	T-304 Stainless Steel (95DIPSS)	T-316 Stainless Steel (95DIPSX)
Service:	For use in supporting horizontal piping away from the wall or floor (not to be used as a riser type support). This clamp can be furnished with "B" dimensions to suit field conditions.	
Ordering:	Specify figure number, pipe type, finish and pipe size	
Notes:	Available in Ductile Iron Pipe (95DIP) and IPS (95) Sizes. Custom B dimension available.	

PIPE SIZE AWWA	DIP OD	BOLT	B	A	C	D	WGT EACH (lbs)	*MAX REC LOAD (lbs)
3	3.96	3/8	3-3/4	12-3/4	11	7/16	2.52	410
4	4.80	1/2	4-1/4	13-1/2	11-1/2	9/16	3.61	600
6	6.90	1/2	5-5/16	16-3/8	14-1/2	9/16	6.51	850
8	9.05	1/2	6-5/16	19-1/4	17-1/4	9/16	7.92	850
10	11.10	3/4	7-3/4	25	23-1/8	13/16	20.03	900
12	13.20	3/4	8-3/4	27	25	13/16	23.24	900

* Stated load ratings are for horizontal installations only

FIG. 97

extended pipe clamp

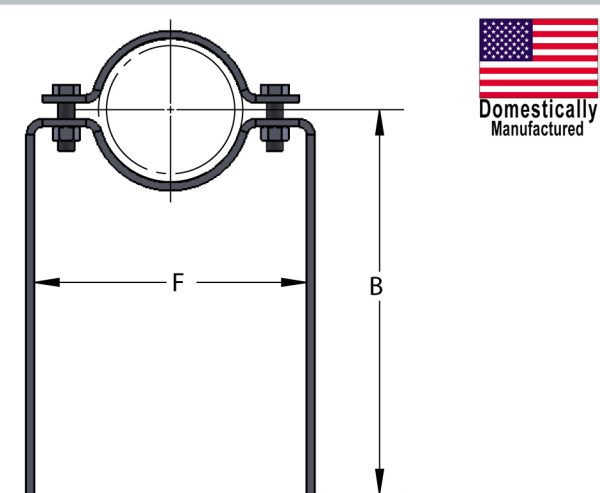


Materials/Finishes:	Plain Carbon Steel (97B)	Electro-Galvanized (97G)
	Hot-Dip Galvanized (97HDG)	T-304 Stainless (97SS)
	T-316 Stainless (97SX)	
Variants:	N/A	
Service:	Designed for suspending or supporting pipe lines where exact distance between structure and pipe cannot be determined until installation.	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Available in IPS (97) and Ductile Iron Pipe (97DIP) sizes. Custom B dimension available.	

PIPE SIZE	PIPE OD	BOLT	B	F	WGT EACH (lbs)
3/4	1.050	3/8	12	4-7/16	1.85
1	1.315	3/8	12	4-11/16	2.34
1-1/4	1.660	3/8	12	5	2.40
1-1/2	1.900	3/8	12	5-1/4	2.45
2	2.375	1/2	12	6	3.13
2-1/2	2.875	1/2	12	7-1/4	4.20
3	3.500	1/2	12	7-7/8	4.47
3-1/2	4.000	1/2	12	8-3/8	4.74
4	4.500	1/2	12	9-1/4	4.90
5	5.563	1/2	12	10-1/2	5.32
6	6.625	5/8	12	12-1/2	11.15
8	8.625	5/8	12	14-5/8	12.65

FIG. 97DIP

extended pipe clamp for AWWA ductile iron and C-900 PVC pipe

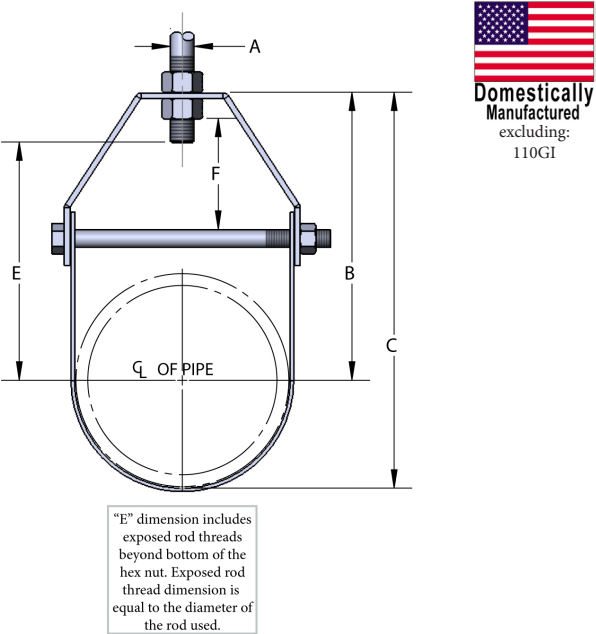


Materials/Finishes	Plain Carbon Steel (97DIPB)	Electro-Galvanized (97DIPG)
	Hot-Dip Galvanized (97DIPHDG)	T-304 Stainless (97DIPSS)
	T-316 Stainless (97DIPSX)	
Variants:	N/A	
Service:	Designed for suspending or supporting pipe lines where exact distance between structure and pipe cannot be determined until installation.	
Approvals:	N/A	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Available in Ductile Iron Pipe (97DIP) and IPS (97) sizes. Custom B dimension available.	

AWWA PIPE SIZE	PIPE OD	BOLT	B	F	WGT EACH (lbs)
3	3.96	1/2	12	7-7/8	4.64
4	4.80	1/2	12	9-1/4	5
6	4.90	5/8	12	12-1/2	11.58
8	9.05	5/8	12	14-5/8	14.28

FIG. 110

adjustable clevis hanger, light weight



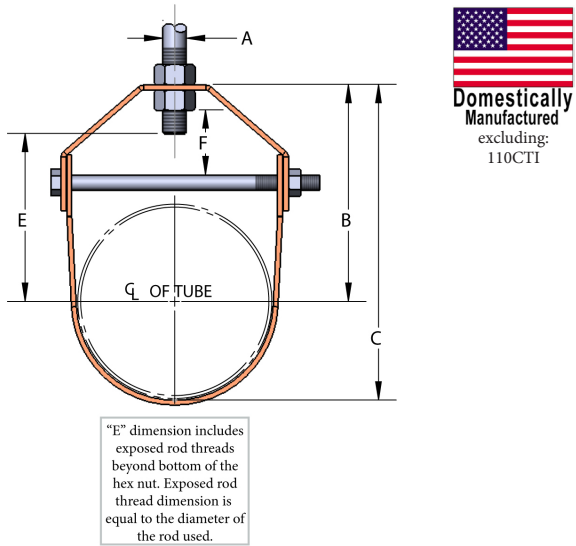
Materials/Finishes:	Plain Carbon Steel (110B)	Electro-Galvanized (110G)
Variants:	Electro-Galvanized, Imported: (110GI)	
Service:	Designed for the suspension of non insulated, stationary pipe lines.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 1). Galvanized only.	
Ordering:	Specify figure number, material, finish type and pipe size.	
Notes:	Upper locknut must be tightened securely to assure proper hanger performance. Conduit comes in various outside diameters. Verify outside diameter of conduit is equal to outside diameter of schedule 40 steel pipe.	

PIPE SIZE	PIPE OD	BOLT	A	B	C	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8	0.625	1/4	3/8	1-7/8	2-3/16	1-1/8	1/2	0.12	150
1/2	0.840	1/4	3/8	1-3/4	2-1/8	1	1/2	0.12	150
3/4	1.050	1/4	3/8	1-13/16	2-5/16	1-1/16	1/2	0.12	250
1	1.315	1/4	3/8	2-1/8	2-3/4	1-5/16	3/4	0.12	250
1-1/4	1.660	1/4	3/8	2-1/2	3-1/4	1-3/4	1-5/16	0.18	250
1-1/2	1.900	1/4	3/8	2-13/16	3-13/16	2-1/16	1-1/8	0.24	250
2	2.375	1/4	3/8	3-5/16	4-1/2	2-9/16	1-1/4	0.26	250
2-1/2	2.875	1/4	1/2	4-1/2	5-15/16	3-7/16	2-1/16	0.58	350
3	3.500	5/16	1/2	4-13/16	6-9/16	3-3/4	1-7/8	0.66	350
* 3-1/2	4.000	5/16	1/2	5-15/16	7-7/8	4-7/8	2-5/8	0.82	350
4	4.500	3/8	1/2	6-1/16	8-5/16	5	2-3/8	0.94	400

* ONLY AVAILABLE DOMESTIC

FIG. 110CT

clevis hanger for copper tubing

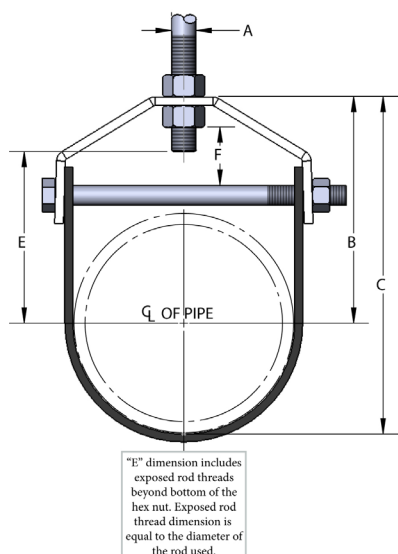


Materials/Finishes:	Copper Epoxy Coated <i>Copper Gard</i> : Domestic (110CTP)
Variants:	Copper Epoxy Coated <i>Copper Gard</i> : Imported (110CTI)
Service:	Designed for the suspension of stationary copper tubing.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 1).
Ordering:	Specify figure number and tube size
Notes:	COPPER-GARD products offer superior corrosion protection due to the epoxy coating over phosphate zinc coated steel. The alternative copper plating, that has been done historically identifies the product and is not intended for protection. Refer to MSS SP-58, 13.3.

TUBE SIZE	TUBE OD	BOLT	A	B	C	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.625	1/4	3/8	1-7/8	2-3/16	1-1/8	1/2	0.12	150
3/4	0.875	1/4	3/8	1-3/4	2-1/8	1	1/2	0.12	250
1	1.125	1/4	3/8	1-13/16	2-5/16	1-1/16	1/2	0.12	250
1-1/4	1.375	1/4	3/8	2-1/8	2-3/4	1-5/16	3/4	0.12	250
1-1/2	1.625	1/4	3/8	2-1/2	3-1/4	1-3/4	15/16	0.18	250
2	2.125	1/4	3/8	2-15/16	4	2-3/16	1-1/16	0.24	250
2-1/2	2.625	1/4	1/2	4-7/8	5-3/4	3-3/8	2-1/16	0.58	350
3	3.125	1/4	1/2	4-1/2	6-1/8	3-7/16	2	0.60	350
3-1/2	3.625	5/16	1/2	4-3/4	6-1/2	3-11/16	1-13/16	0.66	350
4	4.125	5/16	1/2	5-7/8	7-7/8	4-3/4	2-9/16	1.02	400
5	5.125	3/8	5/8	5-7/8	8-3/4	4-3/4	1-5/8	1.68	550
6	6.125	3/8	5/8	6-1/16	9	4-3/4	1-1/2	1.84	550

FIG. 110PC

plastic coated clevis hanger

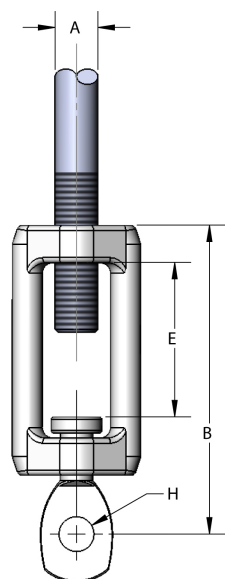


Materials/Finishes:	Plastic Coated Electro-Galvanized Steel (110PC)
Service:	Designed for the suspension of non-insulated stationary pipe lines in light duty applications. Plastic coating prevents pipe from coming in contact with hanger; resulting in noise and vibration reduction as well as the prevention of electrolysis between pipe and hanger.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 1).
Ordering:	Specify figure number and pipe size
Notes:	Top of hanger as well as nut and cross bolt are electro-galvanized and bottom of hanger is plastic coated.

PIPE SIZE	PIPE OD	BOLT	A	B	C	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8	0.625	1/4	3/8	1-7/8	2-3/16	1-1/8	1/2	0.12	150
1/2	0.840	1/4	3/8	1-3/4	2-1/8	1	1/2	0.12	150
3/4	1.050	1/4	3/8	1-13/16	2-5/16	1-1/16	1/2	0.12	250
1	1.315	1/4	3/8	2-1/8	2-3/4	1-5/16	3/4	0.12	250
1 1/4	1.660	1/4	3/8	2-1/2	3-1/4	1-3/4	1-5/16	0.18	250
1 1/2	1.900	1/4	3/8	2-13/16	3-13/16	2-1/16	1-1/8	0.24	250
2	2.375	1/4	3/8	3-5/16	4-1/2	2-9/16	1-1/4	0.26	250
2 1/2	2.875	1/4	1/2	4-1/2	5-15/16	3-7/16	2-1/16	0.58	350
3	3.500	5/16	1/2	4-13/16	6-9/16	3-3/4	1-7/8	0.66	350
3 1/2	4.000	5/16	1/2	5-15/16	7-7/8	4-7/8	2-5/8	0.82	350
4	4.500	3/8	1/2	6-1/16	8-5/16	5	2-3/8	0.94	400
5	5.563	1/2	5/8	5-11/16	8-7/16	4-5/16	1-7/16	2.04	1430
6	6.625	1/2	3/4	6-13/16	10-1/8	5-3/16	1-3/4	2.80	1940
7	7.625	1/2	3/4	7-13/16	11-5/8	6-3/16	2	3.24	2000
8	8.625	5/8	3/4	8-1/16	12-7/16	6-1/4	1-7/8	4.46	2000
10	10.750	3/4	7/8	10	15-7/16	8	2-1/4	8.06	3600
12	12.750	3/4	7/8	11-9/16	18	9-9/16	2-13/16	10.34	3800

FIG. 114

turnbuckle adjuster

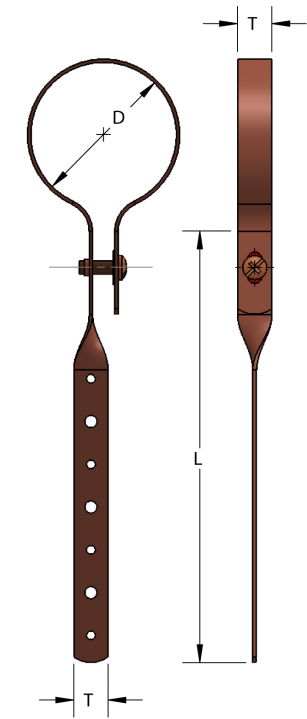


Materials/Finishes:	Plain Malleable Iron (114B)	Electro-Galvanized (114G)
Service:	Designed to provide vertical rod adjustment with split ring hangers.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 15).	
Ordering:	Specify figure number and rod size.	

SIZE A	PIPE SIZE	B	E	H	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8-16	1/2 to 2	4.300	2.000	0.410	0.30	610
1/2-13	2-1/2 to 3-1/2	4.300	2.000	0.410	0.28	610

FIG. 127CT

natick hanger for copper tubing

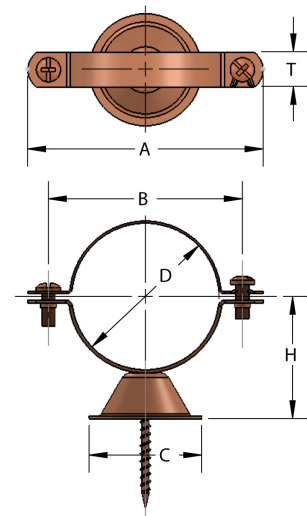


Materials/Finishes:	Copper Epoxy Coated (<i>Copper-Gard</i>) Carbon Steel (127CT)
Service:	Designed for the support of copper tube supply lines. Attaches to wood members.
Ordering:	Specify figure number, finish, tube size and length

TUBE SIZE	D TUBE OD	T	L	WGT EACH (lbs)	
				6"	12"
1/2	0.625	1/2	6" or 12"	0.07	0.09
3/4	0.875	1/2	6" or 12"	0.07	0.09
1	1.125	1/2	6" or 12"	0.08	0.10
1-1/4	1.375	1/2	6" or 12"	0.08	0.10
1-1/2	1.625	1/2	6" or 12"	0.10	0.12
2	2.125	1/2	6" or 12"	0.10	0.12

FIG. 129CT

van (bell type) hanger for copper tubing

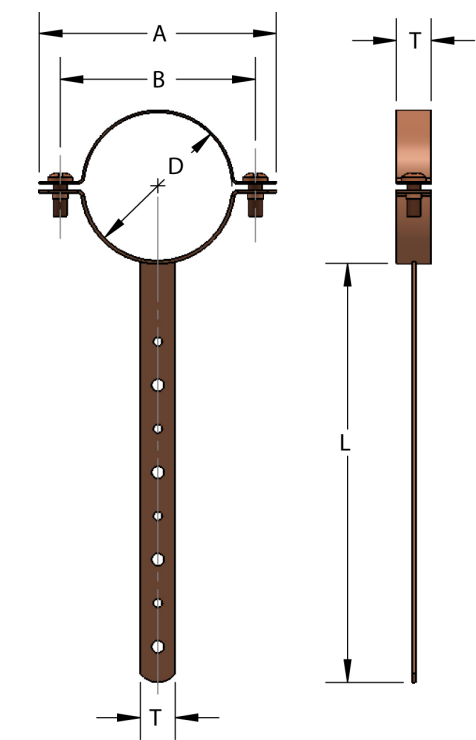


Materials/Finishes:	Copper Epoxy Coated (<i>Copper-Gard</i>) Carbon Steel (129CT)
Service:	Designed to support copper tubing to wall. Supports the pipe 1" from the back of pipe to wall. The wood screw is concealed upon installation.
Ordering:	Specify figure number, finish and tube size

TUBE SIZE	D TUBE OD	A	B	C	H	T	WGT EACH WITH SCREW (lbs)
1/2	0.625	2-3/16	1-9/16	1-5/8	1-1/16	1/2	0.06
3/4	0.875	2-3/8	1-3/4	1-5/8	1-3/16	1/2	0.06
1	1.125	2-7/16	1-7/8	1-5/8	1-5/16	1/2	0.06
1-1/4	1.375	2-11/16	2-1/8	1-5/8	1-7/16	1/2	0.08
1-1/2	1.625	3-1/16	2-7/16	1-5/8	1-9/16	1/2	0.08
2	2.125	4-7/16	2-13/16	1-5/8	1-13/16	1/2	0.09
ASSEMBLED WITH #6 X 2 COARSE THREAD DRYWALL SCREW							

FIG. 131CT

milford hanger for copper tubing

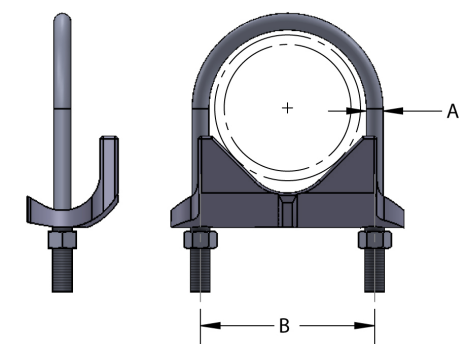


Materials/Finishes:	Copper Epoxy Coated (<i>Copper-Gard</i>) Carbon Steel (131CT)
Service:	Designed for the support of copper tube supply lines. Attaches to wood members.
Ordering:	Specify figure number, finish, tube size and length

TUBE SIZE	D TUBE OD	A	B	T	L	WGT EACH (lbs)	
						6"	12"
1/2	0.625	2-3/16	1-9/16	1/2	6" or 12"	0.08	0.12
3/4	0.875	2-3/8	1-3/4	1/2	6" or 12"	0.08	0.12
1	1.125	2-7/16	1-7/8	1/2	6" or 12"	0.08	0.12
1-1/4	1.375	2-11/16	2-1/8	1/2	6" or 12"	0.10	0.14
1-1/2	1.625	3-1/16	2-7/16	1/2	6" or 12"	0.10	0.14
2	2.125	3-7/16	2-13/16	1/2	6" or 12"	0.10	0.14

FIG. 136

right angle clamp

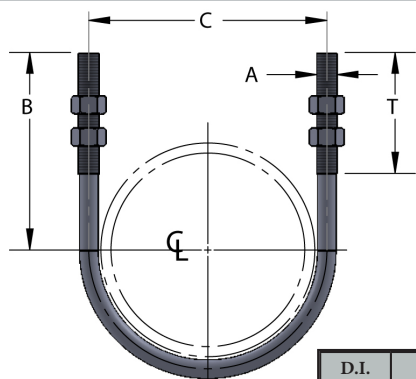


Materials/Finishes:	Hot-Dip Galvanized Ductile Iron (136HDG)
	T-316 Stainless Steel (136SX)
Service:	Designed for anchoring pipe or conduit at a right angle to structural members.
Ordering:	Specify figure number, pipe size and finish

PIPE SIZE	PIPE OD	A	B	WGT EACH (lbs)
1/2	0.840	5/16	1-3/16	0.40
3/4	1.050	5/16	1-7/16	0.42
1	1.315	5/16	1-11/16	0.48
1-1/4	1.660	5/16	2-1/8	0.55
1-1/2	1.900	5/16	2-5/16	0.57
2	2.375	3/8	2-13/16	0.89
2-1/2	2.875	3/8	3-7/16	1.10
3	3.500	3/8	4-1/16	1.14
3-1/2	4.000	3/8	4-9/16	1.30
4	4.500	3/8	5-1/8	1.40

FIG. 137 / 137DIP

standard ips / dip sized u-bolt with 4 hex nuts

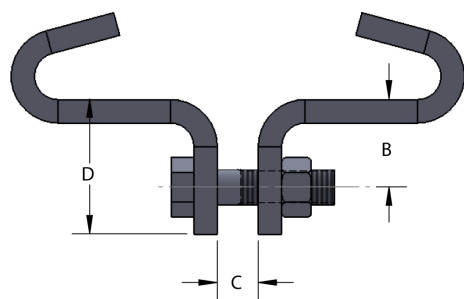


Materials/Finishes:	Plain Carbon Steel (137B)		Electro-Galvanized (137G)	
	Hot-Dip Galvanized (137HDG)		Plastic Coated (137PC)	
	T-304 Stainless Steel (137SS)	T-316 Stainless Steel (137SX)		
Variants:	Plain Carbon Steel for DIP (137DIPB)		Hot-Dip Galvanized for DIP (137DIPHDG)	
	T-304 Stainless Steel for DIP (137DIPSS)		T-316 Stainless Steel for DIP (137DIPSX)	
	Pipe Gard (137PG), Pipe Gard for DIP (137DIPPG) - Please contact factory for details.			
Service:	Designed for support or guide of heavy loads.			
Approvals:	Complies with MSS SP-58 and SP-69 (Type# 24).			
Ordering:	Specify figure number, finish and pipe size.			
Notes:	Available domestic and in special dimensions. Please contact factory for details.			

D.I. PIPE SIZE	A	B	C	T	MAX REC LOAD (lbs)
3	1/2-13	4-1/4	4-5/8	3-3/4	2260
4	1/2-13	4-3/4	5-7/16	3-3/4	2260
6	5/8-11	6-1/4	7-3/4	4	3620
8	5/8-11	7-3/8	9-7/8	4	3620
10	3/4-10	8-5/8	12	4-1/4	5420
12	7/8-9	9-7/8	14-1/4	4-1/2	7540
14	7/8-9	11	16-3/8	5	7540
16	7/8-9	12	18-1/2	5	7540
18	1-8	13-3/8	20-5/8	5-1/2	9920
20	1-8	14-1/2	22-3/4	5-5/8	9920
24	1-8	16-5/8	27	5-3/4	9920
30	1-8	19-5/8	33-1/4	6	9920

PIPE SIZE	PIPE OD	A	B	C	T	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.840	1/4-20	2-3/4	1-3/16	2-3/8	0.10	485
3/4	1.050	1/4-20	2-3/4	1-3/8	2-3/8	0.10	485
1	1.315	1/4-20	2-3/4	1-5/8	2-3/8	0.10	485
1-1/4	1.660	3/8-16	2-7/8	2-1/16	2-3/8	0.26	1220
1-1/2	1.900	3/8-16	3	2-3/8	2-1/2	0.28	1220
2	2.375	3/8-16	3-1/4	2-13/16	2-1/2	0.32	1220
2-1/2	2.875	1/2-13	3-3/4	3-7/16	3	0.70	2260
3	3.500	1/2-13	4	4-1/16	3	0.76	2260
3-1/2	4.000	1/2-13	4-1/4	4-9/16	3	0.80	2260
4	4.500	1/2-13	4-1/2	5-1/16	3	0.86	2260
5	5.563	1/2-13	5	6-1/8	3	1.00	2260
6	6.625	5/8-11	6-1/8	7-3/8	3-3/4	1.98	3620
8	8.625	5/8-11	7-1/8	9-3/8	3-3/4	2.26	3620
10	10.750	3/4-10	8-3/8	11-5/8	4	3.94	5420
12	12.750	7/8-9	9-5/8	13-3/4	4-1/4	6.40	7540
14	14.000	7/8-9	10-1/4	15	4-3/4	8.30	7540
16	16.000	7/8-9	11-1/4	17	4-3/4	9.20	7540
18	18.000	1-8	12-5/8	19-1/8	4-3/4	13.50	9920
20	20.000	1-8	13-5/8	21-1/8	4-3/4	14.60	9920
24	24.000	1-8	15-5/8	25-1/8	4-3/4	16.90	9920
30	30.000	1-8	18-5/8	31-1/8	4-3/4	22.00	9920

FIG. 150
beam clamp

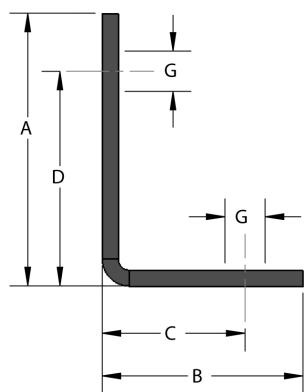


Materials/Finishes:	Electro-Galvanized (150G)	
	T-304 Stainless Steel (150SS)	T-316 Stainless Steel (150SX)
Service:	Designed for attaching hanger rods from the center of an I-beam. Normally used with figure 26, 26W eyerods, or figure 13 weldless eye nut.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 21).	
Ordering:	Specify figure number, finish, clamp size, flange width, beam thickness.	
Notes:	Not available for beams greater than 12" wide. Recommended rod size based on maximum load. Maximum rod size based on dimension "C" and FIG. 13 Weldless Eye Nut.	

FLANGE		WGT. EACH (lbs)	
WIDTH	MAX THK	SIZE 1	SIZE 2
4	1/2	1.1	3.8
5	5/8	1.2	4.1
5-1/2	5/8	1.3	4.4
6	5/8	1.3	4.4
6-1/2	5/8	1.4	4.7
7	7/8	1.4	4.7
8	7/8	3.3	5.0
9	1	3.7	7.0
10	1	4.1	7.5
12	1	4.9	10.1

CLAMP SIZE	FLANGE	MATERIAL SIZE	BOLT	B	C	D	E	REC ROD	MAX ROD	MAX REC LOAD (lbs)
1	4 TO 7	1/4 x 1-1/4	1/2	1-1/8	5/8	5/8	0.840	1/2	3/4	1000
	8 TO 12	3/8 x 2		1-3/8						
2	4 TO 10	1/2 x 2	3/4	2	7/8	1	1.050	3/4	1	3000
	12	1/2 x 3								

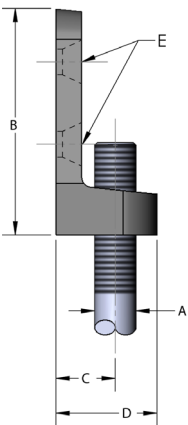
FIG. 152
return line angle



Materials/Finishes:	Plain Carbon Steel (152B)	Electro-Galvanized (152G)
Service:	Designed to enable the field mechanic to obtain different distances from wall to center of pipe line by turning the angle to distance required. They will support pipes 2, 3 or 4 inches from wall to center of pipe.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 34).	
Ordering:	Specify figure number, finish and size number.	

SIZE NO.	MATERIAL SIZE	A	B	C	D	G	WGT EACH (lbs)	MAX REC LOAD (lbs)
1	4ga	3-13/16	2-13/16	2	3	9/16	0.425	180
2	4ga	4-13/16	3-13/16	3	4	9/16	0.585	180
3	3/8	3-7/8	2-7/8	2	3	9/16	0.870	390
4	3/8	4-7/8	3-7/8	3	4	9/16	1.175	390
5	4ga	6-15/16	4-15/16	4	6	9/16	0.825	180
6	3/8	6-15/16	4-15/16	4	6	9/16	1.650	190

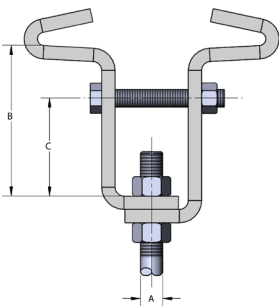
FIG. 153
side beam connector



Materials/Finishes:	Plain Ductile Iron (153B)	Electro-Galvanized (153G)
Service:	Designed for mounting to sides of wood beams using drive screws. Bottom hole is tapped for rod.	
Ordering:	Specify figure number, finish and rod size.	

SIZE A	B	C	D	E SCREW SIZE	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8-16	2-1/8	5/8	15/16	#12	0.13	250
1/2-13	2-3/4	3/4	1-3/16	#14	0.29	480

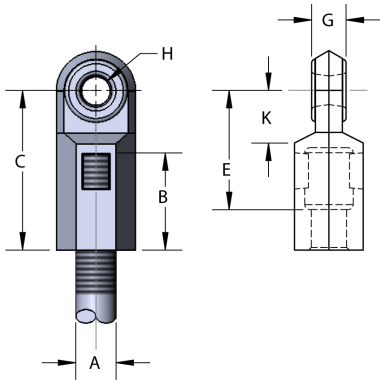
FIG. 155
steel beam clamp



Materials/Finishes:	Electro-Galvanized (155G)	T-304 Stainless Steel (155SS)	T-316 Stainless Steel (155SX)
Service:	Designed for attaching hanger rods to be centered under beam flanges. The clamp provides a vertical adjustment of approximately 2 inches.		
Approvals:	MSS SP-58 Type 21, FS WW-H-171E Type 21		
Ordering:	Specify figure number, finish, clamp size, beam thickness and flange width		
Notes:	Not available for flanges greater than 8 inches wide. Box style available in sizes 5 and 6. B dimension may vary 1/4" due to flange thickness variations.		

CLAMP SIZE	MATERIAL SIZE	A	B	C	D	MAX FLANGE THICKNESS	WEIGHT EACH (lbs) - FLANGE WIDTH (in)							MAX REC LOAD (lbs)
							4	5	5-1/2	6	6-1/2	7	8	
2	1/4 x 1-1/2	1/2	4	1-3/4	1/2	1/2	2.0	2.1	2.2	2.2	2.3	2.3	2.4	850
3	3/8 x 1-1/2	5/8	4-1/2	2			2.9	3.1	3.3	3.3	3.5	3.5	3.7	1100
4	3/8 x 2	3/4		1			3.9	4.1	4.3	4.3	4.5	4.5	4.7	1500
5	1/2 x 2	7/8	5	6.0			6.2	6.3	6.3	6.6	6.6	6.9	2600	
6	1/2 x 2-1/2	1	5	3/4			5/8	8.0	8.7	9.1	8.0	8.4	8.4	8.8

FIG. 157
extension piece

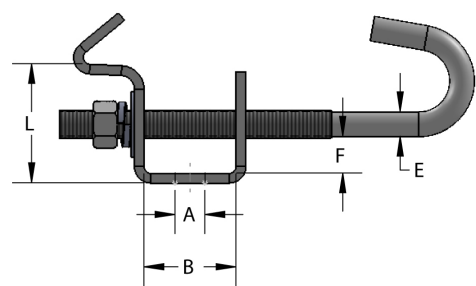


Materials/Finishes:	Plain Malleable Iron (157B)	Electro-Galvanized (157G)
Service:	Designed for attaching hanger rod to various type of attachments. Allows a 1 inch vertical adjustment of the rod.	
Ordering:	Specify figure number, finish and rod size	

SIZE A	PIPE SIZE	B	C	E	G	H	K	WGT EACH (lbs)	MAX REC LOAD (lbs)
3/8-16	1/2 to 2	1-5/16	2-1/16	1-3/16	1/2	1/2	9/16	0.19	610
1/2-13	2-1/2 to 3-1/2	1-7/16	2-5/16	1-5/16	5/8	1/2	11/16	0.41	1130
5/8-11	4 to 5	1-9/16	2-7/16	1-7/16	5/8	1/2	3/4	0.42	1810
3/4-10	6	1-7/8	2-7/8	1-9/16	5/8	1/2	7/8	0.68	2710
7/8-9	8 to 12	2	3-1/16	1-11/16	3/4	9/16	7/8	0.78	2950

FIG. 159

adjustable rod beam clamp

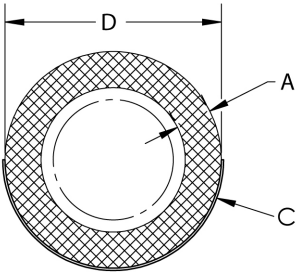


Materials/Finishes:	Plain Carbon Steel (159B)	Electro-Galvanized (159G)
Service:	Designed to be used in the suspension of a hanger rod from an I-beam. Recommended for flange widths from 4 inches minimum to 8 inches maximum.	
Approvals:	Complies with Federal Specifications WW-H-171-E (Type# 54), A-A-1192 A (Type# 27), and MSS SP-58 and SP-69 (Type# 27).	
Ordering:	Specify figure number, finish and rod size.	

SIZE A	MATERIAL SIZE	FLANGE WIDTH		B	E	F	L	WGT EACH (lbs)	MAX REC LOAD (lbs)
		MIN	MAX						
* 3/8-16	3ga x 1-1/4	3-1/2	8	2	3/8	1	2-3/4	0.97	300
1/2-13	3ga x 1-1/2	3-1/2	8	2	1/2	15/16	2-3/4	1.37	700
5/8-11	3ga x 1-3/4	3-1/2	8	2	5/8	7/8	2-3/4	1.84	1000
3/4-10	3/8 x 2-1/2	3-1/2	8	2-1/2	3/4	1-1/4	3-3/8	6.78	1800
* NOT AVAILABLE IN PLAIN CARBON STEEL									

FIG. 167

pipe covering protection shield



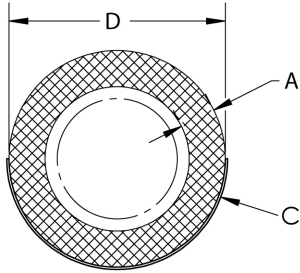
Materials/Finishes:	Pre-Galvanized (167G)	T-304 Stainless Steel (167SS)	T-316 Stainless Steel (167SX)
Service:	Designed for outside of foam or fiberglass insulation on stationary pipe lines (not designed for pipe rollers) to prevent crushing of insulation without breaking the vapor barrier.		
Approvals:	Complies with Federal Specifications WW-H-171-E (Type# 41), A-A-1192 A (Type# 40)		
Ordering:	Specify figure number and shield size		

SHIELD SIZE NO.	B LENGTH	C STOCK SIZE	D DIA.	HANGER SIZE	WGT EACH (lbs)
0	12	24ga	1-7/8	11/2	0.25
1	12	24ga	2-3/8	2	0.31
2	12	24ga	2-7/8	2 1/2	0.37
3	12	18ga	3-1/2	3	0.93
4	12	18ga	4	3 1/2	1.03
5	12	18ga	4-1/2	4	1.18
6	12	18ga	5	5	1.33
7	12	18ga	5-9/16	5	1.47
8	12	18ga	6-5/8	6	1.65
9	12	18ga	7-5/8	8	1.90
10	12	18ga	8-5/8	8	2.10
13	12	18ga	9-5/8	10	2.35
14	12	18ga	10-3/4	10	2.65
15	12	18ga	11-3/4	12	2.95
16	12	18ga	12-3/4	12	3.15
17	12	16ga	14	14	4.45
18	12	16ga	15	16	4.46
19	12	16ga	16	16	4.90
20	12	16ga	17	18	5.15
21	12	16ga	18	18	5.50
22	12	16ga	19	20	5.70
23	12	16ga	20	20	6.35
24	12	16ga	21	24	6.45
25	12	16ga	22	24	6.60
26	12	16ga	23	24	7.00
27	12	16ga	24	24	7.85
28	12	16ga	26	30	7.90
29	12	16ga	27	30	8.05
30	12	16ga	28	30	8.60

PIPE SIZE	A - INSULATION THICKNESS				
	1/2"	3/4"	1	1-1/2"	2
1/2	0	1	-	-	-
3/4	1	1	2	4	6
1	1	2	3	5	7
1-1/4	2	3	3	6	7
1-1/2	2	3	4	6	8
2	3	4	5	7	8
2-1/2	4	5	6	7	8
3	5	6	7	8	9
3-1/2	-	-	8	9	10
4	-	-	8	9	10
5	-	-	9	10	13
6	-	-	10	13	14
8	-	-	14	15	16
10	-	-	16	17	18
12	-	-	18	19	20
14	-	-	19	20	21
16	-	-	21	22	23
18	-	-	23	24	25
20	-	-	25	26	27
24	-	-	28	29	30
TUBING SIZE	A - INSULATION THICKNESS				
	1/2"	3/4"	1	1-1/2"	2
1/2	0	1	2	4	5
3/4	0	1	2	4	6
1	1	2	3	4	6
1-1/4	1	2	3	5	7
1-1/2	2	3	3	5	7
2	3	4	4	6	8
2-1/2	4	5	5	7	8
3	5	6	6	8	9
3-1/2	6	7	7	8	9
4	7	7	8	9	10
5	8	8	9	10	13
6	9	9	10	13	14

FIG. 167MSS

"mss" pipe covering protection shield



Materials/Finishes:	Pre-Galvanized (167MSSG)	T-304 Stainless Steel (167MSSSS)	T-316 Stainless Steel (167MSSSX)
Service:	Designed for outside of foam or fiberglass insulation on stationary pipe lines (not designed for pipe rollers) to prevent crushing of insulation without breaking the vapor barrier.		
Approvals:	Complies with Federal Specifications WW-H-171-E (Type# 41) and MSS SP-58 and SP-69 (Type# 40).		
Ordering:	Specify figure number and shield size		



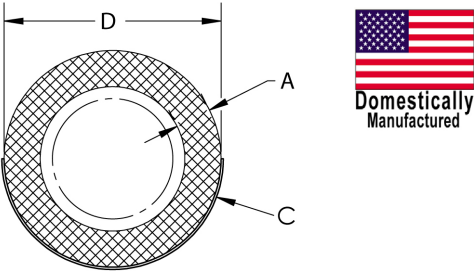
SHIELD SIZE NO.	B LENGTH	C STOCK SIZE	SHIELD ID/ INSULATION OD	HANGER SIZE	WGT EACH (lbs)
X1A	12	18ga	1-7/8	1-1/2	0.53
1A	12	18ga	2-3/8	2	0.68
2A	12	18ga	2-7/8	2-1/2	0.82
3A	12	18ga	3-1/2	3	0.93
4A	12	18ga	4	3-1/2	1.03
5A	12	18ga	4-1/2	4	1.18
6A	12	18ga	5	5	1.33
7A	12	18ga	5-9/16	5	1.47
8A	12	16ga	6-5/8	6	2.33
9A	12	16ga	7-5/8	7	2.66
10A	12	16ga	8-5/8	8	3.00
9B	18	16ga	7-5/8	7	3.99
10B	18	16ga	8-5/8	8	4.49
11B	18	16ga	9-5/8	10	5.03
12B	18	16ga	10-3/4	10	5.62
13C	24	14ga	11-3/4	12	10.12
14C	24	14ga	12-3/4	12	10.94
15C	24	14ga	14	14	12.03
16C	24	14ga	15	16	12.92
17C	24	14ga	16	16	13.74
18C	24	14ga	17	18	14.63
19C	24	12ga	18	18	21.33
20C	24	12ga	19	20	22.56
21C	24	12ga	20	20	23.79
22C	24	12ga	21	24	24.92
23C	24	12ga	22	24	26.15
24C	24	12ga	23	24	27.37
25C	24	12ga	24	24	28.51
26C	24	12ga	26	30	30.87
27C	24	12ga	27	30	32.09
28C	24	12ga	28	30	33.22

SHIELD SIZE SELECTION FOR NOMINAL PIPE					
PIPE SIZE	A - INSULATION THICKNESS				
	1/2"	3/4"	1	1-1/2"	2
1/2	1A	1A	-	-	-
3/4	1A	2A	3A	4A	6A
1	1A	2A	3A	5A	7A
1-1/4	2A	3A	4A	6A	7A
1-1/2	2A	3A	4A	6A	8A
2	3A	4A	5A	7A	8A
2-1/2	4A	5A	-	8A	9A
3	5A	6A	7A	8A	9A
3-1/2	-	-	8A	9A	10A
4	-	-	8A	9A	10A
5	-	-	9A/9B	10A/10B	11B
6	-	-	10A/10B	11B	12B
8	-	-	12B	13C	14C
10	-	-	14C	15C	16C
12	-	-	16C	17C	18C
14	-	-	17C	18C	19C
16	-	-	19C	20C	21C
18	-	-	21C	22C	23C
20	-	-	23C	24C	25C
24	-	-	26C	27C	28C

SHIELD SIZE SELECTION FOR COPPER TUBING					
TUBING SIZE	A - INSULATION THICKNESS				
	1/2"	3/4"	1	1-1/2"	2
1/2	X1A	1A	2A	4A	5A
3/4	X1A	1A	2A	4A	6A
1	1A	2A	3A	5A	7A
1-1/4	1A	2A	3A	5A	7A
1-1/2	2A	3A	4A	6A	8A
2	3A	4A	5A	7A	8A
2-1/2	4A	5A	6A	8A	8A
3	5A	6A	7A	8A	9A
3-1/2	6A	7A	8A	8A	9A/9B
4	7A	8A	8A	9A	10A/10B
5	8A	8A	9A	10A	11B
6	9A	9A	10A	11B	12B

FIG. 168

short pipe covering protection shield



Materials/Finishes:	Pre-Galvanized (168G)	T-304 Stainless Steel (168SS)	T-316 Stainless Steel (168SX)
Service:	Designed for outside of foam or fiberglass insulation on stationary pipe lines (not designed for pipe rollers) to prevent crushing of insulation without breaking the vapor barrier.		
Ordering:	Specify figure number and shield size. MINIMUM ORDER OF 100 PCS.		

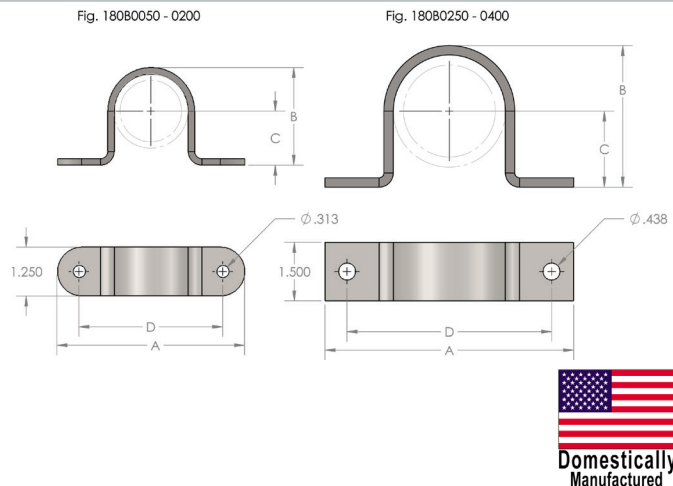
SHIELD SIZE NO.	B LENGTH	C STOCK SIZE	D DIA.	HANGER SIZE	WGT EACH (lbs)
0	8	18ga	1-7/8	11/2	0.32
1	8	18ga	2-3/8	2	0.40
2	8	18ga	2-7/8	21/2	0.50
3	8	18ga	3-1/2	3	0.63
4	8	18ga	4	31/2	0.70
5	8	18ga	4-1/2	4	0.77
6	8	18ga	5	5	1.00
7	8	18ga	5-9/16	5	1.10
8	8	18ga	6-5/8	6	1.25

PIPE SIZE	A - INSULATION THICKNESS				
	1/2"	3/4"	1	1-1/2"	2
1/2	0	1	-	-	-
3/4	1	1	2	4	6
1	1	2	3	5	7
1-1/4	2	3	3	6	7
1-1/2	2	3	4	6	8
2	3	4	5	7	8
2-1/2	4	5	6	7	8
3	5	6	7	8	9
3-1/2	-	-	8	9	10
4	-	-	8	9	10
5	-	-	9	10	13
6	-	-	10	13	14
8	-	-	14	15	16
10	-	-	16	17	18
12	-	-	18	19	20
14	-	-	19	20	21
16	-	-	21	22	23
18	-	-	23	24	25
20	-	-	25	26	27
24	-	-	28	29	30

TUBING SIZE	A - INSULATION THICKNESS				
	1/2"	3/4"	1	1-1/2"	2
1/2	0	1	2	4	5
3/4	0	1	2	4	6
1	1	2	3	4	6
1-1/4	1	2	3	5	7
1-1/2	2	3	3	5	7
2	3	4	4	6	8
2-1/2	4	5	5	7	8
3	5	6	6	8	9
3-1/2	6	7	7	8	9
4	7	7	8	9	10
5	8	8	9	10	13
6	9	9	10	13	14

FIG. 180

short clip

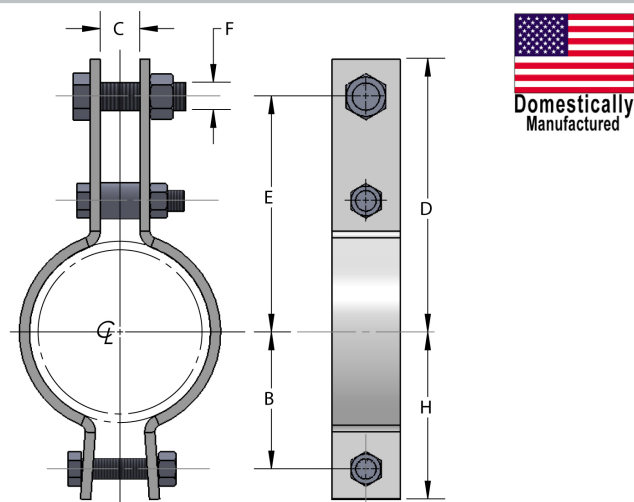


Materials/Finishes:	Plain Carbon Steel (180B)	Electro-Galvanized (180G)
	Hot-Dip Galvanized (180HDG)	T-304 Stainless Steel (180SS)
	T-316 Stainless Steel (180SX)	
Service:	Designed to support pipe close to ceiling or wall.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 & SP-69 (Type# 26)	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Sizes 1/2" to 2" are furnished with two screw holes. Sizes 2 1/2" to 4" are furnished with four screw holes.	
	* Radius edge 1/2" to 2" with 2 holes.	
	* Square edge 2 1/2" to 4" with four holes	

PIPE SIZE	PIPE O.D.	A	B	C	D	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.840	3-3/16	1-1/8	9/16	2-1/16	0.165	300
3/4	1.050	3-1/2	1-3/8	3/4	2-3/8	0.190	300
1	1.315	4	1-5/8	7/8	2-7/8	0.235	300
1-1/4	1.660	4-7/16	2-1/8	1-3/16	3-5/16	0.260	300
1-1/2	1.900	4-13/16	2-1/2	1-3/8	3-11/16	0.400	300
2	2.375	5-1/2	2-3/4	1-3/8	4-3/8	0.490	300
2-1/2	2.875	6-3/8	3-5/8	2	5-3/8	0.910	400
3	3.500	7-1/2	4	1-15/16	6-1/8	0.950	400
3-1/2	4.000	7-3/8	4-5/8	2-3/8	6-3/8	1.050	400
4	4.500	7-3/4	5	2-1/2	6-3/4	1.160	400

FIG. 189

double bolt pipe clamp

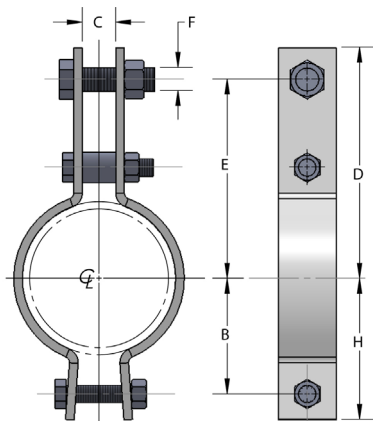


Materials/Finishes:	Plain Carbon Steel (189B)	Hot-Dip Galvanized (189HDG)
	T-304 Stainless Steel (189SS)	T-316 Stainless Steel (189SX)
Service:	Designed for the suspension of insulated pipe lines. Normally used with weldless eye nut, figure #13.	
Approvals:	Complies with Federal Specifications WW-H-171-E (Type# 3), A-A-1192 A (Type# 3), and MSS SP-58 and SP-69 (Type# 3).	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Spacer used for sizes 4" and above. Hot-Dip Galvanized clamps (size 18" - 36") use Electro-Galvanized hardware.	

PIPE SIZE	PIPE O.D.	F BOLT	B	C	D	E	H	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.840	3/8	1	5/8	2-7/8	2-5/16	1-9/16	0.55	950
3/4	1.050	3/8	1-1/16	5/8	3	2-7/16	1-5/8	0.54	950
1	1.315	3/8	1-3/8	5/8	3-3/16	2-5/8	1-15/16	0.62	950
1-1/4	1.660	3/8	1-1/2	5/8	3-1/2	2-15/16	2-1/16	0.67	950
1-1/2	1.900	5/8	1-15/16	7/8	4-11/16	3-13/16	2-13/16	1.80	1545
2	2.375	5/8	2-3/16	7/8	5-9/16	4-11/16	3-1/16	1.93	1545
2-1/2	2.875	5/8	2-7/16	7/8	6-7/16	5-9/16	3-5/16	2.12	1545
3	3.500	5/8	2-3/4	1	7	6-1/8	3-5/8	2.30	1545
3-1/2	4.000	5/8	2-7/8	1	7-1/4	6-3/8	3-3/4	2.37	1545
4	4.500	3/4	3-1/2	1-1/16	7-5/8	6-1/2	4-1/2	6.49	2500
5	5.563	3/4	4	1-1/16	8-1/8	7	5	7.09	2500
6	6.625	1	5	1-7/16	9-15/16	8-9/16	6-1/8	11.32	2865
8	8.625	1	6	1-7/16	10-15/16	9-9/16	7-1/8	13.20	2865
10	10.750	1	7-1/2	1-7/16	12	10-5/8	8-7/8	19.95	3240
12	12.750	1	8-1/2	1-7/16	13	11-5/8	9-7/8	22.10	3240
14	14.000	1-1/4	9-3/8	2	14-5/16	12-11/16	11	36.20	4300
16	16.000	1-1/4	10-3/8	2	15-5/16	13-11/16	12	43.10s	4300
18	18.000	1-1/4	11-3/8	2	16-5/16	14-11/16	13	43.00	4300
20	20.000	1-1/2	12-3/4	2	17-1/2	15-7/8	14-3/8	59.00	4500
24	24.000	1-1/2	14-3/4	2	19-1/2	17-7/8	16-3/8	66.00	5490
30	30.00	1-1/2	18-3/4	2-1/2	26-1/8	23-3/8	21-1/4	134.00	7500

FIG. 189A

alloy double bolt pipe clamp

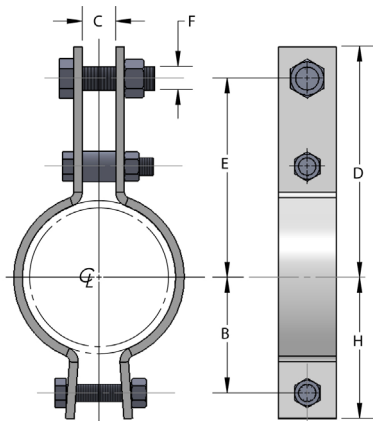


Materials/Finishes:	Alloy Steel: ASTM A387 Grade 22 (189A)
Service:	Designed for suspension of high temperature insulated pipe lines, maximum temperature is 1,050°F.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 3).
Ordering:	Specify figure number and pipe size.
Notes:	Galvanizing is not recommended for alloy products

PIPE SIZE	PIPE O.D.	B	C	D	E	H	WGT EACH (lbs)	MAX REC LOAD (lbs) FOR SERVICE TEMP			
								650°F	750°F	1000°F	1050°F
1-1/2	1.900	1-13/16	1-1/16	4-7/8	4-1/8	2-3/8	2.3	1545	1410	1000	745
2	2.375	2-1/8	1-1/16	5-7/8	5-1/8	2-11/16	2.6	1545	1410	1000	745
2-1/2	2.875	2-5/16	1-1/16	6-1/8	5-3/8	2-15/16	2.7	1545	1410	1000	745
3	3.500	2-3/4	1-1/16	6-11/16	5-15/16	3-1/2	3.0	1545	1410	1000	745
4	4.500	3-3/8	1-1/16	7-5/8	6-1/2	4-1/2	6.7	2500	2290	1625	1200
5	5.563	3-15/16	1-1/16	8-1/8	7	5	7.0	2500	2290	1625	1200
6	6.625	4-3/4	1-7/16	9-15/16	8-9/16	6-1/8	11.5	2865	2620	1860	1380
8	8.625	5-3/4	1-7/16	10-15/16	9-9/16	7-1/8	13.2	2865	2620	1860	1380
10	10.750	7-1/16	1-7/16	12	10-5/8	8-1/4	19.8	3240	2970	2100	1565
12	12.750	8-1/16	1-7/16	12-15/16	11-5/8	9-5/16	22.3	3240	2970	2095	1555
14	14.000	9-1/16	2	14-5/16	12-11/16	10-11/16	37.7	4300	3915	2795	2060
16	16.000	10-1/16	2	15-5/16	13-11/16	11-11/16	41.4	4300	3915	2795	2060
18	18.000	11-1/16	2	16-5/16	14-11/16	12-11/16	44.9	4300	3915	2780	2060
20	20.000	12-3/8	2	17-1/2	15-7/8	14	57.3	5490	4995	3550	2635
24	24.000	14-3/8	2	19-1/2	17-7/8	16	65.9	4500	4095	2910	2160

FIG. 189H

heavy double bolt pipe clamp

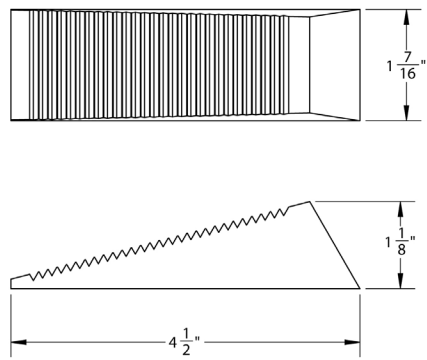


Materials/Finishes:	Plain Carbon Steel (189HB)	Electro-Galvanized (189HG)
	Hot-Dip Galvanized (189HHDG)	T-304 Stainless Steel (189HSS)
	T-316 Stainless Steel (189HSX)	
Service:	Designed for suspension of high temperature pipe lines within the limitation of temperature and loads shown below.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 3).	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Maximum temperature is 750°F and accommodates up to 4" thick insulation. Hot-Dip Galvanized clamps use Electro-Galvanized hardware.	

PIPE SIZE	PIPE O.D.	F BOLT	B	C	D	E	H	WGT EACH (lbs)	MAX REC LOAD (lbs)	
									650°F	750°F
6	6.625	1	4-3/4	1-3/4	10-3/16	8-15/16	6	12.00	3500	3125
8	8.625	1-1/8	6	2	11-3/8	10-1/8	7-1/4	18.50	4800	4285
10	10.750	1-1/4	7-1/4	2-1/4	13-1/8	11-3/8	9	34.00	5500	4910
12	12.750	1-1/2	8-5/8	2-1/2	14-5/16	12-9/16	10-3/8	48.00	7000	6250
14	14.000	1-1/2	9-5/8	2-1/2	15-1/2	13-1/2	11-5/8	61.00	9500	8485
16	16.000	1-3/4	10-7/8	3	17-1/8	14-7/8	13-1/8	92.00	10000	8930
18	18.000	2	13-1/2	3-1/2	18-1/4	16-1/4	15-1/4	110.00	13800	12325
20	20.000	2	14-1/2	3-1/2	20-3/4	18-1/4	17	143.00	15300	13665
24	24.000	2	15-1/2	3-1/2	22-5/16	19-5/16	18-1/2	185.00	16300	14555
30	30.00	2-1/4	19-7/8	4-1/4	32-1/4	28-1/4	24-3/8	348.00	20500	

FIG. 200

bathtub wedge



Materials/Finishes:	Plain Malleable Iron (200B)
Service:	Used for leveling and shimming tubs during and after installation.
Ordering:	Specify figure number.

WEIGHT EACH (lbs)
0.80

FIG. 212

standard pipe clamp

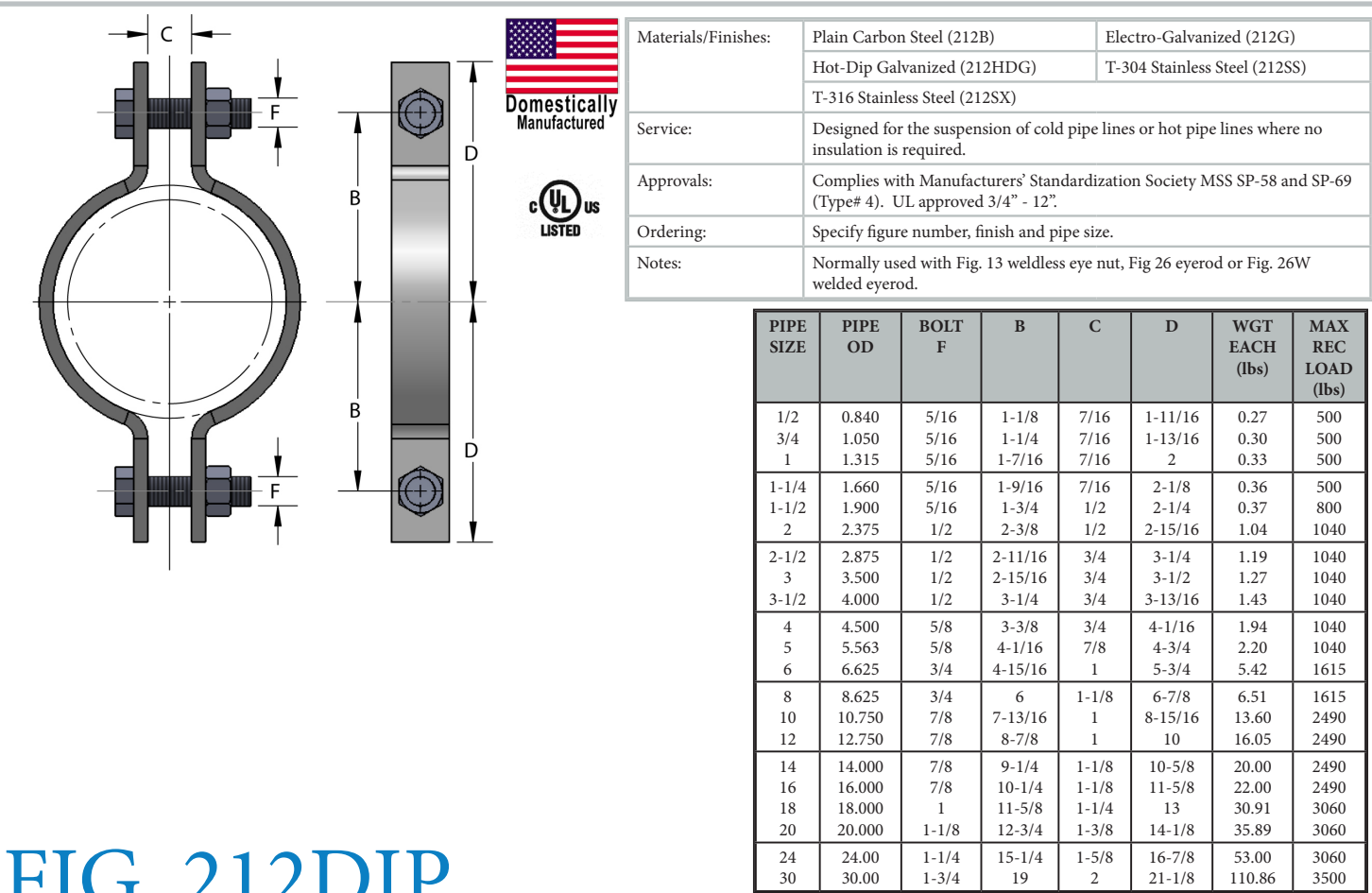


FIG. 212DIP

pipe clamp for ductile iron pipe

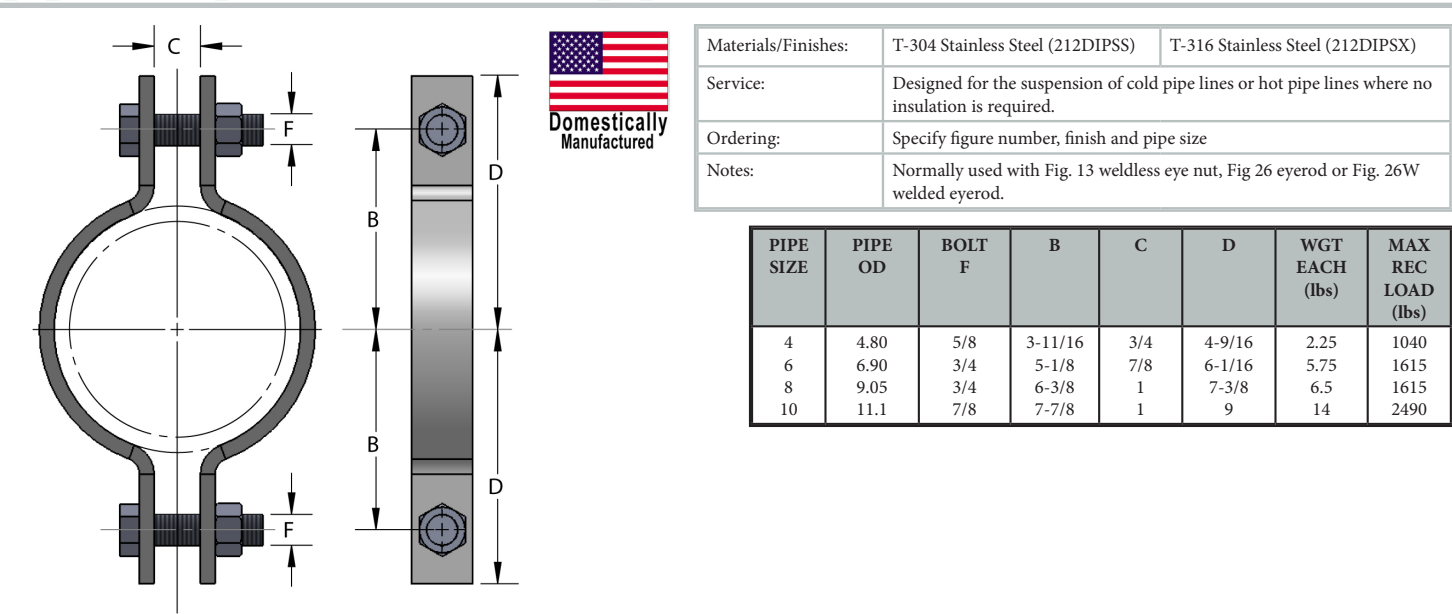
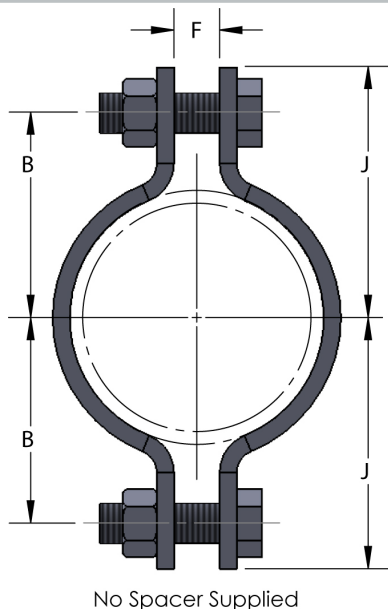


FIG. 216

heavy duty pipe clamp

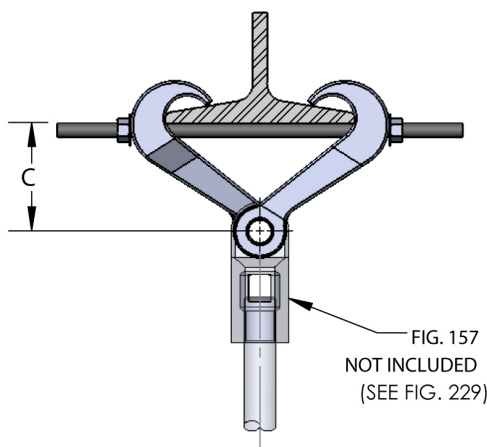


Materials/Finishes:	Plain Carbon Steel (216B)	Electro-Galvanized (216G)
	Hot-Dip Galvanized (216HDG)	T-304 Stainless Steel (216SS)
	T-316 Stainless Steel (216SX)	
Service:	Designed for the suspension of cold or hot pipe lines with heavy loads where no insulation is required.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 4).	
Ordering:	Specify figure number, finish and pipe size	

PIPE SIZE	PIPE OD	BOLT	B	F	J	WGT EACH (lbs)	MAX REC LOAD (lbs)
3	3.500	3/4	3-1/8	1	4	2.67	3370
3-1/2	4.000	3/4	3-5/16	1	4-3/16	3.36	3515
4	4.500	7/8	3-3/4	1	4-7/8	5.93	3515
5	5.563	7/8	4-3/8	1	5-1/2	6.56	3515
6	6.625	1	5-1/4	1-1/8	6-5/8	12.40	4865
8	8.625	1	6-1/4	1-1/8	7-5/8	14.66	4865
10	10.750	1-1/4	7-11/16	1-1/4	9-1/16	23.45	6010
12	12.750	1-1/2	9-1/4	1-5/8	11-1/8	40.98	8675
14	14.000	1-1/2	10	1-5/8	11-7/8	56.00	9120
16	16.000	1-1/2	11-5/16	1-5/8	13-3/16	62.00	9120
18	18.000	2	14-1/2	3	18-1/2	129.00	13800
20	20.000	2	16	3	20	148.00	15300
24	24.000	2	18-1/2	3-1/4	23	200.00	16300
30	30.000	2-1/4	22-1/2	3-1/2	26	390.00	20500

FIG. 218

malleable iron center load beam clamp

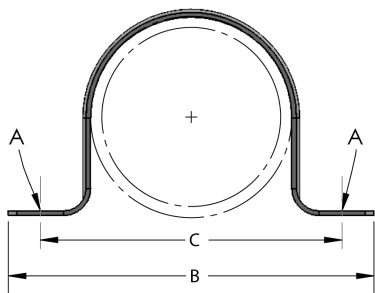


Materials/Finishes:	Plain Malleable Iron (218B)	Electro-Galvanized (218G)
Service:	Designed for the suspension of a hanger rod from the center of an I-beam. The clamp accommodates flange widths of 2-3/8" - 7". Flange thickness not to exceed .60 inches. Normally used in conjunction with figure 157 extension piece. Figure 157 provides 1" of vertical adjustment.	
Approvals:	When used with FIG. 157 Extension Piece, complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 30).	
Ordering:	Specify figure number and finish	
Notes:	For complete assembly with extension piece see FIG. 229	

A (7/8" MAX ROD)	C ROD TAKE OUT FOR WIDTH OF BEAM FLANGE						BOLT DIA	WGT EACH (lbs)	MAX REC LOAD (lbs)
	2-3/8	3	4	5	6	7			
CLAMP ONLY	3-1/2	3-7/16	3-5/16	2-15/16	2-9/16	1-7/8	7/16	2.49	1365

FIG. 231

two hole pipe strap



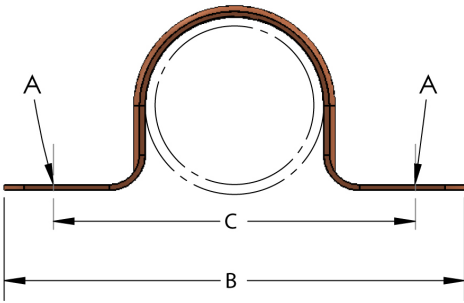
Materials/Finishes:	Electro-Galvanized (231G)	T-304 Stainless Steel (231SS)
	T-316 Stainless Steel (231SX)	
Variants:	T-304 Stainless Steel for OD Sizes: Domestic (231ODSS)	
	T-316 Stainless Steel for OD Sizes: Domestic (231ODSX)	
Service:	Designed as a light duty support for schedule 40/80 sized pipe. Attaches directly to horizontal or vertical structural member.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 & SP-69 (Type# 26)	
Ordering:	Specify figure number finish and pipe or OD size	
Notes:	Stainless steel hangers are recommended for applications where protection from a corrosive environment is required.	

FIG. 231SS, 231SX AND OD SIZES					
PIPE SIZE	PIPE OD	A HOLE SIZE	B	C	WGT EACH (lbs)
1/4 OD	0.250	3/16	1-3/4	1-1/8	.030
1/4	0.540	3/16	2-1/16	1-7/16	.035
3/8 OD	0.375	3/16	1-7/8	1-1/4	.030
3/8	0.675	3/16	1-9/16	1-9/16	.045
1/2 OD	0.500	3/16	2	1-3/8	.035
1/2	0.840	3/16	2-5/16	1-3/4	.045
3/4 OD	0.750	3/16	2-3/4	1-5/8	.040
3/4	1.050	3/16	2-5/8	2-1/6	.060
1 OD	1.000	3/16	2-1/2	1-7/8	.050
1	1.315	3/16	2-13/16	2-3/16	.060
1-1/4	1.660	9/32	3-11/16	2-13/16	.105
1-1/4 OD	1.250	9/32	3-1/4	2-7/16	.105
1-1/2	1.900	9/32	3-15/16	3-1/16	.115
1-1/2 OD	1.500	9/32	3-1/2	2-11/16	.115
2	2.375	9/32	4-3/8	3-9/16	.135
2OD	2.00	9/32	4	3-3/16	.135
2-1/2	2.875	11/32	5-1/4	4-1/4	.165
3	3.500	11/32	6	5	.190
4	4.500	7/16	7-1/4	6-1/4	.405
6	6.625	9/16	11	9-7/16	1.15

FIG. 231					
PIPE SIZE	PIPE OD	A HOLE SIZE	B	C	WGT EACH (lbs)
1/4	0.540	7/32	2-1/8	1-1/4	0.01
3/8	0.675	7/32	2-1/4	1-1/2	0.03
1/2	0.840	7/32	2-5/8	1-7/8	0.04
3/4	1.050	7/32	2-3/4	2	0.07
1	1.315	9/32	3-3/8	2-5/8	0.09
1-1/4	1.660	9/32	4-1/4	3-1/4	0.10
1-1/2	1.900	9/32	4-3/8	3-3/8	0.13
2	2.375	9/32	5	4	0.18
2-1/2	2.875	11/32	6-1/4	4-3/4	0.26
3	3.500	11/32	7-1/4	5-3/4	0.32
4	4.500	11/32	8-3/8	6-7/8	0.40
6	6.625	11/32	11-1/8	9-5/8	0.75

FIG. 231CT

two hole strap for copper tubing

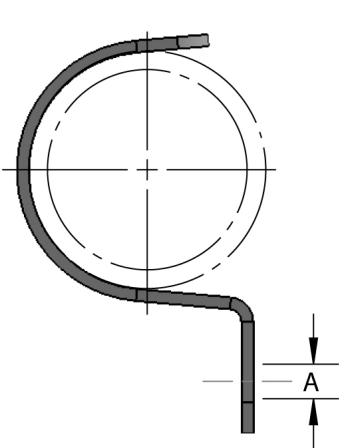


Materials/Finishes:	Copper Epoxy Coated <i>Copper Gard</i> (231CT)
Service:	Designed as a light duty support for copper tubing. Attaches directly to horizontal or vertical structural member.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 & SP-69 (Type# 26)
Ordering:	Specify figure number and tube size
Notes:	Available domestic

TUBE SIZE	TUBE OD	A HOLE SIZE	B	C	WGT EACH (lbs)
1/4	0.375	3/16	1-13/16	1-3/16	0.01
3/8	0.500	3/16	1-15/16	1-5/16	0.01
1/2	0.625	3/16	2-1/8	1-1/2	0.01
3/4	0.875	3/16	2-5/16	1-11/16	0.02
1	1.125	3/16	2-7/16	2-1/4	0.02
1-1/4	1.375	3/16	3-1/8	2-1/2	0.04
1-1/2	1.625	7/16	3-11/16	2-13/16	0.05
2	2.125	7/16	4-1/4	3-3/8	0.06

FIG. 233

one hole pipe strap



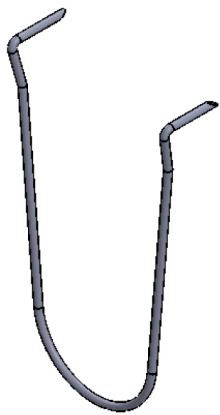
Materials/Finishes:	Electro-Galvanized (233G)	T-304 Stainless Steel (233SS)
	T-316 Stainless Steel (233SX)	
Variants:	T-304 Stainless Steel for OD Sizes: (233ODSS)	
	T-316 Stainless Steel for OD Sizes: (233ODSX)	
Service:	Designed as a light duty support for schedule 40/80 sized pipe. Attaches directly to horizontal structural member.	
Ordering:	Specify figure number finish and pipe or OD size	
Notes:	Stainless steel hangers are recommended for applications where protection from a corrosive environment is required.	

FIG. 233SS, 233SX AND OD SIZES			
PIPE SIZE	PIPE OD	A HOLE SIZE	WGT EACH (lbs)
1/4 OD	0.250	1/4	0.02
1/4	0.540	1/4	0.03
3/8 OD	0.375	1/4	0.03
3/8	0.675	1/4	0.04
1/2 OD	0.500	1/4	0.03
1/2	0.840	1/4	0.04
3/4 OD	0.750	1/4	0.04
3/4	1.050	1/4	0.05
1 OD	1.000	1/4	0.05
1	1.315	1/4	0.06
1-1/4 OD	1.250	3/8	0.14
1-1/4	1.660	3/8	0.18
1-1/2 OD	1.500	3/8	0.16
1-1/2	1.900	3/8	0.19
2 OD	2.000	3/8	0.20
2	2.375	3/8	0.23

FIG. 233			
PIPE SIZE	PIPE OD	A HOLE SIZE	WGT EACH (lbs)
1/4	0.540	9/32	0.02
3/8	0.675	9/32	0.04
1/2	0.840	9/32	0.05
3/4	1.050	9/32	0.06
1	1.315	13/32	0.06
1-1/4	1.660	13/32	0.17
1-1/2	1.900	13/32	0.18
2	2.375	21/32	0.36

FIG. 235

wire pipe hook

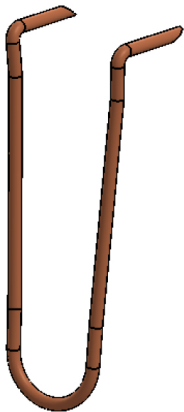


Materials/Finishes:	Plain Carbon Steel (235B)	Plastic Coated (235PC)
Service:	Designed to support steel pipe horizontally by driving nail points into wood members.	
Ordering:	Specify figure number, finish and pipe size	

PIPE SIZE	WGT EACH (lbs) LENGTH				
	4"	6"	8"	10"	12"
1/2	0.05	0.06	0.08	0.1	0.12
3/4	0.05	0.06	0.08	0.1	0.12
1	0.05	0.06	0.08	0.1	0.12
1-1/4	0.05	0.06	0.08	0.1	0.12
1-1/2	0.05	0.06	0.08	0.1	0.12
2	0.05	0.06	0.08	0.1	0.12

FIG. 235CT

wire pipe hook for copper tubing

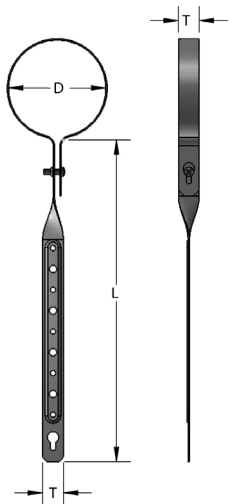


Materials/Finishes:	Copper Plated Carbon Steel (235CTP)
Service:	Designed to support steel pipe horizontally by driving nail points into wood members.
Ordering:	Specify figure number, finish, length and tube size.

PIPE SIZE	WGT EACH (lbs) LENGTH				
	4"	6"	8"	10"	12"
1/2	0.05	0.06	0.08	0.1	0.12
3/4	0.05	0.06	0.08	0.1	0.12
1	0.05	0.06	0.08	0.1	0.12
1-1/4	0.05	0.06	0.08	0.1	0.12
1-1/2	0.05	0.06	0.08	0.1	0.12
2	0.05	0.06	0.08	0.1	0.12

FIG. 237

dww (drain, waste, vent) hanger

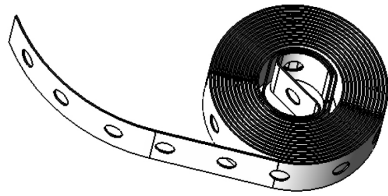


Materials/Finishes:	Electro-Galvanized (237G)	Copper Plated Carbon Steel (237CTP)
	Plastic Coated (237PC)	
Service:	Designed for the support of PVC or ABS DWV pipe from wood joists. Evenly spaced holes allow for proper pipe pitch.	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	FIG. 237CT copper plated DWV hangers are NOT designed for copper DWV pipe.	

PIPE SIZE	PIPE OD D	T	L	WGT EACH (lbs)
1-1/2	1.900	3/4	12	0.20
2	2.375	3/4	12	0.22
3	3.500	3/4	12	0.24
4	4.500	3/4	12	0.26

FIG. 239

perforated hanger strapping

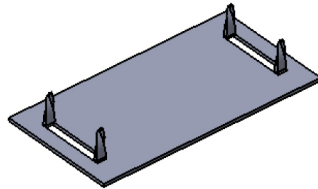
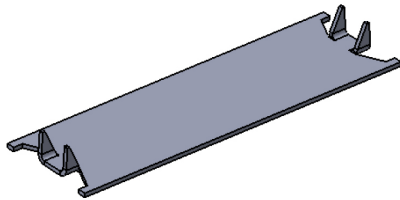


Materials/Finishes:	Plain Carbon Steel (239B)	Electro-Galvanized (239G)
	Copper Plated (239CTP)	T-304 Stainless Steel (239SS)
Variants:	Electro-Galvanized w/ Alternating Hole (239AHG)	
Service:	Designed for various light duty applications.	
Ordering:	Specify figure number, finish, guage and length	
Notes:	Stainless steel hangers are recommended for applications where protection from a corrosive environment is required.	

SIZE	WGT EACH (lbs) LENGTH		
	10'	50'	100'
3/4 X 20ga	0.83	4.15	8.30
3/4 x 22ga	0.70	3.50	7.00
3/4 x 24ga	0.54	2.70	5.40

FIG. 240 / 245

stud guard, triangle point / twist point

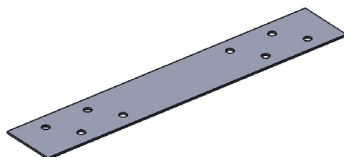
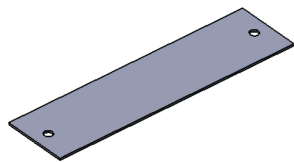


Materials/Finishes:	Electro-Galvanized Carbon Steel: Triangle Point (240G)
Variants:	Electro-Galvanized Carbon Steel: Twist Point (245G)
Service:	Designed to protect piping and electrical lines that pass though wood framing from damage due to penetration from drywall or other fasteners. Simple installation with a hammer..
Ordering:	Specify size & figure number.

PART NUMBER	GAUGE	SIZE WIDTH X LENGTH	STYLE	WGT EACH (lbs)
240G	18	1-1/2 x 3	TRIANGLE POINT	0.06
240G	18	1-1/2 x 5	TRIANGLE POINT	0.10
240G	18	1-1/2 x 6	TRIANGLE POINT	0.12
245G	19	1-1/2 x 3	TWIST POINT	0.06
245G	19	1-1/2 x 6	TWIST POINT	0.11

FIG. 241 / 243

nail plates non-fha / fha



PROTECTIVE PLATES (FHA)-243G SERIES		
GAUGE	SIZE WIDTH X LENGTH	WGT EACH (lbs)
18	1-1/2 X 9	0.180
18	1-1/2 X 12	0.250
18	1-1/2 X 18	0.380
18	1-1/2 X 24	0.500
18	3 X 6	0.250
18	3 X 9	0.380
18	3 X 12	0.520
18	3 X 18	0.780
16	1-1/2 X 9	0.240
16	1-1/2 X 12	0.320
16	1-1/2 X 18	0.480
16	1-1/2 X 24	0.640
13	1-1/2 X 9	0.350
13	1-1/2 X 12	0.470
13	1-1/2 X 18	0.700
13	1-1/2 X 24	0.980

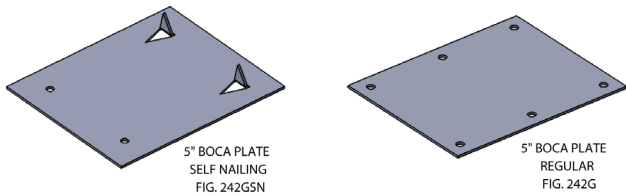
Materials/Finishes:	(NON-FHA) Electro-Galvanized Carbon Steel (241G)
Variants:	(FHA) Electro-Galvanized Carbon Steel (243G)
Service:	Designed to protect piping and electrical lines that pass though wood framing from damage due to penetration from drywall or other fasteners. Attach with metal framing screws.
Ordering:	Specify figure number, guage and size.



PROTECTIVE PLATES (NON-FHA)-241G SERIES		
GAUGE	SIZE WIDTH X LENGTH	WGT EACH (lbs)
18	1-1/2 x 3	0.065
18	1-1/2 x 6	0.125

FIG. 242G / 242GSN

boca safety plate, regular / self nailing

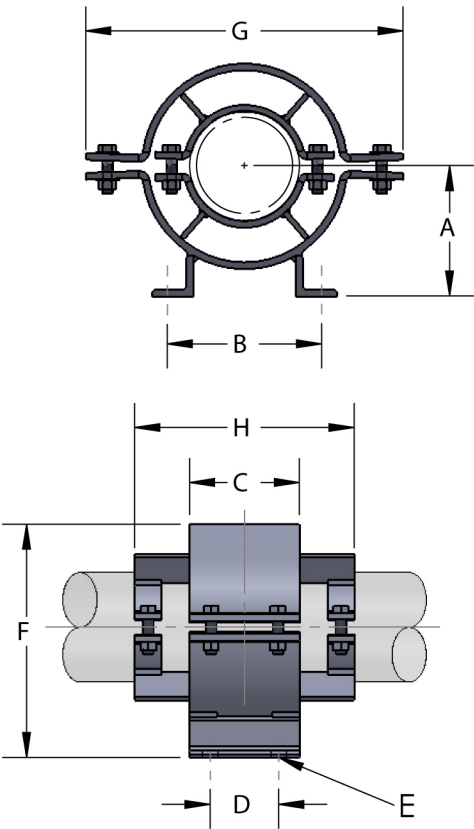


Materials/Finishes:	Electro-Galvanized Carbon Steel: Regular (242G)
Variants:	Electro-Galvanized Carbon Steel: Self Nailing (242GSN)
Service:	Designed to protect piping and electrical lines that pass through wood framing from damage due to penetration from drywall or other fasteners. Attach with metal framing screws.
Ordering:	Specify size & figure number.

PART NUMBER	GAUGE	SIZE WIDTH X LENGTH	STYLE	WGT EACH (lbs)
242G	16	5 x 8	Regular (holes)	0.70
242GSN	16	5 x 8	Self Nailing	0.70

FIG. 255

light duty pipe alignment guide



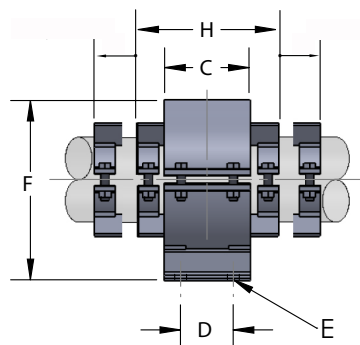
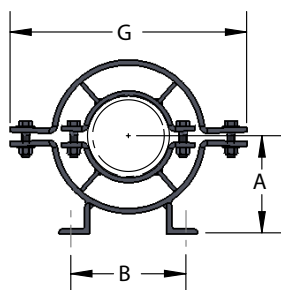
Materials/Finishes:	Plain Carbon Steel (255B)	Hot-Dip Galvanized (255HDG)
	T-304 Stainless Steel (255SS)	T-316 Stainless Steel (255SX)
Service:	Designed for use with insulated or non-insulated pipe lines to maintain alignment of piping through axial expansion and contraction cycles. Proper alignment of the adjoining pipe is of vital importance in the proper functioning of expansion joints in the line. Pipe guides are not designed to support any piping system weight. Therefore additional supports are required. The use of two or more guides on both sides of the expansion joint is recommended to avoid a pivoting effect in the line. Maximum temperature: 650°F.	
Ordering:	Specify figure number, finish, size number and insulation thickness.	
Notes:	Item weights are approximate and will vary based on actual pipe and insulation sizes required.	

SIZE NO.	A	B	C	D	E	F	G	H	WGT EACH (lbs)
2	4	5-3/8	3	1-1/2	9/16	7-1/16	9-1/2	4	9.7
3	4-1/2	5-3/4	3	1-1/2	9/16	8-1/8	11-1/4	4	12.1
4	6	7	3	1-1/2	9/16	10-9/16	12-3/4	4	15.0
5	7-1/2	8-5/16	3	1-1/2	11/16	13-3/16	15-1/2	4	19.7
6	8-1/2	8-3/4	4	2	11/16	15-1/4	17-1/2	4	25.6
7	9-1/4	11-11/16	4	2	13/16	16-7/8	18-3/8	4	35.6
8	10-1/8	12	4	2	13/16	18-3/4	20-1/2	4	36.3
9	11	13-1/4	6	4	13/16	20-1/4	22-3/8	6	52.1
10	12	13-9/16	6	4	15/16	22-1/4	24	6	62.1
11	13-3/4	15-1/4	6	4	15/16	26	28	6	81.1

GUIDE SIZE SELECTION TABLE									
PIPE SIZE	J-INSULATION THICKNESS								
	0	1	1-1/2	2	2-1/2	3	4	5	
1	2	2	2	3	4	4	5	6	
1-1/4	2	2	3	4	4	5	5	6	
1-1/2	2	2	3	4	4	5	6	7	
2	2	2	3	4	4	5	6	7	
2-1/2	3	3	4	4	5	5	6	7	
3	3	3	4	4	5	5	6	8	
3-1/2	4	4	4	5	5	6	7	8	
4	4	4	4	5	5	6	7	8	
5	5	5	5	5	6	6	8	9	
6	5	5	5	5	6	6	7	9	
8	7	7	7	7	8	8	9	10	
10	9	9	9	9	9	9	10	11	
12	10	10	10	10	10	10	11	11	
14	11	11	11	11	11	11	11	-	
16	11	11	11	11	11	11	11	-	

FIG. 256

pipe alignment guide

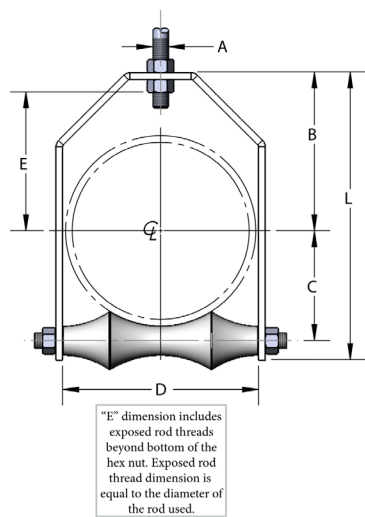


Materials/Finishes:	Plain Carbon Steel (256B)	Electro-Galvanized (256G)
	Hot-Dip Galvanized (256HDG)	T-304 Stainless Steel (256SS)
	T-316 Stainless Steel (256SX)	
Service:	Designed for use with insulated or non-insulated pipe lines to maintain alignment of piping through axial expansion and contraction cycles. Proper alignment of the adjoining pipe is of vital importance in the proper functioning of expansion joints in the line. Pipe guides are not designed to support any piping system weight, therefore additional supports are required. The use of two or more guides on both sides of the expansion joint is recommended to avoid a pivoting effect in the line. Maximum temperature is 750°F.	
Ordering:	Specify figure number, finish, size number and insulation thickness.	
Notes:	Item weights are approximate and will vary based on actual pipe and insulation sizes required.	

SIZE NO.	A	B	C	D	E	F	G	H	WGT EACH (lbs)
2	4	5-3/8	4	2-1/2	1/2	7-1/16	9-1/2	8	14.3
3	4-1/2	5-3/4	4	2-1/2	1/2	8-1/4	11-1/4	8	17.9
4	6	7	6	4	1/2	10-3/4	12-3/4	10	29.6
5	7-1/2	8-5/16	6	4	5/8	13-1/4	15-1/2	10	38.8
6	8-1/2	8-3/4	8	5	5/8	15-1/2	17-1/2	12	52.5
7	9-1/4	11-11/16	8	5	3/4	17	18-3/8	12	65.7
8	10-1/8	12	8	5	3/4	18-3/4	20-1/2	12	67.3
9	11	13-1/4	8	5	3/4	20-1/4	22-3/8	12	78.4
10	12	13-9/16	8	5	7/8	22-1/4	24	12	93.8
11	13-3/4	15-1/4	8	5	7/8	26	28	12	129.2
12	14-3/4	15-3/4	8	5	7/8	28	30	12	136.7
13	16-1/4	18-3/4	8	5	1	31-1/2	34	12	152.5
14	18-1/4	19-1/2	8	5	1	35-1/2	38	12	173.2

GUIDE SIZE SELECTION TABLE								
PIPE SIZE	J-INSULATION THICKNESS							
	0	1	1-1/2	2	2-1/2	3	4	5
1	2	2	2	3	4	4	5	6
1-1/4	2	2	3	4	4	5	5	6
1-1/2	2	2	3	4	4	5	6	7
2	2	2	3	4	4	5	6	7
2-1/2	3	3	4	4	5	5	6	7
3	3	3	4	4	5	5	6	8
3-1/2	4	4	4	5	5	6	7	8
4	4	4	4	5	5	6	7	8
5	5	5	5	5	6	6	8	9
6	5	5	5	6	6	7	8	9
8	7	7	7	7	8	8	9	10
10	9	9	9	9	9	9	10	11
12	10	10	10	10	10	10	11	11
14	11	11	11	11	11	11	11	12
16	11	11	11	11	11	11	12	13
18	12	12	12	12	12	12	13	13
20	13	13	13	13	13	13	13	14
24	14	14	14	14	14	14	14	-

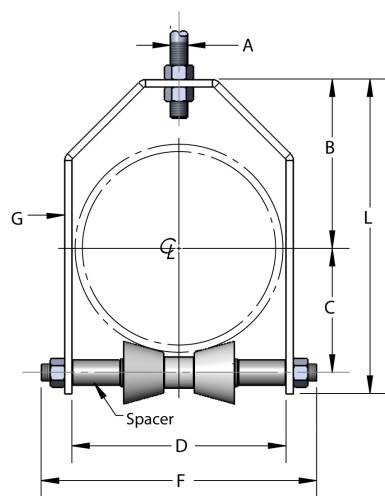
FIG. 272
adjustable roller hanger



Materials/Finishes:	Plain Carbon Steel (272B)	Electro-Galvanized (272G)
	Hot-Dip Galvanized (272HDG)	T-304 Stainless Steel (272SS)*
	T-316 Stainless Steel (272SX)*	
Variants:	With Non-Conductive Roll (272NCR)	
Service:	Designed for the suspension of pipe where longitudinal movement of pipe may occur due to expansion and contraction, and where vertical adjustment may be necessary.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 43).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers	
Notes:	272G Roller is Hot-Dip Galvanized. Hardware is Electro-Galvanized. * Not available in 3-1/2, 5, 7 or 24.	

HANGER SIZE	A	B	C	D	E	L	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	1/2	3-3/8	1-9/16	2-7/8	2-1/4	5-5/8	1.14	150
2-1/2	1/2	3-15/16	1-7/8	3-1/4	2-13/16	6-1/2	1.47	225
3	1/2	4-5/16	2-1/8	3-13/16	3-3/16	7-3/16	1.62	310
3-1/2	1/2	4-5/8	2-1/2	4-5/16	3-7/16	7-15/16	2.76	390
4	5/8	4-13/16	2-13/16	4-7/8	3-3/8	8-1/2	3.16	475
5	5/8	5-3/4	3-3/8	5-7/8	4-5/16	9-15/16	4.62	685
6	3/4	6-3/8	3-15/16	7	4-5/8	11-1/4	6.08	780
7	3/4	6-5/16	4-1/2	8	4-9/16	11-5/8	7.59	780
8	7/8	7-9/16	5-1/8	9	5-7/16	13-7/8	11.83	780
10	7/8	8-3/4	6-1/4	11-1/8	6-5/8	16-1/4	17.29	965
12	7/8	9-5/8	7-3/8	13	7-7/8	18-7/8	22.50	1200
14	1	11-1/4	8-3/8	14-1/4	9-1/4	21-7/8	33.00	1200
16	1	12-1/4	9-3/8	16-1/4	10-1/4	24-1/8	46.00	1200
18	1	13-1/4	10-1/2	18-1/4	11-1/4	26-1/2	50.50	1400
20	1-1/4	14-1/4	11-5/8	20-1/4	12-1/4	28-1/8	65.00	1600
24	1-1/4	16-7/8	13-11/16	24-1/4	14-1/4	32-7/8	113.00	1800

FIG. 272SR
clevis roller with short pattern roll, stainless steel

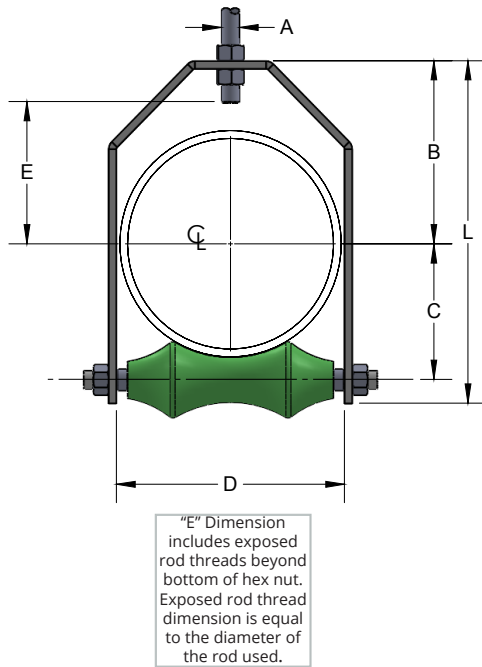


Materials/Finishes:	T-304 Stainless Steel (272SRSS)	T-316 Stainless Steel (272SRSX)
Service:	Designed for the suspension of pipe where longitudinal movement of pipe may occur due to expansion and contraction, and where vertical adjustment may be necessary.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 43).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers	
Notes:	Stainless Steel hangers are recommended for applications where protection from a corrosive environment is required.	

SIZE NO.	A	B	C	D	F	L	CROSS ROD DIA.	MAX REC LOAD (lbs)
4	5/8	5-3/16	2-13/16	4-7/8	6-1/2	9-1/4	3/4	300
6	3/4	6-7/16	3-15/16	7	9-1/2	11-5/8	3/4	800
8	7/8	7-1/2	5-1/4	9	11-7/8	14	7/8	925
10	7/8	8-3/4	6-3/8	11	14-1/4	16-1/2	7/8	925
12	7/8	10-1/16	7-7/16	13	16-1/4	18-7/8	1-1/8	680
14	1	10-15/16	8-3/16	14-1/4	18	20-5/8	1-1/8	1200
16	1	12-13/16	9-5/16	16-7/8	21	24-3/8	1-1/4	1100
18	1	13-3/4	10-3/8	18-1/4	22-7/8	26-1/8	1-1/4	1200
20	1-1/4	15-1/16	11-5/16	20-1/4	25-1/2	28-11/16	1-1/4	1000

FIG. 272NCR

clevis roller with nonconductive roll

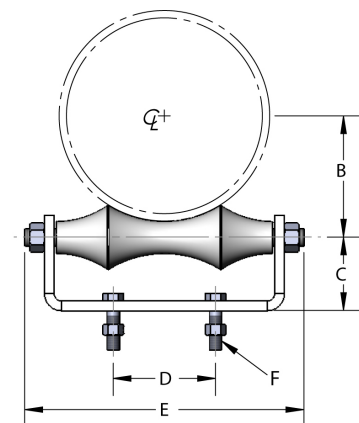


Materials/Finishes:	Plain Carbon Steel (272NCRB)	Electro-Galvanized (272NCRG)
	Hot-Dip Galvanized (272NCRHDG)*	T-304 Stainless Steel (272NCRSS)
	T-316 Stainless Steel (272SX)	
Service:	Designed for the suspension of pipe where longitudinal movement of pipe may occur due to expansion and contraction, and where vertical adjustment may be necessary.	
Approvals:	Complies with Federal Specification WW-H-171-E (Type# 44), A-A-1192 A (Type# 43) and Manufacturers' Standardization Society MSS SP-58 (Type# 43).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers.	
Notes:	*Hardware is Electro-Galvanized.	

HANGER SIZE	A	B	C	D	E	L	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	1/2	3-3/8	1-9/16	2-7/8	2-1/4	5-5/8	1.14	150
3	1/2	4-5/16	2-1/8	3-3/16	3-3/16	7-3/16	1.62	310
4	5/8	4-11/16	2-15/16	4-7/8	3-1/4	8-1/2	3.16	475
5	5/8	5-5/8	3-1/2	5-7/8	4-3/16	9-15/16	4.62	685
6	3/4	6-3/16	4-1/8	7	4-7/16	11-1/4	6.08	780
8	7/8	7-3/8	5-5/16	9	5-1/4	13-7/8	11.83	780
10	7/8	8-9/16	6-7/16	11-1/8	6-7/16	16-1/4	17.29	965
12	7/8	9-9/16	7-7/16	13	7-7/8	18-7/8	22.50	1200
14	1	11-7/16	8-3/16	14-1/4	9-7/16	21-7/8	33.00	1200
16	1	12-7/16	2-1/4	16-7/8	10-7/16	24-1/8	46.00	1200
18	1	13-1/4	10-1/2	18-1/4	11-1/4	26-1/2	50.50	1400
20	1-1/4	14	11-7/8	20-1/4	12	28-1/8	65.00	1600

FIG. 275

roller chair

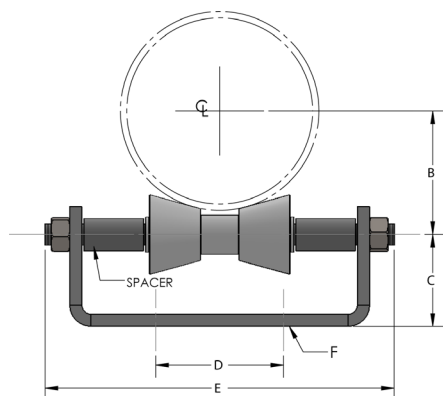


Materials/Finishes:	Plain Carbon Steel (275B)	Electro-Galvanized (275G)
	Hot-Dip Galvanized (275HDG)	T-304 Stainless Steel (275SS)*
	T-316 Stainless Steel (275SX)*	
Variants:	With Nonconductive Roll (275NCR)	
Max Temp:	275B = 400°F 275G = 350°F 275HDG = 350°F (excludes 275SS, SX and NCR)	
Service:	Designed for the support of pipe where longitudinal movement may occur due to expansion and contraction, and vertical adjustment is not necessary. May be bolted or welded to supporting member.	
Approvals:	Complies with Federal Specification A-A-1192 A (Type# 44) and Manufacturers' Standardization Society MSS SP-58 (Type# 44).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers	
Notes:	Mounting hardware not included. * Not available in 3-1/2, 5, 7, 24 or 30.	

HANGER SIZE	AXLE SIZE	B	C	D	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	3/8	1-9/16	1-3/8	1-1/4	4-1/4	3/8	0.94	390
2-1/2	1/2	1-7/8	1-5/8	1-1/4	4-7/8	3/8	1.18	390
3	1/2	2-1/8	1-3/4	2	5-11/32	3/8	1.32	390
3-1/2	1/2	2-1/2	2	2	6-11/32	3/8	2.58	390
4	1/2	2-13/16	2-5/16	2	7-11/32	1/2	2.94	950
5	5/8	3-3/8	2-1/2	3	8-1/4	1/2	3.64	950
6	3/4	3-15/16	2-3/4	3-1/8	9-1/2	1/2	5.72	950
7	3/4	4-1/2	2-13/16	3-3/8	10	1/2	6.98	1350
8	7/8	5-1/8	3	3-3/8	12-1/4	5/8	8.16	1350
10	7/8	6-3/8	3-5/8	5-1/4	14-1/2	5/8	11.96	1730
12	7/8	7-1/2	4-1/8	5-1/2	16-1/4	5/8	15.86	2400
14	1-1/8	8-3/8	4-11/16	6-1/2	18	3/4	21.58	3130
16	1-1/4	9-3/8	5-3/8	8-1/4	21	3/4	34.50	3970
18	1-1/4	10-7/16	6	9-1/4	22-7/8	3/4	36.50	4200
20	1-1/4	11-5/8	6-1/2	10-1/4	25-1/4	3/4	45.00	4550
24	1-1/2	14	7-7/8	12-1/4	30	7/8	77.50	6160
30	1-3/4	17-15/16	8-3/4	15-3/8	34-13/16	7/8	110.00	7290

FIG. 275SR

chair roller with short pattern roll, stainless steel

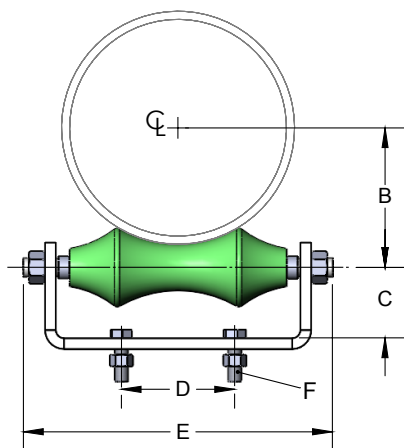


Materials/Finishes::	T-304 Stainless Steel (275SRSS)	T-316 Stainless Steel (275SRSX)
Service:	Designed for the suspension of pipe where longitudinal movement may occur due to expansion and contraction, and vertical adjustment is necessary.	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers	
Notes:	Stainless Steel hangers are recommended for applications where protection from a corrosive environment is required.	

HANGER SIZE	AXLE SIZE	B	C	D	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	1/2	2	1-3/8	1-1/4	4-1/2	3/8	0.94	390
2-1/2	1/2	2-1/4	1-5/8	1-13/16	5	3/8	1.18	390
3	1/2	2-9/16	1-3/4	2	5-1/2	3/8	1.32	390
4	3/4	2-13/16	2-5/16	2	7-1/2	1/2	2.94	950
5	3/4	3-3/8	2-1/2	3	8-1/4	1/2	3.64	950
6	3/4	3-15/16	2-3/4	3-1/8	9-1/2	1/2	5.72	950
8	7/8	5-1/4	3	3-3/8	12-1/4	5/8	8.16	1350
10	7/8	6-3/8	3-5/8	5-1/4	14-1/2	5/8	11.96	1730
12	1-1/8	7-7/16	4-1/8	5-1/2	16-1/2	5/8	15.86	2400
14	1-1/8	8-3/16	4-11/16	6-1/2	18	3/4	21.58	3130
16	1-1/4	9-5/16	5-3/8	8-1/4	21	3/4	34.50	3970
18	1-1/4	10-3/8	6	9-1/4	22-3/4	3/4	36.50	4200
20	1-1/4	11-5/16	6-1/2	10-1/4	25-1/4	3/4	45.00	4550
24	1-1/2	13-7/16	7-7/8	12-1/4	30	7/8	77.50	6160

FIG. 275NCR

chair roller with nonconductive roll

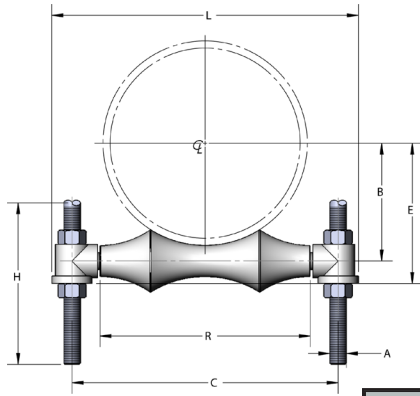


Materials/Finishes:	Plain Carbon Steel (275NCRB)	Electro-Galvanized (275NCRG)
	Hot-Dip Galvanized (275NCRHDG)	T-304 Stainless Steel (275NCRSS)*
	T-316 Stainless Steel (275NCRSX)*	
Service:	Designed for the support of pipe where longitudinal movement may occur due to expansion and contraction, and vertical adjustment is not necessary. May be bolted or welded to supporting member.	
Approvals:	Complies with Federal Specification A-A-1192 A (Type# 44) and Manufacturers' Standardization Society MSS SP-58 (Type# 44).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers	
Notes:	Hardware is Electro Galvanized. Mounting hardware not included. *Not available in 5, 7, or 24.	

HANGER SIZE	AXLE SIZE	B	C	D	E	F	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	3/8	1-9/16	1-3/8	1-1/4	4-1/4	3/8	0.94	390
3	1/2	2-1/8	1-3/4	2	5-11/32	3/8	1.32	390
4	1/2	3-1/16	2-5/16	2	7-11/32	1/2	2.94	950
5	5/8	3-1/2	2-1/2	3	8-1/4	1/2	3.64	950
6	3/4	4-1/8	2-3/4	3-1/8	9-1/2	1/2	5.72	950
8	7/8	5-5/16	3	3-3/8	12-1/4	5/8	8.16	1350
10	7/8	6-9/16	3-5/8	5	14-1/2	5/8	11.96	1730
12	7/8	7-9/16	4-1/8	6	16-1/4	5/8	15.86	2400
14	1-1/8	8-3/16	4-11/16	6-1/2	18	3/4	21.58	3130
16	1-1/4	9-1/4	5-3/8	8-1/4	21	3/4	34.50	3970
18	1-1/4	10-7/16	6	9-1/4	22-7/8	3/4	36.50	4200
20	1-1/4	11-7/8	6-1/2	10-1/4	25-1/4	3/4	45.00	4550
24	1-1/2	14-1/4	7-7/8	12-1/4	30	7/8	77.50	6160

FIG. 277

adjuststable two rod roller hanger



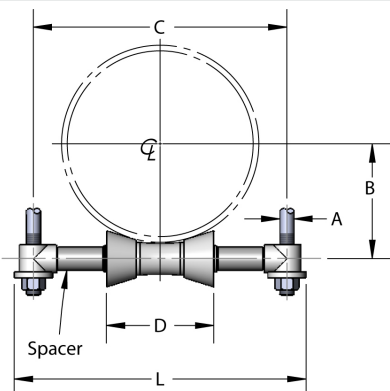
Materials/Finishes:	Plain Carbon Steel (277B)	Hot-Dip Galvanized (277HDG)
	T-304 Stainless Steel (277SS)	T-316 Stainless Steel (277SX)
Variants:	With Non Conductive Roll (277NCR)	
Service:	Designed for the suspension of pipe where longitudinal movement may occur due to expansion and contraction, and vertical adjustment is necessary.	
Approvals:	Complies with Federal Specification WW-H-171-E (Type# 42), A-A-1192 A (Type# 41) and Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 41).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers.	
Notes:	Hot-Dip Galvanized hangers equipped with Electro-Galvanized axle. Empire furnishes drop rods to specified length and double roller assemblies. Ordered separately.	

277B (PLAIN), 277HDG (HOT-DIP GALVANIZED)										
HANGER SIZE	PIPE OD	AXLE SIZE	A	B	C	E	L	R	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	2.375	3/8	3/8	1-9/16	4-3/8	2-3/16	5-5/8	2-7/8	0.760	600
2-1/2	2.875	1/2	1/2	1-7/8	5-1/8	2-5/8	6-1/2	3-1/8	1.185	660
3	3.500	1/2	1/2	2-1/8	5-5/8	2-7/8	7	3-3/4	1.385	700
3-1/2	4.000	1/2	1/2	2-1/2	5-7/8	3-1/4	7-1/4	3-7/8	1.500	750
4	4.500	1/2	5/8	2-13/16	6-7/8	3-13/16	8-9/16	4-3/4	2.110	750
5	5.563	5/8	5/8	3-3/8	8-1/16	4-3/8	9-3/4	5-3/4	2.570	750
6	6.625	3/4	3/4	3-15/16	9-9/16	4-15/16	11-5/8	6-7/8	4.395	1070
7	7.625	3/4	3/4	4-1/2	10-1/2	5-1/4	12-1/2	8	5.160	1100
8	8.625	7/8	7/8	5-1/8	11-15/16	6-3/8	14-1/4	8-7/8	7.425	1350
10	10.750	7/8	7/8	6-1/4	14-1/16	7-1/2	16-1/4	11	9.170	1730
12	12.750	7/8	7/8	7-5/16	15-13/16	8-9/16	18	13	13.150	2400
14	14.000	1-1/8	1	8-3/8	17-3/4	9-13/16	20-1/2	14-1/4	18.745	3130
16	16.000	1-1/4	1	9-1/2	20-9/16	10-15/16	23-3/8	16-7/8	24.540	3970
18	18.000	1-1/4	1	10-7/16	21-7/8	11-7/8	24	18-5/16	27.200	4200
20	20.000	1-1/4	1-1/4	11-1/2	24-1/4	13-3/8	27	20-1/4	32.000	4550
24	24.000	1-1/2	1-1/2	13-13/16	28-7/8	16-1/16	32	24-1/4	54.000	6160
30	30.000	1-3/4	1-1/2	17-1/4	35-1/2	19-5/8	39-3/4	30-1/4	82.000	7290

277SS (T-304 STAINLESS) AND 277SX (T-316 STAINLESS)										
HANGER SIZE	PIPE OD	AXLE SIZE	A	B	C	E	L	R	WGT EACH (lbs)	MAX REC LOAD (lbs)
3	3.500	1/2	1/2	2-1/8	5-11/16	2-7/8	7-1/16	3-3/4	0.760	600
4	4.500	1/2	1/2	2-13/16	6-11/16	3-3/8	8-1/16	4-3/4	2.110	750
6	6.625	3/4	3/4	3-15/16	9-13/16	4-15/16	11-11/16	6-7/8	4.395	1070
8	8.625	7/8	7/8	5-1/8	12-3/16	6-3/8	14-5/16	8-7/8	7.425	1350
10	10.750	7/8	7/8	6-1/4	13-15/16	7-1/2	16-1/16	11	9.170	1730
12	12.750	7/8	7/8	7-5/16	15-15/16	8-9/16	18-1/16	13	13.150	2400
14	14.000	1-1/8	1	8-3/8	18	9-13/16	20-3/4	14-1/4	18.745	3130
16	16.000	1-1/4	1-1/4	9-1/2	20-7/8	10-15/16	23-5/8	16-7/8	24.540	3970
18	18.000	1-1/4	1-1/4	10-7/16	22-3/8	11-7/8	25-1/8	18-5/16	27.200	4200
20	20.000	1-1/4	1-1/4	11-1/2	24-3/8	13-3/8	27-1/8	20-1/4	32.000	4550

FIG. 277SR

adjustable two rod roller hanger w/ short pattern roll, stainless steel

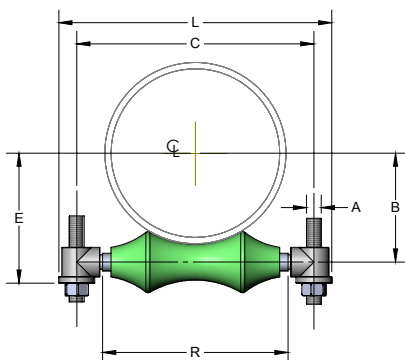


Materials/Finishes:	T-304 Stainless Steel (277SRSS)	T-316 Stainless Steel (277SRSX)
Service:	Designed for the suspension of pipe where longitudinal movement may occur due to expansion and contraction, and vertical adjustment is necessary.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 41).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers.	
Notes:	Available Domestic. Stainless steel hangers are recommended for applications where protection from a corrosive environment is required. Empire furnishes drop rods to specified length and double roller assemblies. Ordered separately.	

SIZE NO.	A	B	C	D	L	CROSS ROD DIA.	MAX REC LOAD (lbs)
4	3/4	2-15/16	7	3-3/4	8-3/4	3/4	400
6	3/4	4	9-7/8	3-3/4	11-5/8	3/4	580
8	7/8	5-3/8	12-3/16	6	14-3/8	7/8	1300
10	7/8	6-7/16	14-1/16	6	16-1/8	7/8	1075
12	1	7-3/4	16-3/8	8	19-1/8	1-1/8	775
14	1	8-3/8	18-1/16	8	20-3/4	1-1/8	1500
16	1-1/4	9-9/16	20-7/8	8-7/8	23-5/8	1-1/4	1150
18	1-1/4	10-9/16	22-3/8	8-7/8	25-1/8	1-1/4	1250
20	1-1/4	11-9/16	24-1/4	8-7/8	27-1/8	1-1/4	1000

FIG. 277NCR

adjustable two rod roller hanger with nonconductive roll

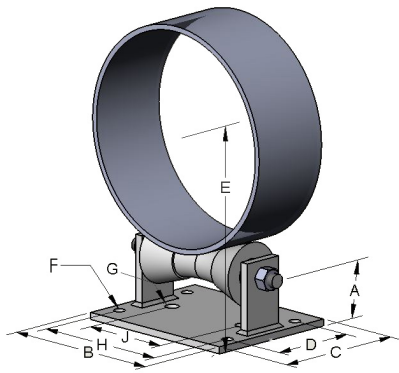


Materials/Finishes:	Plain Carbon Steel (277NCRB)	Hot-Dip Galvanized (277NCRHDG)
	T-304 Stainless Steel (277NCRSS)	T-316 Stainless Steel (277NCRSX)
Service:	Designed for the suspension of pipe where longitudinal movement may occur due to expansion and contraction, and vertical adjustment is necessary.	
Approvals:	Complies with Federal Specification WW-H-171-E (Type# 42), A-A-1192 A (Type# 41) and Manufacturers' Standardization Society MSS SP-58 (Type# 41).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers.	
Notes:	Hot-Dip Galvanized hangers equipped with Electro-Galvanized axle. Empire furnishes drop rods to specified length and double roller assemblies. Ordered separately.	

277B (PLAIN), 277HDG (HOT-DIP GALVANIZED)										
HANGER SIZE	PIPE OD	AXLE SIZE	A	B	C	E	L	R	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	2.375	3/8	3/8	1-9/16	4-3/8	2-3/16	5-5/8	2-7/8	0.760	600
3	3.500	1/2	1/2	2-1/8	5-5/8	2-7/8	7	3-3/4	1.385	700
4	4.500	1/2	1/2	2-15/16	7	3-15/16	8-9/16	4-3/4	2.110	750
5	5.563	5/8	5/8	3-1/2	8-1/8	4-1/2	9-3/4	5-3/4	2.570	750
6	6.625	3/4	3/4	4-1/8	9-3/4	5-1/8	11-5/8	6-7/8	4.395	1070
8	8.625	7/8	7/8	5-5/16	12-1/8	6-9/16	14-1/4	8-7/8	7.425	1350
10	10.750	7/8	7/8	6-7/16	14	7-11/16	16-1/4	11	9.170	1730
12	12.750	7/8	7/8	7-5/16	15-3/4	8-9/16	18	13	13.150	2400
14	14.000	1-1/8	1	8-3/16	17-3/4	9-5/8	20-1/2	14-1/4	18.745	3130
16	16.000	1-1/4	1	9-3/8	20-9/16	10-3/4	23-3/8	16-7/8	24.540	3970
18	18.000	1-1/4	1	10-7/16	22	11-7/8	24-7/8	18-15/16	27.200	4200
20	20.000	1-1/4	1-1/4	11-3/4	24	13-5/8	27	20-1/4	32.000	4550
24	24.000	1-1/2	1-1/2	14-1/16	28-3/4	16-1/8	32	24-1/4	54.000	6160

FIG. 279S

pipe roll stand

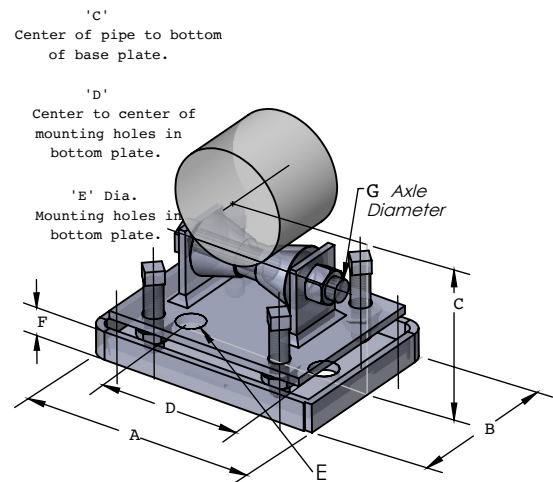


Materials/Finishes:	Plain Carbon Steel (279SB)	Hot-Dip Galvanized (279SHDG)
	T-304 Stainless Steel (279SSS)	T-316 Stainless Steel (279SSX)
Variants:	With Non Conductive Roll (279SNCR)	
Max. Temperatures:	Plain Carbon Steel: 400° F Hot-Dip Galvanized: 350° F T-304 and T-316 Stainless: 1000° F	
Service:	Designed for the support of pipe where longitudinal movement may occur due to expansion and contraction and vertical adjustment of up to 6 inches may be necessary.	
Approvals:	Complies with Federal Specification WW-H-171E (Type# 45), A-A-1192 A (Type# 44) and Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 44).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers	
Notes:	Stainless steel pipe roll hangers are recommended for applications where protection from a corrosive environment is required. Stainless steel options may use a different axle configuration. Contact Empire Industries for more information.	

PIPE SIZE	A	B	C	D	E	DIA. F	DIA. G	H	J	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	1-3/4	8-3/8	6	4	3-11/16	9/16	1	3-3/8	6-3/8	5.08	390
2-1/2	1-3/4	8-3/8	6	4	3-15/16	9/16	1	3-3/8	6-3/8	5.08	390
3	1-3/4	8-3/8	6	4	4-1/4	9/16	1	3-3/8	6-3/8	5.08	390
3-1/2	1-3/4	8-3/8	6	4	4-1/2	9/16	1	3-3/8	6-3/8	5.08	390
4	2	9-7/8	6	4-1/4	5	9/16	1	4-3/4	7-7/8	6.31	650
5	2	9-7/8	6	4-1/4	5-9/16	9/16	1	4-3/4	7-7/8	6.31	950
6	2	9-7/8	6	4-1/4	6-1/16	9/16	1	4-3/4	7-7/8	6.31	950
8	3-3/8	8-5/8	8	5	8-13/16	11/16	1	7	4	13.65	2100
10	3-3/8	8-5/8	8	5	9-7/8	11/16	1	7	4	13.65	2100
12	3-7/8	11	8	6	11-7/16	13/16	1	9	5-3/4	21.00	3075
14	3-7/8	11	8	6	12-1/16	13/16	1	9	5-3/4	21.00	3075
16	4-1/4	12-3/8	10	6-1/2	13-5/8	13/16	1	10-3/8	6-3/4	34.23	4980
18	4-1/4	12-3/8	10	6-1/2	14-11/16	13/16	1	10-3/8	6-3/4	34.23	4980
20	4-1/4	12-3/8	10	6-1/2	15-11/16	13/16	1	10-3/8	6-3/4	34.23	4980
24	4-3/8	13-1/2	10	6-1/2	17-11/16	13/16	1	11-1/2	7-1/2	40.00	6100
30	5	17	10	7-3/4	21-3/4	1-1/8	1	14-1/4	10	71.32	7500
36	5-3/4	20	12	9	25-3/4	1-5/8	1	17	12	147	12000
42	5-3/4	20	12	9	28-7/8	1-5/8	1	17	12	147	12000

FIG. 280S

adjustable pipe roll stand

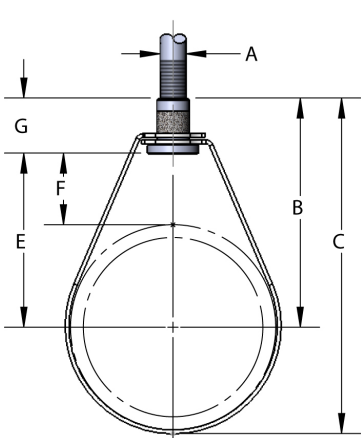


Materials/Finishes:	Plain Carbon Steel (280SB)	Hot-Dip Galvanized (280SHDG)
	T-304 Stainless Steel (280SSS)	T-316 Stainless Steel (280SSX)
Variants:	With Non Conductive Roll (280SNCR)	
Max. Temperatures:	Plain Carbon Steel: 400° F Hot-Dip Galvanized: 350° F T-304 and T-316 Stainless: 1000° F	
Service:	Designed for the support of pipe where longitudinal movement may occur due to expansion and contraction, and where vertical adjustment is necessary.	
Approvals:	Complies with Federal Specification WW-H-171-E (Type# 47), A-A-1192 A (Type# 46) and Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 46).	
Ordering:	Specify figure number, finish and roller size. Please remember to consider insulation thickness when sizing rollers	
Notes:	Stainless steel pipe roll hangers are recommended for applications where protection from a corrosive environment is required. Stainless steel options may use a different axle configuration. Contact Empire Industries for more information.	

PIPE SIZE	A	B	C MIN	C MAX	D	E	F	G	WGT EACH (lbs)	MAX REC LOAD (lbs)
2	6-7/8	6-1/2	4-3/4	5-5/8	3-7/8	1	1	1/2	11.00	390
2-1/2	6-7/8	6-1/2	5	5-7/8	3-7/8	1	1	1/2	11.00	390
3	6-7/8	6-1/2	5-5/16	6-3/16	3-7/8	1	1	1/2	11.00	390
3-1/2	6-7/8	6-1/2	5-9/16	6-7/16	3-7/8	1	1	1/2	11.00	390
4	8-1/2	6	6-3/16	7-7/16	5-1/8	1	1	1/2	13.10	950
5	8-1/2	6	6-3/4	8	5-1/8	1	1	1/2	13.10	950
6	8-1/2	6	7-1/4	8-1/2	5-1/8	1	1	1/2	13.10	950
8	10-1/2	7-1/2	10-1/8	11-11/16	7-3/8	1	1	3/4	29.00	2100
10	10-1/2	7-1/2	11-3/16	12-3/4	7-3/8	1	1	3/4	29.00	2100
12	12-1/2	8-1/2	12-3/4	14-1/8	9-1/2	1	1	7/8	40.00	3075
14	12-1/2	8-1/2	13-3/8	14-3/4	9-1/2	1	1	7/8	40.00	3075
16	14-5/8	11	15-3/8	17-1/4	11-1/8	1	1	1-1/8	63.84	4980
18	14-5/8	11	16-3/8	18-1/4	11-1/8	1	1	1-1/8	63.84	4980
20	14-5/8	11	17-3/8	19-1/4	11-1/8	1	1	1-1/8	63.84	4980
24	15-3/4	11	19-1/4	21-1/4	12-1/4	1	1	1-1/4	71.00	6100
30	19-1/2	10-3/4	24-7/16	26-11/16	15-3/4	1	1-1/2	1-3/4	125.28	7500

FIG. 310

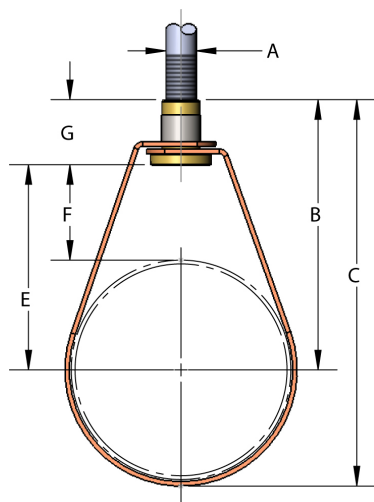
“emlok” adjustable swivel ring hanger



Materials/Finishes:	Pre-Galvanized (310G)	Plastic Coated (310PC)
Variants:	Pre -Galvanized, 3/16" Felt-lined: 1/2" - 2" (310GFL)	
Service:	Designed for the suspension of insulated and non-insulated pipe lines. The plastic coated band hanger protects the pipe from the steel surface of the hanger and is designed to reduce noise, vibration and prevents electrolysis between pipe and the hanger.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 10). UL approved on sizes 3/4" - 8". FM approved on sizes 3/4" - 2".	
Ordering:	Specify figure number, finish and pipe size.	

PIPE SIZE	PIPE OD	A	B	C	E	F	G	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.840	3/8	2-1/2	2-15/16	1-5/8	1-13/16	7/8	0.08	400
3/4	1.050	3/8	2-7/16	2-15/16	1-9/16	1-11/16	7/8	0.08	400
1	1.315	3/8	2-9/16	3-1/4	1-11/16	1	7/8	0.08	600
1-1/4	1.660	3/8	2-1/2	3-5/16	1-5/8	13/16	7/8	0.10	600
1-1/2	1.900	3/8	2-11/16	3-5/8	1-13/16	7/8	7/8	0.10	600
2	2.375	3/8	3-3/8	4-9/16	2-1/2	1-5/16	7/8	0.12	600
2-1/2	2.875	1/2	3-13/16	5-1/4	2-3/4	1-5/16	1-1/16	0.32	600
3	3.500	1/2	4-3/16	5-15/16	3-1/8	1-3/8	1-1/16	0.35	600
3-1/2	4.000	1/2	4-7/16	6-7/16	3-3/8	1-3/8	1-1/16	0.39	600
4	4.500	5/8	5	7-1/4	3-7/8	1-5/8	1-1/8	0.43	1000
5	5.563	5/8	5-5/8	8-3/8	4-1/2	1-3/4	1-1/8	0.65	1000
6	6.625	3/4	7-3/16	10-1/2	5-13/16	2-1/2	1-3/8	1.09	1250
8	8.625	3/4	8-7/16	13-1/4	7-9/16	3-1/4	1-3/8	1.24	1250

FIG. 310CT “emlok” adjustable swivel ring hanger for copper tubing

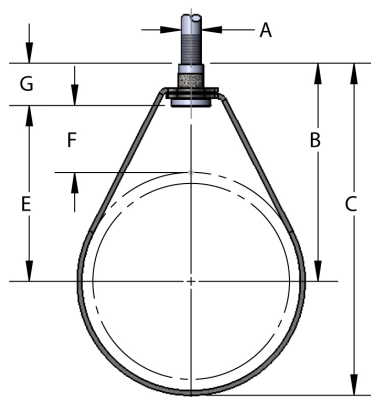


Materials/Finishes:	Copper Epoxy Coated <i>Copper Gard</i> : Domestic (310CT)
Variants:	Copper Epoxy Coated <i>Copper Gard</i> : Imported (310CTI)
Service:	Designed for the suspension of non-insulated, stationary copper lines.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 10).
Ordering:	COPPER-GARD products offer superior corrosion protection due to the epoxy coating over phosphate zinc coated steel. The alternative copper plating that has been done historically identifies the product and is not intended for protection. Refer to MSS SP-58, 13.3.

310CT (DOMESTIC)									
TUBE SIZE	TUBE OD	A	B	C	E	F	G	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.625	3/8	2-9/16	2-7/8	1-11/16	1-3/8	7/8	0.070	300
3/4	0.875	3/8	2-1/2	2-15/16	1-5/8	1-13/16	7/8	0.070	300
1	1.125	3/8	2-3/8	2-15/16	1-1/2	15/16	7/8	0.070	300
1-1/4	1.375	3/8	2-1/2	3-3/16	1-5/8	15/16	7/8	0.080	300
1-1/2	1.625	3/8	2-7/16	3-3/8	1-11/16	7/8	7/8	0.085	300
2	2.125	3/8	3-1/4	4-3/16	2-3/8	1-5/16	7/8	0.100	300
2-1/2	2.625	3/8	4-1/8	5-7/16	3-1/16	1-3/4	1-1/16	0.24	525
3	3.125	3/8	4-1/2	6-1/16	3-7/16	1-7/8	1-1/16	0.28	525
3-1/2	3.625	3/8	4-13/16	6-5/8	3-3/4	1-15/16	1-1/16	0.32	525
4	4.125	3/8	5-3/8	7-7/16	4-5/16	2-1/4	1-1/16	0.32	650
5	5.125	1/2	6-5/16	8-7/8	5-1/4	2-11/16	1-1/16	0.62	1000
6	6.125	1/2	7-7/8	10-15/16	6-13/16	3-3/4	1-1/16	0.65	1000

310CTI (IMPORTED)									
TUBE SIZE	TUBE OD	A	B	C	E	F	G	WGT EACH (lbs)	MAX REC LOAD (lbs)
1/2	0.625	3/8	2-11/16	3	1-13/16	1-1/2	7/8	0.070	300
3/4	0.875	3/8	2-1/2	2-15/16	1-5/8	1-3/16	7/8	0.070	300
1	1.125	3/8	2-7/16	3	1-9/16	1	7/8	0.070	300
1-1/4	1.375	3/8	2-1/2	3-3/16	1-5/8	15/16	7/8	0.080	300
1-1/2	1.625	3/8	2-9/16	3-3/8	1-11/16	7/8	7/8	0.085	300
2	2.125	3/8	3-5/16	4-3/8	2-7/16	1-3/8	7/8	0.100	300
2-1/2	2.625	3/8	3-7/8	5-9/16	2-13/16	1-1/2	1-1/16	0.310	525
3	3.125	3/8	4-3/16	5-3/4	3-1/8	1-9/16	1-1/16	0.345	525
3-1/2	3.625	3/8	4-9/16	6-3/8	3-1/2	1-11/16	1-1/16	0.375	525
4	4.125	3/8	4-13/16	6-15/16	3-3/4	1-11/16	1-1/16	0.410	650
5	5.125	1/2	5-3/16	7-13/16	4-1/8	1-9/16	1-1/16	0.475	1000
6	6.125	1/2	5-11/16	8-15/16	4-5/8	1-9/16	1-1/16	0.530	1000

FIG. 310NF “emlok” adjustable swivel ring hanger, NFPA

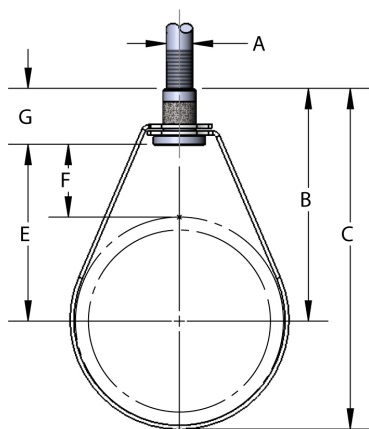


Materials/Finishes:	Pre-Galvanized (310NFG)	Plastic Coated 1/2" - 8" (310NFPC)
Variants:	Pre-Galvanized, 3/16" Felt-lined: 1/2" - 8" (310NFFL)	
Service:	Designed for the suspension of non-insulated stationary pipe lines. Typically used as a pipe support for sprinkler piping. Hanger is manufactured to use minimum rod sizes permitted by NFPA. The plastic coated band hanger protects the pipe from the steel surface of the hanger and is designed to reduce noise, vibration and prevents electrolysis between pipe and the hanger.	
Approvals:	U.L. - U.L.C. listed and FM approved (2-1/2"-8"). Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 10).	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	For sizes 1/2" - 2", please refer to 310G submittal.	

PIPE SIZE	PIPE OD	A	B	C	E	F	G	WGT EACH (lbs)	MAX REC LOAD (lbs)
2-1/2	2.875	3/8	3-3/16	5-1/2	2-15/16	1-1/2	7/8	0.24	600
3	3.500	3/8	4-1/8	5-7/8	3-1/4	1-1/2	7/8	0.28	600
3-1/2	4.000	3/8	4-3/8	6-3/8	3-1/2	1-1/2	7/8	0.32	600
4	4.500	3/8	5	7-1/4	4-1/8	1-7/8	7/8	0.32	750
5	5.563	1/2	5-7/8	8-5/8	4-7/8	2-1/8	1	0.62	1000
6	6.625	1/2	7-3/16	10-1/2	3-3/16	2-3/4	1	0.65	1250
8	8.625	1/2	8-15/16	13-1/4	7-15-16	3-5/8	1	1.00	1250
10	10.750	1/2	10-1/8	15-1/2	9-1/8	3-3/4	1	1.675	1250

FIG. 310SS

“emlok” adjustable swivel hanger, stainless steel



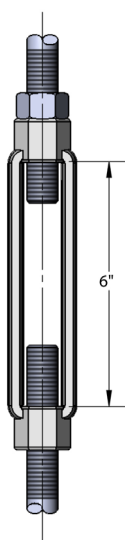
Materials/Finishes:	T-304 Stainless Steel, IPS 1/2" - 6" (310SS)	T-316 Stainless Steel, IPS 1/2 - 6" (310SX)
Variants:	T-304 Stainless Steel, OD 1/2" - 4" (310ODSS)	T-316 Stainless Steel, OD 1/2 - 4" (310ODSX)
Service:	Designed for the suspension of insulated and non-insulated pipe lines.	
Ordering:	Specify figure number, size type, finish and pipe size.	

IPS SIZES							
PIPE SIZE	A	B	C	E	F	G	MAX LOAD
1/2	3/8	2-13/16	3-1/4	1-15/16	1-9/16	7/8	610
3/4	3/8	2-3/4	3-1/4	1-7/8	1-5/16	7/8	610
1	3/8	2-7/8	3-1/2	2	1-5/16	7/8	610
1-1/4	3/8	3	3-13/16	2-1/8	1-1/4	7/8	610
1-1/2	3/8	3-1/8	4-1/16	2-1/4	1-1/4	7/8	610
2	3/8	3-7/16	4-5/8	2-9/16	1-3/8	7/8	610
2-1/2	3/8	4	5-7/16	3-1/8	1-11/16	7/8	610
3	3/8	4-5/16	6-1/16	3-7/16	1-11/16	7/8	610
4	3/8	4-1/8	6-3/8	3-1/4	1	7/8	610
5	1/2	6-3/8	9-5/16	5-1/4	2-5/16	1-1/16	610
6	1/2	7-3/16	10-1/2	6-1/8	2-13/16	1-1/16	610
* FOR 3-1/2" IPS PLEASE ORDER 310ODSS/SX0400 (4" OD SIZE)							

OD SIZES							
OD SIZE	A	B	C	E	F	G	MAX LOAD
1/2	3/8	3	3-1/4	2-1/8	1-7/8	7/8	610
3/4	3/8	2-13/16	3-3/16	1-15/16	1-9/16	7/8	610
1	3/8	2-13/16	3-3/16	1-15/16	1-7/16	7/8	610
1-1/4	3/8	2-13/16	3-7/16	1-15/16	1-5/16	7/8	610
1-1/2	3/8	3-1/8	3-7/8	2-1/4	1-1/2	7/8	610
2	3/8	3-1/8	4-1/8	2-1/14	1-1/4	7/8	610
3	3/8	3-13/16	5-5/16	2-15/16	1-7/16	7/8	610
4	3/8	4-9/16	6-9/16	3-11/16	1-11/16	7/8	610

FIG. 320I

turnbuckle

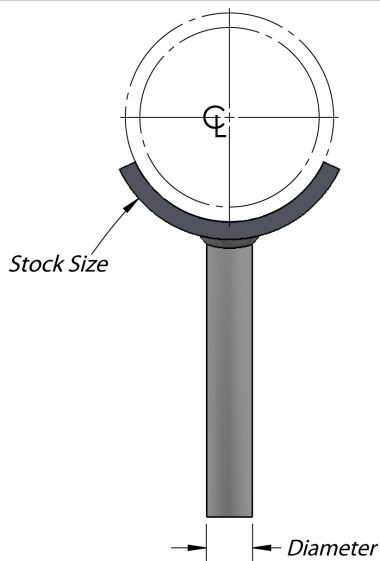


Materials/Finishes:	Plain Carbon Steel: Imported (320BI)	
	Hot-Dip Galvanized: Imported (320HDGI)	
Variants:	Plain Carbon Steel (320B)	Hot-Dip Galvanized (320HDG)
	T-304 Stainless Steel (320SS)	T-316 Stainless Steel (320SX)
Service:	To provide up to 6 inches of adjustment. Normally tapped for UNC-2A thread (standard).	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 13).	
Ordering:	Specify figure number, finish and size	
Notes:	When figure 320I is supplied hot-dip galvanized, it is not tapped oversize.	

SIZE A	WGT EACH (lbs)	MAX REC LOAD (lbs)	
		650°F	700°F
3/8-16	0.42	730	540
1/2-13	0.65	1350	1010
5/8-11	0.98	2160	1610
3/4-10	1.50	3230	2420
7/8-11	1.90	4480	3360
1-8	2.60	5900	4420
1-1/8-7	4.20	6230	5560
1-1/4-7	4.50	9500	7140
1-1/2-6	6.40	13800	10370

FIG. 420

pipe saddle support

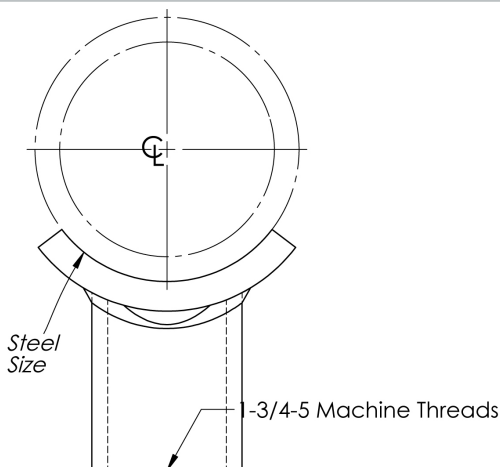


Materials/Finishes:	Plain Carbon Steel (420B)	Electro-Galvanized (420G)
	Hot-Dip Galvanized (420HDG)	T-304 Stainless Steel (420SS)
	T-316 Stainless Steel (420SX)	
Service:	Designed to be used in conjunction with a base stand to support pipe running close to the floor.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 36).	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Base stand can be ordered separately (requires accurate center line of pipe to floor dimension). Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of it's individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

PIPE SIZE	DIAMETER X LENGTH OF STEM	WGT EACH (lbs)
2	7/8 x 6	1.57
3	7/8 x 6	1.85
4	1 x 6	2.70
5	1 x 6	3.14
6	1-1/4 x 6	4.90
8	1-1/4 x 6	5.75
10	1-1/2 x 6	9.88
12	1-1/2 x 6	11.40

FIG. 421

adjustable pipe saddle support with threaded coupling

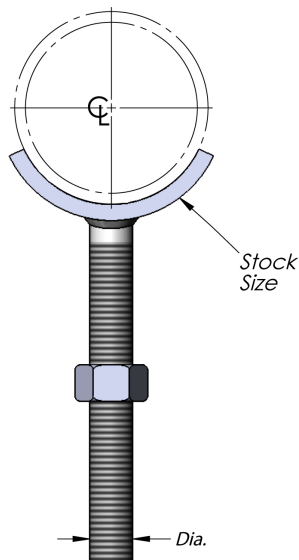


Materials/Finishes:	Plain Carbon Steel (421B)	Electro-Galvanized (421G)
	Hot-Dip Galvanized (421HDG)	T-304 Stainless Steel (421SS)
	T-316 Stainless Steel (421SX)	
Service:	Designed to be used in conjunction with a base stand to support pipe running close to the floor.	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Base stand can be ordered separately (requires accurate center line of pipe to floor dimension). Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of it's individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

PIPE SIZE	PIPE SIZE, THREADED COUPLING	WGT EACH (lbs)
2	1-1/4	1.35
3	1-1/2	2.45
4	2	3.63
5	2	4.30
6	2-1/2	7.03
8	2-1/2	8.53
10	3	13.04
12	3	15.07

FIG. 422

adjustable pipe support

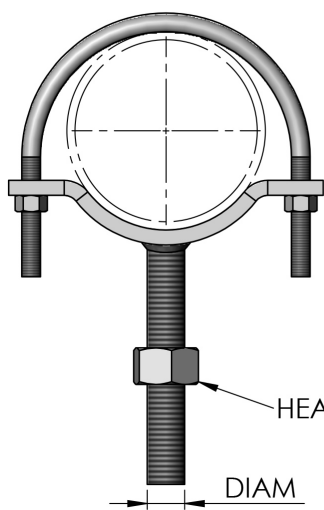


Materials/Finishes:	Plain Carbon Steel (422B)	Electro-Galvanized (422G)
	Hot-Dip Galvanized (422HDG)	T-304 Stainless Steel (422SS)
	T-316 Stainless Steel (422SX)	
Service:	Designed to be used in conjunction with a base stand to support pipe running close to the floor. Threaded stud and nut provide adjustability.	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Base stand can be ordered separately (requires accurate center line of pipe to floor dimension). Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of its individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

PIPE SIZE	DIAMETER X LENGTH OF STEM	WGT EACH (lbs)
2	7/8 x 8	1.92
3	7/8 x 8	2.20
4	1x8	3.23
5	1 x 8	3.67
6	1-1/4 x 8	5.92
8	1-1/4 x 8	6.77
10	1-1/2 x 8	11.56
12	1-1/2 x 8	13.08

FIG. 422U

adjustable pipe support w/ u-bolt

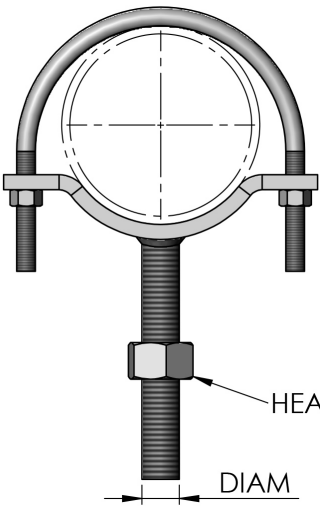


Materials/Finishes:	Plain Carbon Steel (422UB)	Electro-Galvanized (422UG)
	Hot-Dip Galvanized (422UHDG)	T-304 Stainless Steel (422USS)
	T-316 Stainless Steel (422USX)	
Service:	Designed to be used in conjunction with a standard pipe and flange at the base to support piping where an overhead supporting member is not available. The stem is threaded the full length with a nut to allow vertical adjustment to accommodate the pitch in the pipe line.	
Ordering:	Specify figure number, finish and pipe size	
Notes:	Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of its individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

PIPE SIZE	DIAMETER X LENGTH OF STEM	WGT EACH (lbs)
3	7/8 x 8	3.2
3-1/2	7/8 x 8	3.3
4	1 x 8	4.3
5	1 x 8	4.7
6	1-1/4 x 8	8.2
8	1-1/4 x 8	9.3
10	1-1/2 x 8	16.0
12	1-1/2 x 8	19.9

FIG. 422UDIP

adjustable pipe support w/ u-bolt for ductile iron pipe

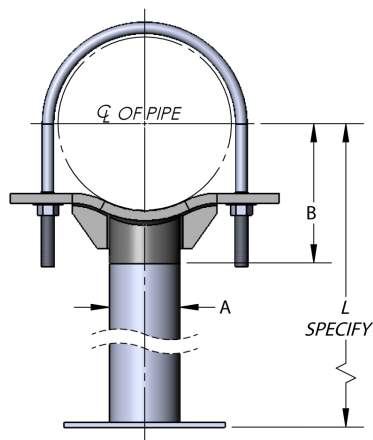


Materials/Finishes:	Plain Carbon Steel (422UDIPB)	Electro-Galvanized (422UDIPG)
	Hot-Dip Galvanized (422UDIPHDG)	T-304 Stainless Steel (422UDIPSS)
	T-316 Stainless Steel (422UDIPSX)	
Service:	Designed to be used in conjunction with a standard pipe and flange at the base to support piping where an overhead supporting member is not available. The stem is threaded the full length with a nut to allow vertical adjustment to accommodate the pitch in the pipe line.	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of it's individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

DIP SIZE	DIAMETER X LENGTH OF STEM	WGT EACH (lbs)
3	7/8 x 8	3.3
4	1 x 8	4.5
6	1-1/4 x 8	8.5
8	1-1/4 x 8	9.6
10	1-1/2 x 8	15.6
12	1-1/2 x 8	19.3

FIG. 425

adjustable pipe support

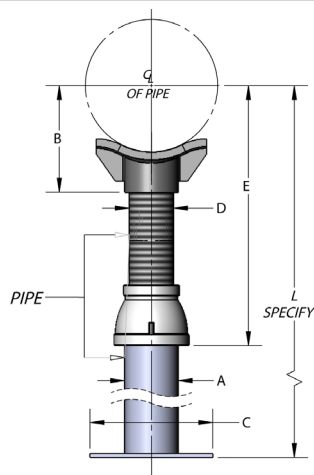


Materials/Finishes:	Plain Carbon Steel (425B)	Electro- Galvanized (425G)
	Hot-Dip Galvanized (425HDG)	T-304 Stainless Steel (425SS)
	T-316 Stainless Steel (425SX)	
Service:	Designed to be used in conjunction with a base stand to support pipe running close to the floor. U-bolt secures pipe to saddle.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 and SP-69 (Type# 37).	
Ordering:	Specify figure number, finish and size	
Notes:	Specify size, figure number and finish. Base stand ordered separately. Requires accurate center line of pipe to floor dimension ("L") . Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of it's individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

PIPE SIZE	PIPE SIZE	B	WGT EACH (lbs) *Saddle only
	A		
4	3	4-3/16	6.72
5	3	4-13/16	7.30
6	3	5-7/16	11.06
8	3	6-15/16	14.30
10	3	8-7/16	18.53
12	3	9-15/16	23.92
14	4	10-15/16	39.10
16	4	12-3/8	44.47
18	4	13-7/8	52.95
20	6	15-3/8	84.72
24	6	17-15/16	100.00
30	6	21-5/16	113.10
36	8	24-1/2	163.74

FIG. 426

adjustable pipe saddle support

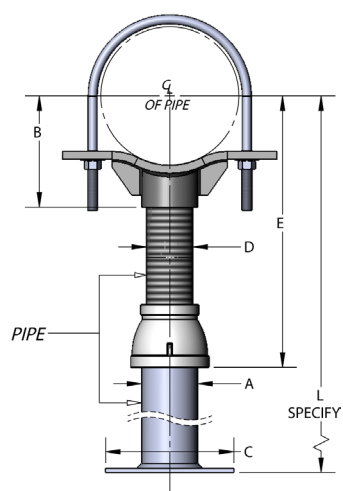


Materials/Finishes:	Plain Carbon Steel (426B)	Electro- Galvanized (426G)
	Hot-Dip Galvanized (426HDG)	T-304 Stainless Steel (426SS)
	T-316 Stainless Steel (426SX)	
Service:	Designed to be used in conjunction with a base stand to support horizontal pipe. Straight cut pipe thread on nipple provides adjustability.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP 58 and SP 69 (Type#38).	
Ordering:	Specify figure number, finish and size	
Notes:	Base stand ordered separately. Requires accurate center line of pipe to floor dimension ("L"). Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of its individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

PIPE SIZE	PIPE SIZE	B	C	D	DIMENSION E		WGT EACH (lbs) SADDLE AND REDUCER
	A				MIN	MAX	
2-1/2	2-1/2	3-7/16	8	1-1/2	8	13	7.44
3	2-1/2	3-11/16	8	1-1/2	8-1/4	13-1/4	7.70
3-1/2	2-1/2	3-15/16	8	1-1/2	8-1/2	13-1/2	9.40
4	3	4-3/16	10	2-1/2	9-1/4	14	13.39
5	3	4-13/16	10	2-1/2	10	14-3/4	14.04
6	3	5-7/16	10	2-1/2	10-1/2	15-1/4	17.80
8	3	6-15/16	10	2-1/2	11-3/4	16-1/2	20.72
10	3	8-7/16	10	2-1/2	13-1/2	18-1/4	24.79
12	3	9-15/16	10	2-1/2	15	19-3/4	30.12
14	4	10-15/16	10	3	16-1/4	20-3/4	42.55
16	4	12-3/8	10	3	17-3/4	22-1/4	46.88
18	6	13-7/8	12	4	19-1/2	24	74.78
20	6	15-3/8	12	4	21	25-1/2	78.91
24	6	17-15/16	12	4	23-3/4	28-1/4	100.87
30	6	21-5/16	12	4	27	31-1/2	112.35
32	6	22-1/2	12	4	28-1/4	32-3/4	116.52
36	6	24-1/2	12	4	30-1/4	34-3/4	129.87

FIG. 427

adjustable pipe saddle support with u-bolt

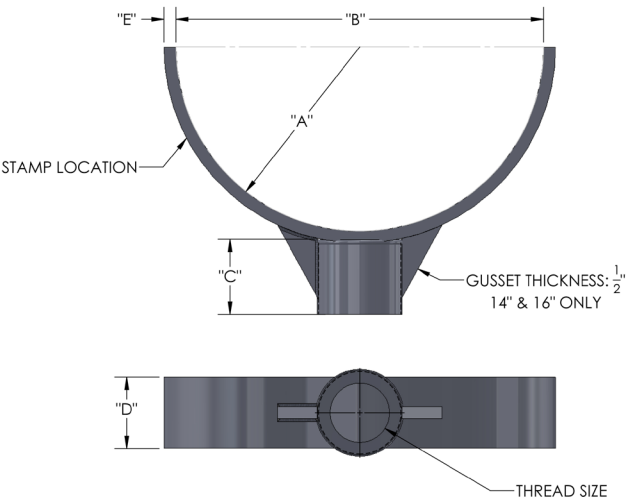


Materials/Finishes:	Plain Carbon Steel (427B)	Electro- Galvanized (427G)
	Hot-Dip Galvanized (427HDG)	T-304 Stainless Steel (427SS)
	T-316 Stainless Steel (427SX)	
Service:	Designed to be used in conjunction with a base stand to support horizontal pipe. Straight cut pipe thread on nipple provides adjustability, u-bolt secures pipe to saddle.	
Ordering:	Specify figure number, finish and size	
Notes:	Base stand ordered separately. Requires accurate center line of pipe to floor dimension ("L"). Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of its individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

PIPE SIZE	PIPE SIZE	B	C	D	DIMENSION E		WGT EACH (lbs) SADDLE AND REDUCER
	A				MIN	MAX	
2-1/2	2-1/2	3-7/16	8	1-1/2	8	13	9.00
3	2-1/2	3-11/16	8	1-1/2	8-1/4	13-1/4	9.20
3-1/2	2-1/2	3-15/16	8	1-1/2	8-1/2	13-1/2	9.40
4	3	4-3/16	10	2-1/2	9-1/4	14	15.00
5	3	4-13/16	10	2-1/2	10	14-3/4	16.65
6	3	5-7/16	10	2-1/2	10-1/2	15-1/4	17.64
8	3	6-15/16	10	2-1/2	11-3/4	16-1/2	20.20
10	3	8-7/16	10	2-1/2	13-1/2	18-1/4	25.15
12	3	9-15/16	10	2-1/2	15	19-3/4	29.00
14	4	10-15/16	10	3	16-1/4	20-3/4	49.20
16	4	12-3/8	10	3	17-3/4	22-1/4	53.20
18	6	13-7/8	12	4	19-1/2	24	70.80
20	6	15-3/8	12	4	21	25-1/2	104.80
24	6	17-15/16	12	4	23-3/4	28-1/4	130.00
30	6	21-5/16	12	4	27	31-1/2	170.00
32	6	22-1/2	12	4	28-1/4	32-3/4	181.00
36	6	24-1/2	12	4	30-1/4	34-3/4	249.00

FIG. 428KT

adjustable pipe support, kit



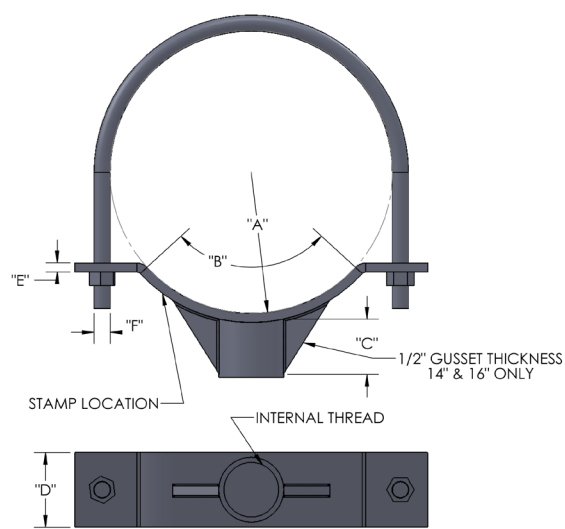
Materials/Finishes:	Hot-Dip Galvanized (428KTHDG)
	T-304 Stainless Steel: 2"-12" (428KTSS)
	T-316 Stainless Steel: (428KTSX)
Service:	Designed to support pipe horizontally. Straight cut pipe thread on nipple provides up to 4-1/2 inches of vertical adjustability.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 (Type# 38)
Ordering:	Specify figure number, finish and pipe size.
Notes:	Saddles accommodate ductile iron pipe and IPS. Support requires 2" schedule 40 (3" schedule 40 for sizes 14" and 16") extension pipe (not supplied) to be cut in the field. Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of its individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.

428 SADDLE SPECIFICATIONS						
SIZE	A	B	C	D	E	THREAD SIZE
2	1.750	3.500	1.500	2.000	0.375	1-1/4 - 11.5
3	2.030	4.060	1.500	2.000	0.375	1-1/4 - 11.5
4	2.450	4.900	1.500	2.000	0.375	1-1/4 - 11.5
6	3.500	7.000	1.500	2.000	0.500	1-1/4 - 11.5
8	4.580	9.160	1.500	2.000	0.500	1-1/4 - 11.5
10	5.600	11.200	1.500	2.000	0.500	1-1/4 - 11.5
12	6.650	13.300	1.500	2.000	0.500	1-1/4 - 11.5
14	7.750	15.500	3.000	3.000	0.500	2-1/2 - 8
16	8.800	17.600	3.000	3.000	0.500	2-1/2 - 8

428 KIT SPECIFICATIONS	
SIZES 2 - 12	SIZES 14 AND 16
Technical drawing of the 428 KIT SPECIFICATIONS for sizes 2-12. The drawing shows a cross-section of the saddle and pipe assembly. Labels include: 1-1/4" X 1.000 STRAIGHT THREAD, 8.000 STRAIGHT THREAD, 1-1/4" X 6.000 STRAIGHT THREAD, .500, 3.000, 1.000, 1-1/4" INTERNAL STRAIGHT THREAD, 3/8" - 16 SQUARE HEAD X 1/2" SET SCREW (CUP POINT), SIZED TO FIT OVER 2" SCHEDULE 40 PIPE, 2" SCHEDULE 40 PIPE (NOT SUPPLIED, TO BE FIELD CUT), 3/8" - 16 SQUARE HEAD SET SCREW (CUP POINT), SIZED TO FIT OVER 2" SCHEDULE 40 PIPE, 9/16 HOLES (4 CORNERS), .250 X 8.000 X 8.000, 5.750.	Technical drawing of the 428 KIT SPECIFICATIONS for sizes 14 and 16. The drawing shows a cross-section of the saddle and pipe assembly. Labels include: 2-1/2" STRAIGHT THREAD X 3.000, 10.000 STRAIGHT THREAD, 2-1/2" STRAIGHT THREAD X 6.000, 1.000, 5.000, 1.000, 2 1/2" INTERNAL STRAIGHT THREAD, 3/8" - 16 SQUARE HEAD X 1/2" SET SCREW (CUP POINT) (3 PLS), SIZED TO FIT OVER 3" SCHEDULE 40 PIPE, 3" SCHEDULE 40 PIPE (NOT SUPPLIED, TO BE FIELD CUT), SIZED TO FIT OVER 3" SCHEDULE 40 PIPE, 3/8" - 16 SQUARE HEAD SET SCREW (CUP POINT) (3 PLS), 15/16 HOLES (4 CORNERS), .500 X 10.000 X 10.000, 7.000.

FIG. 429KTU

adjustable pipe saddle support with u-bolt, kit



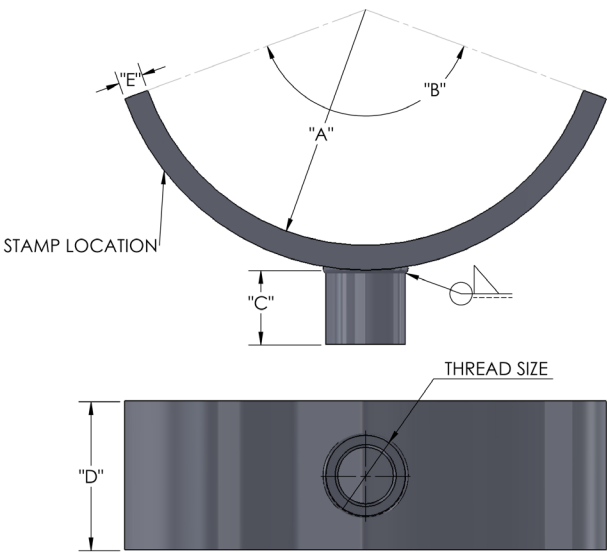
Materials/Finishes:	Hot-Dip Galvanized (429KTUHDG)	T-304 Stainless Steel: 2"-12" (429KTUSX)
	T-316 Stainless Steel (429KTUSX)	
Service:	Designed to support pipe horizontally. Straight cut pipe thread on nipple provides up to 4-1/2 inches of vertical adjustability.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 (Type# 37)	
Ordering:	Specify figure number, finish and pipe size.	
Notes:	Saddles accommodate ductile iron pipe and IPS. Support requires 2" schedule 40 (3" schedule 40 for sizes 14" and 16") extension pipe (not supplied) to be cut in the field. Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of it's individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.	

429 SADDLE SPECIFICATIONS							
SIZE	A	B	C	D	E	F	THREAD SIZE
2	1.500	90°	1.500	2.000	0.375	1/2-13	1-1/4 - 11.5
3	2.030	130°	1.500	2.000	0.375	1/2-13	1-1/4 - 11.5
4	2.450	130°	1.500	2.000	0.375	1/2-13	1-1/4 - 11.5
6	3.500	130°	1.500	2.000	0.500	5/8-11	1-1/4 - 11.5
8	4.580	130°	1.500	2.000	0.500	5/8-11	1-1/4 - 11.5
10	5.600	130°	1.500	2.000	0.500	5/8-11	1-1/4 - 11.5
12	6.650	130°	1.500	2.000	0.500	5/8-11	1-1/4 - 11.5
14	7.750	130°	3.000	3.000	0.500	7/8-9	2-1/2 - 8
16	8.800	130°	3.000	4.000	0.500	7/8-9	2-1/2 - 8

428 KIT SPECIFICATIONS	
SIZES 2 - 12	SIZES 14 AND 16
Technical drawing of the 428 kit specifications for sizes 2-12. The drawing shows a side view of the kit with dimensions and labels for various components including straight threads, internal threads, and set screws.	Technical drawing of the 428 kit specifications for sizes 14 and 16. The drawing shows a side view of the kit with dimensions and labels for various components including straight threads, internal threads, and set screws.

FIG. 430KTSF

adjustable flange support, kit



Materials/Finishes:	Hot-Dip Galvanized (430KTSFHDG)
Service:	Designed to support pipe flange horizontally. Straight cut pipe thread on nipple provides up to 4-1/2 inches of vertical adjust-ability.
Approvals:	Complies with Manufacturers' Standardization Society MSS SP-58 (Type# 38)
Ordering:	Specify figure number, finish and pipe size.
Notes:	Support requires 2" schedule 40 extension pipe (not supplied) to be cut in the field. Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of it's individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.

430 SADDLE SPECIFICATIONS						
SIZE	A	B	C	D	E	THREAD SIZE
4	4.500	140°	1.500	2.500	0.500	1-1/4 - 11.5
6	5.500	140°	1.500	2.500	0.500	1-1/4 - 11.5
8	6.750	140°	1.500	3.000	0.500	1-1/4 - 11.5

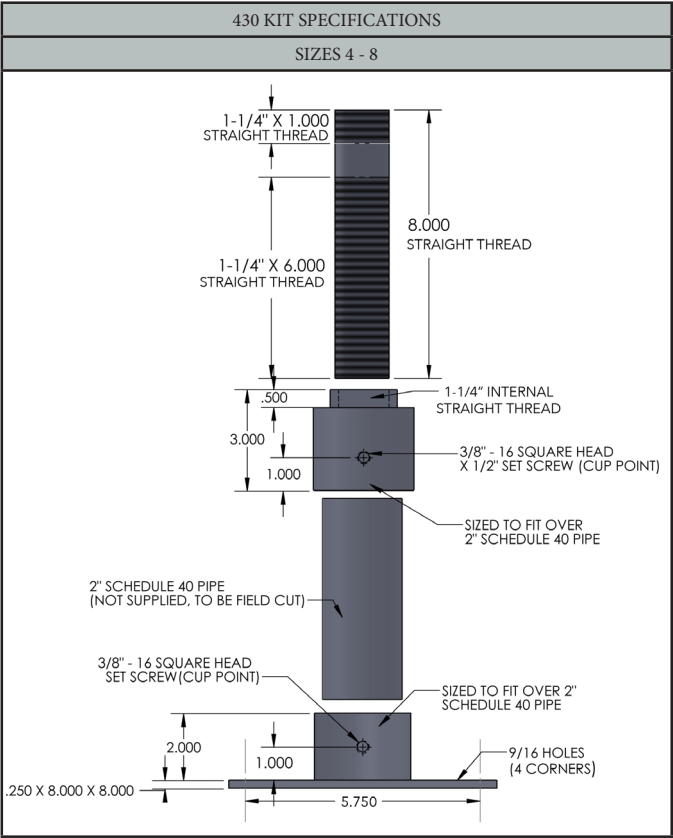
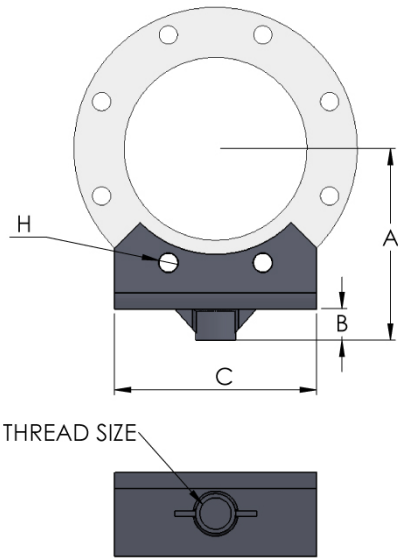


FIG. 431KT

adjustable bolt on flange support, kit



Materials/Finishes:	Hot-Dip Galvanized (431KTHDG)
	T-304 Stainless Steel: 4"-8" (431KTSFSS)
	T-316 Stainless Steel: 4"-8" (431KTSFSX)
Service:	Designed to support pipe flange horizontally. Straight cut pipe thread on nipple provides up to 4-1/2 inches of vertical adjustability.
Ordering:	Specify figure number, finish and pipe size.
Notes:	Support requires 2" schedule 40 extension pipe (not supplied) to be cut in the field. Empire Industries' FIG. 431KT is designed to connect to back flow devices, water meters and to accomodate class 125 flange installation devices. Gussets added on sizes 6" and up. Due to the unknown variables within a field installation, Empire does not publish a maximum recommended load for a complete pipe support stanchion or any of it's individual components. The customer /end-user is solely responsible for understanding the full capability of the piping system design.

431 SADDLE SPECIFICATIONS					
SIZE	A	B	C	H	THREAD SIZE
3	6-1/2	1-1/2	6-1/2	13/16	1-1/4 - 11.5
4	6-7/8	1-1/2	6	13/16	1-1/4 - 11.5
6	7-7/8	1-1/2	8	15/16	1-1/4 - 11.5
8	9-1/8	1-1/2	9-1/8	15/16	1-1/4 - 11.5
10	10-5/16	1-1/2	8	1-1/16	1-1/4 - 11.5
12	11-13/16	1-1/2	9-1/2	1-1/16	1-1/4 - 11.5

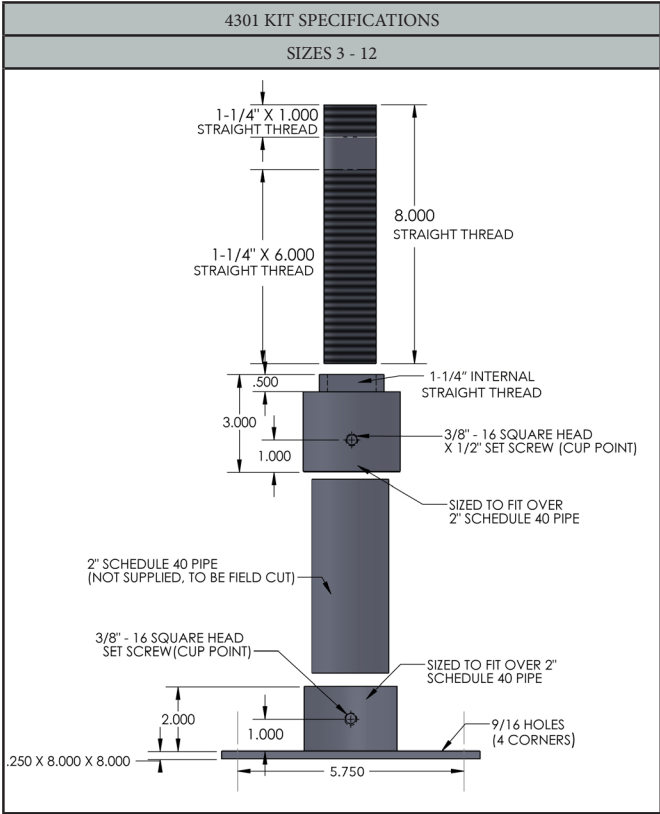
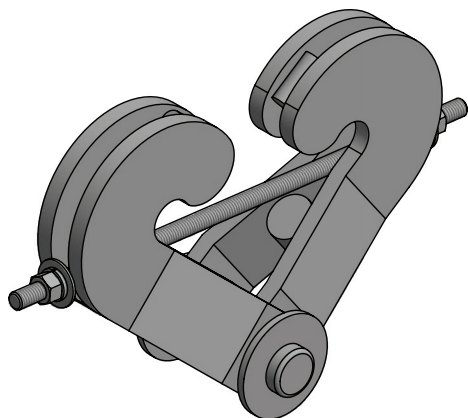


FIG. 450

heavy beam clamp assembly



Materials/Finishes:	Plain Carbon Steel (450B)	Hot-Dip Galvanized (450HDG)
	T-304 Stainless Steel (450SS)	T-316 Stainless Steel (450SX)
Material/Finish Specifications	Carbon Steel meeting ASTM: A36, A307 Gr A, A563 Gr A	
	Stainless Steel Type 304 and 316 meeting ASTM: A240, F593, and F594	
	Black or Hot-Dip Galvanized meeting ASTM A123	
Variants:	With Weldless Eye Nut (450W)	
Service:	To hang piping with a single threaded rod from the bottom center of wide flange beams (W-shape) or American standard beams (S-shape). Provides vertical hanger rod adjustment. Permits horizontal pipe movement through hanger rod rotation. For hanger assemblies loaded by static tensile forces from piping or similar services. Normally used with figure 26, 26W eyerods or figure 13, 13I weldless eye nuts.	
Max. Temp	650°F for Black Carbon Steel and Stainless Steel	
	350°F for Hot-Dip Galvanized Carbon Steel	
Approvals:	Complies with Federal Specification WW-H-171-E (Type# 28 without links, Type #29 with links), and Manufacturers' Standardization Society MSS SP-58 (Type# 28 without links, Type #29 with links).	
Ordering:	Specify figure number, material/finish, clamp size, rod size, flange width, flange thickness.	
Notes:	1.) When ordering, flange width and flange thickness may be specified by the AISC W-shape or S-shape designation, e.g., W8x35. 2.) Hanger rod in-plane and out-of-plane rotation resultant shall be ≤ 4° per MSS SP-58. 3.) Maximum load based on FIG. #54 Continuous Threaded Rod. Smaller rod sizes may be used. See FIG. #54 for load rating. 4.) Installation: Prior to tightening, cross rod shall sit on both spacers. Tighten nuts until cross rod bends slightly. Lock washers may not flatten. Hot-Dip Galvanized clamps use Electro-Galvanized hardware.	

SIZE	MAX FLG THK	FLG WIDTH	MIN ROD	MAX ROD	TAKE OUT	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
1	5/8	4 to 8	3/8	3/4	1 1/16	7.2	3230
2	5/8	7 to 15	3/8	3/4	1 1/16	13.6	3230
3	3/4	4 to 8	3/8	1	1 1/16	9.8	5900
4	3/4	7 to 15	3/8	1	1 1/16	17.4	5900
5	1	5 to 9	7/8	1 1/2	1 11/16	25.5	13800
6	1	8 to 16	7/8	1 1/2	1 11/16	42.8	13800

DIMENSION B (±1/4")													
SIZE	FLANGE WIDTH												
	4	5	6	7	8	9	10	11	12	13	14	15	16
1	5 5/16	5 3/8	5 3/16	4 15/16	4 3/4	-	-	-	-	-	-	-	-
2	-	-	-	9 15/16	9 3/16	9 3/8	9 3/8	9 1/8	8 13/16	8 3/16	8 1/8	7 3/8	-
3	-	6 1/2	6 3/8	5 7/8	5 3/4	-	-	-	-	-	-	-	-
4	-	-	-	10 7/8	10 3/4	10 3/8	10 3/8	10 1/8	9 3/4	9 3/8	9	8 3/8	-
5	-	8 5/8	8 3/8	8 1/4	7 3/4	7 3/8	-	-	-	-	-	-	-
6	-	-	-	-	12 1/2	12 3/8	12 3/8	12 3/8	12 3/8	11 7/8	11 3/8	11 1/8	10 3/8

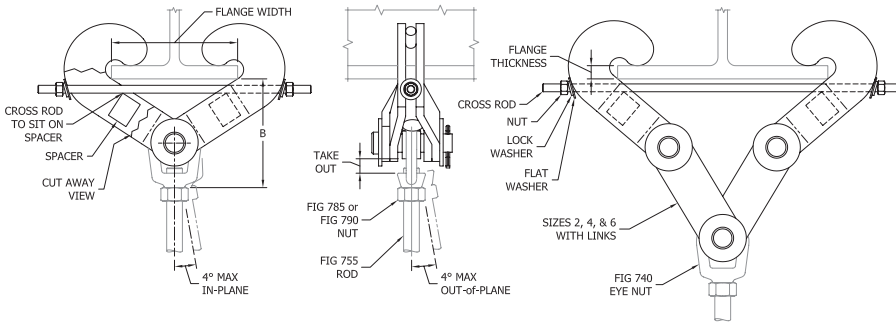
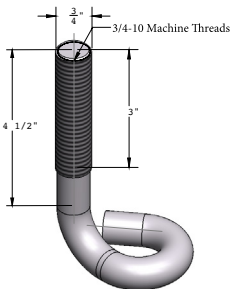


FIG. 575

corporation eye bolt

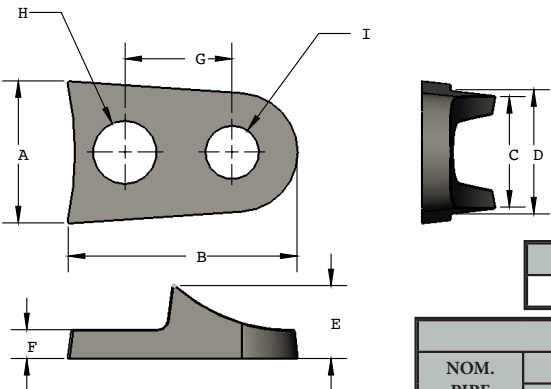


Materials/Finishes:	Plain Carbon Steel (575B)	Electro-Galvanized (575G)
Variants:	Plain Carbon Steel: Domestic (575BD)	Electro-Galvanized: Domestic (575GD)
Service:	Designed to be used with figure number 600 socket clamp.	
Ordering:	Specify figure number.	

BOLT SIZE	WGT EACH (lbs)
3/4	1.0

FIG. 585

ductile lug



Materials/Finishes	Plain Ductile Iron: (585B)
Service:	Designed to assist in restraining of mechanical joint fittings, valves, hydrants and pipes by threaded rods. Installed between MJ Bell and MJ Gland.
Ordering:	Specify figure number
Notes:	For use on sizes 4" - 16"

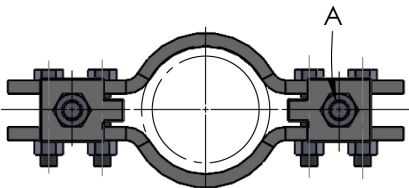
A	B	C	D	E	F	G	H	I
2-1/4	3-5/8	1-3/4	2	1.152	1/2	1-11/16	1	7/8

MINIMUM NUMBER OF DUCTILE LUGS REQUIRED FOR EACH MJ BELL									
NOM. PIPE SIZE	WORKING PRESSURE (PSI)*								
	100	125	150	200	225	250	300	325	350
4	2	2	2	2	2	2	2	2	2
6	2	2	2	2	3	3	3	4	4
8	2	2	3	4	4	4	6	6	6
10	4	4	4	6	6	8	8	8	NR
12	4	4	6	8	8	8	NR	NR	NR
14	5	6	8	10	NR	NR	NR	NR	NR
16	6	8	10	12	NR	NR	NR	NR	NR

*PRESSURE RATINGS INCLUDE A NOMINAL 2:1 SAFETY FACTOR. NR = NOT RECOMMENDED

FIG. 595

four bolt socket clamp



Materials/Finishes:	Plain Carbon Steel (595B)	Electro-Galvanized (595G)
	Hot-Dip Galvanized (595HDG)	
Service:	Designed to used to clamp mechanical joint or socket joint piping and fittings together to prevent separation or distortion of pipe lines under excessive water pressure.	
Approvals:	Complies with the requirements of the National Fire Protection Association standard NFPA 24 for outside protection.	
Ordering:	Specify figure number, finish and size.	

PIPE SIZE	PIPE OD	BOLT	A	INNER DIA.	L	WGT EACH (lbs)
4	4.800	5/8	3/4	4.8	14-5/8	9.38
6	6.900	5/8	3/4	6.9	16-7/8	11.50
8	9.050	5/8	3/4	9.05	19-1/8	20.54
10	11.100	3/4	1	11.1	21-3/8	23.15
12	13.200	7/8	1	13.2	25-1/8	35.85
14	15.300	7/8	1-1/4	15.3	28-1/4	46.78
16	17.400	1	1-1/4	17.4	31-3/8	70.53
18	19.500	1-1/4	1-1/4	19.4	35-1/8	84.65
20	21.600	1-1/4	1-3/8	21.6	37-3/4	98.65
24	25.800	1-1/2	1-1/2	25.8	44-1/4	135.50

FIG. 599 WASHER
ORDER SEPARATELY

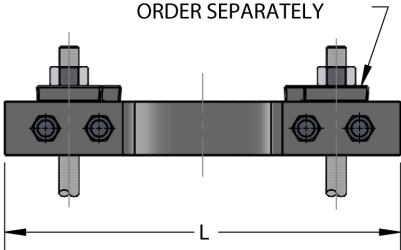
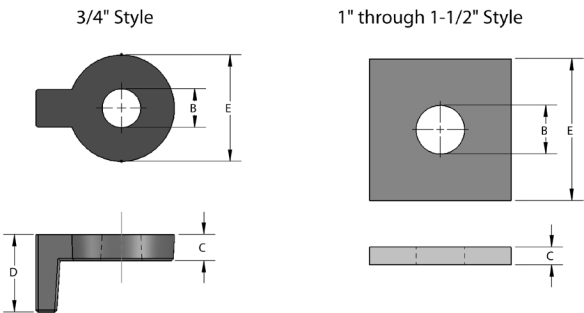


FIG. 599

socket clamp washer



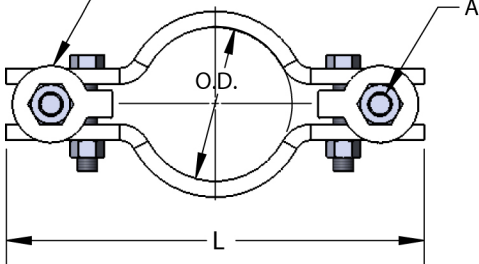
Materials/Finishes:	Plain Carbon Steel (599B)	Electro-Galvanized (599G)
	Hot-Dip Galvanized (599HDG)	
Service:	Designed to be used with figure 600 socket clamp, washer lugs hook around clamp bolts to secure tie rods within clamp legs.	
Ordering:	Specify figure number, finish and size.	
Notes:	The 3/4" rod size socket clamp washer is a cast iron product with tab feature. This accommodates pipe sizes 4" - 12". The 1"-1 1/2" rod size washer are a carbon steel flat style. These accommodate pipe sizes 14" - 24".	

ROD SIZE	STEEL SIZE	C	D	E	FOR USE WITH PIPE SIZE	WGT EACH (lbs)
3/4	7/8	5/8	13/4	23/8	3" - 12"	0.80
1	1-1/8	1/2	-	4	14"	2.16
1-1/8	1-1/4	1/2	-	4	16"	2.13
1-1/4	1-3/8	3/4	-	4	18"	3.14
1-3/8	1-1/2	3/4	-	4	20"	3.08
1-1/2	1-9/16	3/4	-	4	24"	3.02

FIG. 600DIP

socket clamp

FIG. 599 WASHER
ORDER SEPARATELY



Materials/Finishes:	Plain Carbon Steel (600DIPB)	Electro-Galvanized (600DIPG)
	Hot-Dip Galvanized (600DIPHDBG)	T-304 Stainless Steel (600DIPSS)
	T-316 Stainless Steel (600DIPSX)	
Service:	Designed to be used to clamp joints of underground AWWA ductile iron water lines to prevent joint separation due to excessive water pressure.	
Ordering:	Specify figure number, finish and size.	

PIPE SIZE	PIPE OD	BOLT	A ROD DIA.	INNER DIA.	L	WGT EACH (lbs)
3	3.960	5/8	3/4	3.96	12	5.95
4	4.800	5/8	3/4	4.8	12-3/4	8.00
6	6.900	5/8	3/4	6.9	15-1/2	10.00
8	9.050	5/8	3/4	9.05	17-1/2	12.10
10	11.100	5/8	3/4	11.1	19-1/2	13.63
12	13.200	5/8	3/4	13.2	22	15.65
14	15.300	7/8	1	15.3	28-1/2	45.00
16	17.400	1	1-1/8	17.4	30-3/4	63.00
18	19.500	1-1/4	1-1/4	19.5	34-5/8	76.00
20	21.600	1-1/4	1-3/8	21.6	37-1/2	100.50
24	25.800	1-1/2	1-1/2	25.8	43	119.50
30	32.000	1-1/2	1-1/2	32.0	49-1/2	140.50
36	38.800	1-1/2	1-1/2	38.8	56-1/2	164.50

FIG. 685

metal deck anchor bolt

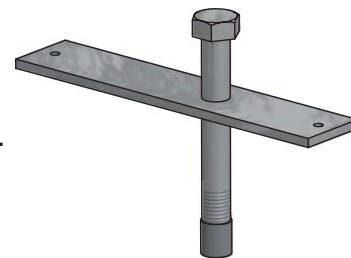
SERVICE: To provide a pre-positioned hanger rod attachment to the underside of concrete slabs on metal form decks. Used as a cast-in-place concrete anchor bolt on deck upper flute in 3,000 psi minimum compressive strength normal and lightweight, cracked and uncracked concrete loaded by static tensile forces from piping or similar services.

MATERIAL: Carbon Steel meeting ASTM A36 and A307 Gr A

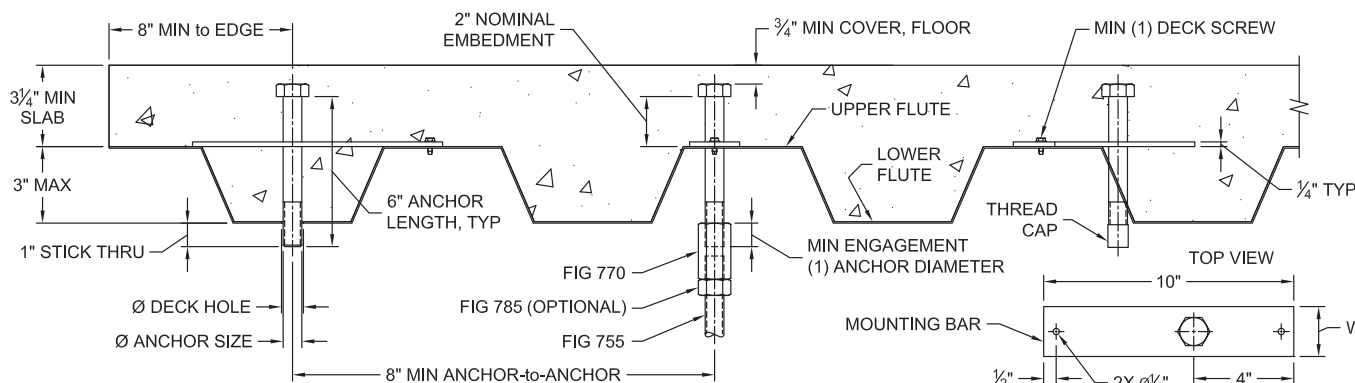
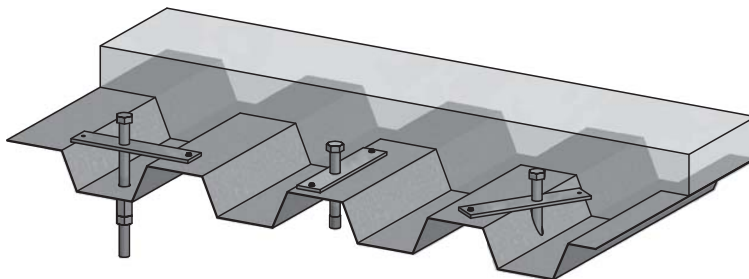
FINISH: Electro-Galvanized meeting ASTM B633

MAX TEMP: 200°F

ORDERING: Specify figure number, anchor size and finish. (Order hardware separately.)

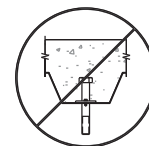


ANCHOR SIZE	WIDTH W	DECK HOLE	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
3/8	1 1/2	1/2	1.21	730
1/2	1 1/2	5/8	1.33	800
5/8	1 1/2	3/4	1.54	800
3/4	2	7/8	2.16	800
7/8	Contact Factory (Note 2)			
1				



NOTES:

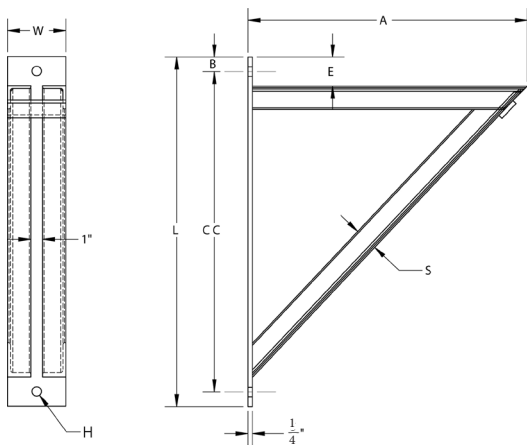
1. Safety factor of 4.0 against nominal strength calculated in accordance with American Concrete Institute (ACI) 318, Appendix D, 2011. Maximum recommended tensile loads presented above are unfactored. Minimum concrete compressive strength = 3,000 psi. Concrete assumed cracked. Concrete breakout governs the maximum recommended tensile load. Condition B applies. Edge and spacing effects not included in maximum recommended tensile load development. Follow minimums specified above.
2. Provide concrete compressive strength and slab thickness.
3. Do not load anchor bolt until concrete has fully cured.
4. Use a minimum of one deck screw to secure anchor bolt during concrete pour. Screw may be #12 or smaller.
5. Mounting bar is not a structural element.
6. Minimum cover based on conditions not exposed to weather in accordance with ACI 318, Section 7.7.1(c).



DO NOT INSTALL
IN LOWER FLUTE

FIG. 800

light welded bracket



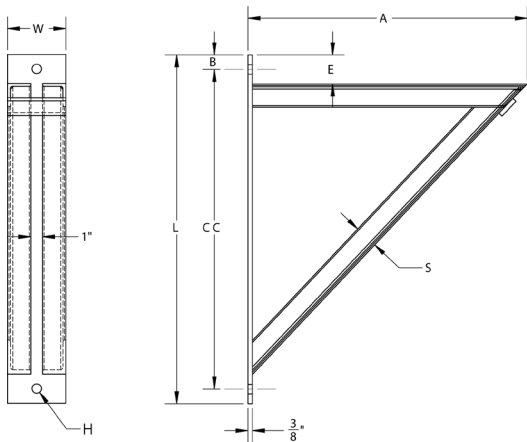
Materials/Finishes:	Plain Carbon Steel (800B)	Hot-Dip Galvanized (800HDG)
	T-304 Stainless Steel (800SS)	T-316 Stainless Steel (800SX)
Service:	Recommended for the support of pipe loads up to 750 lbs. Constructed of facing angle iron with 1" space. The bracket provides maximum lateral adjustment when carrying or suspending pipe.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP 58 (Type#32).	
Ordering:	Specify figure number, finish and size number	

CARBON STEEL									
SIZE NO.	C-C	A	E	H	B	L	ANGLE SIZE S	W	WGT EACH (lbs)
1	11-1/2	9	2	13/16	3/4	13	1 x 1 x 3/16	3	6.63
2	15-1/2	13	2	13/16	3/4	17	1 x 1 x 3/16	3	9.33
3	21-1/2	19	2	13/16	3/4	23	1 x 1 x 3/16	3	13.34

STAINLESS STEEL									
SIZE NO.	C-C	A	E	H	B	L	ANGLE SIZE S	W	WGT EACH (lbs)
1	11-1/2	9	2	13/16	3/4	13	1 x 1 x 3/16	3	7.00
2	15-1/2	13	2	13/16	3/4	17	1 x 1 x 3/16	3	9.62
3	21-1/2	19	2	13/16	3/4	23	1 x 1 x 3/16	3	13.73

FIG. 801

medium welded bracket

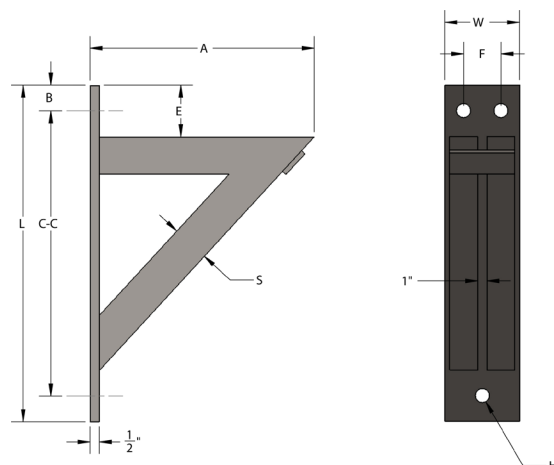


Materials/Finishes:	Plain Carbon Steel (801B)	Electro-Galvanized (801G)
	Hot-Dip Galvanized (801HDG)	T-304 Stainless Steel (801SS)
	T-316 Stainless Steel (801SX)	
Service:	Recommended for the support of pipe loads up to 1500 lbs Constructed of facing angle iron with 1" space. The bracket provides maximum lateral adjustment when carrying or suspending pipe.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP 58 and SP 69 (Type#32).	
Ordering:	Specify figure number, finish and size number	

SIZE NO.	C-C	A	E	H	B	L	ANGLE SIZE S	W	WGT EACH (lbs)
1	15-1/2	12	2-1/2	13/16	1-1/4	18	1-1/2 x 1-1/2 x 3/16	4	16.10
2	21-1/2	18	2-1/2	13/16	1-1/4	24	1-3/4 x 1-3/4 x 3/16	4-1/2	26.00
3	27-1/2	24	2-1/2	13/16	1-1/4	30	2 x 2 x 1/4	5	45.00

FIG. 802

heavy welded bracket

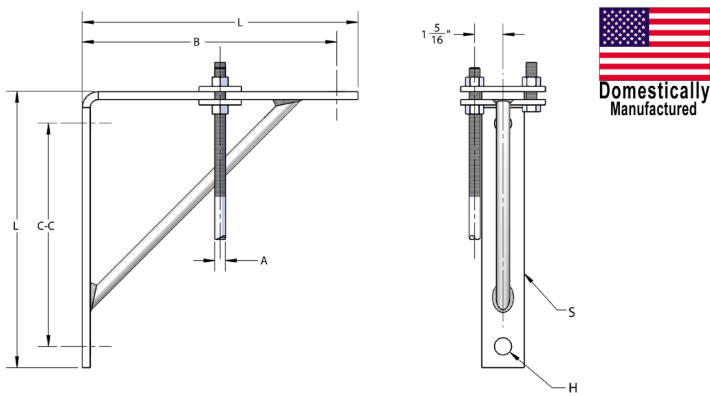


Materials/Finishes:	Plain Carbon Steel (802B)	Electro-Galvanized (802G)
	Hot-Dip Galvanized (802HDG)	T-304 Stainless Steel (802SS)
	T-316 Stainless Steel (802SX)	
Service:	Recommended for the support of pipe loads up to 3000 lbs Constructed of facing angle iron with 1" space. The bracket provides maximum lateral adjustment when carrying or suspending pipe.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP 58 and SP 69 (Type# 33).	
Ordering:	Specify figure number, finish and size number	

SIZE NO.	C-C	A	F	E	H	B	L	ANGLE SIZE S	W	WGT EACH (lbs)
1	15-1/4	12	ONE HOLE	2-3/4	13/16	1-1/2	18	2 x 1-1/2 x 1/4	4	25.00
2	21-3/8	18	2-3/4	2-3/4	15/16	1-3/8	24	2 x 2 x 1/4	5	38.00
3	27-1/2	24	2-1/2	2-3/4	1-1/16	1-1/4	30	2-1/2 x 2 x 5/16	5	69.00
4	33-1/4	30	2-1/2	3	1-1/16	1-1/2	36	2-1/2 x 2 x 5/16	5	82.10
5	39	36	3-1/2	3	1-1/16	1-1/2	42	3-1/2 x 2-1/2 x 3/8	6	130.00
6	46	42	3-1/2	3-1/2	1-1/16	2	50	3-1/2 x 2-1/2 x 3/8	6	155.00

FIG. 820 / 820C

light welded steel bracket and clip



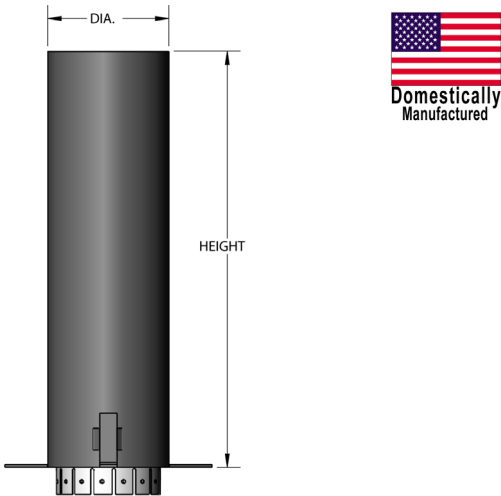
Materials/Finishes:	Plain Carbon Steel (820B)	Electro-Galvanized (820G)
	Hot-Dip Galvanized (820HDG)	T-304 Stainless Steel (820SS)
	T-316 Stainless Steel (820SX)	
Variants:	N/A	
Service:	Recommended for the suspension of hanger rod for support of light loads up to 750 lbs. Rod can be suspended at any point along the length of the bracket, thus providing horizontal adjustment, using figure #820C clip which consists of two steel plates joined by a bolt and nut in one end.	
Approvals:	Fig. 820 complies with Manufacturers' Standardization Society MSS SP 58 and SP 69 (Type# 31).	
Ordering:	Specify figure number, finish and size number	
Notes:	Piping suspended from FIG. 820C clip shall not exceed 3-1/2" in diameter. Side clip (FIG. 820C) to be ordered separately. Fig. 820C side clip is only available in HDG, T-304 and T-316 Stainless Steel.	

FIG. 820							
BRACKET SIZE	B	C-C	HOLES H	L	MATERIAL SIZE	WGT EACH (lbs)	MAX REC LOAD (lbs)
1	8	6-1/2	13/16	9	2 x 3/8	4.20	750
2	12	10-1/2	13/16	13	2 x 3/8	6.50	750
3	18	16-1/2	13/16	19	2 x 3/8	9.40	750

FIG. 820C			
CLIP NUMBER	PIPE SIZE	ROD SIZE A	WGT EACH (lbs)
1	3/4 - 2	3/8	0.80
2	2-1/2 - 3-1/2	1/2	1.24

FIG. 900

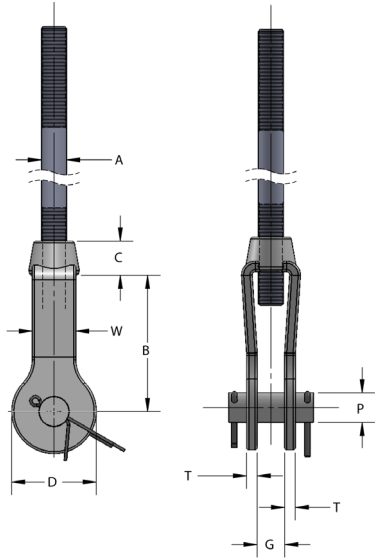
nailing sleeve



Materials/Finishes:	Electro-Galvanized (900G)
Service:	When attached to roof decking, sleeve provides a channel for piping, eliminating the need to core drill. Optional tabs facilitate fastening to deck. Optional covers seal out wet cement during pour and safely cover sleeve until pipe installation.
Ordering:	Specify diameter, height, and figure number, with or without tabs. Covers must be ordered separately.

FIG. 909I

forged steel clevis

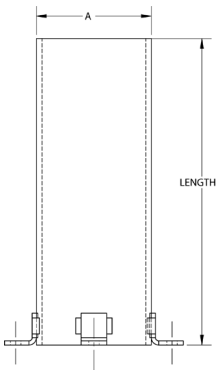


Materials/Finishes:	Plain Carbon Steel: Import (909BI)	Hot-Dip Galvanized: Import (909HDGI)
Variants:	Plain Carbon Steel (909B)	Electro-Galvanized (909G)
	Hot-Dip Galvanized (909HDG)	T-316 Stainless Steel (909SX)
Service:	Designed for use on high temperature piping installations.	
Approvals:	Complies with Manufacturers' Standardization Society MSS SP 58 and SP 69 (Type# 14).	
Ordering:	Specify size number, rod size, finish and part number. If other than standard dimension sizes required, specify size number, rod size, pin size and grip.	
Notes:	Forged clevis are standardly supplied with pin and cotter pins. When figure number 909 I is supplied hot-dip galvanized the threading is not tapped oversize.	

SIZE A	CLEVIS SIZE NO.	B	C	D	G GRIP	P PIN DIA.	T	W	WGT EACH (lbs)	MAX REC LOAD (lbs)	
										650°F	750°F
3/8-16	2	3-9/16	5/8	1-7/16	5/8	9/16	5/16	1-1/16	1.0	730	540
1/2-13	2	3-9/16	5/8	1-7/16	5/8	11/16	5/16	1-1/16	1.0	1350	1010
5/8-11	2	3-9/16	5/8	1-7/16	5/8	13/16	5/16	1-1/16	1.1	2160	1610
3/4-10	2-1/2	4	1	2-1/2	3/4	15/16	5/16	1-3/16	2.3	3230	2420
7/8-9	2-1/2	4	1	2-1/2	3/4	1-1/16	5/16	1-3/16	2.5	4480	3360
1-8	3	5-1/16	1-1/4	3	1-1/4	1-3/16	1/2	1-5/8	5.1	5900	4420
1-1/8-7	3	5-1/16	1-1/4	3	1-1/4	1-5/16	1/2	1-5/8	5.2	6230	5560
1-1/4-7	3	5-1/16	1-1/4	3	1-1/4	1-7/16	1/2	1-5/8	5.6	9500	7140
1-1/2-6	3-1/2	6-3/16	1-1/2	3-5/8	1-1/2	1-11/16	9/16	2	8.1	13800	10370

FIG. 910

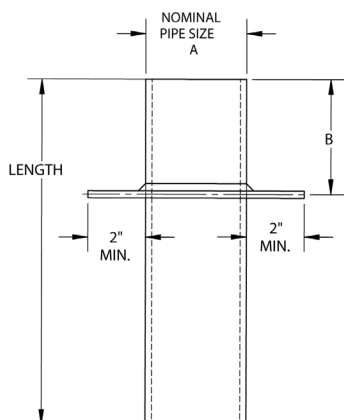
pipe sleeve with welded lugs



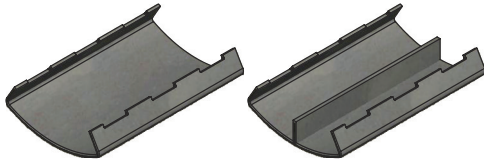
Materials/Finishes:	Plain Carbon Steel (910B)	Electro-Galvanized (910G)
Service:	When attached to concrete forms, sleeve provides smooth sealable channel for piping, eliminating the need to core drill. Nailing lugs facilitate fastening to forms.	
Ordering:	Specify pipe size (A dimension), length, figure number and finish.	

FIG. 915

waterproof sleeve

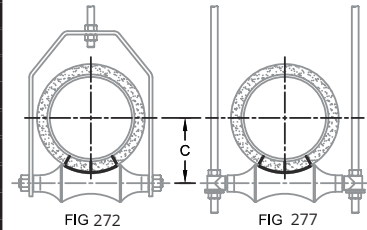
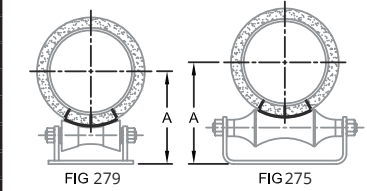
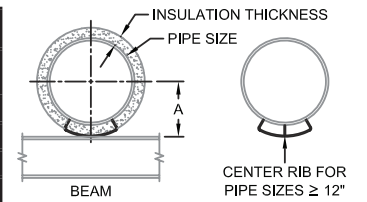


Materials/Finishes:	Plain Carbon Steel (915B)	Electro-Galvanized (915G)
Service:	When installed in concrete forms, sleeve provides smooth, sealable channel for piping. Water stop prevents water migration around outside of sleeve.	
Ordering:	Specify nominal pipe size (A dimension), overall length, B dimension, figure number and finish.	



Materials/Finishes:	Plain Carbon Steel (1900B)	Plain Carbon Steel (1901B)
	Hot Dip Galvanized (1900HDG)	Hot Dip Galvanized (1901HDG)
	T-304 Stainless Steel (1900SS)	T-304 Stainless Steel (1901SS)
	T-316 Stainless Steel (1900SX)	T-316 Stainless Steel (1901SX)
Max Temp:	650°F for Black, 350°F for Hot-Dip Galvanized, 1000°F for Stainless Steel	
Service:	To protect insulation while providing stationary support on beams or accommodating thermal expansion on roller hangers and supports.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 (Type# 39).	
Ordering:	Specify figure number, finish and insulation size.	

FIG. 1900		1" Insulation Thickness										
PIPE SIZE	SADDLE SIZE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
3/4	0	1 1/8	4 1/8	2-31/2	3 3/4	3	2 1/8	3	2 1/8	3	1.46	1200
1		1 13/16	4 1/4	2-31/2	3 5/8	3	2 3/8	3	2 3/8	3	1.46	1200
1 1/4		2	4 1/16	2-31/2	4 1/16	3	2 3/8	3	2 3/8	3	1.46	1200
1 1/2	1	2 1/8	4 3/8	4-6	4 3/8	3	2 5/8	4	2 1/2	3	1.46	1200
2	2	2 5/8	4 7/8	4-6	5 1/8	4	2 7/8	4	2 7/8	4	1.43	1200
2 1/2		2 7/8	5 1/8	4-6	5 3/8	4	3 3/8	5	3 3/8	4	1.43	1200
3	3	2 7/8	5 1/8	4-6	5 3/8	5	3 3/8	5	3 3/8	5	1.78	1200
3 1/2	4	3 3/8	5 11/16	4-6	6 1/8	5	3 3/4	6	3 11/16	5	1.99	1200
4		3 7/8	6	4-6	6 1/8	5	4	6	4	5	1.99	1800
5		4	6 1/8	4-6	7 1/8	6	4 11/16	7	4 3/8	6	1.99	1800
6	6	4 1/2	8 3/4	8-10	8 3/4	8	5 3/8	8	5 3/8	8	3.94	1800
8	8	5 1/2	9 3/8	8-10	9 5/8	10	6 1/2	10	6 3/8	10	4.59	1800
10		6 11/16	11	8-10	11 1/8	10	8 1/8	12	7 11/16	12	4.59	1800
12	12	7 7/8	12 1/2	12-14	13 3/8	14	9	16	9	14	7.19	5000
14		8 3/4	13 3/8	12-14	15	16	9 3/8	16	9 11/16	16	7.19	5000
16		9 3/8	14 11/16	16-20	16 7/8	18	10 9/16	20	10 1/2	18	7.53	5000
18	18	10 3/8	15 11/16	16-20	18 1/8	20	11 1/8	20	11 1/8	20	8.05	5000
20	20	11 3/8	16 3/4	22-24	20 7/8	24	13 1/16	24	13 1/16	24	9.26	7200
24	24	13 3/8	19 3/8	30	24	30	-	-	15 1/8	30	10.7	7200
30	30	16 3/8	22 3/4	30	-	-	-	-	-	-	13.7	7200
36	36	19 3/8	26 11/16	36-42	-	-	-	-	-	-	16.0	7200



RECOMMENDED MIN FIELD WELDING

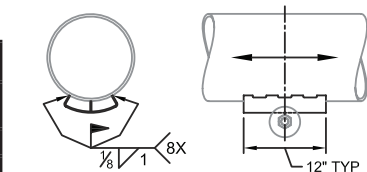
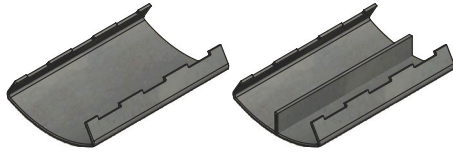


FIG. 1901		1-1/2" Insulation Thickness										
PIPE SIZE	SADDLE SIZE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
3/4	0	2 1/8	4 1/8	4-6	4 3/8	3	2 11/16	4	2 3/8	3	1.81	1200
1		2 3/8	4 1/4	4-6	4 7/8	3	2 13/16	4	2 11/16	3	1.81	1200
1 1/4		2 1/2	5	4-6	5 1/4	4	3 1/8	5	3	4	1.81	1200
1 1/2	2	2 5/8	5 1/8	4-6	5 3/8	4	3 3/8	5	3 3/8	4	1.81	1200
2		2 3/16	5 3/8	4-6	5 7/8	5	3 3/8	5	3 3/8	5	1.99	1200
2 1/2	3	3 1/8	5 7/8	4-6	6 1/8	5	3 11/16	6	3 3/8	5	2.13	1200
3		3 3/8	6	4-6	6 7/8	5	4 1/8	6	4	5	2.13	1800
3 1/2	4	3 3/8	6 3/8	4-6	7	6	4 3/8	7	4 1/4	6	2.19	1800
4		3 5/8	6 1/2	4-6	7 1/4	6	4 3/8	7	4 3/8	6	2.19	1800
5		4 1/2	7 1/8	4-6	8	7	5 3/8	8	5 3/8	7	2.19	1800
6	6	5	9 1/4	8-10	9 1/8	10	5 7/8	10	5 7/8	10	4.99	1800
8	8	6	10 5/8	8-10	10 3/8	10	7	12	6 15/16	10	5.52	1800
10		7 3/8	11 1/2	8-10	12 3/8	12	8 3/8	14	8 3/8	12	5.52	1800
12	12	8 1/8	13	12-14	14 13/16	16	9 1/2	16	9 1/2	16	8.07	5000
14		8 3/4	14 3/8	16-20	15 1/2	16	10 1/8	18	10 1/4	16	8.07	5000
16		9 11/16	15 3/8	16-20	17	18	11 1/8	20	11 1/8	18	9.26	5000
18	18	10 11/16	16 3/4	22-24	18 3/8	20	12 3/8	24	12 3/8	20	9.55	5000
20	20	11 11/16	17 3/8	22-24	21 3/8	24	13 3/8	24	13 3/8	24	10.5	7200
24	24	13 11/16	20 3/8	30	24 1/2	30	-	-	15 3/8	30	11.3	7200
30	30	16 11/16	24 3/8	36-42	-	-	-	-	-	-	15.8	7200
36	36	19 11/16	27 3/8	36-42	-	-	-	-	-	-	17.2	7200

SS LOAD CORRECTION ⁽²⁾	
TEMP °F	FACTOR
100	1.00
200	0.80
400	0.67
600	0.59
800	0.54
1000	0.50

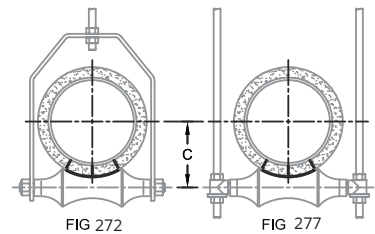
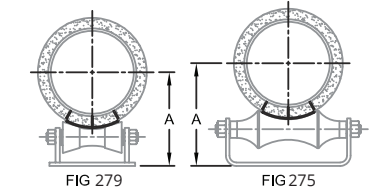
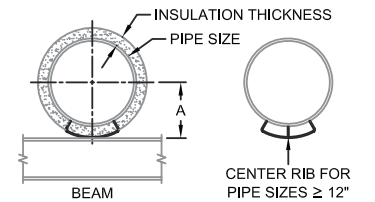


Materials/Finishes:	Plain Carbon Steel (1902B)	Plain Carbon Steel (1903B)
	Hot Dip Galvanized (1902HDG)	Hot Dip Galvanized (1903HDG)
	T-304 Stainless Steel (1902SS)	T-304 Stainless Steel (1903SS)
	T-316 Stainless Steel (1902SX)	T-316 Stainless Steel (1903SX)
Max Temp:	650°F for Black, 350°F for Hot-Dip Galvanized, 1000°F for Stainless Steel	
Service:	To protect insulation while providing stationary support on beams or accommodating thermal expansion on roller hangers and supports.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 (Type# 39).	
Ordering:	Specify figure number, finish and insulation size.	

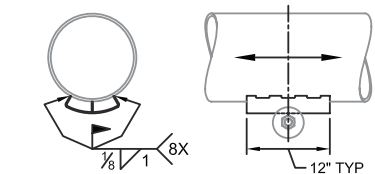
FIG. 1902		2" Insulation Thickness										WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
PIPE SIZE	SADDLE SIZE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	277 C		
3/4	0	2 3/8	5 3/8	4-6	5 11/16	5	3 3/4	5	3 3/4	5	3 3/4	2.49	1200
1		2 13/16	5 3/8	4-6	5 3/8	5	3 3/8	5	3 3/8	5	3 3/8	2.49	1200
1 1/4		3	5 1/8	4-6	6 1/8	5	3 7/8	5	3 7/8	5	3 7/8	2.49	1200
1 1/2	2	3 1/8	5 3/8	4-6	6 1/8	5	3 11/16	6	3 11/16	5	3 11/16	2.70	1800
2		3 5/8	5 11/16	4-6	6 3/8	5	3 15/16	6	3 15/16	5	3 15/16	2.70	1800
2 1/2		3 3/8	6 1/8	4-6	6 11/16	5	4 1/16	7	4 1/4	6	4 1/4	2.70	1800
3	3	3 3/8	6 1/2	4-6	7 1/4	6	4 3/16	7	4 3/16	7	4 3/16	2.99	1800
3 1/2		4 3/16	6 3/4	4-6	7 11/16	7	5	8	4 13/16	7	4 13/16	2.99	1800
4		4 7/16	7	4-6	7 15/16	7	5 1/4	8	5 1/8	7	5 1/8	2.99	1800
5	6	5	7 1/8	4-6	8 13/16	8	5 5/8	10	5 3/4	8	5 3/4	2.99	1800
6		5 1/2	9 1/8	8-10	9 15/16	10	6 3/8	10	6 3/8	10	6 3/8	5.46	1800
8		6 1/2	11 3/8	12-14	11 11/16	12	7 1/8	12	7 1/8	12	7 1/8	6.28	1800
10	10	7 1/8	12 1/2	12-14	13 3/8	14	9	16	9	14	9	7.01	1800
12	12	8 1/8	14	16-20	15 3/8	16	9 3/8	18	10 1/8	16	10 1/8	9.90	5000
14		9 1/4	14 11/16	16-20	16 1/8	16	10 1/16	18	10 13/16	16	10 13/16	9.90	5000
16		10 3/16	15 11/16	16-20	18 1/8	20	11 1/8	20	11 3/8	20	11 3/8	10.2	5000
18	18	11 1/8	16 3/4	22-24	20 7/8	24	13 1/8	24	13 1/8	24	13 1/8	10.9	7200
20	20	12 3/16	17 13/16	22-24	21 15/16	24	-	-	14 1/8	24	14 1/8	11.5	7200
24	24	14 3/16	20 3/8	30	25	30	-	-	16 5/16	30	16 5/16	12.7	7200
30	30	17 3/16	24 3/8	36-42	-	-	-	-	-	-	-	17.6	7200
36	36	20 3/16	27 3/4	36-42	-	-	-	-	-	-	-	19.4	7200



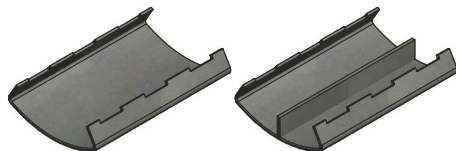
FIG. 1903		2-1/2" Insulation Thickness										WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
PIPE SIZE	SADDLE SIZE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	277 C		
3/4	0	3 3/8	5 3/4	4-6	6 3/8	5	3 3/4	6	3 3/4	5	3 3/4	3.10	1200
1		3 5/8	5 3/8	4-6	6 3/8	5	3 15/16	6	3 3/8	5	3 3/8	3.10	1200
1 1/4		3 3/16	6 1/8	4-6	6 11/16	6	4 1/16	6	4 1/8	6	4 1/8	3.09	1200
1 1/2	1	3 3/16	6 1/8	4-6	6 15/16	6	4 1/4	7	4 3/8	6	4 3/8	3.09	1800
2		3 3/8	6 1/8	4-6	7 3/8	6	4 3/16	7	4 3/8	6	4 3/8	3.09	1800
2 1/2		4 1/16	6 11/16	4-6	7 3/8	7	4 15/16	8	4 3/4	7	4 3/4	3.32	1800
3	2	4 7/16	7	4-6	7 15/16	7	5 1/4	8	5 1/8	7	5 1/8	3.32	1800
3 1/2		4 3/8	8 3/8	8-10	8 1/2	8	5 1/2	10	5 1/2	8	5 1/2	3.69	1800
4		4 15/16	9 3/16	8-10	8 3/4	8	5 3/4	10	5 13/16	8	5 13/16	3.69	1800
5	4	5 1/2	9 3/4	8-10	9 15/16	10	6 1/2	12	6 1/8	10	6 1/8	3.69	1800
6		6	10 3/8	8-10	10 1/2	10	7	12	6 3/8	10	6 3/8	6.18	1800
8		7	11 15/16	12-14	12 1/4	12	8 3/8	14	8 3/8	12	8 3/8	6.82	1800
10	10	8 1/8	13 1/2	16-20	14 13/16	16	9 1/2	16	9 1/2	16	9 1/2	7.14	1800
12		9 1/8	14 1/2	16-20	16 3/16	18	10 3/8	18	10 3/8	18	10 3/8	11.1	5000
14		9 3/4	15 1/4	16-20	17	18	11 3/16	20	11 1/8	18	11 1/8	11.1	5000
16	16	10 11/16	16 1/4	22-24	18 3/8	20	12 1/16	24	12 3/16	20	12 3/16	11.9	7200
18	18	11 11/16	17 1/8	22-24	21 3/8	24	13 3/16	24	13 3/16	24	13 3/16	12.5	7200
20	20	12 11/16	19 1/8	30	23 1/2	30	-	-	14 13/16	30	14 13/16	13.1	7200
24	24	14 11/16	21 3/8	30	25 1/2	30	-	-	16 13/16	30	16 13/16	14.6	7200
30	30	17 11/16	25 3/8	36-42	-	-	-	-	-	-	-	20.1	7200
36	36	20 11/16	28 3/4	36-42	-	-	-	-	-	-	-	21.6	7200



RECOMMENDED MIN FIELD WELDING



SS LOAD CORRECTION ⁽²⁾	
TEMP °F	FACTOR
100	1.00
200	0.80
400	0.67
600	0.59
800	0.54
1000	0.50

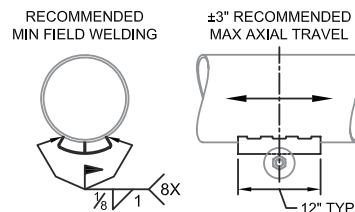
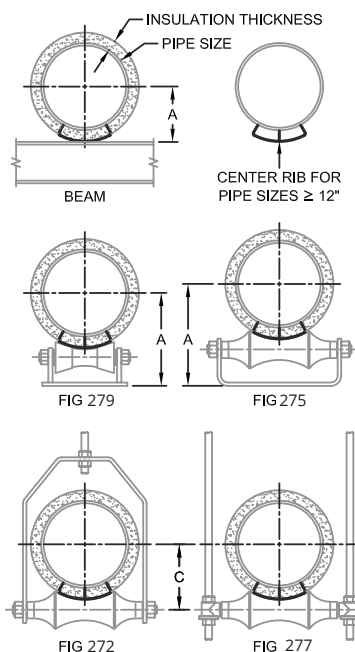


Materials/Finishes:	Plain Carbon Steel (1904B)	Plain Carbon Steel (1906B)
	Hot Dip Galvanized (1904HDG)	Hot Dip Galvanized (1906HDG)
	T-304 Stainless Steel (1904SS)	T-304 Stainless Steel (1906SS)
	T-316 Stainless Steel (1904SX)	T-316 Stainless Steel (1906SX)
Max Temp:	650°F for Black, 350°F for Hot-Dip Galvanized, 1000°F for Stainless Steel	
Service:	To protect insulation while providing stationary support on beams or accommodating thermal expansion on roller hangers and supports.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 (Type# 39).	
Ordering:	Specify figure number, finish and insulation size.	

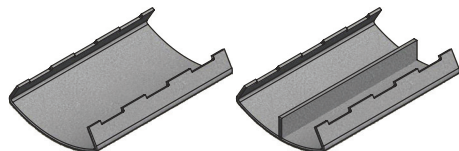
FIG. 1904		3" Insulation Thickness										
PIPE SIZE	SADDLE SIZE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
3/4	1	3 3/8	6 1/4	4-6	7	6	4 5/16	7	4 5/16	6	3.90	1200
1		3 13/16	6 3/8	4-6	7 1/8	6	4 1/2	7	4 1/2	6	3.90	1200
1 1/4		4	6 1/8	4-6	7 1/8	6	4 11/16	7	4 3/8	6	3.90	1200
1 1/2		4 1/8	6 11/16	4-6	7 1/8	6	4 15/16	8	4 13/16	7	3.90	1800
2	2	4 3/8	6 5/8	4-6	8 1/8	8	5 3/8	8	5 3/8	8	4.20	1800
2 1/2		4 7/8	8 13/16	8-10	8 1/8	8	5 7/8	10	5 7/8	8	4.20	1800
3	3	4 7/8	9 1/8	8-10	9 1/8	10	5 3/4	10	5 3/4	10	4.50	1800
3 1/2		5 3/8	9 1/8	8-10	9 3/8	10	6	10	6	10	4.50	1800
4		5 1/8	9 11/16	8-10	9 3/8	10	6 1/4	10	6 1/4	10	4.50	1800
5		6	10 1/4	8-10	10 1/8	10	7	12	6 3/4	10	4.50	1800
6	6	6 1/2	11 3/8	12-14	11 1/8	12	7 7/8	12	7 7/8	12	7.70	1800
8		7 3/8	12 1/2	12-14	13 3/8	14	9 1/8	16	9	14	7.70	1800
10	10	8 3/8	14	16-20	15 3/8	16	9 3/8	18	10 1/8	16	9.05	1800
12	12	9 1/8	15 1/8	16-20	16 3/8	18	10 15/16	20	10 15/16	18	11.6	5000
14		10 1/4	15 3/4	16-20	17 3/8	18	11 11/16	20	11 13/16	20	11.6	5000
16	16	11 3/8	16 3/4	22-24	20 3/8	24	13 3/8	24	13 1/8	24	12.7	7200
18	18	12 3/8	17 3/8	22-24	21 1/8	24	-	-	14 1/8	24	13.3	7200
20	20	13 3/8	19 3/8	30	24	30	-	-	15 3/8	30	14.0	7200
24	24	15 3/8	21 11/16	30	26	30	-	-	17 3/8	30	15.3	7200
30	30	18 3/8	25 11/16	36-42	-	-	-	-	-	-	20.1	7200
36	36	21 3/8	28 3/4	36-42	-	-	-	-	-	-	21.9	7200



FIG. 1906		3-1/2" Insulation Thickness										
PIPE SIZE	SADDLE SIZE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
1	1	4 5/8	8 1/2	8-10	7 3/8	7	5 5/8	8	5	7	4.62	1200
1 1/4		4 1/2	8 3/4	8-10	8 1/8	7	5 5/8	8	5 1/4	7	4.62	1200
1 1/2		4 3/8	8 3/8	8-10	8 3/8	7	5 7/8	10	5 1/8	8	4.62	1800
2	2	4 13/16	9 1/8	8-10	9 1/4	10	5 11/16	10	5 11/16	10	5.04	1800
2 1/2		5 1/8	9 3/8	8-10	9 1/8	10	5 15/16	10	5 15/16	10	5.04	1800
3		5 1/8	9 11/16	8-10	9 3/8	10	6 1/4	10	6 1/4	10	5.04	1800
4		5 3/8	10 3/16	8-10	11	12	6 3/8	12	6 3/8	12	5.80	1800
5	4	6 1/2	10 3/4	8-10	11 1/8	12	7 13/16	14	7 1/2	12	5.80	1800
6		7	11 15/16	12-14	12 1/4	12	8 3/8	14	8 3/8	12	8.81	1800
8		8 3/8	13 1/2	16-20	14 3/8	16	9 3/8	16	9 3/8	16	8.81	1800
10	10	9 1/8	14 1/2	16-20	16 3/8	18	10 3/8	18	10 3/8	18	10.4	1800
12	12	10 1/8	15 1/8	16-20	17 3/8	20	11 7/8	20	11 7/8	20	12.4	5000
14		10 3/4	16 3/8	22-24	18 3/8	20	12 5/8	24	12 3/8	20	12.4	5000
16	16	11 11/16	17 3/8	22-24	21 3/8	24	13 3/8	24	13 3/8	24	14.7	7200
18	18	12 11/16	19 1/8	30	22 1/2	24	-	-	14 11/16	24	15.0	7200
20	20	13 11/16	20 3/8	30	24 1/2	30	-	-	15 13/16	30	15.7	7200
24	24	15 11/16	22 3/8	30	26 3/8	30	-	-	17 13/16	30	17.2	7200
30	30	18 11/16	26 3/8	36-42	-	-	-	-	-	-	22.0	7200
36	36	21 11/16	29 1/4	36-42	-	-	-	-	-	-	23.8	7200

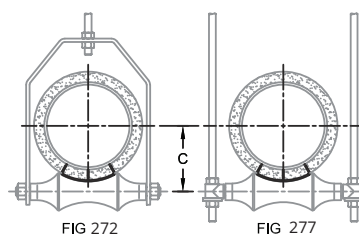
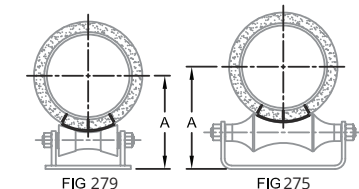
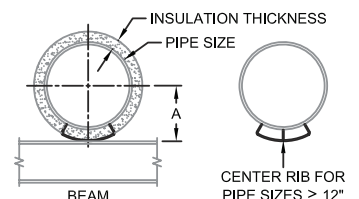


SS LOAD CORRECTION ⁽²⁾	
TEMP °F	FACTOR
100	1.00
200	0.80
400	0.67
600	0.59
800	0.54
1000	0.50

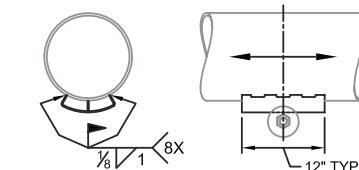


Materials/Finishes:	Plain Carbon Steel (1905B)	Plain Carbon Steel (1907B)
	Hot Dip Galvanized (1905HDG)	Hot Dip Galvanized (1907HDG)
	T-304 Stainless Steel (1905SS)	T-304 Stainless Steel (1907SS)
	T-316 Stainless Steel (1905SX)	T-316 Stainless Steel (1907SX)
Max Temp:	650°F for Black, 350°F for Hot-Dip Galvanized, 1000°F for Stainless Steel	
Service:	To protect insulation while providing stationary support on beams or accommodating thermal expansion on roller hangers and supports.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 (Type# 39).	
Ordering:	Specify figure number, finish and insulation size.	

FIG. 1905		4" Insulation Thickness										
PIPE SIZE	SADDLE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
1	1	4 ¹³ / ₁₆	9 ¹ / ₁₆	8-10	9 ³ / ₄	10	5 ¹¹ / ₁₆	10	5 ¹¹ / ₁₆	10	5.25	1200
1 1/4		5	9 ¹ / ₄	8-10	9 ⁵ / ₁₆	10	5 ¹¹ / ₁₆	10	5 ⁷ / ₈	10	5.25	1200
1 1/2		5 ¹ / ₈	9 ³ / ₈	8-10	9 ⁹ / ₁₆	10	6	10	6	10	5.25	1800
2	2	5 ⁵ / ₁₆	9 ⁵ / ₈	8-10	9 ³ / ₄	10	6 ³ / ₁₆	10	6 ³ / ₁₆	10	5.17	1800
2 1/2		5 ⁵ / ₁₆	9 ⁵ / ₈	8-10	10 ¹ / ₁₆	10	6 ⁵ / ₁₆	12	6 ⁵ / ₁₆	10	5.17	1800
3		5 ¹⁵ / ₁₆	10 ³ / ₁₆	8-10	10 ³ / ₈	10	6 ¹³ / ₁₆	12	6 ¹³ / ₁₆	10	5.17	1800
4	4	6 ³ / ₁₆	10 ¹ / ₁₆	8-10	11 ¹ / ₁₆	12	7 ³ / ₄	14	7 ⁷ / ₁₆	12	5.77	1800
5		7	11 ³ / ₈	12-14	12 ¹ / ₈	12	8 ⁵ / ₁₆	14	8 ³ / ₁₆	12	5.77	1800
6		7 ¹ / ₂	12 ¹ / ₁₆	12-14	13 ³ / ₁₆	14	8 ¹⁵ / ₁₆	16	8 ¹⁵ / ₁₆	14	9.66	1800
8	6	8 ³ / ₈	14	16-20	15 ³ / ₈	16	9 ⁷ / ₈	18	10 ¹ / ₁₆	16	9.66	1800
10		9 ¹ / ₁₆	15 ¹ / ₁₆	16-20	16 ⁷ / ₈	18	10 ¹⁵ / ₁₆	20	10 ¹ / ₁₆	18	11.0	1800
12		10 ⁹ / ₁₆	16 ¹ / ₈	22-24	18 ¹ / ₁₆	20	12 ⁷ / ₁₆	24	12 ¹ / ₁₆	20	14.9	5000
14	12	11 ¹ / ₄	16 ³ / ₁₆	22-24	19 ³ / ₁₆	20	13 ³ / ₈	24	12 ³ / ₄	20	14.9	7200
16		12 ³ / ₁₆	17 ¹ / ₁₆	22-24	21 ¹⁵ / ₁₆	24	14 ¹ / ₁₆	24	14 ¹ / ₁₆	24	14.2	7200
18		13 ³ / ₁₆	19 ⁵ / ₈	30	24	30	-	-	15 ⁵ / ₁₆	30	16.3	7200
20	20	14 ³ / ₁₆	20 ³ / ₈	30	25	30	-	-	16 ³ / ₁₆	30	15.8	7200
24		16 ³ / ₁₆	22 ³ / ₄	30	-	-	-	-	-	-	16.8	7200
30		19 ³ / ₁₆	26 ¹ / ₁₆	36-42	-	-	-	-	-	-	26.6	7200
36	36	22 ³ / ₁₆	-	-	-	-	-	-	-	-	26.9	7200



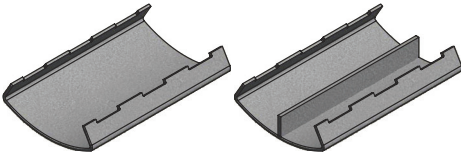
RECOMMENDED MIN FIELD WELDING



SS LOAD CORRECTION ⁽²⁾	
TEMP °F	FACTOR
100	1.00
200	0.80
400	0.67
600	0.59
800	0.54
1000	0.50



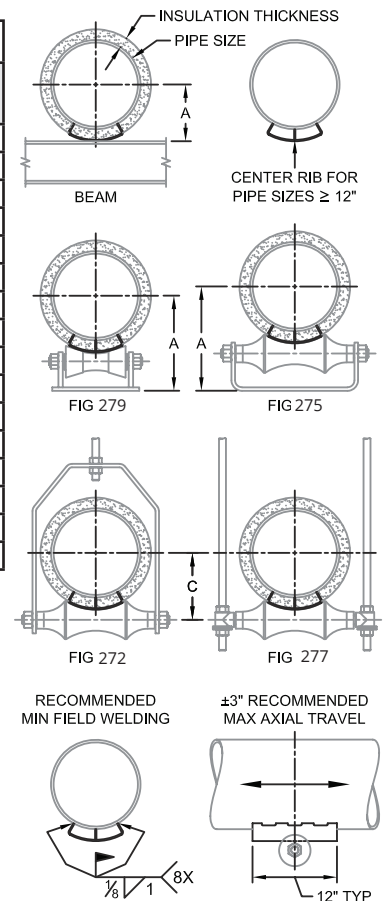
FIG. 1907		4-1/2" Insulation Thickness										
PIPE SIZE	SADDLE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
1	1	5 ⁵ / ₁₆	9 ¹ / ₁₆	8-10	9 ³ / ₄	10	6 ¹ / ₈	10	6 ¹ / ₈	10	5.88	1200
1 1/4		5 ¹ / ₂	9 ¹ / ₄	8-10	9 ⁵ / ₁₆	10	6 ³ / ₁₆	10	6 ⁵ / ₁₆	10	5.88	1200
1 1/2		5 ³ / ₈	9 ³ / ₈	8-10	10 ¹ / ₁₆	10	6 ⁵ / ₁₆	12	6 ¹ / ₈	10	5.88	1800
2	2	5 ¹³ / ₁₆	10 ¹ / ₈	8-10	10 ¹⁵ / ₁₆	12	6 ¹³ / ₁₆	12	6 ¹³ / ₁₆	12	5.96	1800
2 1/2		6 ¹ / ₈	10 ³ / ₈	8-10	11 ³ / ₁₆	12	7 ¹ / ₈	12	7 ⁷ / ₈	12	5.96	1800
3		6 ³ / ₁₆	10 ³ / ₈	8-10	11 ⁹ / ₁₆	12	7 ⁷ / ₁₆	12	7 ⁷ / ₁₆	12	5.96	1800
4	4	6 ¹⁵ / ₁₆	11 ¹ / ₈	12-14	12 ¹⁵ / ₁₆	14	8 ³ / ₁₆	14	8 ³ / ₁₆	14	9.21	1800
5		7 ¹ / ₈	12 ¹ / ₁₆	12-14	13 ¹ / ₂	14	8 ¹⁵ / ₁₆	16	8 ⁷ / ₈	14	9.21	1800
6		8	13 ¹ / ₁₆	16-20	14 ³ / ₄	16	9 ¹ / ₁₆	16	9 ¹ / ₁₆	16	9.74	1800
8	6	9 ¹ / ₈	14 ¹ / ₁₆	16-20	16 ³ / ₁₆	18	10 ³ / ₈	18	10 ³ / ₈	18	9.74	1800
10		10 ¹ / ₁₆	15 ¹ / ₁₆	16-20	17 ⁷ / ₈	20	11 ¹ / ₁₆	20	11 ¹ / ₁₆	20	11.1	1800
12		11 ¹ / ₁₆	16 ⁵ / ₁₆	22-24	20 ³ / ₄	24	12 ¹⁵ / ₁₆	24	12 ¹⁵ / ₁₆	24	14.6	5000
14	12	11 ³ / ₄	17 ³ / ₈	22-24	21 ¹ / ₁₆	24	13 ³ / ₈	24	13 ³ / ₈	24	14.6	7200
16		12 ¹ / ₁₆	19 ¹ / ₁₆	30	22 ¹ / ₂	24	-	-	14 ¹ / ₁₆	24	14.5	7200
18		13 ¹ / ₁₆	20 ⁵ / ₈	30	24 ¹ / ₂	30	-	-	15 ¹ / ₁₆	30	17.2	7200
20	20	14 ¹ / ₁₆	21 ³ / ₁₆	30	25 ¹ / ₂	30	-	-	16 ³ / ₁₆	30	17.2	7200
24		17	24 ³ / ₈	36-42	-	-	-	-	-	-	17.1	7200
30		20 ³ / ₁₆	27 ¹ / ₁₆	36-42	-	-	-	-	-	-	25.9	7200
36	36	23 ³ / ₁₆	-	-	-	-	-	-	-	-	27.9	7200



Materials/Finishes:	Plain Carbon Steel (1909B)	Hot Dip Galvanized (1909HDG)
	T-304 Stainless Steel (1909SS)	T-316 Stainless Steel (1909SX)
Max Temp:	650°F for Black, 350°F for Hot-Dip Galvanized, 1000°F for Stainless Steel	
Service:	To protect insulation while providing stationary support on beams or accommodating thermal expansion on roller hangers and supports.	
Approvals:	Complies with Manufacturers' Standardization Society SP-58 (Type# 39).	
Ordering:	Specify figure number, finish and insulation size.	

FIG. 1909		5" Insulation Thickness										
PIPE SIZE	SADDLE SIZE	BEAM A	279 A	279 SIZE	275 A	275 SIZE	272 C	272 SIZE	277 C	277 SIZE	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
2	3	6 ⁵ / ₁₆	10 ³ / ₁₆	8-10	11 ¹ / ₁₆	12	7 ⁵ / ₁₆	12	7 ³ / ₁₆	12	6.58	1800
2½		6 ⁵ / ₁₆	11 ¹ / ₁₆	12-14	11 ³ / ₁₆	12	7 ¹⁵ / ₁₆	14	7 ¹ / ₁₆	12	6.58	1800
3		6 ¹⁵ / ₁₆	11 ¹³ / ₁₆	12-14	12 ¹ / ₁₆	12	8 ⁵ / ₁₆	14	8	12	6.58	1800
4	4	7 ³ / ₈	12 ⁵ / ₁₆	12-14	13 ³ / ₈	14	8 ¹³ / ₁₆	16	8 ³ / ₄	14	6.65	1800
5		8	12 ¹⁵ / ₁₆	12-14	14	16	9 ³ / ₈	16	9 ⁷ / ₁₆	16	6.65	1800
6	6	8½	13 ¹ / ₁₆	16-20	15 ⁵ / ₁₆	16	9 ³ / ₄	18	10	16	11.6	1800
8		9 ⁵ / ₈	15 ¹ / ₁₆	16-20	16 ¹³ / ₁₆	18	11	20	10 ⁷ / ₈	18	11.6	1800
10	10	10 ⁹ / ₁₆	16 ⁵ / ₈	16-20	18½	20	12 ⁷ / ₁₆	24	12 ¹ / ₁₆	20	12.0	1800
12	12	11 ¹ / ₁₆	17 ¹ / ₁₆	22-24	21¼	24	13 ³ / ₁₆	24	12 ⁷ / ₁₆	24	16.5	5000
14	14	12¼	17 ⁷ / ₈	22-24	21 ¹⁵ / ₁₆	24	14 ⁷ / ₈	24	14 ¹ / ₈	24	16.6	7200
16	16	13 ³ / ₁₆	19 ⁵ / ₈	30	24	30	-	-	15 ⁵ / ₁₆	30	17.8	7200
18	18	14 ³ / ₁₆	20 ⁵ / ₈	30	25	30	-	-	16 ⁵ / ₁₆	30	18.4	7200
20	20	15 ³ / ₁₆	21 ¹ / ₁₆	30	26 ¹ / ₁₆	30	-	-	17 ³ / ₈	30	19.1	7200
24	24	17 ⁷ / ₁₆	24 ⁵ / ₈	36-42	-	-	-	-	-	-	20.4	7200
30	30	20 ³ / ₁₆	27 ³ / ₄	36-42	-	-	-	-	-	-	28.7	7200
36	36	23 ³ / ₁₆	-	-	-	-	-	-	-	-	30.7	7200

- Maximum recommended load shown for beam supported saddle. Maximum recommended load may be limited by the allowable roller load or other components in the load path.
- Maximum recommended load shown for carbon steel. For recommended load for Stainless Steel, multiply the above load by the load/temperature correction factor.
- For 30" and 36" pipe sizes, indicate roller Figure Number when ordering.
- Selection size for Figure #280 Adjustable Roller Stand is the same as the Figure #279.
- For other pipe sizes, insulation thickness, axial travels, or support configurations contact factory.



SS LOAD CORRECTION ⁽²⁾	
TEMP °F	FACTOR
100	1.00
200	0.80
400	0.67
600	0.59
800	0.54
1000	0.50

FIG. 4000

pipe slide tee

MATERIAL: Carbon steel. Slide Bearing: PTFE-to-PTFE, average coefficient of friction = 0.06.

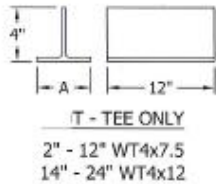
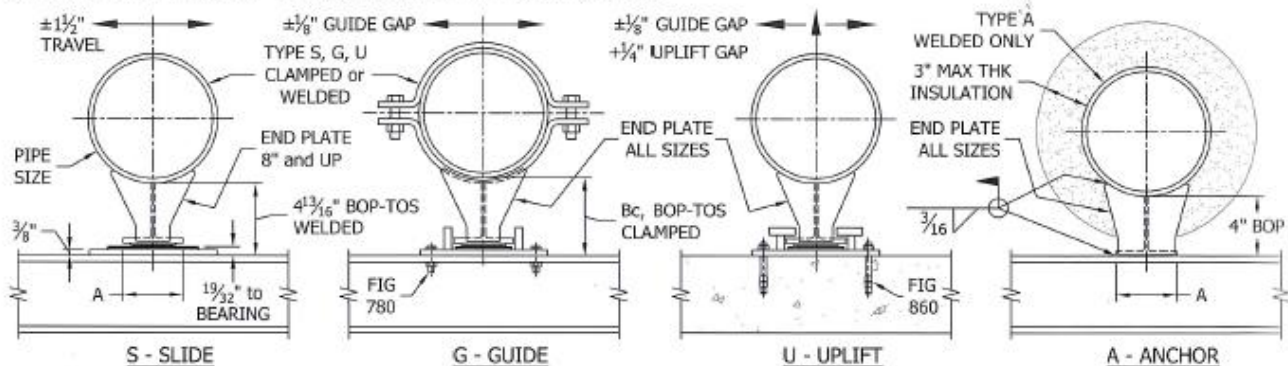
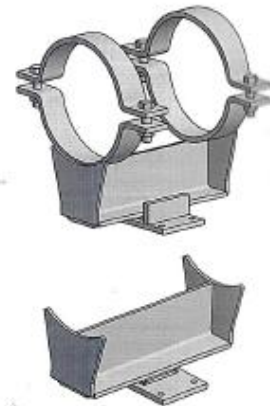
FINISH: Black and hot-dip galvanized.

SERVICE: To support pipe while providing axial movement combined with lateral movement, lateral guidance, uplift restraint and/or anchorage. Slides, guides and uplift restraints to be welded or bolted to structure and welded or clamped to the pipe. Glass filled virgin Teflon™ (PTFE) slide bearing provides low coefficient of friction to reduce stress on the pipe and supporting structure. Anchors to be continuously welded to pipe and structure only.

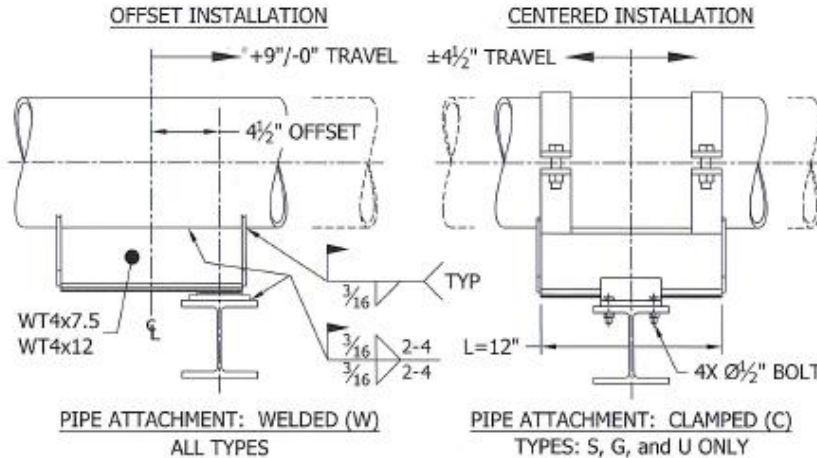
MAX TEMP: 650°F at pipe wall. 300°F at PTFE bearing.

ORDERING: Specify figure number, type, pipe size, pipe attachment type and finish. Order mounting hardware separately.

APPROVALS: MSS SP-58 Type 35, FS A-A-1192A Type 35



DIMENSIONAL DATA		
PIPE SIZE	A	Bc
2 - 5	4	5 $\frac{1}{16}$
6 - 8	4	5 $\frac{3}{16}$
10 - 12	4	5 $\frac{5}{16}$
14 - 16	6 $\frac{1}{2}$	5 $\frac{5}{16}$
18 - 24	6 $\frac{1}{2}$	5 $\frac{7}{16}$



BASE DIMENSIONS TYPES: S, G, U		
PIPE SIZE	C	D
2 - 12	7	8 $\frac{1}{2}$
14 - 24	9 $\frac{1}{2}$	11

MAXIMUM RECOMMENDED LOADS					
TYPE	PIPE SIZE	VERTICAL DOWN	VERTICAL UP	LATERAL	AXIAL
S	2 - 24	8000	n/a	n/a	n/a
G	2 - 6	8000	n/a	1000	n/a
	8 - 24	8000	n/a	2000	n/a
U	2 - 6	8000	800	1000	n/a
	8 - 24	8000	800	2000	n/a
A	2 - 6	4000	800	1000	2000
	8 - 24	8000	800	2000	5000

Notes:

- Special fabricated tee and base available for specified axial and lateral travel, insulation banding slots, heat loss notches and/or grade 304 and 316 stainless steel. Provide performance criteria and dimensions A, BOP, C, D and/or L.
- For PTFE bearing temperatures 300°F to 500°F, specify high temperature bearing adhesive. Available in black finish only over 350°F.
- Alternative PTFE-on-stainless steel slide bearing option available.
- Weld in accordance with AWS D1.1 with 70000 psi filler metal. Minimum weld sizes shown. Tee-to-pipe and base-to-structure welds may be continuous.
- Anchor loads for standard weight carbon steel pipe at design conditions 400 psi and 500°F. Corrosion allowance $\frac{1}{32}$ " for pipe sizes ≤ 6 " and $\frac{1}{16}$ " for sizes ≥ 8 ".

FIG. 4300HS

h- slide

±5" Axial Movement, ±1" Lateral Movement

SERVICE: To support pipe while providing large axial movement and moderate lateral movement. Pad to be welded to structure and body welded to pipe. Slide bearing provides low coefficient of friction between body and pad to reduce stress on the pipe and supporting structure.

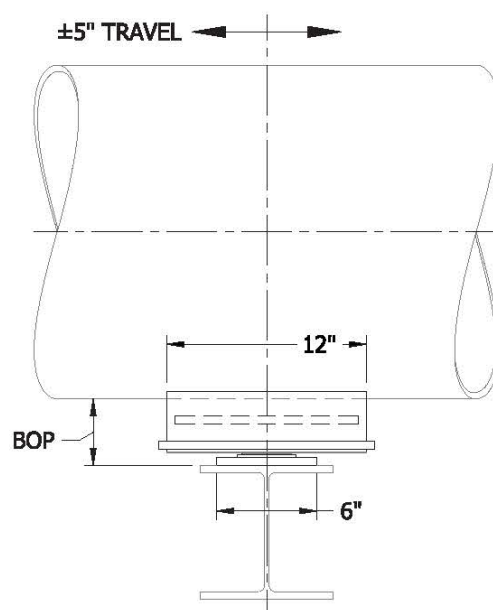
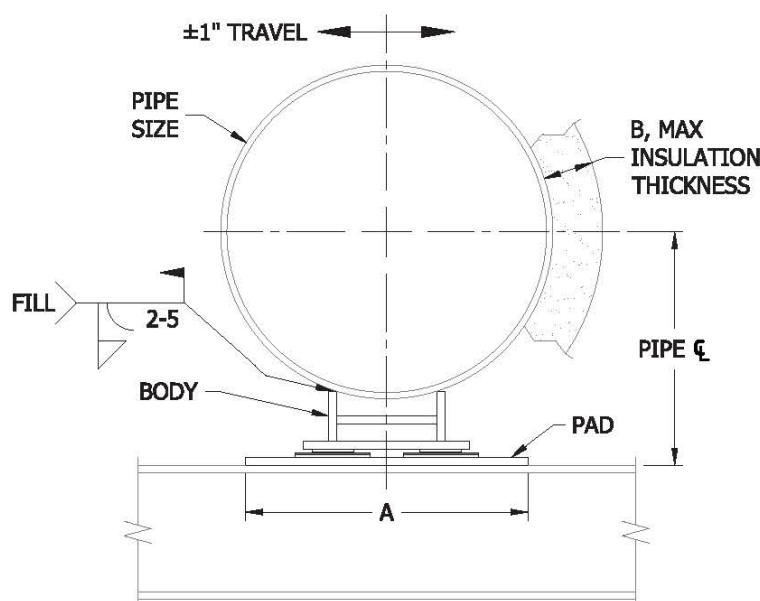
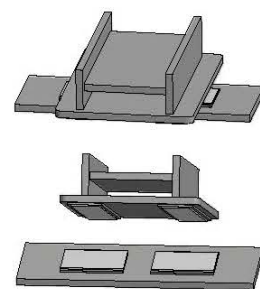
MATERIAL: Carbon Steel meeting ASTM A36
Stainless Steel meeting ASTM A240 Type 304 and 316
Slide Bearing: PTFE-on-PTFE, 3/32" thick glass filled PTFE bonded to 10 ga. back-up plate, 2000 psi compressive strength at 70°F (Note 2)

FINISH: Black or Hot-Dip Galvanized meeting ASTM A123

MAX TEMP: At Pipe Wall: 650°F for Black, 350°F for Hot-Dip Galvanized.
At PTFE Bearing 300°F (Note 2 & 3).

STANDARDS: MSS SP-58 Type 35, FS A-A-1192A Type 35

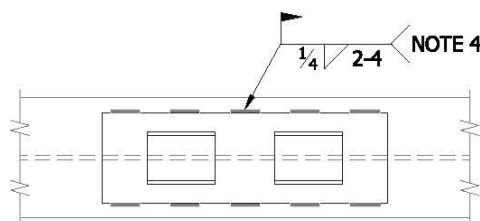
ORDERING: Specify figure number, pipe size, and finish



PIPE SIZE	PIPE cL	BOP	A	B	WEIGHT EACH, LBS	VERTICAL DOWN LOAD
6	8	4 ¹¹ / ₁₆	10	3 ¹ / ₂	24	12000
8	9	4 ¹¹ / ₁₆	10	3 ¹ / ₂	24	12000
10	9 ⁷ / ₈	4 ¹ / ₂	12 ¹ / ₂	3 ¹ / ₂	35	16000
12	11	4 ⁵ / ₈	12 ¹ / ₂	3 ¹ / ₂	35	16000
14	11 ¹ / ₈	4 ¹ / ₈	14 ¹ / ₂	3	51	16000
16	12 ³ / ₈	4 ³ / ₈	14 ¹ / ₂	3	51	16000
18	12 ⁷ / ₈	3 ⁷ / ₈	17	3	56	16000
20	14	4	17	3	56	16000
24	15 ⁷ / ₈	3 ⁷ / ₈	19	3	65	24000
30	19 ⁷ / ₈	4 ⁷ / ₈	21	4	78	24000
36	23 ¹ / ₄	5 ¹ / ₄	23	4	108	24000

NOTES:

- Special fabricated configurations available upon request for options: pad bolted to structure, body clamped to pipe, specified bottom of pipe (BOP), custom axial / lateral travel, insulation banding slots, heat loss notches, etc. Provide performance criteria and dimensions.
- Allowable vertical load at 70°F bearing temperature. See Supplemental Data for load reduction factors at higher bearing temperatures.
- For bearing temperatures 300°F to 500°F, specify High Temperature adhesive (-HT).
- Pad may be seal welded to structure with all-around weld.
- Body interchangeable with 955G, 955L, and 955U pads for same pipe size and "A" dimension.
- See Fig 955 Supplemental Data for other structural attachment details, slide bearing information, etc.



PAD WELD DETAIL

FIG. 4300HG

h-guide

±5" Axial Movement, ±1/16" Lateral Movement

SERVICE: To support pipe while providing large axial movement and lateral guidance. Pad to be welded to structure and body welded to pipe. Slide bearing provides low coefficient of friction between body and pad to reduce stress on the pipe and supporting structure.

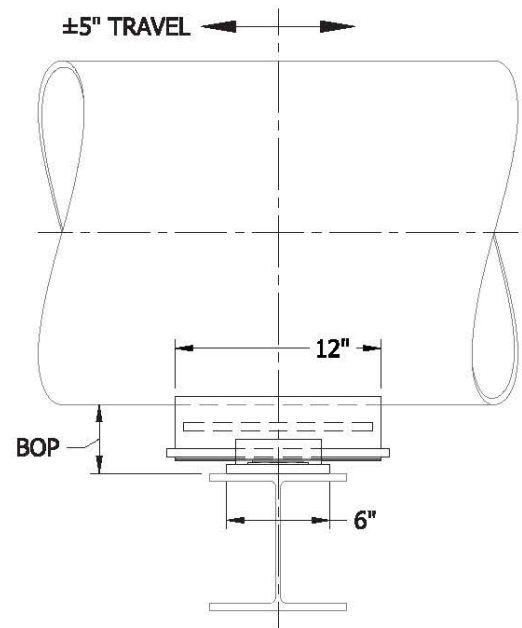
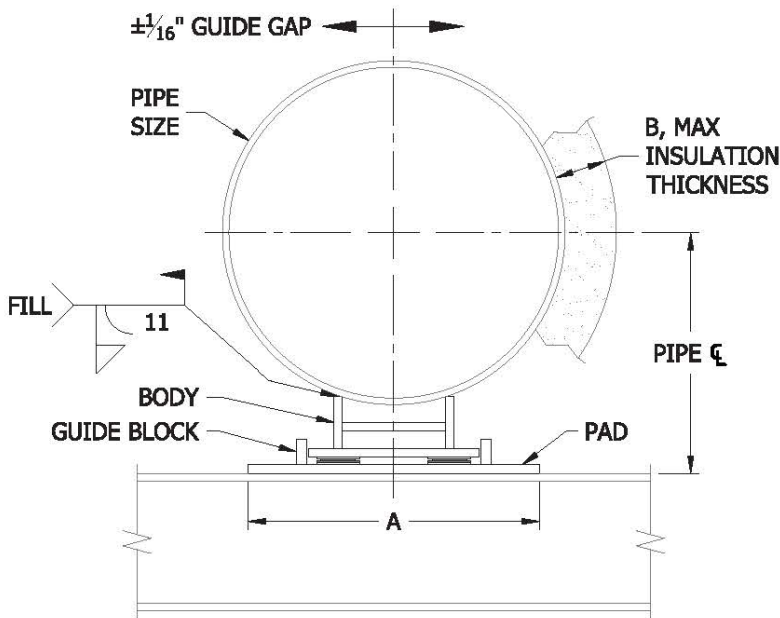
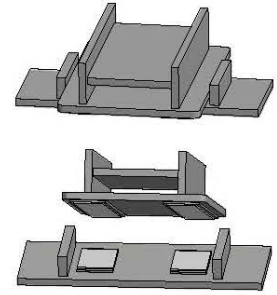
MATERIAL: Carbon Steel meeting ASTM A36
Stainless Steel meeting ASTM A240 Type 304 and 316
Slide Bearing: PTFE-on-PTFE, 3/32" thick glass filled PTFE bonded to 10 ga. back-up plate, 2000 psi compressive strength at 70°F (Note 2)

FINISH: Black or Hot-Dip Galvanized meeting ASTM A123

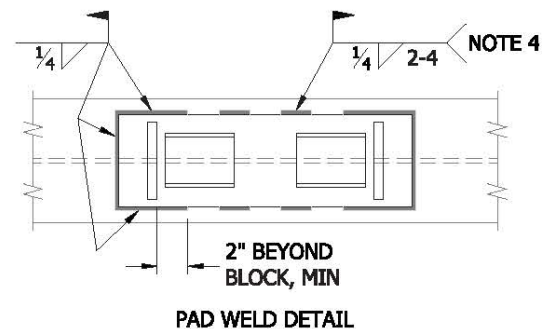
MAX TEMP: At Pipe Wall: 650°F for Black, 350°F for Hot-Dip Galvanized.
At PTFE Bearing 300°F (Note 2 & 3)

STANDARDS: MSS SP-58 Type 35, FS A-A-1192A Type 35

ORDERING: Specify figure number, pipe size, and finish



PIPE SIZE	PIPE CL	BOP	A	B	WEIGHT EACH, LBS	VERTICAL DOWN LOAD	LATERAL LOAD
6	8	4 1/16	10	3 1/2	26	12000	3000
8	9	4 1/16	10	3 1/2	26	12000	3000
10	9 7/8	4 1/2	12 1/2	3	37	16000	4000
12	11	4 5/8	12 1/2	3	37	16000	4000
14	11 1/8	4 1/8	14 1/2	3	54	16000	4000
16	12 3/8	4 3/8	14 1/2	3	54	16000	4000
18	12 7/8	3 7/8	17	3	58	16000	4000
20	14	4	17	3	58	16000	4000
24	15 7/8	3 7/8	19	3	68	24000	6000
30	19 7/8	4 7/8	21	4	80	24000	6000
36	23 1/4	5 1/4	23	4	111	24000	6000



NOTES:

1. Special fabricated configurations available upon request for options: pad bolted to structure, body clamped to pipe, specified bottom of pipe (BOP), custom axial / lateral travel, insulation banding slots, heat loss notches, etc. Provide performance criteria and dimensions.
2. Allowable vertical load at 70°F bearing temperature. See Supplemental Data for load reduction factors at higher bearing temperatures.
3. For bearing temperatures 300°F to 500°F, specify High Temperature adhesive (-HT).
4. Pad may be seal welded to structure with all-around weld.
5. Body interchangeable with 955S, 955L, and 955U pads for same pipe size and "A" dimension.
6. See Fig 955 Supplemental Data for other structural attachment details, slide bearing information, etc.

FIG. 4300HL

h-slide w/ lateral stop

±5" Axial Movement, ±1" Guide Gap

SERVICE: To support pipe while providing large axial movement and moderate lateral movement with guidance. Pad to be welded to structure and body welded to pipe. Slide bearing provides low coefficient of friction between body and pad to reduce stress on the pipe and supporting structure.

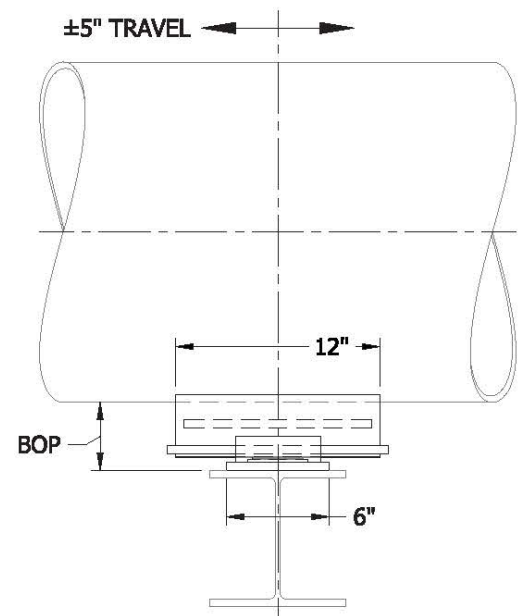
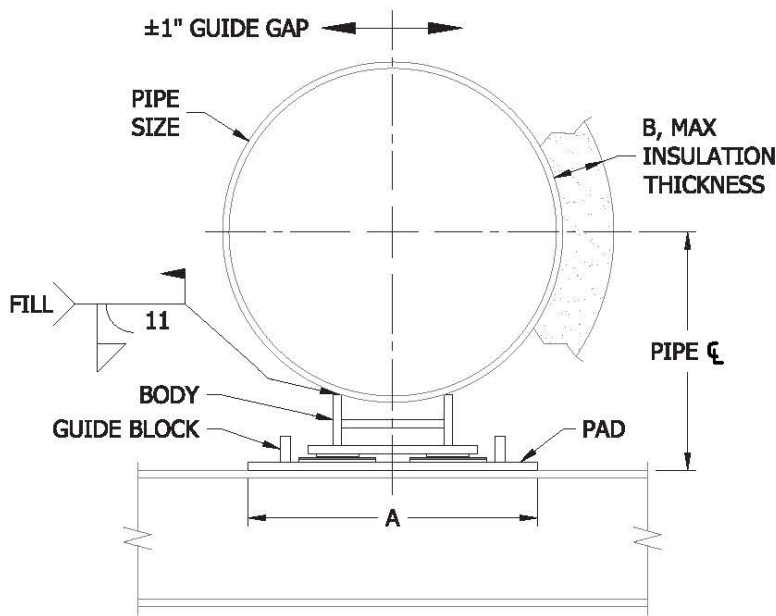
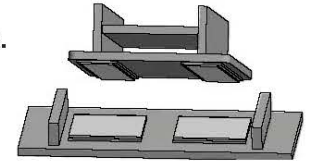
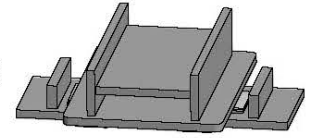
MATERIAL: Carbon Steel meeting ASTM A36
Stainless Steel meeting ASTM A240 Type 304 and 316
Slide Bearing: PTFE-on-PTFE, 3/32" thick glass filled PTFE bonded to 10 ga. back-up plate, 2000 psi compressive strength at 70°F (Note 2)

FINISH: Black or Hot-Dip Galvanized meeting ASTM A123

MAX TEMP: At Pipe Wall: 650°F for Black, 350°F for Hot-Dip Galvanized.
At PTFE Bearing 300°F (Note 2 & 3).

STANDARDS: MSS SP-58 Type 35, FS A-A-1192A Type 35

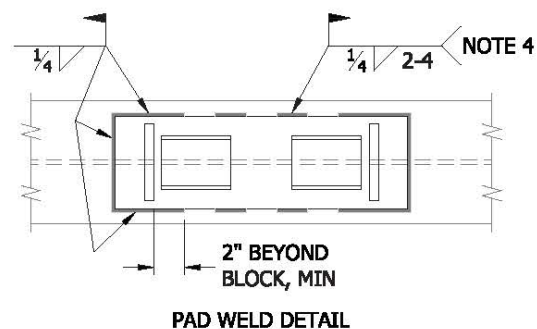
ORDERING: Specify figure number, pipe size, and finish



PIPE SIZE	PIPE cL	BOP	A	B	WEIGHT EACH, LBS	VERTICAL DOWN LOAD	LATERAL LOAD
6	8	4 ^{11/16}	10	3 ^{1/2}	26	12000	3000
8	9	4 ^{11/16}	10	3 ^{1/2}	26	12000	3000
10	9 ^{7/8}	4 ^{1/2}	12 ^{1/2}	3 ^{1/2}	38	16000	4000
12	11	4 ^{5/8}	12 ^{1/2}	3 ^{1/2}	38	16000	4000
14	11 ^{1/8}	4 ^{1/8}	14 ^{1/2}	3	54	16000	4000
16	12 ^{3/8}	4 ^{3/8}	14 ^{1/2}	3	54	16000	4000
18	12 ^{7/8}	3 ^{7/8}	17	3	59	16000	4000
20	14	4	17	3	59	16000	4000
24	15 ^{7/8}	3 ^{7/8}	19	3	68	24000	6000
30	19 ^{7/8}	4 ^{7/8}	21	4	81	24000	6000
36	23 ^{1/4}	5 ^{1/4}	23	4	112	24000	6000

NOTES:

1. Special fabricated configurations available upon request for options: pad bolted to structure, body clamped to pipe, specified bottom of pipe (BOP), custom axial / lateral travel, insulation banding slots, heat loss notches, etc. Provide performance criteria and dimensions.
2. Allowable vertical load at 70°F bearing temperature. See Supplemental Data for load reduction factors at higher bearing temperatures.
3. For bearing temperatures 300°F to 500°F, specify High Temperature adhesive (-HT).
4. Pad may be seal welded to structure with all-around weld.
5. Body interchangeable with 955S, 955G, and 955U pads for same pipe size and "A" dimension.
6. See Fig 955 Supplemental Data for other structural attachment details. slide bearing information. etc.



h-guide w/ uplift stop

±5" Axial Movement, ±1/16" Guide Gap, 1/2" Uplift Gap

SERVICE: To support pipe while providing large axial movement, lateral guidance, and uplift restraint. Pad to be welded to structure and body welded to pipe. Slide bearing provides low coefficient of friction between body and pad to reduce stress on the pipe and supporting structure.

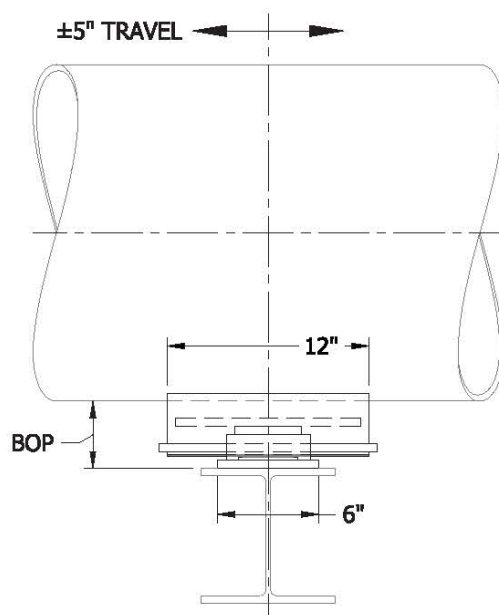
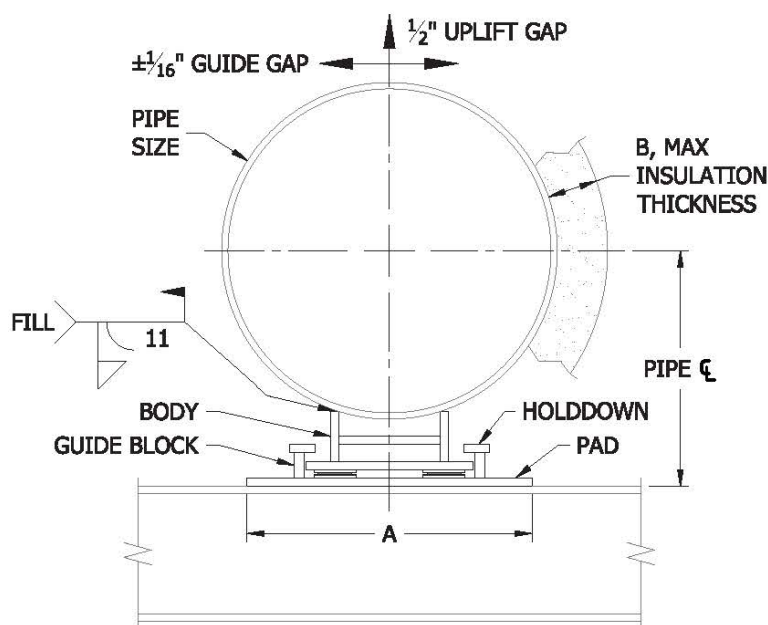
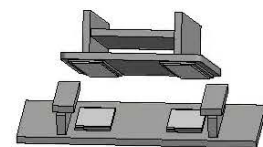
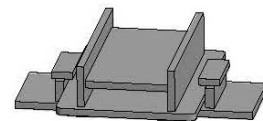
MATERIAL: Carbon Steel meeting ASTM A36
Stainless Steel meeting ASTM A240 Type 304 and 316
Slide Bearing: PTFE-on-PTFE, 3/32" thick glass filled PTFE bonded to 10 ga. back-up plate, 2000 psi compressive strength at 70°F (Note 2)

FINISH: Black or Hot-Dip Galvanized meeting ASTM A123

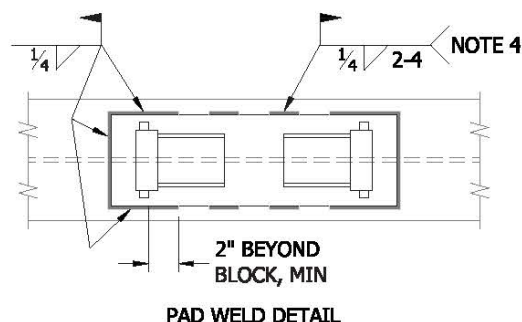
MAX TEMP: At Pipe Wall: 650°F for Black, 350°F for Hot-Dip Galvanized.
At PTFE Bearing 300°F (Note 2 & 3).

STANDARDS: MSS SP-58 Type 35, FS A-A-1192A Type 35

ORDERING: Specify figure number, pipe size, and finish



PIPE SIZE	PIPE cL	BOP	A	B	WEIGHT EACH, LBS	VERTICAL DOWN LOAD	LATERAL LOAD	UPLIFT LOAD
6	8	4 ¹ / ₁₆	10	2 ¹ / ₂	28	12000	3000	1200
8	9	4 ¹ / ₁₆	10	2 ¹ / ₂	28	12000	3000	1200
10	9 ⁷ / ₈	4 ¹ / ₂	12 ¹ / ₂	2 ¹ / ₂	39	16000	4000	1600
12	11	4 ⁵ / ₈	12 ¹ / ₂	2 ¹ / ₂	39	16000	4000	1600
14	11 ¹ / ₈	4 ¹ / ₈	14 ¹ / ₂	2 ¹ / ₂	55	16000	4000	1600
16	12 ³ / ₈	4 ³ / ₈	14 ¹ / ₂	2 ¹ / ₂	55	16000	4000	1600
18	12 ⁷ / ₈	3 ⁷ / ₈	17	2 ¹ / ₂	60	16000	4000	1600
20	14	4	17	2 ¹ / ₂	60	16000	4000	1600
24	15 ⁷ / ₈	3 ⁷ / ₈	19	2 ¹ / ₂	70	24000	6000	2400
30	19 ⁷ / ₈	4 ⁷ / ₈	21	3 ¹ / ₂	82	24000	6000	2400
36	23 ¹ / ₄	5 ¹ / ₄	23	4	113	24000	6000	2400



NOTES:

1. Special fabricated configurations available upon request for options: pad bolted to structure, body clamped to pipe, specified bottom of pipe (BOP), custom axial / lateral travel, insulation banding slots, heat loss notches, etc. Provide performance criteria and dimensions.
2. Allowable vertical load at 70°F bearing temperature. See Supplemental Data for load reduction factors at higher bearing temperatures.
3. For bearing temperatures 300°F to 500°F, specify High Temperature adhesive (-HT).
4. Pad may be seal welded to structure with all-around weld.
5. Body interchangeable with 955S, 955G, and 955L pads for same pipe size and "A" dimension.
6. See Fig 955 Supplemental Data for other structural attachment details, slide bearing information, etc.

FIG. 4300H

supplemental data

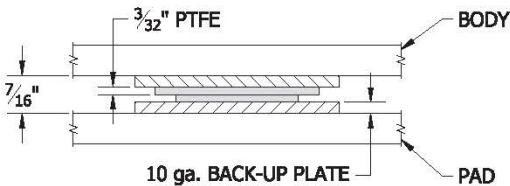
1.0 Slide Bearing Details

Slide bearings by Con-Serv, Inc., Georgetown, South Carolina. Con-Slide Slide Bearing Type CSA product data reproduced with permission.

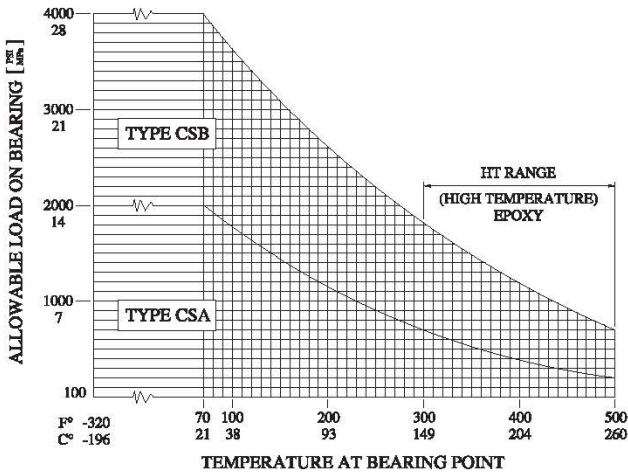
The Type CSA CON-SLIDE™ slide bearing is constructed of filled PTFE bonded to flat rigid back-up steel. The CON-SLIDE material, at thermal expansion and contraction rates, will exhibit little to no wear for the life of the support. The Type CSA blend is formulated for use against itself as a slide material.

The blended CSA material used for this bearing is composed of virgin (uncompressed) PTFE resin tested per ASTM D4894 or ASTM D4895 and reinforcing agents including milled glass fibers. This structural material has the following representative mechanical and physical properties:

TENSILE STRENGTH	2200 psi
ELONGATION	225%
SPECIFIC GRAVITY	2.17 to 2.22



The CSA system consists of an upper and lower element. The PTFE slide surfaces in this system are nominally 3/32" thick and are control-bonded to a 10 ga. carbon steel back-up sheet. See graph for allowable design pressures at various temperatures.



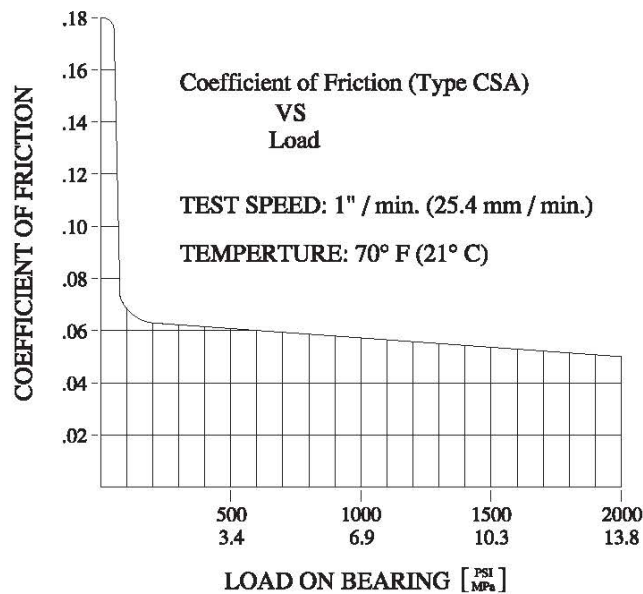
TEMPERATURE	ALLOWABLE LOAD	FACTOR
70°F	2000 psi	1.00
100°F	1700 psi	0.85
200°F	1000 psi	0.50
300°F	700 psi	0.35
400°F	400 psi	0.20
500°F	200 psi	0.10

Apply the load reduction factors for the corresponding temperatures at the Teflon bearing. Multiply the allowable vertical load from the submittal sheet by the factor for the new allowable load at the operating bearing temperature.

FIG. 4300H

supplemental data

The coefficient of friction plotted in the graph below is a maximum value after first movement breakaway. The friction values do not vary significantly with temperature; however, they will rise with increased speed. The graph values will increase approximately 45% for a speed increase to 10 in./min.



The epoxy compound used has been tested and formulated for bonding CSA to backing materials. The bond strength developed has a safety factor of from 5 to 6 on a sliding shear, assuming no friction between the special PTFE and back-up plate. These strengths are ensured at temperatures between 300F and 500F with a special epoxy for high temperature bearings.

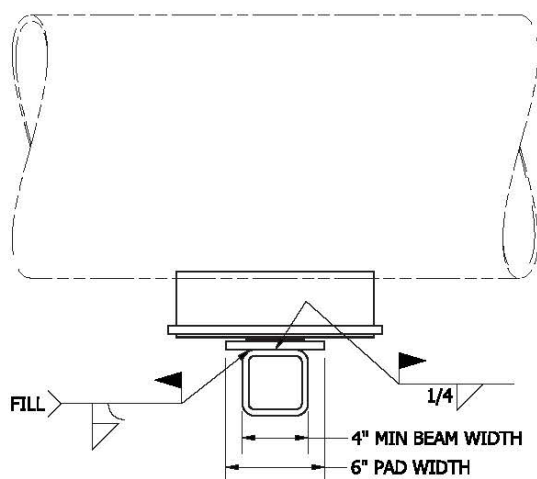
Wear of bearings utilized in thermal expansion applications designed in accordance with CSA guidelines is negligible. Ultraviolet testing indicates that CSA materials show no ill effects from a time-accelerated test.

FIG. 4300H

supplemental data

2.0 Alternate Beam Attachment Methods

The minimum recommended beam width for supporting H-Slides and H-Guides is 4". The minimum beam width is to protect PTFE slide bearing and adhesive from excessive temperature during welding. The maximum allowable temperature at PTFE and adhesive is 300°F for standard adhesive and 500°F for high temperature adhesive. The figure below shows the attachment to a 4" wide tube with a flared-bevel-groove weld. Intermittent and continuous welds permissible.



NOTES:

1. WELD LENGTH, SPACING, AND LOCATION PER SUBMITTAL SHEET.

3.0 Cold Offset

When the support body is centered on the slide or guide pad during installation (cold), the support may offer $\pm 5"$ axial movement during operating (hot) conditions. If more travel is desired and the direction of the movement known, the support body may be cold offset from the slide or guide pad allowing up to 10" travel in one direction.

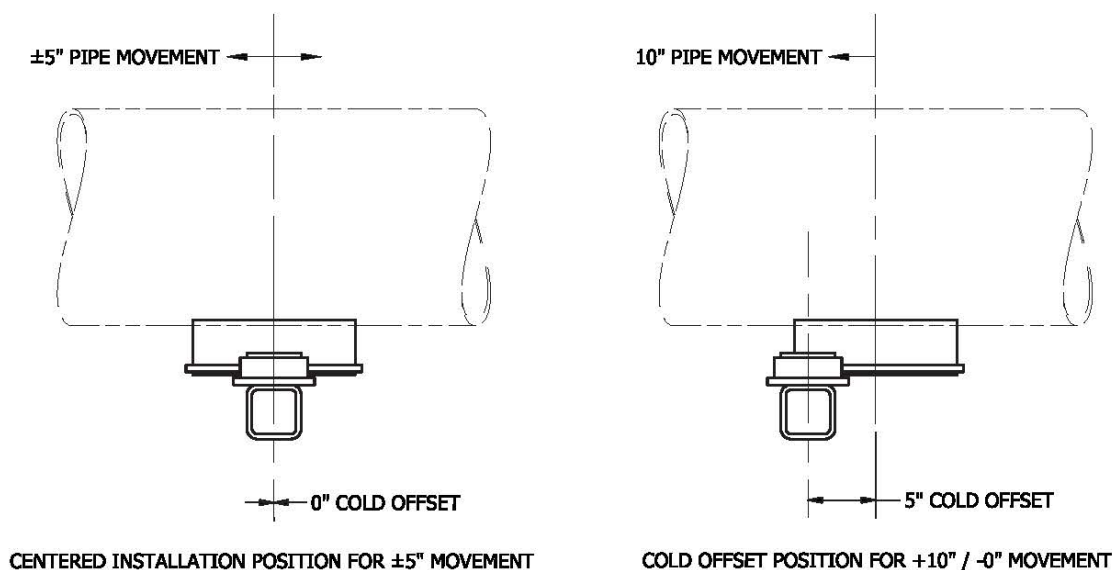


FIG. 4300H

supplimental data

4.0 Insulation

Maximum insulation thickness is dependent on the bottom of pipe elevation and the presence of guide and holddown blocks. Insulation shall avoid the guide and holddown blocks to prevent damage from pipe movement. One or both H-Body voids may be filled with insulation as necessary to match the desired thickness.

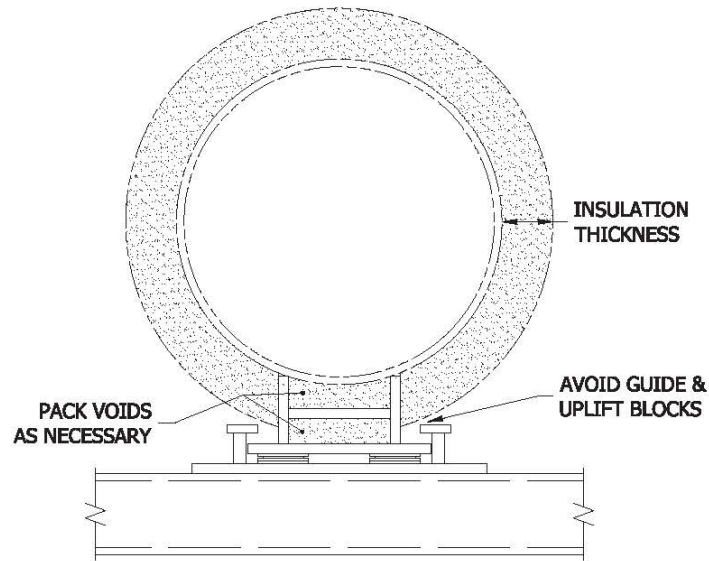
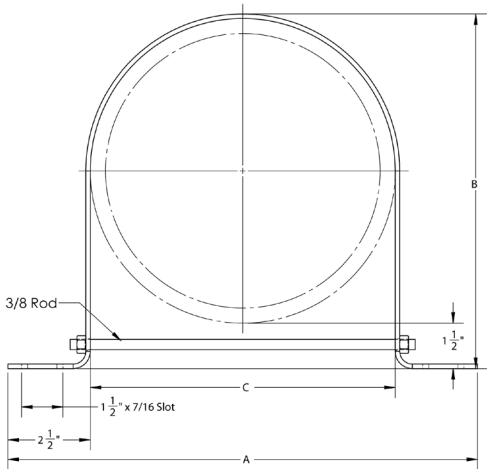


FIG. DPCSS

manhole drop pipe clamp



Materials/Finishes:	T-304 Stainless (DPCSS)
Service:	Designed for easy installation and support of manhole drop pipe.
Ordering:	Specify figure number, size 4"-12", SDR-35, DIP/C-900 or IPS.
Notes:	Mounting Kit (DPCSSKIT) also available.

PIPE SIZE	SDR-35 PIPE OD	ROD LENGTH	A	B	C	WGT EACH (lbs)
4	4.215	5.875	9.215	5.865	4.514	1.40
6	6.275	7.625	11.275	7.925	6.874	1.75
8	8.400	10.250	13.400	10.050	8.700	2.20
10	10.500	12.250	15.500	12.150	10.800	2.65
12	12.500	14.250	17.500	14.150	12.800	3.00

PIPE SIZE	IPS PIPE OD	ROD LENGTH	A	B	C	WGT EACH (lbs)
4	4.500	6.375	9.500	6.150	5.100	1.45
6	6.625	8.000	11.625	8.275	6.924	1.90
8	8.625	10.500	13.625	10.275	8.924	2.25
10	10.750	12.500	15.750	12.400	11.050	2.75
12	12.750	14.500	17.750	14.400	13.050	3.00

PIPE SIZE	DIP/C-900 PIPE OD	ROD LENGTH	A	B	C	WGT EACH (lbs)
4	4.800	6.500	9.800	6.450	5.100	1.50
6	6.900	8.000	11.900	8.550	7.200	1.90
8	9.050	10.500	14.050	10.700	9.350	2.30
10	11.100	12.500	16.100	12.750	11.400	2.85
12	13.200	14.500	18.200	14.850	13.00	3.30

REFERENCE GUIDES

maximum horizontal spacing between hangers/supports

NOM. PIPE OR TUBE DIA.	STANDARD WEIGHT STEEL PIPE		COPPER TUBE	
	WATER SERVICE (FT)	VAPOR SERVICE (FT)	WATER SERVICE (FT)	VAPOR SERVICE (FT)
1/4	7	8	5	5
3/8	7	8	5	6
1/2	7	8	5	6
3/4	7	9	5	7
1	7	9	6	8
1-1/4	7	9	7	9
1-1/2	9	12	8	10
2	10	13	8	11
2-1/2	11	14	9	13
3	12	15	10	14
3-1/2	13	16	11	15
4	14	17	12	16
5	16	19	13	18
6	17	21	14	20
8	19	24	16	23
10	22	26	18	25
12	23	30	19	28
14	25	32	-	-
16	27	35	-	-
18	28	37	-	-
20	30	39	-	-
20	32	42	-	-
24	33	44	-	-

NOTE:

Support spacings for PVC and CPVC pipe systems are greatly influenced by operating temperatures. The charts below recommend horizontal spacing based on pipe size, schedule, material (PVC or industrial grade CPVC) and operating temperatures. Hangers/supports should not be clamped tightly because the axial movement of the plastic pipe would be restricted. These charts are based on continuous spans and uninsulated lines carrying liquids.

PIPE SIZE (in)	SCHEDULE 40 PVC TEMPERATURE F°					SCHEDULE 80 PVC TEMPERATURE F°				
	60°	80°	100°	120°	140°	60°	80°	100°	120°	140°
1/4	4	3-1/2	3-1/2	2	2	4	4	3-1/2	2-1/2	2
3/8	4	4	3-1/2	2-1/2	2	4-1/2	4-1/2	4	2-1/2	2-1/2
1/2	4-1/2	4-1/2	4	2-1/2	2-1/2	5	4-1/2	4-1/2	3	2-1/2
3/4	5	4-1/2	4	2-1/2	2-1/2	5-1/2	5	4-1/2	3	2-1/2
1	5-1/2	5	4-1/2	3	2-1/2	6	5-1/2	5	3-1/2	3
1-1/4	5-1/2	5-1/2	5	3	3	6	6	5-1/2	3-1/2	3
1-1/2	6	5-1/2	5	3-1/2	3	6-1/2	6	5-1/2	3-1/2	3-1/2
2	6	5-1/2	5	3-1/2	3	7	6-1/2	6	4	3-1/2
2-1/2	7	6-1/2	6	4	3-1/2	7-1/2	7-1/2	6-1/2	4-1/2	4
3	7	7	6	4	3-1/2	8	7-1/2	7	4-1/2	4
3-1/2	7-1/2	7	6-1/2	4	4	8-1/2	8	7-1/2	5	4-1/2
4	7-1/2	7	6-1/2	4-1/2	4	9	8-1/2	7-1/2	5	4-1/2
5	8	7-1/2	7	4-1/2	4	9-1/2	9	8	5-1/2	5
6	8-1/2	8	7-1/2	5	4-1/2	10	9-1/2	9	6	5
8	9	8-1/2	8	5	4-1/2	11	10-1/2	9-1/2	6-1/2	5-1/2
10	10	9	8-1/2	5-1/2	5	12	11	10	7	6
12	11-1/2	10-1/2	9-1/2	6-1/2	5-1/2	13	12	10-1/2	7-1/2	6-1/2
14	12	11	10	7	6	13-1/2	13	11	8	7
16	12-1/2	11-1/2	10-1/2	7-1/2	6-1/2	14	13-1/2	11-1/2	8-1/2	7-1/2
SDR 41 PVC						SDR 26 PVC				
18	13	12	11	8	7	14-1/2	14	12	9	8
20	13-1/2	12-1/2	11-1/2	8-1/2	7-1/2	15	14-1/2	12-1/2	9-1/2	8-1/2
24	14	13	12	9	8	15-1/2	15	13	10	9

PIPE SIZE (in)	SCHEDULE 40 CPVC TEMPERATURE F°						SCHEDULE 80 CPVC TEMPERATURE F°					
	73°	100°	120°	140°	160°	180°	73°	100°	120°	140°	160°	180°
1/2	5	4-1/2	4-1/2	4	2-1/2	2-1/2	5-1/2	5	4-1/2	4-1/2	3	2-1/2
3/4	5	5	4-1/2	4	2-1/2	2-1/2	5-1/2	5-1/2	5	4-1/2	3	2-1/2
1	5-1/2	5-1/2	5	4-1/2	3	2-1/2	6	6	5-1/2	5	3-1/2	3
1-1/4	5-1/2	5-1/2	5-1/2	5	3	3	6-1/2	6	6	5-1/2	3-1/2	3
1-1/2	6	6	5-1/2	5	3-1/2	3	7	6-1/2	6	5-1/2	3-1/2	3-1/2
2	6	6	5-1/2	5	3-1/2	3	7	7	6-1/2	6	4	3-1/2
2-1/2	7	7	6-1/2	6	4	3-1/2	8	7-1/2	7-1/2	6-1/2	4-1/2	4
3	7	7	7	6	4	3-1/2	8	8	7-1/2	7	4-1/2	4
3-1/2	7-1/2	7-1/2	7	6-1/2	4	4	8-1/2	8-1/2	8	7-1/2	5	4-1/2
4	7-1/2	7-1/2	7	6-1/2	4-1/2	4	8-1/2	9	8-1/2	7-1/2	5	4-1/2
6	8-1/2	8	7-1/2	7	5	4-4/2	10	9-1/2	9	8	5-1/2	5
8	9-1/2	9	8-1/2	7-1/2	5-1/2	5	11	10-1/2	10	9	6	5-1/2
10	10-1/2	10	9-1/2	8	6	5-1/2	11-1/2	11	10-1/2	9-1/2	6-1/2	6
12	11-1/2	10-1/2	10	8-1/2	6-1/2	6	12-1/2	12	11-1/2	10-1/2	6-1/2	6-1/2
- Charts above are not applicable where loads between supports are concentrated (e.g. valves, flanges, expansion joints, etc.) or where there is a change in line direction. Hangers/supports should be located adjacent to joints, branch connections and changes in direction. - Risers should be installed independantly of adjacent horizontal hangers/supports. - Cast Iron Pipe should have a maximum of 12' spacing with at least one hanger/support for each pipe section. - For fire protection, refer to current NFPA specifications												

REFERENCE GUIDES

load ratings of carbon steel threaded rod

NOMINAL ROD DIAMETER (in)	ROOT AREA OF COURSE THREAD (in ²)	MAXIMUM SAFE LOAD (LBS) ROD TEMPERATURE: 650 °F	MAXIMUM SAFE LOAD (LBS) ROD TEMPERATURE: 750 °F
1/4	0.027	240	210
3/8	0.068	610	540
1/2	0.126	1130	1010
5/8	0.202	1810	1610
3/4	0.302	2710	2420
7/8	0.419	3770	3360
1	0.552	4960	4420
1-1/8	0.693	6230	5560
1-1/4	0.889	8000	7140
1-1/2	1.293	11630	10370
1-3/4	1.744	15700	14000
2	2.292	20700	18460
2-1/4	3.021	27200	24260
2-1/2	3.716	33500	29880

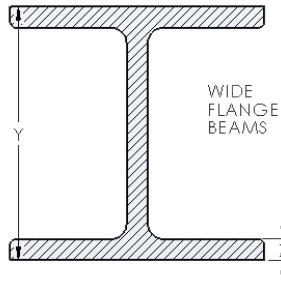
maximum applied torques for c-clamps and beam clamps

THREAD SIZE	TORQUE (lb / ft)
1/4	40
3/8	60
1/2	125
5/8	250
3/4	400
7/8	665
Extracted from MSS SP-58 and SP-69 (types 19 & 23)	

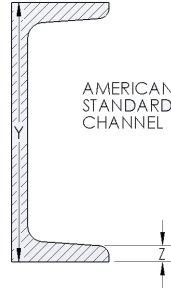
NOTE:

The ultimate load-carrying capacity of a clamp is rapidly reduced when the set screw is excessively tightened during installation. Proper installation practice is to set the screw finger tight, then turn the set screw one half to three quarters of a turn. Extra tightening will force the body of the clamp open, damaging the clamp and causing misalignment of the rod hole.

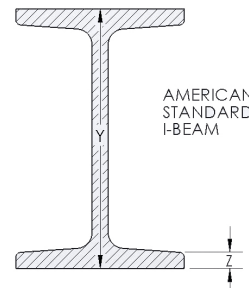
beam dimensions (in.) & weights



WIDE
FLANGE
BEAMS



AMERICAN
STANDARD
CHANNEL



AMERICAN
STANDARD
I-BEAM

NOM SIZE "Y"	WGT/ FT. (LB)	FLANGE WIDTH	THICK. OF FLANGE "Z"
5	18.5	5	.420
6	25	6	.456
8	17 20 24 28 31 35 40 48 58 67	5-1/4 5-1/4 6-1/2 6-1/2 8 8 8-1/8 8-1/8 8-1/4 8-1/4	.308 .378 .398 .463 .433 .493 .558 .683 .808 .933
10	21 25 29 33 39 45 49 54 60 66 72 77 89 100 112	5-3/4 5-3/4 5-3/4 8 8 8 10 10 10-1/8 10-1/8 10-1/8 10-1/4 10-1/4 10-3/8 10-3/8	.340 .430 .500 .433 .528 .618 .558 .618 .683 748 .808 .868 .998 1.118 1.248
12	27 31 36 40 45 50 53 58 65 72 79 85 92 99 106 120 133 161 190	6-1/2 6-1/2 6-5/8 8 8 8-1/8 10 10 12 12 12-1/8 12-1/8 12-1/8 12-1/4 12-1/4 12-3/8 12-3/8 12-1/2 12-5/8	.400 .465 .540 .516 .576 .641 .576 .641 .606 .671 .736 .796 .856 .921 .986 1.106 1.236 1.486 1.736
14	30 34 38 43 48 53 61 68 74 78 84 87 95	6-3/4 6-3/4 6-3/4 8 8 8 10 10 10-1/8 12 12 14-1/2 14-1/2	.383 .453 .513 .528 .593 .658 .643 .718 .783 .718 .778 .688 .748
16	36 40 45 50 58 64 71 78 88 96	7 7 7 7-1/8 8-1/2 8-1/2 8-1/2 8-5/8 11-1/2 11-1/2	.428 .503 .563 .628 .645 .715 .795 .875 .795 .875
18	50 55 60 64 70 77 85 96 105 114	7-1/2 7-1/2 7-1/2 8-3/4 8-3/4 8-3/4 8-7/8 11-3/4 11-3/4 11-7/8	.570 .630 .695 .686 .751 .831 .911 .831 .911 .991
21	62 68 73 82 96 112 127 142	8-1/4 8-1/4 8-1/4 9 9 13 13 13-1/8	.615 .685 .740 .795 .935 .865 .985 1.095
24	76 84 94 100 110 120 130 145 160	9 9 9 12 12 12-1/8 14 14 14-1/8	.682 .772 .872 .775 .885 .930 .900 1.020 1.135
27	94 102 114 145 160 177	10 10 10-1/8 14 14 14-1/8	.747 .827 .932 .975 1.075 1.190
30	108 116 124 132 172 190 210	10-1/2 10-1/2 10-1/2 10-1/2 15 15 15-1/8	.750 .875 .930 1.000 1.065 1.185 1.315
DEPTH OF SECT. "Y"	WGT/ FT. (LB)	FLANGE WIDTH	MEAN THICK. OF FLANGE "Z"
3	4.1 5.0 6.0	1-3/8 1-1/2 1-5/8	.25
4	5.4 7.25	1-5/8 1-3/4	.313
5	6.7 9.0	1-3/4 1-7/8	.313
6	8.2 10.5 13.0	1-7/8 2 2-1/8	.375
7	9.8 12.25 14.75	2-1/8 2-1/8 2-1/4	.375
8	11.5 13.75 18.75	2-1/4 2-3/8 2-1/2	.375
9	13.4 15.0 20.0	2-3/8 2-1/2 2-5/8	.438
10	15.3 20.0 25.0 30.0	2-5/8 2-3/4 2-7/8 3	.438
12	20.7 25.0 30.0	3 3 3-1/8	.50
15	33.9 40.0 50.0	3-3/8 3-1/2 3-3/4	.625
18	42.7 45.8 51.9 58	4 4 4-1/8 4-1/4	.625
DEPTH OF SECT. "Y"	WGT/ FT. (LB)	FLANGE WIDTH	MEAN THICK. OF FLANGE "Z"
3	5.7 7.5	2-3/8 2-1/2	.25
4	7.7 9.5	2-5/8 2-3/4	.313
5	10.0 14.75	3 3-1/4	.313
6	12.5 17.25	3-3/8 3-5/8	.375
7	15.3 20.0	3-5/8 3-7/8	.375
8	18.4 23.0	4 4-1/8	.438
10	25.4 35.0	4-5/8 5	.50
12	31.8 35.0 40.8 50.0	5 5-1/8 5-1/4 5-1/2	.563 .688
15	42.9 50.0	5-1/2 5-5/8	.625
18	54.7 70.0	6 6-1/4	.688
20	65.4 75.0 85.0 95.0	6-1/4 6-3/8 7 7-1/4	.813 .938
24	79.9 90.0 100.0 105.9 120.0	7 7-1/8 7-1/4 7-1/8 8	.875 1.125

REFERENCE GUIDES

steel pipe data (schedule 40 & 80)

PIPE SIZE	PIPE O.D.	SCHEDULE NO.	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
				PIPE	PIPE FILLED WITH WATER
3/8	0.675	40	0.091	0.567	0.650
		80	0.126	0.740	0.800
1/2	0.84	40	0.109	0.850	0.980
		80	0.147	1.090	1.190
3/4	1.05	40	0.113	1.130	1.360
		80	0.154	1.470	1.660
1	1.315	40	0.133	1.680	2.050
		80	0.179	2.170	2.480
1-1/4	1.66	40	0.140	2.270	2.920
		80	0.191	3.000	3.550
1-1/2	1.9	40	0.145	2.720	3.600
		80	0.200	3.630	4.400
2	2.375	40	0.154	3.650	5.100
		80	0.218	5.020	6.300
2-1/2	2.875	40	0.230	5.790	7.860
		80	0.276	7.660	9.490
3	3.5	40	0.216	7.580	10.780
		80	0.300	10.250	13.110
3-1/2	4	40	0.226	9.110	13.400
		80	0.318	12.510	16.360
4	4.5	40	0.237	10.790	16.300
		80	0.337	14.980	19.960
5	5.563	40	0.258	14.620	23.290
		80	0.375	20.780	28.660
6	6.625	40	0.280	18.970	31.490
		80	0.432	28.570	39.860
8	8.625	40	0.322	28.550	50.150
		80	0.500	43.390	63.190
10	10.75	40	0.365	40.480	74.580
		80	0.593	64.400	95.500
12	12.75	40	0.406	53.600	102.100
		80	0.687	88.600	132.600
14	14	40	0.437	63.000	121.500
		80	0.750	107.000	158.200
16	16	40	0.500	83.000	159.500
		80	0.843	137.000	206.700
18	18	40	0.563	105.000	202.200
		80	0.937	171.000	259.500
20	20	40	0.593	123.000	243.400
		80	1.031	209.000	318.400
24	24	40	0.687	171.000	345.200
		80	1.218	297.000	455.200
30	30	20	0.500	158.000	444.000
36	36	API	0.500	190.000	607.000

copper tubing data (types l & k)

TYPE L					
TUBE SIZE	TUBING O.D.	TUBING O.D. (in.)	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
				TUBING	TUBING FILLED WITH WATER
1/4	3/8	0.375	0.030	0.126	0.160
3/8	1/2	0.500	0.035	0.198	0.260
1/2	5/8	0.625	0.040	0.285	0.385
5/8	3/4	0.750	0.042	0.362	0.513
3/4	7/8	0.875	0.045	0.455	0.664
1	1-1/8	1.125	0.050	0.655	1.012
1-1/4	1-3/8	1.375	0.055	0.884	1.430
1-1/2	1-5/8	1.625	0.060	1.140	1.910
2	2-1/8	2.125	0.070	1.750	3.091
2-1/2	2-5/8	2.625	0.080	2.480	4.544
3	3-1/8	3.125	0.090	3.330	6.279
3-1/2	3-5/8	3.625	0.100	4.290	8.279
4	4-1/8	4.125	0.110	5.380	10.568
5	5-51/8	5.125	0.125	7.610	15.691
6	6-1/8	6.125	0.140	10.200	21.816
8	8-1/8	8.125	0.200	19.290	39.579
10	10-1/8	10.125	0.250	30.100	61.690
12	12-1/8	12.125	0.280	40.400	85.826

TYPE K					
TUBE SIZE	TUBING O.D.	TUBING O.D. (in.)	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
				TUBING	TUBING FILLED WITH WATER
1/4	3/8	0.375	0.035	0.145	0.177
3/8	1/2	0.500	0.049	0.269	0.324
1/2	5/8	0.625	0.049	0.344	0.438
5/8	3/4	0.750	0.049	0.418	0.562
3/4	7/8	0.875	0.065	0.641	0.829
1	1-1/8	1.125	0.065	0.839	1.176
1-1/4	1-3/8	1.375	0.065	1.040	1.567
1-1/2	1-5/8	1.625	0.072	1.360	2.103
2	2-1/8	2.125	0.083	2.060	3.370
2-1/2	2-5/8	2.625	0.095	2.920	4.920
3	3-1/8	3.125	0.109	4.000	6.960
3-1/2	3-5/8	3.625	0.120	5.120	9.020
4	4-1/8	4.125	0.134	6.510	11.570
5	5-51/8	5.125	0.160	9.670	17.670
6	6-1/8	6.125	0.192	13.870	25.070
8	8-1/8	8.125	0.271	25.900	45.400
10	10-1/8	10.125	0.338	40.300	70.723
12	12-1/8	12.125	0.405	57.800	101.475

REFERENCE GUIDES

awwa ductile iron pipe data

Thickness and dimensions of 3" through 64" Ductile Iron Pipe conform to ANSI/AWWA C151/A21.51.					
NOM. PIPE SIZE	THICKNESS CLASS	O.D. D.I. PIPE	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
				TUBING	TUBING FILLED WITH WATER
3	53	3.96	.31	11.40	15.20
4	53	4.80	.32	14.40	20.30
6	53	6.90	.34	22.20	35.30
8	53	9.05	.36	31.50	54.50
10	53	11.10	.38	41.10	77.50
12	53	13.20	.40	51.60	103.90
14	53	15.30	.42	63.60	134.70
16	53	17.40	.43	74.30	167.40
18	53	19.50	.44	85.40	203.30
20	53	21.60	.45	96.90	242.70
24	53	25.80	.47	121.10	442.30
30	53	32.00	.51	163.80	490.30
36	53	38.30	.58	223.60	692.90
42	53	44.50	.65	293.60	928.50
48	53	50.80	.72	370.50	1199.40

NOTE:

Weights are based on Thickness Class 53. Due to numerous pressure and thickness classes, varying pipe lengths and piping connections (e.g. bell and gasket, mechanical, etc.) above weights should be considered an average for all Ductile Iron Piping systems.

awwa c-900 pvc water pipe data - class 100, 150, 200

NOM SIZE	O.D. C-900	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
			PIPE	PIPE FILLED WITH WATER
DR 25 -- CLASS 100				
4	4.800	0.192	1.846	10.290
6	6.900	0.276	3.831	21.290
8	9.050	0.362	6.618	36.648
10	11.100	0.444	10.005	55.190
12	13.200	0.528	14.180	78.080
DR 18 -- CLASS 150				
4	4.800	0.267	2.522	10.400
6	6.900	0.383	5.226	21.518
8	9.050	0.503	9.040	37.077
10	11.100	0.617	13.666	55.836
12	13.200	0.733	19.354	78.080
DR 14 -- CLASS 200				
4	4.800	0.343	3.182	10.515
6	6.900	0.493	6.605	21.745
8	9.050	0.646	11.410	37.480
10	11.100	0.793	17.250	56.480
12	13.200	0.943	24.450	79.910

service weight cast iron soil pipe data (bell & spigot type)

NOM SIZE	O.D. OF CAST IRON PIPE (BARREL)	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
			PIPE*	PIPE FILLED WITH WATER
2	2.30	.170	4.10	5.60
3	3.30	.170	6.00	9.40
4	4.30	.180	7.90	14.10
5	5.30	.180	10.00	22.30
6	6.30	.180	12.40	26.30
8	8.38	.230	18.10	43.80
10	10.50	.280	26.00	66.60
12	12.50	.280	34.60	92.80
15	15.88	.360	52.50	149.10
* BASED ON 10' LENGTH				

extra heavy cast iron soil pipe data (bell & spigot type)

NOM SIZE	O.D. OF CAST IRON PIPE (BARREL)	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
			PIPE*	PIPE FILLED WITH WATER
2	2.30	.190	4.50	6.10
3	3.30	.250	8.40	12.10
4	4.30	.250	10.50	17.00
5	5.30	.250	13.40	23.60
6	6.30	.250	15.70	30.40
8	8.38	.310	24.60	50.70
10	10.50	.370	37.50	78.30
12	12.50	.370	47.10	105.90
15	15.88	.440	67.60	159.40
* BASED ON 10' LENGTH				

no hub cast iron soil pipe data

NOM SIZE	O.D. OF CAST IRON PIPE	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
			PIPE	PIPE FILLED WITH WATER
1-1/2	1.90	.16	2.9	6.40
2	2.35	.16	3.8	8.80
3	3.35	.16	5.4	13.70
4	4.38	.19	7.1	19.90
5	5.30	.19	9.8	27.70
6	6.30	.19	11.8	34.80
8	8.38	.23	16.5	56.00
10	10.56	.28	25.5	68.84
12	12.50	.28	31.8	94.31
15	15.83	.36	49.3	145.50

REFERENCE GUIDES

cpvc plastic pipe data (schedule 40 & 80)

PIPE SIZE	PIPE O.D.	SCHEDULE NO.	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
				PIPE	PIPE FILLED WITH WATER
3/8	0.675	40	0.091	.122	.205
		80	0.126	.154	.215
1/2	0.84	40	0.109	.180	.312
		80	0.147	.225	.326
3/4	1.05	40	0.113	.239	.469
		80	0.154	.305	.491
1	1.315	40	0.133	.352	.726
		80	0.179	.449	.760
1-1/4	1.66	40	0.140	.475	1.122
		80	0.191	.618	1.173
1-1/2	1.9	40	0.145	.568	1.450
		80	0.200	.751	1.516
2	2.375	40	0.154	.761	2.213
		80	0.218	1.040	2.319
2-1/2	2.875	40	0.230	1.201	3.273
		80	0.276	1.584	3.418
3	3.5	40	0.216	1.572	4.772
		80	0.300	2.124	4.984
3-1/2	4	40	0.226	1.905	6.185
		80	0.318	2.607	12.642
4	4.5	40	0.237	2.239	7.749
		80	0.337	3.105	8.085
5	5.563	40	0.258	3.062	11.722
		80	0.375	4.343	12.213
6	6.625	40	0.280	3.945	16.455
		80	0.432	5.929	17.219
8	8.625	40	0.322	5.920	27.520
		80	0.500	9.051	28.851
10	10.75	40	0.365	8.406	42.506
		80	0.593	13.429	44.529
12	12.75	40	0.406	11.172	59.672
		80	0.687	18.458	62.458
14	14	40	0.437	13.262	71.762
		80	0.750	22.224	73.424
16	16	40	0.500	17.312	93.812
		80	0.843	28.557	98.257

pvc plastic pipe data (schedule 40 & 80)

PIPE SIZE	PIPE O.D.	SCHEDULE NO.	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
				PIPE	PIPE FILLED WITH WATER
3/8	0.675	40	0.091	.109	.192
		80	0.126	.138	.199
1/2	0.84	40	0.109	.161	.293
		80	0.147	.202	.303
3/4	1.05	40	0.113	.214	.444
		80	0.154	.273	.459
1	1.315	40	0.133	.315	.689
		80	0.179	.402	.713
1-1/4	1.66	40	0.140	.426	1.073
		80	0.191	.554	1.109
1-1/2	1.9	40	0.145	.509	1.391
		80	0.200	.673	1.438
2	2.375	40	0.154	.682	2.134
		80	0.218	.932	2.211
2-1/2	2.875	40	0.230	1.076	3.148
		80	0.276	1.419	3.253
3	3.5	40	0.216	1.409	4.609
		80	0.300	1.903	4.763
3-1/2	4	40	0.226	1.697	5.977
		80	0.318	2.322	6.172
4	4.5	40	0.237	2.006	7.510
		80	0.337	2.782	7.762
5	5.563	40	0.258	2.726	11.386
		80	0.375	3.867	11.737
6	6.625	40	0.280	3.535	16.045
		80	0.432	5.313	16.603
8	8.625	40	0.322	5.305	26.905
		80	0.500	8.058	27.858
10	10.75	40	0.365	7.532	41.632
		80	0.593	11.956	43.056
12	12.75	40	0.406	9.949	58.449
		80	0.687	16.437	60.437
14	14	40	0.437	11.810	70.310
		80	0.750	19.790	70.990
16	16	40	0.500	15.416	91.916
		80	0.843	25.430	95.130
18	18	40	0.563	20.112	117.312
		80	0.937	31.830	120.330
20	20	40	0.593	23.624	144.024
		80	1.031	40.091	149.491
24	24	40	0.687	32.873	207.073
		80	1.218	56.882	215.082

REFERENCE GUIDES

sdr-35 pvc sewer pipe data

NOM. SIZE	PIPE O.D.	WALL THICKNESS	WEIGHT PER FOOT (lbs)
			PIPE*
4	4.215	.120	1.053
6	6.275	.180	2.361
8	8.400	.240	4.222
10	10.500	.300	6.617
12	12.500	.360	9.480
15	15.300	.437	14.219
18	18.701	.536	21.510
21	22.047	.632	30.261
24	24.803	.711	38.642
* BASED ON 13' LENGTH			

glass pipe data

PIPE SIZE	PIPE O.D.	SCHEDULE	WALL THICKNESS	WEIGHT PER FOOT (lbs)	
				PIPE*	PIPE FILLED WITH WATER
1	1.31	HEAVY	.16	.60	.95
1-1/2	1.84	REGULAR	.12	.64	1.53
		HEAVY	.17	.87	1.63
2	2.34	REGULAR	.14	.94	2.39
		HEAVY	.17	1.10	2.46
3	3.41	REGULAR	.17	1.60	4.79
		HEAVY	.20	2.00	5.06
4	4.53	REGULAR	.20	2.60	8.39
		HEAVY	.26	3.40	8.84
6	6.66	REGULAR	.24	4.70	17.48
		HEAVY	.33	6.30	18.72

NOTE:

Spacing of hangers for glass pipe should be every 8' to 10". Hangers should be felt lined or vinyl coated.

rigid steel conduit data (heavy wall conduit)

NOM. SIZE	CONDUIT O.D.	WEIGHT W/ COUPLING (lbs)	APPROX. WEIGHT CONDUIT AND CONDUCTOR (lbs/ft)	
			LEAD COVERED	NOT LEAD COVERED
3/8	.675	.515	.805	.651
1/2	.840	.80	1.17	1.04
3/4	1.050	1.09	1.75	1.40
1	1.315	1.65	2.62	2.35
1-1/4	1.660	2.15	4.31	3.58
1-1/2	1.900	2.58	5.89	4.55
2	2.375	3.52	8.53	7.21
2-1/2	2.875	5.67	11.51	10.22
3	3.500	7.14	16.51	14.51
3-1/2	4.000	8.60	19.05	17.49
4	4.500	10.00	24.75	21.48
5	5.563	13.20	35.87	30.83
6	6.625	17.85	50.69	43.43

electrical metallic tubing data

NOM. SIZE	CONDUIT O.D.	WEIGHT W/ COUPLING (lbs)	APPROX. WEIGHT CONDUIT AND CONDUCTOR (lbs/ft)
3/8	.675	.23	.366
1/2	.840	.29	.54
3/4	1.050	.45	1.16
1	1.315	.65	1.83
1-1/4	1.660	.96	2.96
1-1/2	1.900	1.11	3.68
2	2.375	1.41	4.45
2-1/2	2.875	2.15	6.41
3	3.500	2.60	3.68
3-1/2	4.000	3.25	4.45
4	4.500	3.90	15.40

intermediate metal conduit data

NOM. SIZE	CONDUIT O.D.	WEIGHT W/ COUPLING (lbs)	APPROX. WEIGHT CONDUIT AND CONDUCTOR (lbs/ft)	
			LEAD COVERED	NOT LEAD COVERED
1/2	.840	.60	.97	.84
3/4	1.050	.82	1.48	1.13
1	1.315	1.16	2.13	1.86
1-1/4	1.660	1.50	3.66	2.93
1-1/2	1.900	1.82	5.13	3.79
2	2.375	2.42	7.43	6.11
2-1/2	2.875	4.28	10.12	8.83
3	3.500	5.26	14.63	12.63
3-1/2	4.000	6.12	16.57	15.01
4	4.500	6.82	21.57	18.30

CROSS REFERENCE

EMPIRE	ANVIL GRINELL	C&P	COOPER B-LINE	ELITE	ERICO	GREGORY	NATIONAL	PHD	TOLCO
10J	67	--	B3690	3600	418	W 340	--	970	3
10JGIFL	67F	--	B3690F	3650	418F	W 340(14)	--	970F	3F
11	260	100	B3100	4100/4000	400	W410	200	450	1
11DIP	590	100CI	B3102	--	405	--	215	420	1C.I.
11F	--	--	B3109	--	425	W411	205	--	--
11WS	--	100SH	--	--	403	W412	220	455	1WS
11SS/SX	260SS	100SS	B3105	4500/4600	406	--	200	425	1SS
11V	--	200V	B3106	--	104V	W413	230	450V	1V
11X	300	100EL	B3108	--	415	W415	210	430	1A
12	--	200VT	B3106V	--	104	W562	235	450T	1VT
13	290	279	B3200	--	35	W715	740	35	330
21	--	238	B351	--	200	W200	610	250-1	--
21L	95	47	B351L	6SC	200L	W201	615	250	64
21R	89	22	B3362	--	255C	W115/W116	620	259	--
22R	89-X	192RS	B3367	RS	300C	W117	637	359	69
23L	86	196	B3036L	BC6	255L	W211	--	270	--
24	--	290	B3037	BC3	315	W140	618	290	--
25	--	--	--	--	--	--	--	--	--
26	248	33	B3210	--	40	W866	--	50	102
26W	278	93	B3211	--	40W	W868	--	55	101
31	70	1A	B3172	--	105	--	--	BLK-180/EG181	2WON
31CT/CTI	--	1ACT	B3172CT	--	106	--	--	182	--
31SS	--	--	B3172(STAINLESS)	--	105	W330	--	--	2WON (SS/SX)
34	--	--	--	--	--	--	900	--	--
35	--	--	--	--	--	--	901	--	--
36	--	--	--	--	--	--	902	--	--
37	120	--	B3501	--	--	--	--	95	111
40HS	--	--	--	--	454	--	--	--	--
41	--	--	B3198R	--	--	W761	100	510R	--
41SSI/SXI	--	--	B3198 (SS/SX)	--	--	--	100	510R(STAINLESS)	--
41A	128R	85	B3199	3700/3710	365M	W750	105	BLK-940/ZN-941	78
41ACT	CT-128R	85CT	B3199CT	3720	365M (CP)	W750 (3)	105	942	--
41ASSI/SXI	--	--	B3199 (SS/SX)	5300	--	--	105	904(STAINLESS)	--
41H	138R	81	B3198H	5000/5100	455	W760	100	508R	302
41HCT	CT-138R	81CT	B3198HCT	5200	456	W765	100	512H	301CT
47	110R	12	B3222	--	47	W720	--	30	307
48	--	126LD	--	--	515	--	--	--	--
50	261	126	B3373	6300/6200	510	W500	420	550-551	6
50CT/CTI	CT-121	124	B3373CT	6400	511	W505	420	552	--
50H	40	126CT	B3374	--	511	--	404	552	82
50PC	--	126PVC	B3373C	--	520	--	420	553	6PVC
50SA	--	--	--	--	512	--	--	--	--
50SS/SX	261SS	--	B3373(STAINLESS)	--	510 (STAINLESS)	W500(8)/(0)	420	550(STAINLESS)	6SS

CROSS REFERENCE

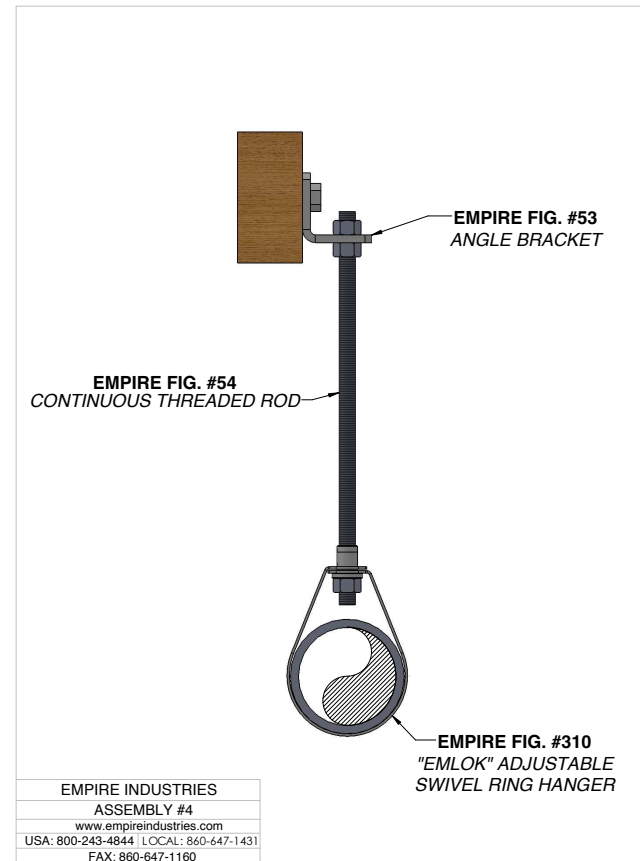
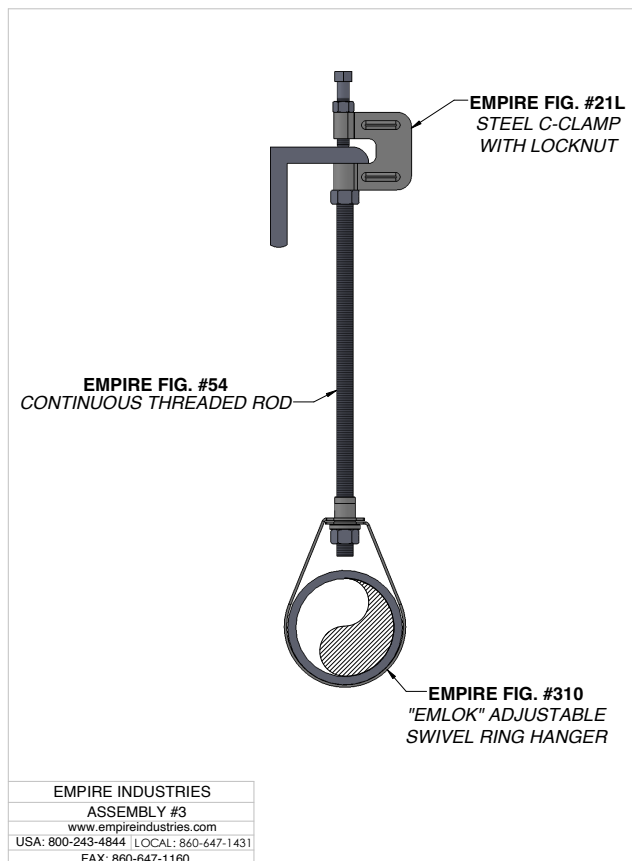
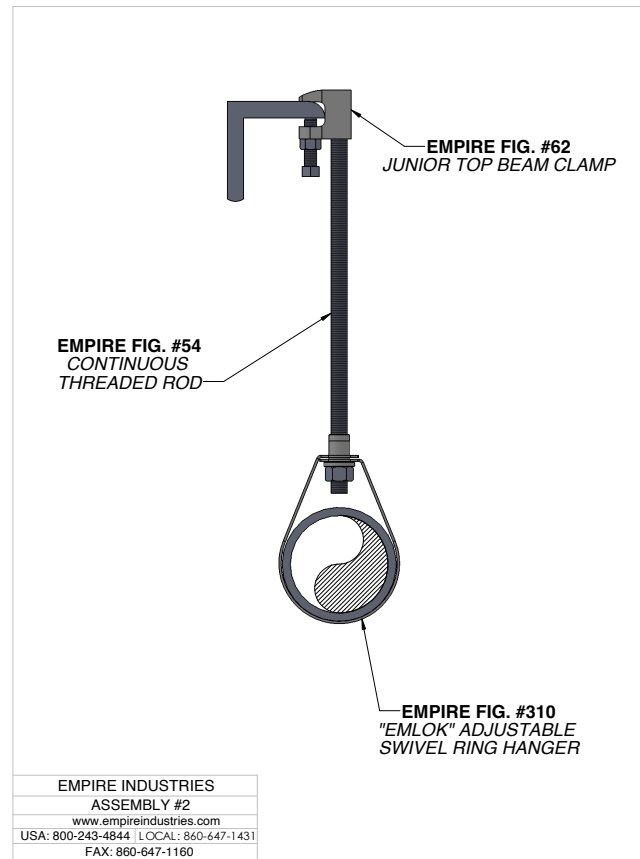
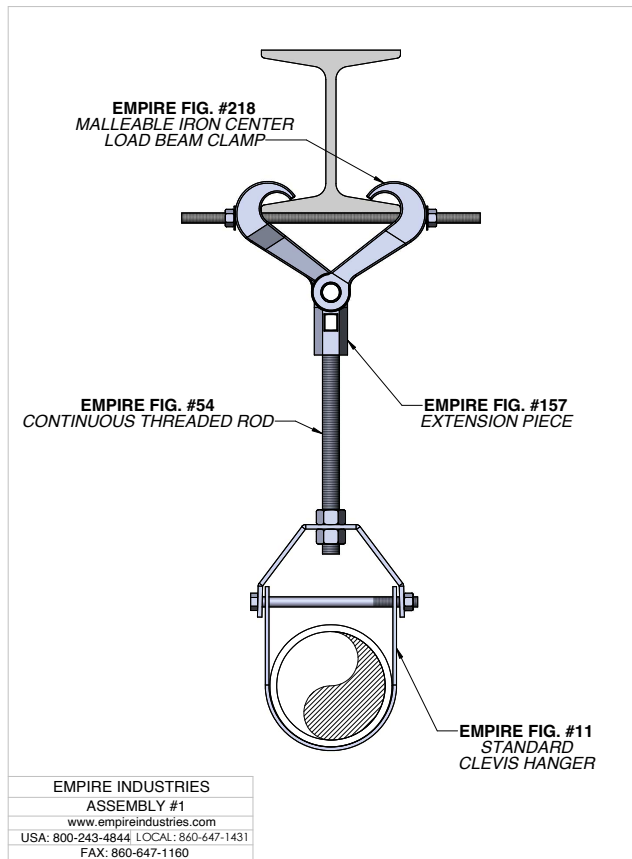
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51	135	135	B655	100L	25	W806	770	100	100
51R	135R	135R	B656	--	25R	--	775	105	105
51SS	--	123 (STAINLESS)	--	100L STAINLESS	--	W806	770	--	--
52	AS 209	103	FW	WAS	11	W815	795	130	130
52F	AS 230	8	FFW	--	12	W818	810	136	136
52L	AS211	176	LW	--	13	W816	--	134	134
53	206	303	B3060	--	325	W735	--	920	920
54	146	94	ATR	ATR	50	W860	755	20	20
55	28	28	B3213	--	41	W865	--	40	40
56	AS 83	165	HN	--	10	W810	785	110	110
56H	--	165H	HHN	--	10H	W811	790	110H	110H
57	140	133	B3205	--	STUD 51	W863/864	--	15	103
58	AS 6024	162	B3209	--	5	W835	780	41	--
60	--	--	--	--	BC26	--	--	--	--
61	93-94	192W	B3033	BC8	310	W110	640	360	68
62	92	192	B3034	BC1	300	W100	635	350	--
63	AS85	--	B444	BC4	--	W130	--	--	--
66L/66W	66	113A&B	B3083	--	320	W740/W745	645/650	900	304/305
67	49	1020 (TYPE 2)	B3086	--	374	W746	647	904	34
68	52	1020 (TYPE 1)	B3085	--	374A	W741	646	903	35
69L/69S	55L/55	220	B3080L/S	--	341	W738/W739	--	935-936	343
72	--	--	B3234	--	--	W817	--	135	116
73	--	514	ADI	--	345R	W840	875	47S	--
75	60	260	B3248	--	42	W800	805	930	118
77	--	177	--	--	--	W872	--	70	107
80	--	1309	AWA	--	--	W842	--	47W	209
81	281	650	B2500	--	355	W790	600	950-951	310
81 (NUT)	281 (NUT)	650N	N2500	--	355N	W791	--	950N-951N	310N
83	--	59	--	--	--	W855	880	--	123
84	--	59	ATB	--	NUT 145	--	885	--	124
95	103	179	B3148	--	700	W540	430	--	7
97	100	267	B3149	--	705	W550	435	545	8
110	65	200	B3104	4300/4200	410	W420	--	440BLK-441ZINC	1LD
110CT/CTI	CT-65	100CT	B3104CT	4400	402	W430/W405	--	442	81
110PC	260CT	100PVC	B3100C	--	420	W400	200V	453	1LDPVC/1PVC
114	114	38	B3224	--	30	W705	--	44	306
126	126	237	--	--	--	--	--	835	--
129CT	--	66CT	--	--	BH	W755	--	--	--
136	AS 51	282	B422	--	RA	W770	--	840	--
137	137	283	B3188	1500/1600	150	W870	165/166	90BLK-91ZINC	110
137PC	137C	283PVC	B3188C	--	--	--	--	93	--
137SS	137SS	283SS	B3188 (STAINLESS)	--	150(STAINLESS)	W870(8)/(0)	165/166	94	110(STAINLESS)
150	133/134	15	B3050	--	361	W220/W225	680	610-620	62

CROSS REFERENCE

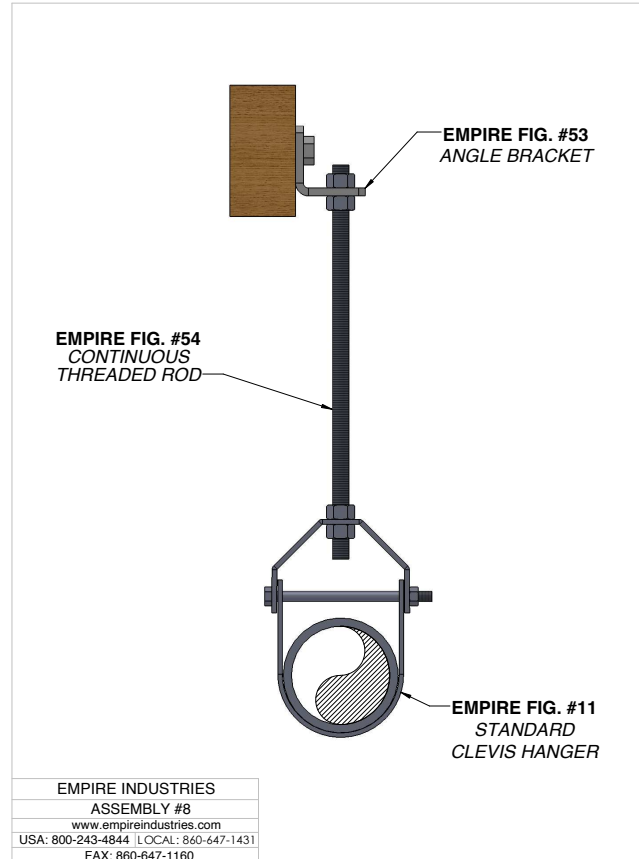
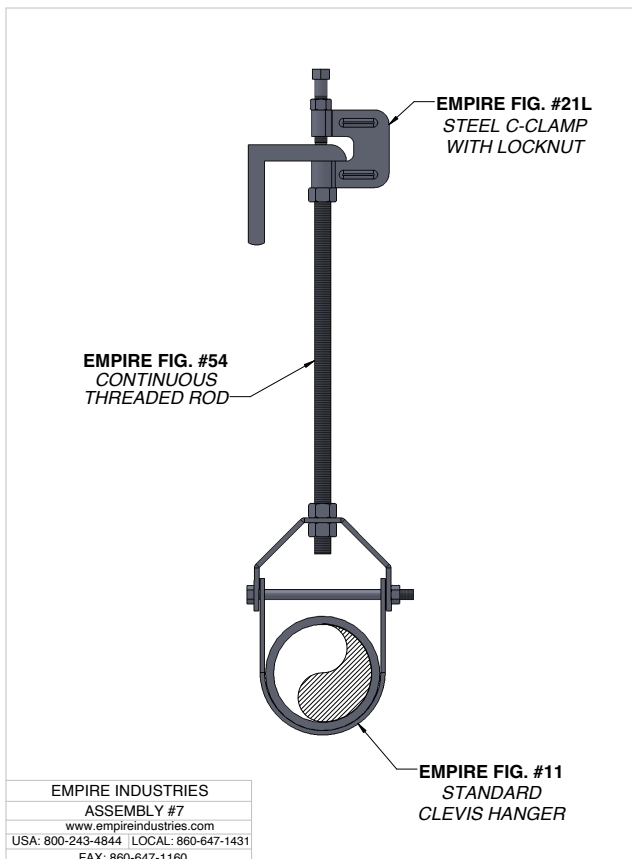
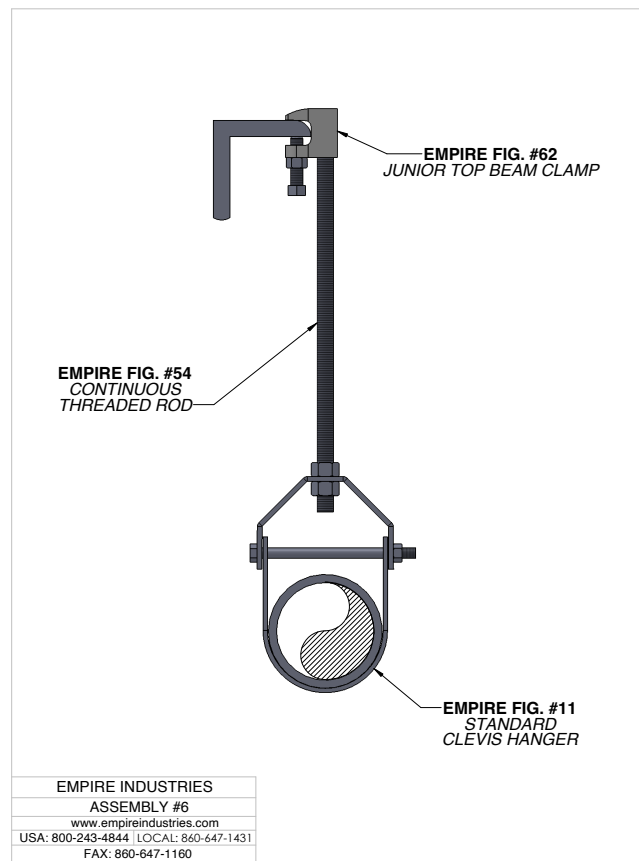
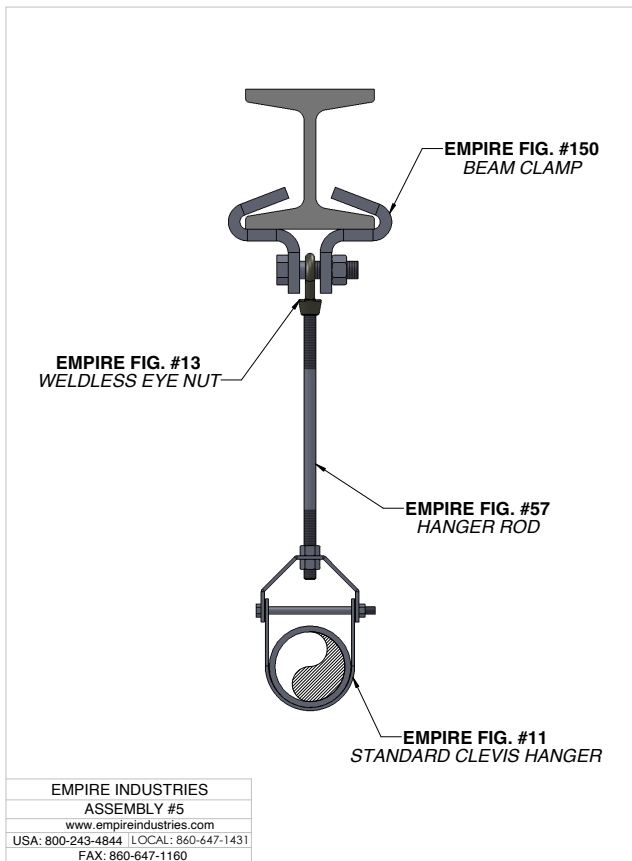
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152	--	152	B3061	--	319	W728	--	910	42
153	--	153	B3058	380	327	W725	655	905	--
155	--	268	B3055	--	364	W227	675	625	--
157	157	157	B3203	--	26	W730	--	25	333
159	14	14	B3040	--	363	W226	665	635	336
167	167	265P	B3151	1250	125	W560	300	170	220
180	262	114	B3180	--	470	W670/W671	--	830	20
189	295	304	B3144	--	452	W520	410	525	5
189A	295A	304Z	--	--	--	--	--	--	--
189H	295H	91	B3146	--	453	W521	415	526	--
202	202	337	B3062	--	--	--	--	--	--
212	212	175	B3140	6100/6000	450	W510	400	520BLK-521ZINC	4
216	216	298	B3142	--	451	W511	405	522	329
218	218	82	B3054	BC7	360	W230	685	630	21
231	266	72	--	102	8EG	W660	--	825	--
231CT	--	72CT	--	--	8CP	--	--	--	--
233	--	237	--	101	7	W665	--	835	--
235	--	111	--	--	WH	W873	--	--	--
235CT	--	111CT	--	--	WH(CP)	--	--	--	--
237	--	DWV	--	--	--	--	--	--	--
239	--	--	--	--	EG	--	--	--	--
239CT	--	--	--	--	CP	--	--	--	--
255	255	1006	--	--	--	W120	502	--	422
256	256	1007	B3281	--	650	--	500	670-678	421
272	181	140	B3110	679/672	610	W610	250	470	324
273	177	109	B3122	--	620	W640	--	480	326
275	175	54	B3120	--	615	W620	245	460	325
277	171	142	B3114	689/682	605	W630	260	490	322
279S	271	39	B3117SL	--	617	W622	248	486	327
280S	274 W/274P	40	B3118SL	--	619	W623	249	487	328
310	69	800	B3170	3000	100	W300/W305	110	151	2
310CT/CTI	CT-69	800CT	B3170CT	3100	101	W310/W325	110	152	202
310GFL	69F	--	B3170NFF	3300	100FL	W300 (12)	--	151F	2F
310PC	--	800PC	--	--	102	W320	--	153	203
310SS/SX	--	--	--	--	--	--	--	--	2NFPA(STAINLESS)
310NFPA	69	800FP	B3170NF	3000	100/115	W300	110	141	2NFPA
310NFFL	69F	--	B3170NFF	3300	100FL	W305 (12)	-	141F	2F(NFPA)
310NFPC	--	--	B3170NFC	3000 (VINYL)	102	W320	-	--	--
320	230	132	B3202	--	30	W710	730	960	331
420	--	136	--	--	--	--	525	--	--
421	--	247	--	--	--	W270	530	870	--
422	192	137	B3096	--	722	W245	515	874	312
422U	191	--	B3098	--	--	W240	516	--	313

EMPIRE	ANVIL GRINELL	C&P	COOPER B-LINE	ELITE	ERICO	GREGORY	NATIONAL	PHD	TOLCO
422UDIP	--	--	B3098	--	--	--	517	--	--
425	259	125SP	B3090	--	721	W250	520	882	318
425L	258	136SP	B3095	--	--	W260/W261	521	880	317
426	264	101	B3093	--	723	W265	535	875	317A
427	265	101U	B3092	--	724	W255	538	876	318A
450	292	297	B3291	--	--	--	695	632/633	--
575	--	--	--	--	46	--	470	--	106
595	595	158DB	B3134	--	--	W502	460	590	14
599	599	258	B3132W	--	516	W503/W504	455	585	9X
600	600	158	B3132W	--	517	W501	450	580	9
801	195	139	B3066	--	352	W290	705	855	30M
802	199	139	B3067	--	353	W291	710	860	30H
820	194	69	B3068	--	351	W280	715	850	30
820C	193	78	B3063CP	--	350	W281	720	850C	30L
909	299	276	B3201	--	31	W700	735	38	332
1900	160	351	B3160	--	630	W570	310	651	260-1
1901	161	352	B3161	--	631	W570	315	653	260-11/2
1902	162	353	B3162	--	632	W570	320	654	262-2
1903	163	354	B3163	--	633	W570	325	655	263-21/2
1904	164	355	B3164	--	634	W570	330	656	264-3
1905	165	356	B3165	--	635	W570	340	658	265-4
4000	--	--	B3897	--	--	W127	950A	--	--
4000 SERIES	257 / 436 (TYPE 1 - 6)	--	B3891	--	--	W121 - W126	950 SERIES	690 (TYPE 1 - 6)	426
4300SPEC SERIES	439 (TYPE 1 - 5)	--	B3991-10	--	--	--	955 SERIES	--	428
8575	AS 270	--	BL1400	3800	CD	3800	--	--	--
8575SX	--	--	BL1400 (SS4)	3800 STAINLESS	--	3800 STAINLESS	--	--	--
DPCSS	--	--	--	--	--	--	--	--	--

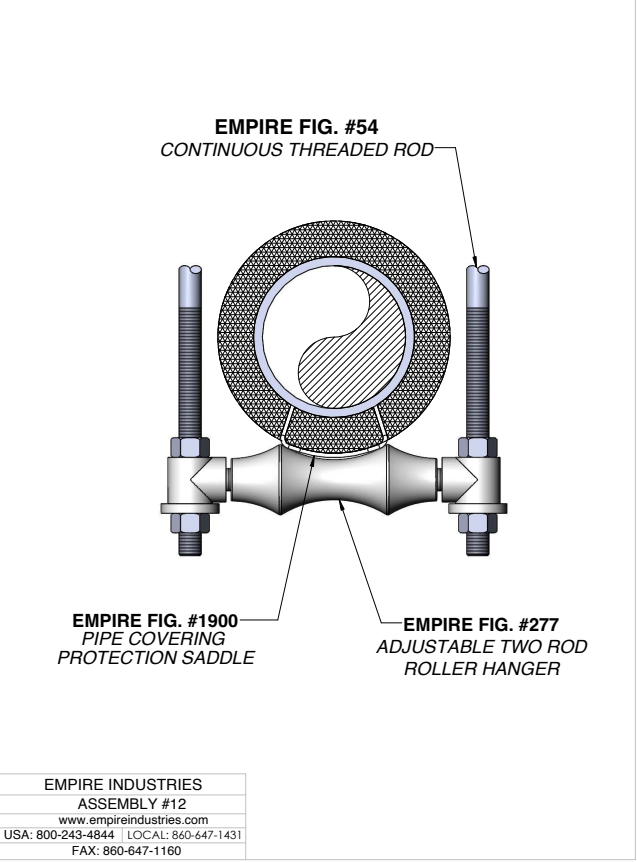
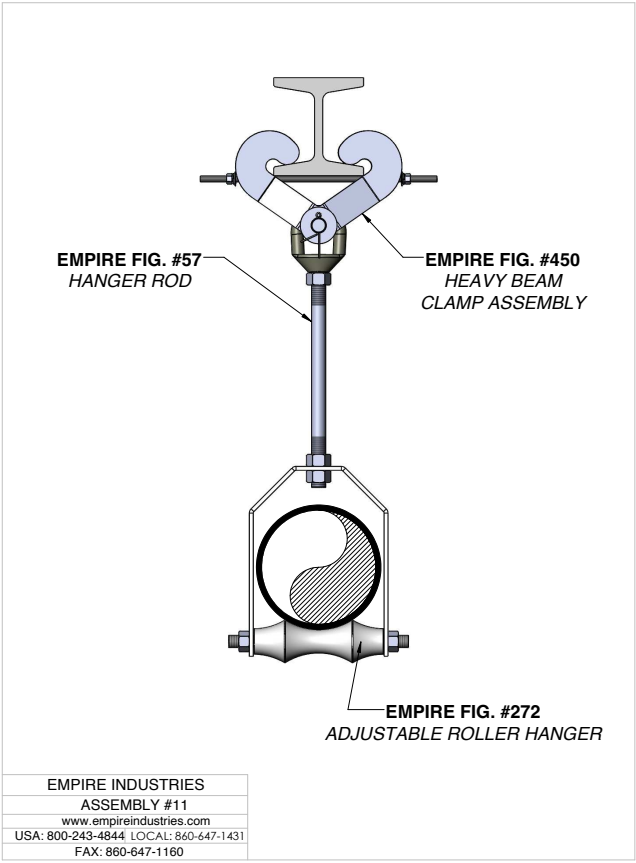
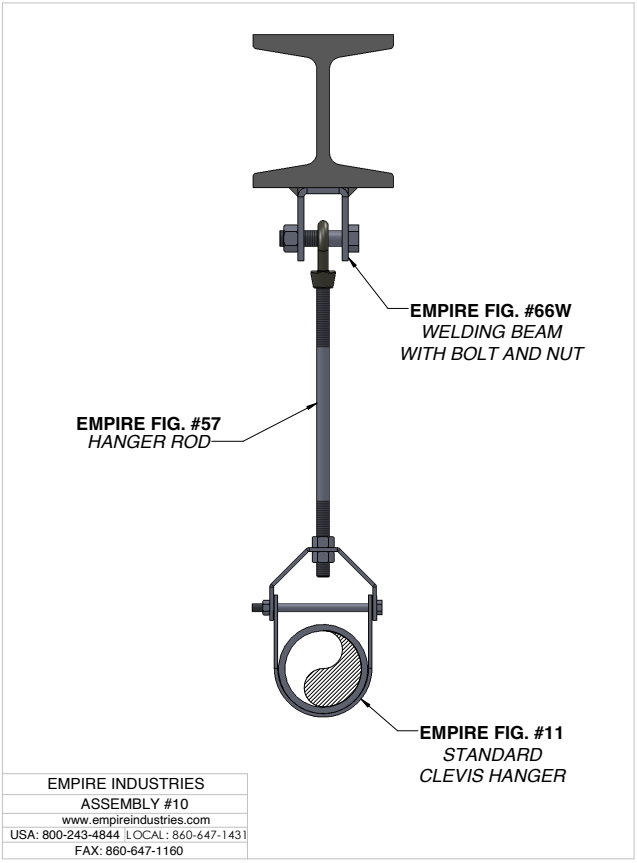
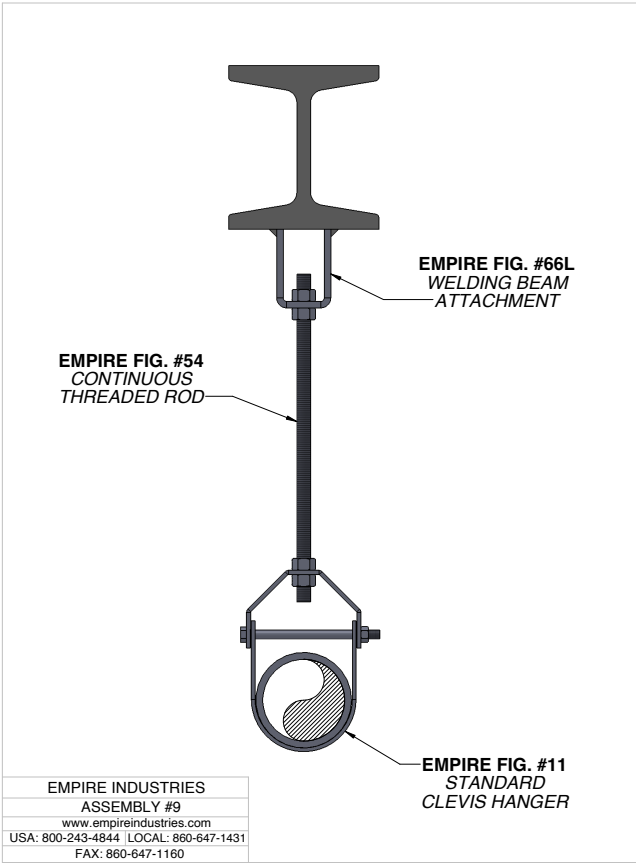
TYPICAL HANGER ASSEMBLIES



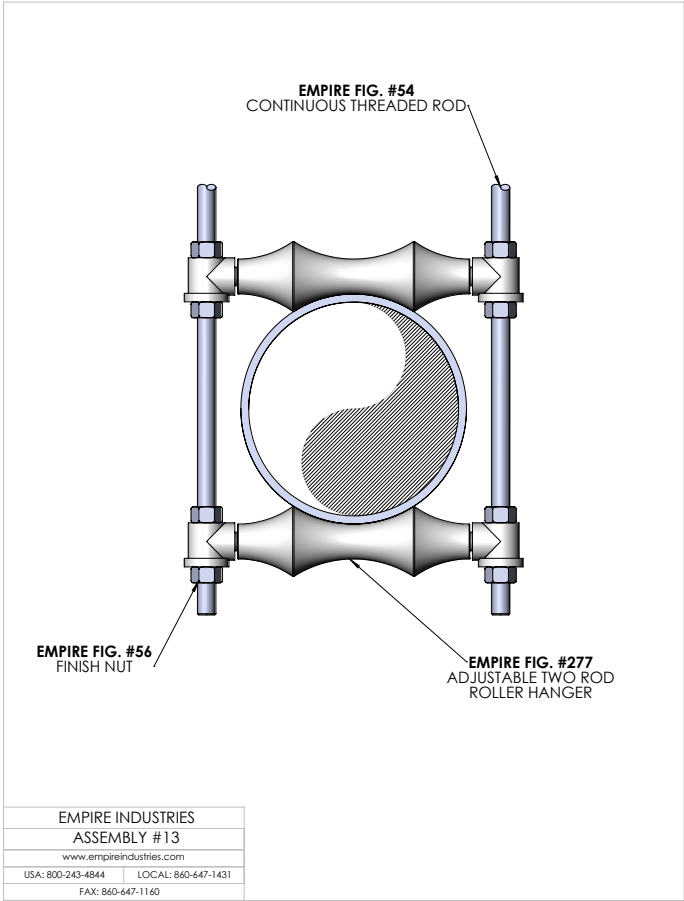
TYPICAL HANGER ASSEMBLIES



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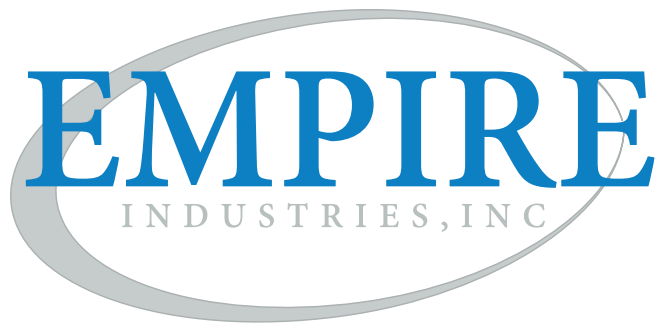


TYPICAL HANGER ASSEMBLIES



NOTES

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