HAMPSHIRE FIRE PROTECTION CO., INC.

ALL TYPES OF FIRE PROTECTION – WATER – CO^2 – FOAM

8 No. Wentworth Ave. ● Londonderry, NH 03053 ● (603) 432-8221 ● Fax: (603) 434-3194

104 Etna Road ● Lebanon, NH 03766 ● (603) 448-5461 ● Fax: (603) 448-7334

277 Old Homestead Highway ● Swanzey, NH 03446 ● (603) 358-6736 ● Fax: (603) 358-6832

Info@Hampshirefire.com

Product Submittal

Evolution Rocks
Portland, ME
4480CME

ITEM:	MANUFACTURER / MODEL
1. Backflow Prevention Device	Ames / Colt C200 OSY
2. O.S.&Y. Control Valve	Nibco / Model F607-RW
3. Butterfly Control Valve	Victaulic
4. Butterball Control Valves	Victaulic
5. Supervisory Switches	Potter / Model OSYSU
6. Waterflow Switches	Potter / Model VSR
7. Electric Bells	Potter / 8”
8. Fire Department Inlet	Croker / Storz
9. Check Valve	Nibco / Model G – 917 – W
10. Sprinklers	Reliable / F1FR56 QR Br. Upr., Chr. Pend.
11. Spare Sprinkler Cabinet	Argco
12. Pipe	Wheatland Sch. 10 & 40 Northwest Pipe Bull Moose Allied

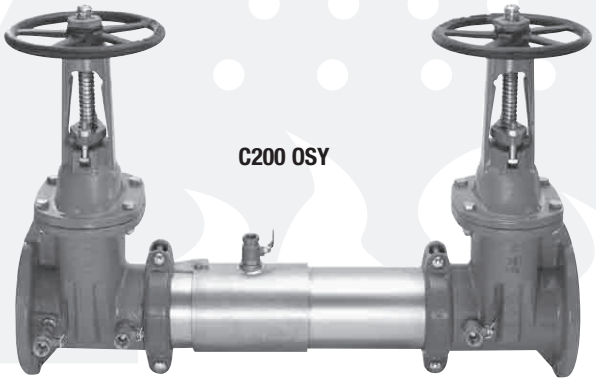
13. Fittings – Screwed	Anvil
14. Fittings – Grooved	Victaulic
15. Fittings – Flanged	Napac
16. Fittings – Welded	Merit and Nap
17. Hangers	PHD & Sammy Products
18. Firestopping	Hilti / FS – One
19. Seismic Restraints	Loos & Co. & Afcon

Colt™ Series C200, C200N

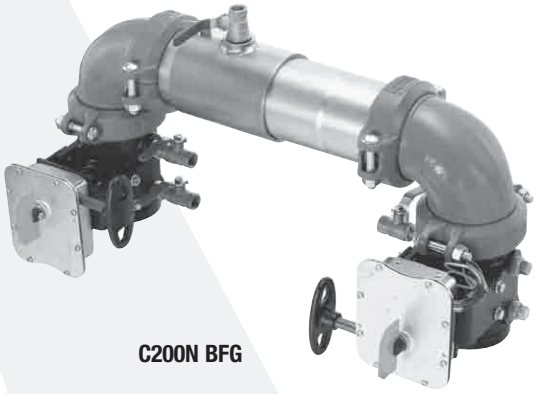
Double Check Valve Assemblies

Sizes: 2½" – 10" (65 – 250mm)

LEAD FREE*



C200 OSY



C200N BFG

Features

- Extremely Compact Design
- 70% Lighter than Traditional Designs
- 304 (Schedule 40) Stainless Steel Housing & Sleeve
- Groove Fittings Allow Integral Pipeline Adjustment
- Patented Tri-Link Check Provides Lowest Pressure Loss
- Unmatched Ease of Serviceability
- Available with Grooved Butterfly Valve Shutoffs
- Available for Horizontal, Vertical or N Pattern Installations
- Replaceable Check Disc Rubber

***The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.**

The Colt C200, C200N Double Check Valve Assemblies are used to prevent backflow of pollutants, that are objectionable but not toxic, from entering the potable water supply system. The Colt C200, C200N may be installed under continuous pressure service and may be subjected to backpressure. The Colt C200, C200N consists of two independently operating check valves, two shutoff valves, and four test cocks. For use in non-health hazard applications.

Specifications

The Colt C200, C200N Double Check Valve Assembly shall consist of two independent Tri-Link Check modules within a single housing, sleeve access port, four test cocks and two drip tight shutoff valves. Tri-Link Checks shall be removable and serviceable, without the use of special tools. The housing shall be constructed of 304 (Schedule 40) stainless steel pipe with groove end connections. Tri-Link checks shall have reversible elastomer discs and in operation shall produce drip tight closure against the reverse flow of liquid caused by backpressure or backsiphonage. Assembly shall be a Colt C200, C200N as manufactured by the Ames Company.

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

Ames product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Ames Technical Service. Ames reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Ames products previously or subsequently sold.

Configurations

- Horizontal
- Vertical up
- “N” pattern horizontal

Materials

- Housing & Sleeve: 304 (Schedule 40) Stainless Steel
- Elastomers: EPDM, Silicone and Buna ‘N’
- Tri-Link Checks: Noryl®, Stainless Steel
- Check Discs: Reversible Silicone or EPDM
- Test Cocks: Bronze Body Nickel Plated
- Pins & Fasteners: 300 Series Stainless Steel
- Springs: Stainless Steel

Available Models

Suffix:

NRS - non-rising stem resilient seated gate valves

OSY - UL/FM outside stem and yoke, resilient seated gate valves

BFG - UL/FM grooved gear operated butterfly valves with tamper switch

*OSY FxG - Flanged inlet gate connection and grooved outlet gate connection

*OSY GxF - Grooved inlet gate connection and flanged outlet gate connection

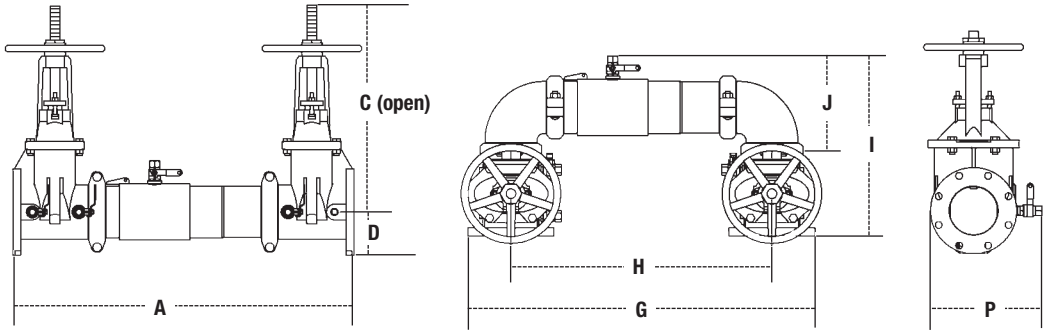
*OSY GxG - Grooved inlet gate connection and grooved outlet gate connection

Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Pressure — Temperature

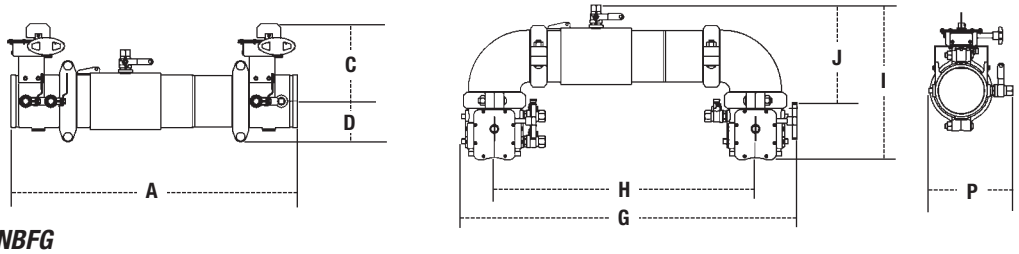
Temperature Range: 33°F – 140°F (0.5°C – 60°C)
Maximum Working Pressure: 175psi (12.1 bar)

Dimensions — Weights



C200, C200N

SIZE (DN)		DIMENSIONS																WEIGHT					
		A		C (OSY)		C (NRS)		D		G		H		I		J		P		C200NRS		C200OSY		C200N NRS		C200N OSY	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*	*lbs.*	*kgs.*	*lbs.*	*kgs.*	*lbs.*	*kgs.*
2½	65	31	787	16⅜	416	9⅜	238	3½	89	29 1/16	738	21½	546	15½	393	8 13/16	223	9 3/16	234	115	52	125	57	123	56	133	60
3	80	31 11/16	805	18⅞	479	10¼	260	3 11/16	94	30¼	768	22¼	565	17⅛	435	9 3/16	233	10½	267	131	59	145	66	144	65	158	72
4	100	33½	851	22¾	578	12 3/16	310	4	102	33	838	23½	597	18½	470	9 15/16	252	11 3/16	284	161	73	161	73	184	83	184	83
6	150	44	1118	30⅛	765	16	406	5½	140	44¾	1137	33¾	857	23 3/16	589	13 1/16	332	15	381	273	124	295	134	314	142	336	152
8	200	50	1270	37¾	959	19 15/16	506	6 11/16	170	54⅛	1375	40⅝	1032	27 7/16	697	15 11/16	399	17 3/16	437	438	199	480	218	513	233	555	252
10	250	57½	1461	45¾	1162	23 13/16	605	8 3/16	208	66	1676	50	1270	32½	826	17 5/16	440	20	508	721	327	781	354	891	404	951	431



C200BFG, C200NBFG

SIZE (DN)		DIMENSIONS																WEIGHT			
		A		C		D		G		H		I		J		P		C200BFG		C200NBFG	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*	*lbs.*	*kgs.*
2½	65	27½	698	8	203	3½	89	29⅞	759	21½	546	14 15/16	379	8 13/16	223	9	229	56	25	64	29
3	80	28	711	8 5/16	211	3 11/16	94	30 11/16	779	22¼	565	15 7/16	392	9 3/16	233	9½	241	54	24	67	30
4	100	28¾	730	8 15/16	227	3 11/16	94	31 15/16	811	23½	597	16¼	412	9 15/16	252	10	254	61	28	84	38
6	150	37	940	10	254	5	127	43 3/16	1097	33¾	857	19 11/16	500	13 1/16	332	10½	267	117	53	157	71
8	200	43½	1105	12¼	311	6½	165	51 1/16	1297	40⅝	1032	23 5/16	592	15 11/16	399	14 3/16	361	261	118	337	153

Noryl® is a registered trademark of SABIC Innovative Plastics™.

Approvals

1015 28S6 B64.5

For additional approval information please contact the factory or visit our website at www.amesfirewater.com

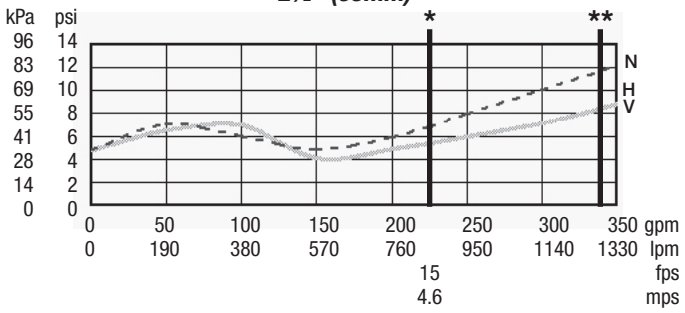
Capacity

UL/FM Certified Flow Characteristics
Flow characteristics collected using butterfly shutoff valves.
See literatue S-Colt-200/300 for gate valve flow characteristics

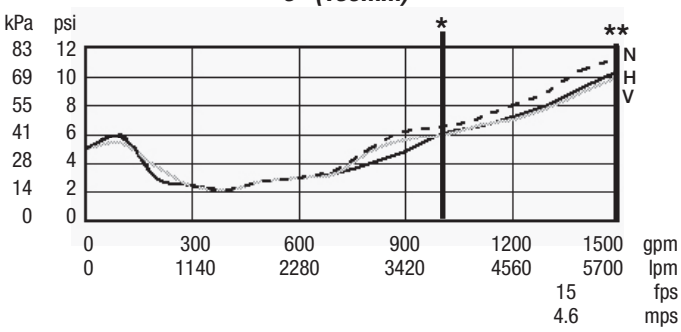
* = Rated Flow ** = UL Tested

Horizontal Vertical N - Pattern

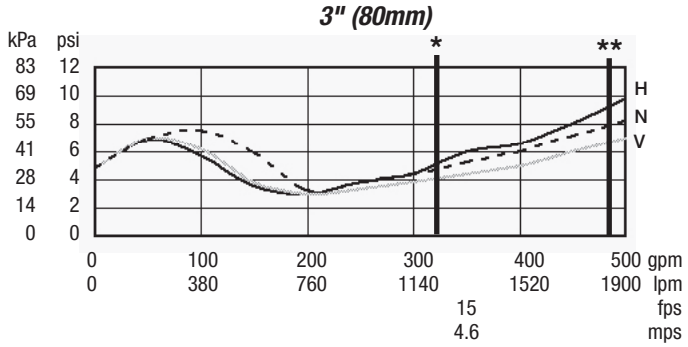
2½" (65mm)



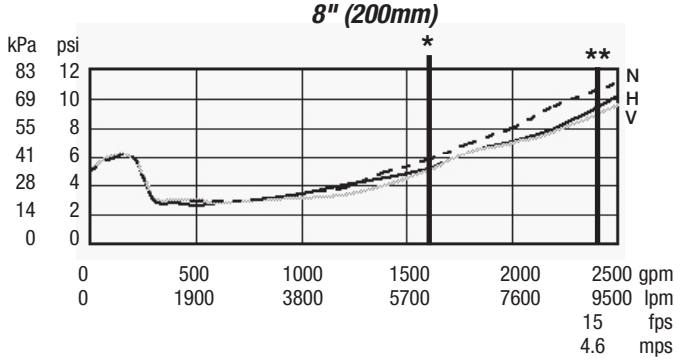
6" (150mm)



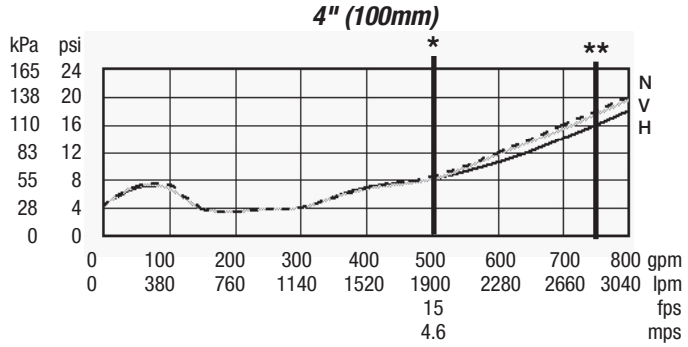
3" (80mm)



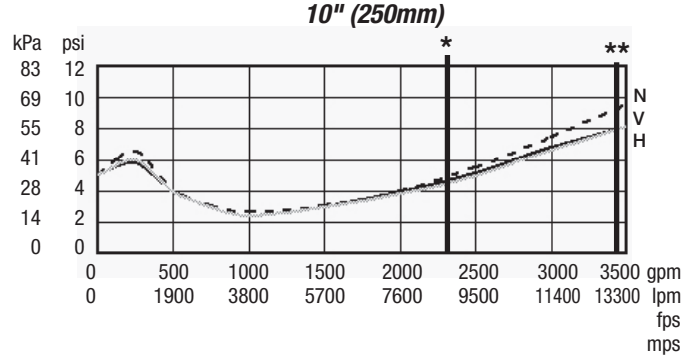
8" (200mm)



4" (100mm)



10" (250mm)



IMPORTANT: *INQUIRE WITH GOVERNING AUTHORITIES FOR LOCAL INSTALLATION REQUIREMENTS*

For additional information, visit our web site at: www.amesfirewater.com

AMES
FIRE & WATERWORKS

www.amesfirewater.com

ISO 9001-2008 CERTIFIED

A Watts Water Technologies Company

USA: Backflow- Tel: (916) 928-0123 • Fax: (916) 928-9333
Control Valves- Tel: (713) 943-0688 • Fax: (713) 944-9445
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068

ES-A-C200/C200N 1151

FireLock® Butterfly Valve

SERIES 705
WITH WEATHERPROOF ACTUATOR

The Series 705 Butterfly Valve features a weatherproof actuator housing Approved for indoor or outdoor use, a ductile iron body and disc with Nitrile seats. Designed for fire protection services only. Victaulic FireLock Series 705 Butterfly Valve is cULus Listed, LPCB Listed, FM and VdS Approved for 300 psi/2068 kPa service. Contact Victaulic for details of agency approvals.

APPROVALS AND LISTINGS

	Approval/Listing Service Pressures Series 705 Butterfly Valve			
	cULus	FM	VdS	LPCB
2"/50mm	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa	up to 300psi/2068kPa
2 1/2"/65mm	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
76.1mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
3"/80mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
4"/100mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
5"/125mm	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
139.7mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
6"/150mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
165.1mm	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
8"/200mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
10"/250mm	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
12"/300mm	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa

JOB/OWNER
System No. _____
Location _____

CONTRACTOR
Submitted By _____
Date _____

ENGINEER
Spec Sect _____ Para _____
Approved _____
Date _____

www.victaulic.com

FireLock® Butterfly Valve

SERIES 705
WITH WEATHERPROOF ACTUATOR

MATERIAL SPECIFICATIONS

Body: Ductile iron conforming to ASTM A-536, grade 65-45-12

End Face, 2 – 6"/50 – 150 mm: Ductile iron conforming to ASTM A-536, grade 65-45-12

Seal Retainer, 8 – 12"/200 – 300 mm: Ductile iron conforming to ASTM A-536, grade 65-45-12

Coating: Black alkyd enamel

Disc: Ductile iron conforming to ASTM A-536, grade 65-45-12, with electroless nickel coating conforming to ASTM B-733

Seat:

- **Grade "T3" Nitrile**

Stems: 416 stainless steel conforming to ASTM A-582

Stem Seal Cartridge: C36000 brass

Bearings: Stainless Steel with TFE lining

Stem Seals: Nitrile

Stem Retaining Ring: Carbon steel

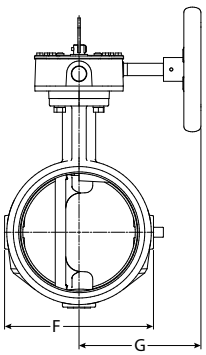
Actuator:

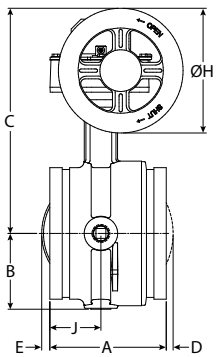
- 2 - 8"/50 - 200mm: Brass or bronze traveling nut on a steel lead screw, in a ductile iron housing
- 10 - 12"/250 - 300mm: Steel worm and cast iron quadrant gear, in a cast iron housing

FireLock® Butterfly Valve

SERIES 705
WITH WEATHERPROOF ACTUATOR

DIMENSIONS –





Note: Optional ½"/15mm tap available.
Contact Victaulic for details.

Size		Dimensions – Inches/millimeters								
Size	Outside Diameter	End to End A	B	C	D	E	F	G	DIA H	J
2" 60.3 mm	2.375 60.3	4.25 108.0	2.28 57.9	6.41 162.8	—	—	4.00 101.6	4.22 107.2	4.50 114.3	2.12 53.8
2½" 73 mm	2.875 73.0	3.77 95.8	2.28 57.9	7.54 191.5	—	—	4.00 101.6	4.22 107.2	4.50 114.3	1.77 45.0
76.1 mm	3.000 76.1	3.77 95.8	2.28 57.9	7.54 191.5	—	—	4.00 101.6	4.22 107.2	4.50 114.3	1.77 45.0
3" 88.9 mm	3.500 88.9	3.77 95.8	2.53 64.3	7.79 197.9	—	—	4.50 114.3	4.22 107.2	4.50 114.3	1.77 45.0
108 mm	4.250 108.0	4.63 117.6	2.88 73.2	8.81 223.8	—	—	5.50 139.7	4.22 107.2	4.50 114.3	2.20 55.9
4" 114.3 mm	4.500 114.3	4.63 117.6	2.88 73.2	8.81 223.8	—	—	5.50 139.7	4.22 107.2	4.50 114.3	2.20 55.9
133 mm	5.250 133.0	5.88 149.4	3.35 85.1	10.88 276.4	—	—	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.5
139.7 mm	5.500 139.7	5.88 149.4	3.35 85.1	10.88 276.4	—	—	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.6
5" 141.3 mm	5.563 141.3	5.88 149.4	3.35 85.1	10.88 276.4	—	—	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.5
159 mm	6.250 159.0	5.88 149.4	3.84 97.5	11.38 289.1	—	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	2.58 65.5
165.1 mm	6.500 165.1	5.88 149.4	3.84 97.5	11.38 289.1	—	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	2.58 65.5
6" 168.3	6.625 168.3	5.88 149.4	3.84 97.5	11.38 289.1	—	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	1.90 48.3
8" 219.1 mm	8.625 219.1	5.33 135.4	5.07 128.8	13.53 343.6	0.80 20.3	1.47 37.3	10.00 254.0	6.19 157.2	8.10 205.7	2.33 59.2
10" 273 mm	10.750 273.0	6.40 162.6	6.37 161.8	15.64 397.3	1.41 35.8	1.81 46.0	12.25 311.2	8.10 205.7	9.00 228.6	—
12" 323.9 mm	12.750 323.9	6.50 165.1	7.36 186.9	16.64 422.7	2.30 58.4	2.80 71.1	14.25 362.0	8.10 205.7	9.00 228.6	—

FireLock® Butterfly Valve

SERIES 705
WITH WEATHERPROOF ACTUATOR

PERFORMANCE

The chart expresses the frictional resistance of Victaulic Series 705 Butterfly Valve in equivalent feet/meters of straight pipe.

Size			Size		
Nominal Size Inches mm	Actual Outside Diameter Inches mm	Equiv. Feet/m of Pipe	Nominal Size Inches mm	Actual Outside Diameter Inches mm	Equiv. Feet/m of Pipe
2 50	2.375 60.3	6 1.8	6 150	6.625 168.3	14 4.2
2½ 65	2.875 73.0	6 1.8	159 mm	159 mm	14 4.3
76.1 mm	3.000 76.1	6 1.8	165.1 mm	6.500 165.1	14 4.2
3 80	3.500 88.9	7 2.1	8 200	8.625 219.1	16 4.9
4 100	4.500 114.3	8 2.4	10 250	10.750 273.0	18 5.5
108 mm	108 mm	8 2.4	12 300	12.750 323.9	19 5.8
5 125	5.563 141.3	12 3.7			
133 mm	133 mm	12 3.7			
139.7 mm	5.500 139.7	12 3.7			

FireLock® Butterfly Valve

SERIES 705
WITH WEATHERPROOF ACTUATOR

PERFORMANCE

C_V values for flow of water at +60°F/+16°C with a fully open valve are shown in the table below. For additional details, contact Victaulic.

Formulas for C_V Values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:
Q = Flow (GPM)
ΔP = Pressure Drop (psi)
C_v = Flow Coefficient

Size		C_V	Size		C_V	Size		C_V
Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)	Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)	Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)
2	2.375 60.3	170	5 125	5.563 141.3	1200	8 200	8.625 219.1	3400
2½ 65	2.875 73.0	260	133 mm	133 mm	1200	10 250	10.750 273.0	5800
76.1 mm	3.000 76.1	260	139.7 mm	5.500 139.7	1200	12 300	12.750 323.9	9000
3 80	3.500 88.9	440	6 150	6.625 168.3	1800			
4 100	4.500 114.3	820	159 mm	159 mm	1800			
108 mm	108 mm	820	165.1 mm	6.500 165.1	1800			

Formulas for K_V Values:

$$\Delta P = \frac{Q^2}{K_v}$$

$$Q = K_v \times \sqrt{\Delta P}$$

Where:
Q = Flow $\left(\frac{m^3}{hr.}\right)$
ΔP = Pressure (bar)
K_v = Flow Factor

Size		K_V	Size		K_V	Size		K_V
Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)	Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)	Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)
2	2.375 60.3	147	5 125	5.563 141.3	1040	8 200	8.625 219.1	2940
2½ 65	2.875 73.0	225	133 mm	133 mm	1040	10 250	10.750 273.0	5020
76.1 mm	3.000 76.1	225	139.7 mm	5.500 139.7	1040	12 300	12.750 323.9	7790
3 80	3.500 88.9	380	6 150	6.625 168.3	1560			
4 100	4.500 114.3	710	159 mm	159 mm	1560			
108 mm	108 mm	710	165.1 mm	6.500 165.1	1560			

FireLock® Butterfly Valve

SERIES 705
WITH WEATHERPROOF ACTUATOR

SWITCH AND WIRING

1. The supervisory switch contains two single pole, double throw, pre-wired switches.
2. Switches are rated:

   10 amps @ 125 or 250 VAC/60 Hz

   0.50 amps @ 125 VDC

   0.25 amps @ 250 VDC

3. Switches supervise the valve in the "OPEN" position.

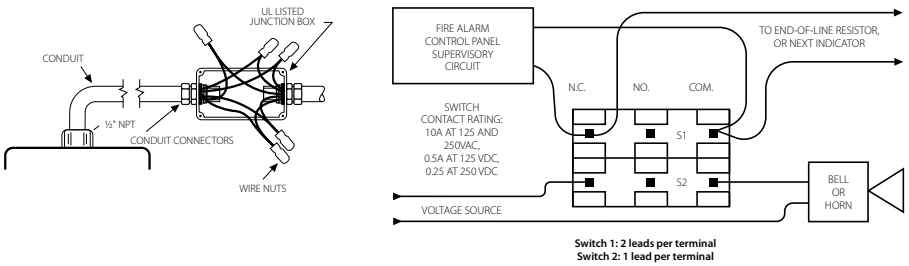
4. One switch has two #18 insulated wires per terminal, which permit complete supervision of leads (refer to diagrams and notes below). The second switch has one #18 insulated wire per terminal. This double circuit provides flexibility to operate two electrical devices at separate locations, such as an indicating light and an audible alarm, in the area that the valve is installed.
5. A #14 insulated ground lead (green) is provided.

   Switch #1 = S1 For connection to the supervisory circuit of a UL Listed alarm control panel

   Switch #2 = S2 Auxiliary switch that may be connected to auxiliary devices, per the authority having jurisdiction

S1
- Normally Closed: (2) Blue
- Common: (2) Yellow

S2
- Normally Closed: Blue with Orange Stripe
- Normally Open: Brown with Orange Stripe
- Common: Yellow with Orange Stripe



NOTE: The above diagram shows a connection between the common terminal (yellow – S1 and yellow-with-orange stripe – S2) and the normally closed terminal (blue – S1 and blue-with-orange stripe – S2). In this example, the indicator light and alarm will stay on until the valve is fully open. When the valve is fully open, the indicator light and alarm will go out. Cap off any unused wires (e.g. brown with orange stripe).

Only S1 (two leads per terminal) may be connected to the fire alarm control panel.

The connection of the alarm switch wiring shall be in accordance with NFPA 72 and the auxiliary switch per NFPA 70 (NEC).

FireLock® Butterfly Valve

SERIES 705
WITH WEATHERPROOF ACTUATOR

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

INSTALLATION

Reference should always be made to the installation sheet included with the valve. Verify you have the latest revision by visiting our website at www.victaulic.com. Further reference can be found in the I-100 Victaulic Field Installation Handbook.

10.81 5662 REV C UPDATED 12/2010

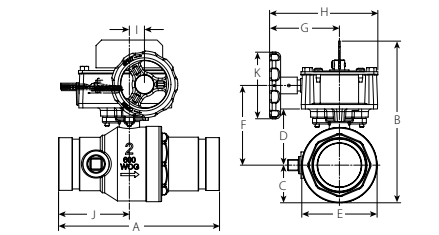
FireLock® Ball Valve

SERIES 728

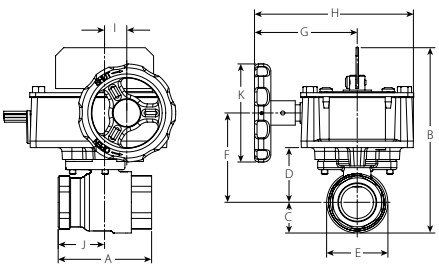
SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

The Series 728 FireLock valve is a full port, ball valve that is UL/FM rated for 365psi/25 BAR service in all sizes (LPCB and VdS listed for 20 BAR services). Available with grooved or threaded ends (NPT), the valve body is brass. The ball is chrome plated brass with a stainless steel stem. Reinforced seats aid ease of operation and provide a durable, corrosion-free seat. Flow characteristics exceed UL Specification 1091 and FM Approval Standard 1112. The valve is approved for indoor and outdoor use.

DIMENSIONS



GROOVED X GROOVED



THREADED X THREADED

Size	Dimensions – Inches/mm											Approx. Wgt. Each
Nominal Inches/mm	E to E A	Height B	C	D	E	F	G	H	I	J	K	Lbs. kg
1/25 Thd. X Thd.	2.84 72	4.74 120	0.91 23	1.67 42	1.82 46	2.40 61	3.15 80	4.86 123	0.68 17	1.42 36	3.00 76	5.1 2.3
1 ¼/32 Thd. X Thd.	3.31 84	4.95 126	1.10 28	1.88 48	2.20 56	2.61 66	3.15 80	4.86 123	0.68 17	1.65 42	3.00 76	5.8 2.6
1 ½/40 Thd. X Thd.	3.66 92	5.13 130	1.29 33	2.06 52	2.58 66	2.79 71	3.15 80	4.86 123	0.68 17	1.83 47	3.00 76	6.6 3.0
2/50 Thd. X Thd.	4.33 110	5.49 140	1.69 43	2.42 62	3.38 86	3.15 80	3.15 80	4.86 123	0.68 17	2.16 55	3.00 76	8.5 3.9
1 ¼/32 Grv. X Grv.	7.25 184	4.95 126	1.10 28	1.87 48	2.20 56	2.61 66	3.15 80	4.86 123	0.68 17	3.19 81	3.00 76	7.5 3.4
1 ½/40 Grv. X Grv.*	7.25 184	5.17 131	1.29 33	2.10 53	2.58 66	2.83 72	3.15 80	4.86 123	0.68 17	3.19 81	3.00 76	8.5 3.9
2/50 Grv. X Grv.*	7.25 184	5.47 139	1.69 43	2.40 61	3.38 86	3.13 80	3.15 80	4.86 123	0.68 17	3.19 81	3.00 76	10.5 4.8

* 1½ and 2"/40 and 50mm sizes feature a ½"/12mm tap (Groove by Groove only).

PERFORMANCE

SIZE Nominal Inches/mm	Equivalent Feet/meters of Pipe	SIZE Nominal Inches/mm	Equivalent Feet/meters of Pipe
1/25 Thread X Thread	0.5 0.2	1 ¼/32 Groove X Groove	0.7 0.2
1 ¼/32 Thread X Thread	1.0 0.3	1 ½/40 Groove X Groove	0.7 0.2
1 ½/40 Thread X Thread	1.0 0.3	2/50 Groove X Groove	0.7 0.2
2/50 Thread X Thread	1.0 0.3		

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

Approved _____

Date _____

www.victaulic.com

FireLock® Ball Valve

SERIES 728

SWITCH AND WIRING

1. The supervisory switch contains two single pole, double throw, pre-wired switches.
2. Switches are rated:

   10 amps @ 125 or 250 VAC/60 Hz

   0.50 amps @ 125 VDC

   0.25 amps @ 250 VDC

3. Switches supervise the valve in the "OPEN" position.

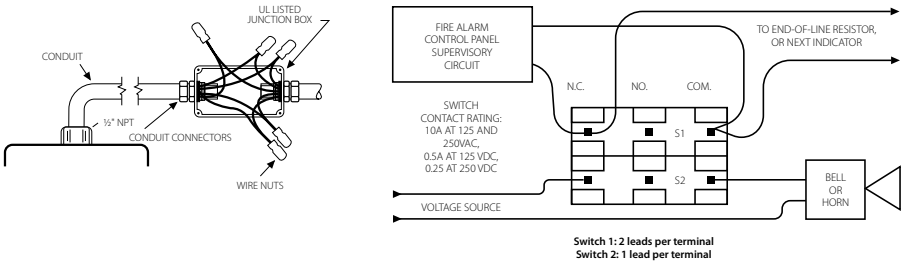
4. One switch has two #18 insulated wires per terminal, which permit complete supervision of leads (refer to diagrams and notes below). The second switch has one #18 insulated wire per terminal. This double circuit provides flexibility to operate two electrical devices at separate locations, such as an indicating light and an audible alarm, in the area that the valve is installed.
5. A #14 insulated ground lead (green) is provided.

   Switch #1 = S1 For connection to the supervisory circuit of a UL Listed alarm control panel

   Switch #2 = S2 Auxiliary switch that may be connected to auxiliary devices, per the authority having jurisdiction

S1
- Normally Closed: (2) Blue
- Common: (2) Yellow

S2
- Normally Closed: Blue with Orange Stripe
- Normally Open: Brown with Orange Stripe
- Common: Yellow with Orange Stripe



NOTE: The above diagram shows a connection between the common terminal (yellow – S1 and yellow-with-orange stripe – S2) and the normally closed terminal (blue – S1 and blue-with-orange stripe – S2). In this example, the indicator light and alarm will stay on until the valve is fully open. When the valve is fully open, the indicator light and alarm will go out. Cap off any unused wires (e.g. brown with orange stripe).

Only S1 (two leads per terminal) may be connected to the fire alarm control panel.

The connection of the alarm switch wiring shall be in accordance with NFPA 72 and the auxiliary switch per NFPA 70 (NEC).

MATERIAL SPECIFICATIONS

Valve Body: Brass ASTM B124

Ball: Chrome Plated Brass

Ball Valve Stem: 316 Stainless Steel

Seat: Carbon Filled (TFE) tetrafluoroethylene

Stem Nut: Brass ASTM B-16 C36000

Actuator: Brass traveling nut, on a steel lead screw, in a ductile iron housing

FireLock® Ball Valve

SERIES 728

INSTALLATION

Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

10.17 2226 REV H UPDATED 05/2011

OSYSU-1,-2

OUTSIDE SCREW AND YOKE VALVE SUPERVISORY SWITCH

UL, ULC and CSFM Listed, FM Approved, NYMEA Accepted, CE Marked

Dimensions: 6.19"L X 2.25"W X 5.88"H
15,7cm L X 5,7cm W X 14,6cm H

Weight: 2 lbs (0,9 kg)

Enclosure: Cover - Die-Cast
Finish - Red Spatter Enamel
Base - Die Cast Zinc
All parts have corrosion resistant finishes

Cover Tamper: Tamper Resistant Screws
Optional Cover Tamper Switch Available

Contact Ratings:
OSYSU-1: One set of SPDT (Form C)
OSYSU-2: Two sets of SPDT (Form C)
15 Amps at 125/250VAC
2.5 Amps at 30VDC resistive

Environmental Limitations:
-40°F to 140°F (-40°C to 60°C)
NEMA 4 and NEMA 6P Enclosure (IP67)
Indoor or outdoor use (Not for use in hazardous locations. See Bulletin No. 5400705 OSYS-U-EX for hazardous locations).

Conduit Entrances:
2 knockouts for 1/2" conduit provided

Service Use:

Automatic Sprinkler	NFPA-13
One or two family dwelling	NFPA-13D
Residential occupancy up to four stories	NFPA-13R
National Fire Alarm Code	NFPA-72

General Information

The OSYSU is used to monitor the open position of an OS&Y (outside screw and yoke) type gate valve. This device is available in two models; the OSYSU-1, containing one set of SPDT (Form C) contacts and the OSYSU-2, containing two sets of SPDT (Form C) contacts. These switches mount conveniently to most OS&Y valves ranging in size from 2" to 12" (50mm to 300mm). They will mount on some valves as small as ½" (12,5mm).

The cover is held in place by two tamper resistant screws that require a special tool to remove. The tool is furnished with each device and should be left with the building owner or responsible party. Replacement or additional cover screws and hex keys are available. See Ordering Information.

Optional Cover Tamper Switch

A field installable cover tamper switch is available as an option which may be used to indicate removal of the cover. See Ordering Information.

Testing

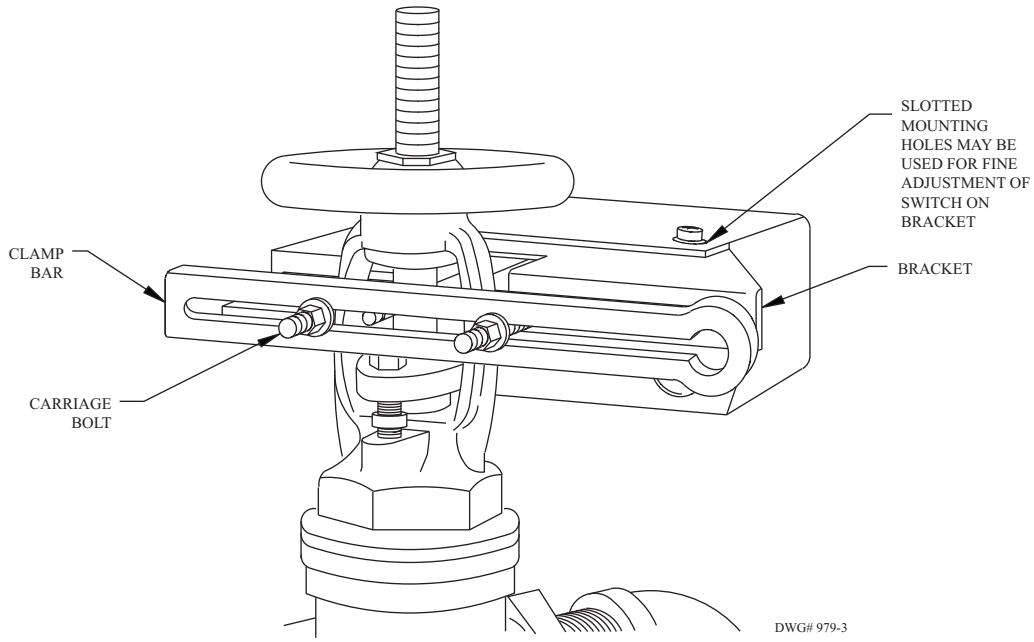
The OSYSU and its associated protective monitoring system should be inspected and tested in accordance with applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

Ordering Information

Model	Description	Stock No.
OSYSU-1	Outside Screw & Yoke Supervisory Switch (Single switch)	1010106
OSYSU-2	Outside Screw & Yoke Supervisory Switch (Double switch)	1010206
	Cover Screw	5490424
	Hex Key for Cover Screws and Installation Adjustments	5250062
	Optional Cover Tamper Switch Kit	0090131

FIG. 1 **SMALL VALVE INSTALLATION - 1/2" THRU 2 1/2" SIZES**

These switches mount conveniently to most 2" to 12" OS&Y valves. They will mount on some valves as small as 1/2". J-hooks may be required on valves with limited clearance.



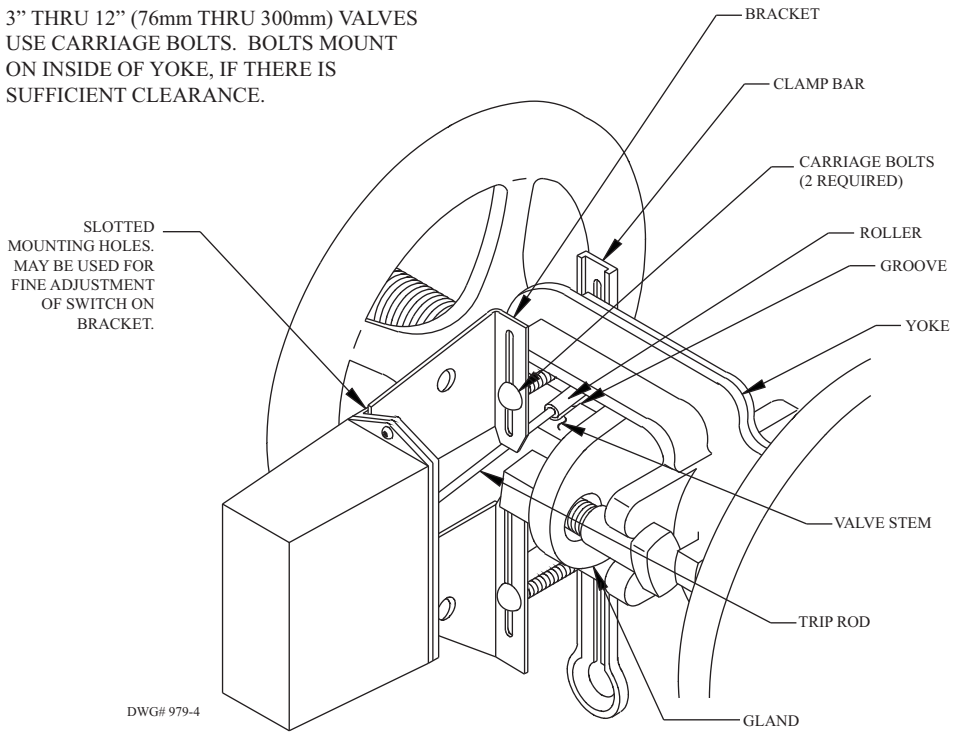
SMALL VALVE INSTALLATION

1. Remove and discard "C" washer and roller from the trip rod.
2. With the valve in the FULL OPEN position, locate the OSYSU across the valve yoke as far as possible from the valve gland, so that the trip rod lays against the non-threaded portion of the valve stem.
3. Loosen the locking screw that holds the trip rod in place and adjust the rod length (see Fig. 4). When adjusted properly, the rod should extend past the valve screw, but not so far that it contacts the clamp bar. Tighten the locking screw to hold the trip rod in place.

   NOTE: If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 5). Reinstall trip rod and repeat Step 3 procedure.
4. Mount the OSYSU loosely with the carriage bolts and clamp bar supplied. On valves with limited clearance use J-hooks supplied instead of the carriage bolts and clamp bar to mount the OSYSU.
5. Mark the valve stem at the center of the trip rod.
6. Remove the OSYSU. File a 1/8" deep groove centered on the mark on the valve stem utilizing a 3/16" diameter straight file. Round and smooth the edges of the groove to prevent damage to the valve packing and to allow the trip rod to move easily in and out of the groove as the valve is operated.
7. Mount the OSYSU with the trip rod centered in groove.
8. Final adjustment is made by loosening 2 screws (see Fig. 1) and sliding the OSYSU on the bracket. Adjustment is correct when switches are not activated with the trip rod seated in the valve stem groove and that the switches activate when the trip rod moves out of the groove.
9. Tighten the adjustment screws and all mounting hardware. Check to insure that the rod moves out of the groove easily and that the switches activate within one turn when the valve is operated from the FULL OPEN towards the CLOSED position.

NOTE: CLOSE THE VALVE FULLY TO DETERMINE THAT THE STEM THREADS DO NOT ACTIVATE THE SWITCH. THE SWITCH BEING ACTIVATED BY THE STEM THREADS COULD RESULT IN A ***FALSE VALVE OPEN*** INDICATION.

FIG. 2 LARGE VALVE INSTALLATION - 3" THRU 12" SIZES



LARGE VALVE INSTALLATION

1. With the valve in the FULL OPEN position, locate the OSYSU across the valve yoke as far as possible from the valve gland, so that the trip rod lays against the non-threaded portion of the valve stem.
2. Mount the OSYSU loosely with the carriage bolts and clamp bar supplied.
3. Loosen the locking screw that holds the trip rod in place and adjust the rod length (see Fig. 4). When adjusted properly, the rod should extend past the valve screw, but not so far that it contacts the clamp bar. Tighten the locking screw to hold the trip rod in place.

   NOTE: If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 5). Reinstall trip rod and repeat Step 3 procedure.
4. Mark the valve stem at the center of the trip rod.
5. Remove the OSYSU. File a 1/8" deep groove centered on the mark of the valve stem utilizing a 3/8" diameter straight file. Round and smooth the edges of the groove to prevent damage to the valve packing and to allow the trip rod to move easily in and out of the groove as the valve is operated.
6. Mount the OSYSU loosely with the trip rod centered in groove.
7. Final adjustment is made by loosening 2 screws (see Fig. 2) and sliding the OSYSU on the bracket. Adjustment is correct when switches are not activated with the trip rod seated in the valve stem groove and that the switches activate within one turn when the valve is operated from the FULL OPEN towards the CLOSED position.
8. Tighten the adjustment screws and mounting hardware. Check to insure that the rod moves out of the groove easily and that the switches activate within one turn when the valve is operated from the FULL OPEN towards the CLOSED position.

NOTE: CLOSE THE VALVE FULLY TO DETERMINE THAT THE STEM THREADS DO NOT ACTIVATE THE SWITCH. THE SWITCH BEING ACTIVATED BY THE STEM THREADS COULD RESULT IN A ***FALSE VALVE OPEN*** INDICATION.

OSYSU-1,-2
OUTSIDE SCREW AND YOKE VALVE SUPERVISORY SWITCH

FIG. 3 **DIMENSIONS**

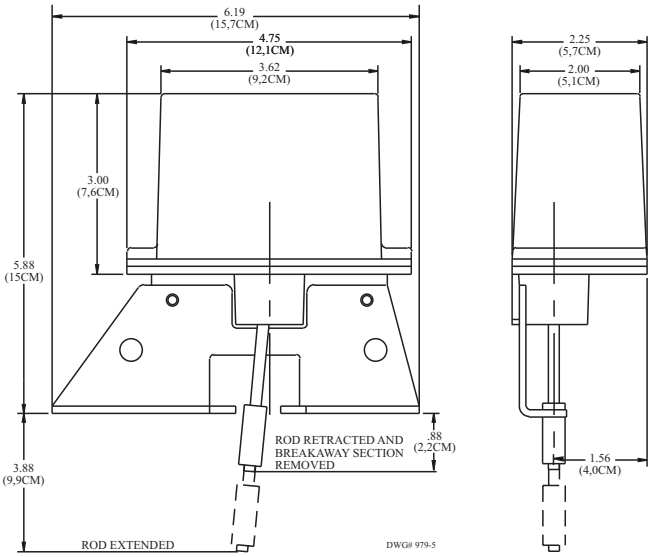
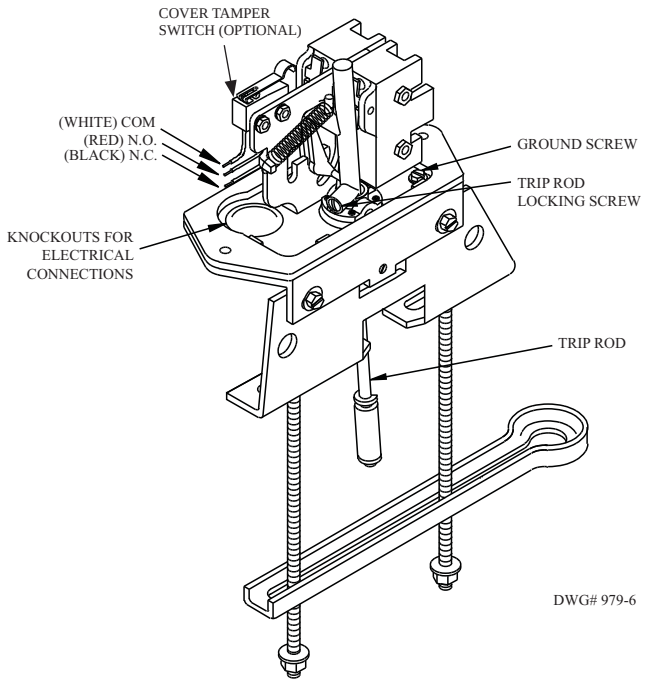
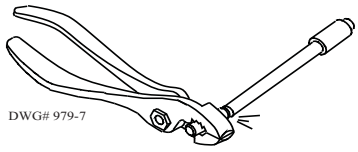


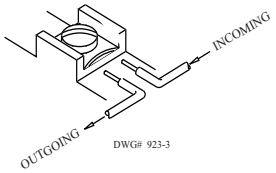
FIG. 4 **PARTS**



BREAKING EXCESSIVE ROD LENGTH

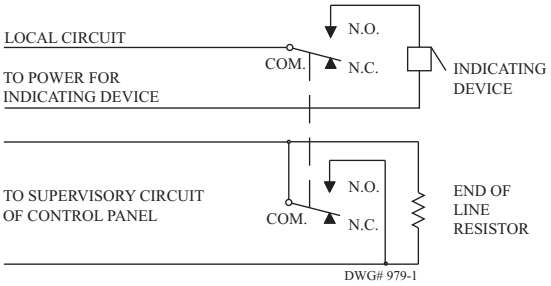


SWITCH TERMINAL CONNECTIONS CLAMPING PLATE TERMINAL



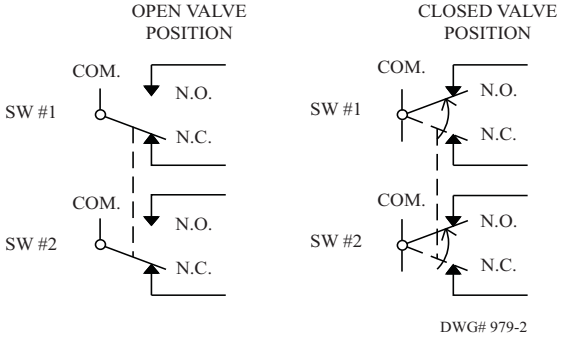
CAUTION:
An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

TYPICAL ELECTRICAL CONNECTIONS



Contacts shown in normal (valve open) condition.

TYPICAL SWITCH ACTION



VSR
VANE TYPE WATERFLOW ALARM SWITCH WITH RETARD

UL, CUL and CSFM Listed, FM Approved, LPCB Approved, For CE Marked (EN12259-5) / VdS Approved model use VSR-EU

Service Pressure: 450 PSI (31 BAR) - UL

Flow Sensitivity Range for Signal:
4-10 GPM (15-38 LPM) - UL

Maximum Surge: 18 FPS (5.5 m/s)

Contact Ratings: Two sets of SPDT (Form C)
10.0 Amps at 125/250VAC
2.0 Amps at 30VDC Resistive
10 mAmps min. at 24VDC

Conduit Entrances: Two knockouts provided for 1/2" conduit. Individual switch compartments suitable for dissimilar voltages.

Environmental Specifications:

- NEMA 4/IP54 Rated Enclosure suitable for indoor or outdoor use with factory installed gasket and die-cast housing when used with appropriate conduit fitting.
- Temperature Range: 40°F - 120°F, (4.5°C - 49°C) - UL
- Non-corrosive sleeve factory installed in saddle.

Service Use:

Automatic Sprinkler	NFPA-13
One or two family dwelling	NFPA-13D
Residential occupancy up to four stories	NFPA-13R
National Fire Alarm Code	NFPA-72

Specifications subject to change without notice.

Ordering Information			
Nominal Pipe Size		Model	Part Number
2"	DN50	VSR-2	1144402
2 1/2"	DN65	VSR-2 1/2	1144425
3"	DN80	VSR-3	1144403
3 1/2"	-	VSR-3 1/2	1144435
4"	DN100	VSR-4	1144404
5"	-	VSR-5	1144405
6"	DN150	VSR-6	1144406
8"	DN200	VSR-8	1144408

Optional: Cover Tamper Switch Kit, stock no. 0090148
Replaceable Components: Retard/Switch Assembly, stock no. 1029030

⚠ WARNING

- Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.
- Shock hazard. Disconnect power source before servicing. Serious injury or death could result.
- Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.

CAUTION

Waterflow switches that are monitoring wet pipe sprinkler systems shall not be used as the sole initiating device to discharge AFFF, deluge, or chemical suppression systems. Waterflow switches used for this application may result in unintended discharges caused by surges, trapped air, or short retard times.

General Information

The Model VSR is a vane type waterflow switch for use on wet sprinkler systems. It is UL Listed and FM Approved for use on steel pipe; schedules 10 through 40, sizes 2" thru 8" (50 mm thru 200 mm). LPC approved sizes are 2" thru 8" (50 mm thru 200 mm). See Ordering Information chart.

The VSR may also be used as a sectional waterflow detector on large systems. The VSR contains two single pole, double throw, snap action switches and an adjustable, instantly recycling pneumatic retard. The switches are actuated when a flow of 10 GPM (38 LPM) or more occurs downstream of the device. The flow condition must exist for a period of time necessary to overcome the selected retard period.

Enclosure

The VSR switches and retard device are enclosed in a general purpose, die-cast housing. The cover is held in place with two tamper resistant screws which require a special key for removal. A field installable cover tamper switch is available as an option which may be used to indicate unauthorized removal of the cover. See bulletin number 5401103 for installation instructions of this switch.

VSR
VANE TYPE WATERFLOW ALARM SWITCH WITH RETARD

Installation (see Fig. 1)

These devices may be mounted on horizontal or vertical pipe. On horizontal pipe they shall be installed on the top side of the pipe where they will be accessible. The device should not be installed within 6" (15 cm) of a fitting which changes the direction of the waterflow or within 24" (60 cm) of a valve or drain.

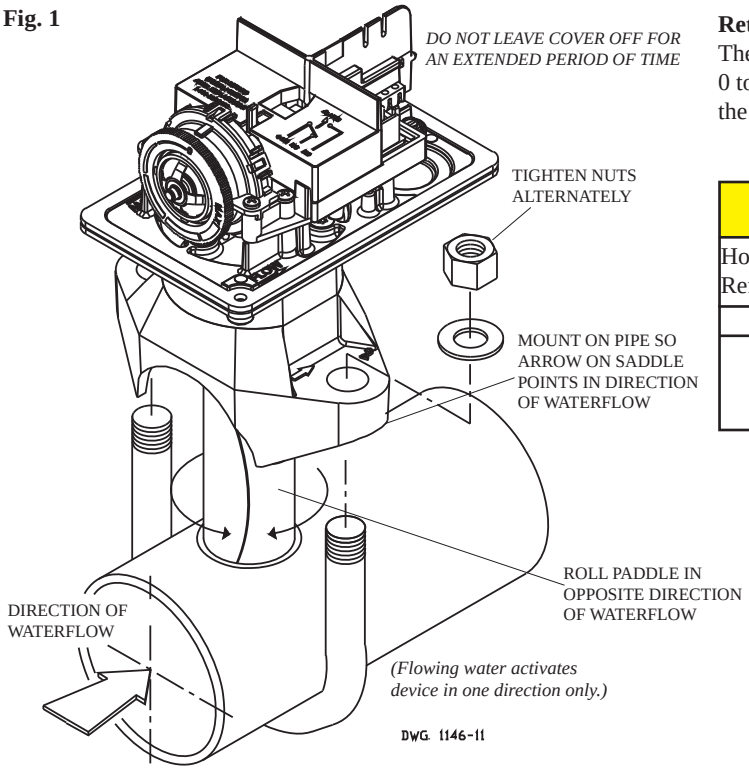
NOTE: Do not leave cover off for an extended period of time.

Drain the system and drill a hole in the pipe using a hole saw in a slow speed drill (see Fig. 1). Clean the inside pipe of all growth or other material for a distance equal to the pipe diameter on either side of the hole. Roll the vane so that it may be inserted into the hole; do not bend or crease it. Insert the vane so that the arrow on the saddle points in the direction of the waterflow. Take care not to damage the non-corrosive bushing in the saddle. The bushing should fit inside the hole in the pipe. Install the saddle strap and tighten nuts alternately to required torque (see the chart in Fig. 1). The vane must not rub the inside of the pipe or bind in any way.

⚠ CAUTION

Do not trim the paddle. Failure to follow these instructions may prevent the device from operating and will void the warranty.

Fig. 1

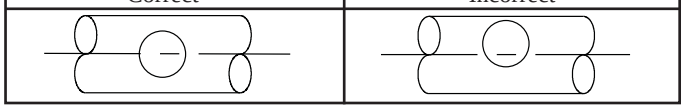


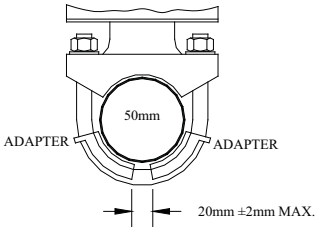
Retard Adjustment

The delay can be adjusted by rotating the retard adjustment knob from 0 to the max setting (60-90 seconds). The time delay should be set at the minimum required to prevent false alarms

CAUTION

Hole must be drilled perpendicular to the pipe and vertically centered. Refer to the Compatible Pipe/Installation Requirements chart for size.





DN50 ONLY

USE (2) 5180162 ADAPTERS AS SHOWN ABOVE

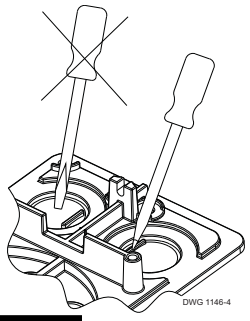
DWG# 1146-1F

Compatible Pipe/ Installation Requirements

Model	Nominal Pipe Size		Nominal Pipe O.D.		Pipe Wall Thickness								Hole Size		U-Bolt Nuts Torque	
					Schedule 10 (UL)		Schedule 40 (UL)		BS-1387 (LPC)		DN (VDS)					
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	ft-lb	n-m
VSR-2	2	DN50	2.375	60.3	0.109	2.77	0.154	3.91	0.142	3.6	0.091	2.3	1.25 + .125/-.062	33.0 ± 2.0	20	27
VSR-2 1/2	2.5	-	2.875	73.0	0.120	3.05	0.203	5.16	-	-	-	-				
VSR-2 1/2	-	DN65	3.000	76.1	-	-	-	-	0.142	3.6	0.102	2.6				
VSR-3	3	DN80	3.500	88.9	0.120	3.05	0.216	5.49	0.157	4.0	0.114	2.9	2.00 ± .125	50.8 ± 2.0		
VSR-3 1/2	3.5	-	4.000	101.6	0.120	3.05	0.226	5.74	-	-	-	-				
VSR-4	4	DN100	4.500	114.3	0.120	3.05	0.237	6.02	0.177	4.5	0.126	3.2				
VSR-5	5	-	5.563	141.3	0.134	3.40	0.258	6.55	-	-	-	-				
VSR-6	6	DN150	6.625	168.3	0.134	3.40	0.280	7.11	0.197	5.0	0.157	4.0				
VSR-8	8	DN200	8.625	219.1	0.148	3.76	0.322	8.18	0.248	6.3	0.177	4.5				

NOTE: For copper or plastic pipe use Model VSR-CF.

Fig. 2
To remove knockouts: Place screwdriver at inside edge of knockouts, not in the center.



NOTICE
Do not drill into the base as this creates metal shavings which can create electrical hazards and damage the device. Drilling voids the warranty.

Fig. 3
Break out thin section of cover when wiring both switches from one conduit entrance.

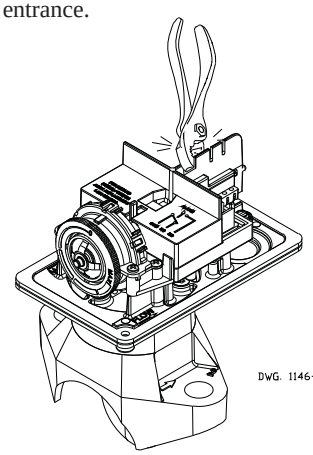
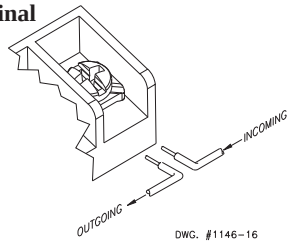


Fig. 4 Switch Terminal Connections Clamping Plate Terminal

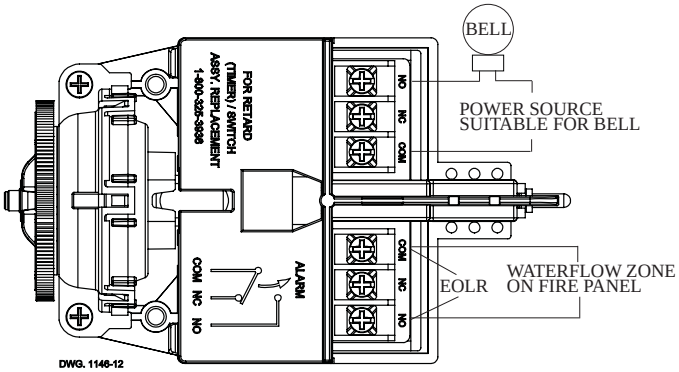


WARNING
An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire become dislodged from under the terminal. Failure to sever the wire may render the device inoperable risking severe property damage and loss of life.

Do not strip wire beyond 3/8" of length or expose an uninsulated conductor beyond the edge of the terminal block. When using stranded wire, capture all strands under the clamping plate.

Fig. 5 Typical Electrical Connections

Notes:
1. The Model VSR has two switches, one can be used to operate a central station, proprietary or remote signaling unit, while the other contact is used to operate a local audible or visual annunciator.
2. A condition of LPC Approval of this product is that the electrical entry must be sealed to exclude moisture.
3. For supervised circuits, see "Switch Terminal Connections" drawing and warning note (Fig. 4).

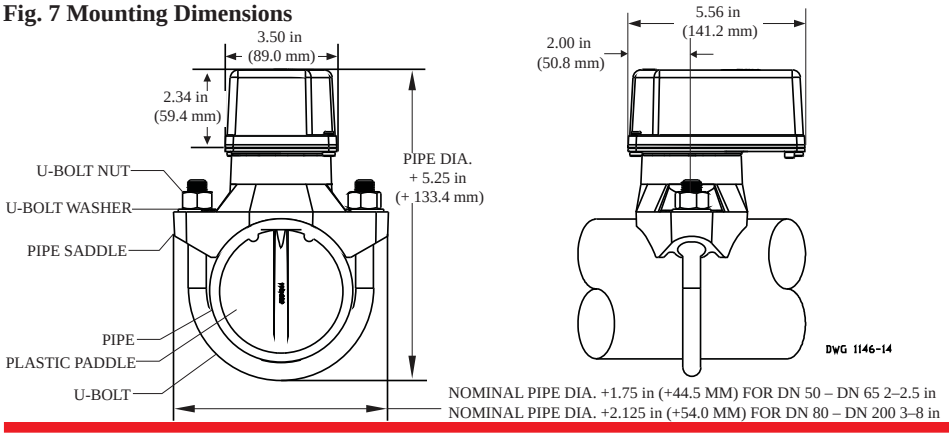


Testing
The frequency of inspection and testing for the Model VSR and its associated protective monitoring system shall be in accordance with applicable NFPA Codes and Standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

If provided, the inspector's test valve shall always be used for test purposes. If there are no provisions for testing the operation of the flow detection device on the system, application of the VSR is not recommended or advisable.
A minimum flow of 10 GPM (38 LPM) is required to activate this device.

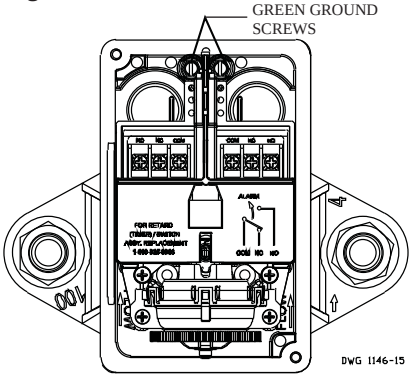
NOTICE Advise the person responsible for testing of the fire protection system that this system must be tested in accordance with the testing instructions.

Fig. 7 Mounting Dimensions



NOMINAL PIPE DIA. +1.75 in (+44.5 MM) FOR DN 50 – DN 65 2–2.5 in
NOMINAL PIPE DIA. +2.125 in (+54.0 MM) FOR DN 80 – DN 200 3–8 in

Fig. 8



Maintenance

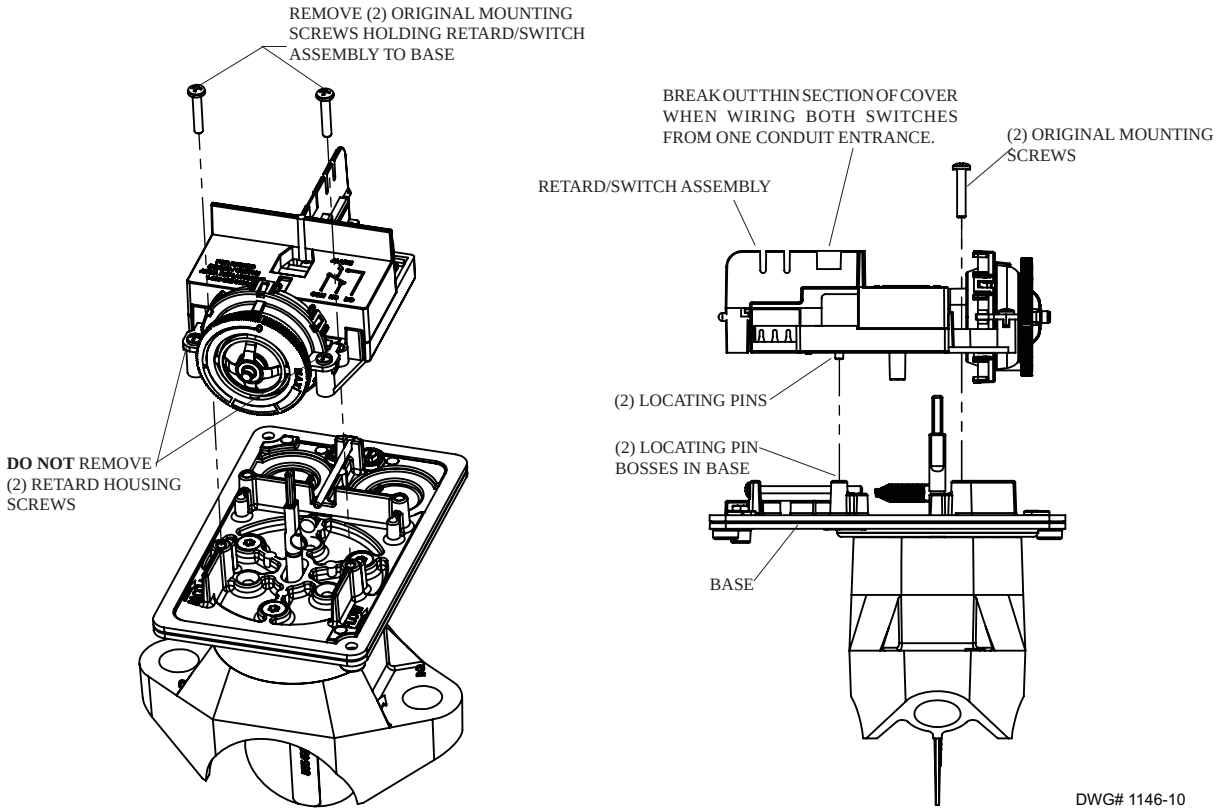
Inspect detectors monthly. If leaks are found, replace the detector. The VSR waterflow switch should provide years of trouble-free service. The retard and switch assembly are easily field replaceable. In the unlikely event that either component does not perform properly, please order replacement retard switch assembly stock #1029030 (see Fig. 6). There is no maintenance required, only periodic testing and inspection.

Retard/Switch Assembly Replacement (See Fig. 6)

NOTICE The Retard/Switch Assembly is field-replaceable without draining the system or removing the waterflow switch from the pipe

1. Make sure the fire alarm zone or circuit connected to the waterflow switch is bypassed or otherwise taken out of service.
2. Disconnect the power source for local bell (if applicable).
3. Identify and remove all wires from the waterflow switch.
4. Remove the (2) mounting screws holding retard/switch assembly to the base. **Do not** remove the (2) retard housing screws.
5. Remove the retard assembly by lifting it straight up over the tripstem.
6. Install the new retard assembly. Make sure the locating pins on the retard/switch assembly fit into the locating pin bosses on the base.
7. Re-install the (2) original mounting screws.
8. Reconnect all wires. Perform a flow test and place the system back in service.

Fig. 6



Removal of Waterflow Switch

- To prevent accidental water damage, all control valves should be shut tight and the system completely drained before waterflow detectors are removed or replaced.
- Turn off electrical power to the detector, then disconnect wiring.
- Loosen nuts and remove U-bolts.
- Gently lift the saddle far enough to get your fingers under it. With your fingers, roll the vane so it will fit through the hole while continuing to lift the waterflow detector saddle.
- Lift detector clear of pipe.

POTTER
The Symbol of Protection

BELLS
PBA-AC & MBA-DC

UL, ULC, and FM Approved

Sizes Available: 6" (150mm), 8" (200mm) and 10" (250mm)

Voltages Available: 24VAC
120VAC
12VDC (10.2 to 15.6) Polarized
24VDC (20.4 to 31.2) Polarized

Service Use: Fire Alarm
General Signaling
Burglar Alarm

Environment: Indoor or outdoor use (See Note 1)
-40° to 150°F (-40° to 66°C)
(Outdoor use requires weatherproof backbox.)

Termination: AC Bells - 4 No. 18 AWG stranded wires
DC Bells - Terminal strip

Finish: Red powder coating

Optional: Model BBK-1 weatherproof backbox
Model BBX-1 deep weatherproof backbox

These vibrating type bells are designed for use as fire, burglar or general signaling devices. They have low power consumption and high decibel ratings. The unit mounts on a standard 4" (101mm) square electrical box for indoor use or on a model BBK-1 weatherproof backbox for outdoor applications. Weatherproof backbox model BBK-1, Stock No. 1500001.

ALL DC BELLS ARE POLARIZED AND HAVE BUILT-IN TRANSIENT PROTECTION:

Size inches (mm)	Voltage	Model Number	Stock Number	Current (Max.)	Typical dB at 10 ft. (3m) (2)	Minimum dB at 10 ft. (3m) (1)
6 (150)	12VDC	MBA126	1750070	.12A	85	76
8 (200)	12VDC	MBA128	1750080	.12A	90	77
10 (250)	12VDC	MBA1210	1750060	.12A	92	78
6 (150)	24VDC	MBA246	1750100	.06A	87	77
8 (200)	24VDC	MBA248	1750110	.06A	91	79
10 (250)	24VDC	MBA2410	1750090	.06A	94	80
6 (150)	24VAC	PBA246	1806024	.17A	91	78
8 (200)	24VAC	PBA248	1808024	.17A	94	77
10 (250)	24VAC	PBA2410	1810024	.17A	94	78
6 (150)	120VAC	PBA1206	1806120	.05A	92	83
8 (200)	120VAC	PBA1208	1808120	.05A	99	84
10 (250)	120VAC	PBA12010	1810120	.05A	99	86

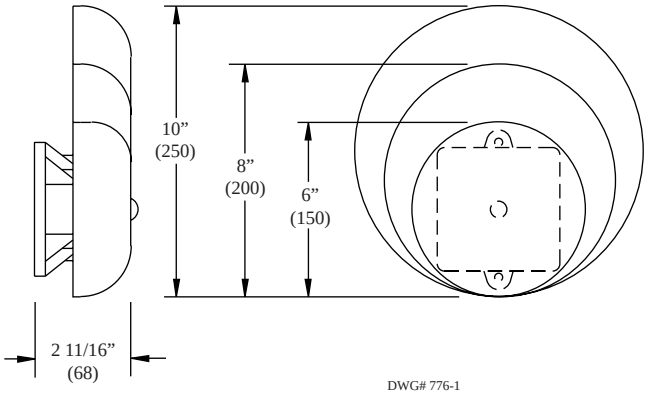
Notes:

1. Minimum dB ratings are calculated from integrated sound pressure measurements made at Underwriters Laboratories as specified in UL Standard 464. UL temperature range is -30° to 150°F (-34° to 66°C).
2. Typical dB ratings are calculated from measurements made with a conventional sound level meter and are indicative of output levels in an actual installation.

Potter Electric Signal Company • 2081 Craig Road, St. Louis, MO, 63146-4161 • Phone: 800-325-3936/Canada 888-882-1833 • www.pottersignal.com

DIMENSIONS
INCHES (mm)

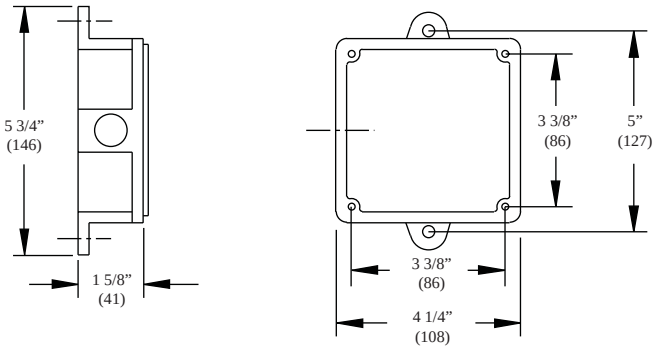
FIG. 1 BELLS



DWG# 776-1

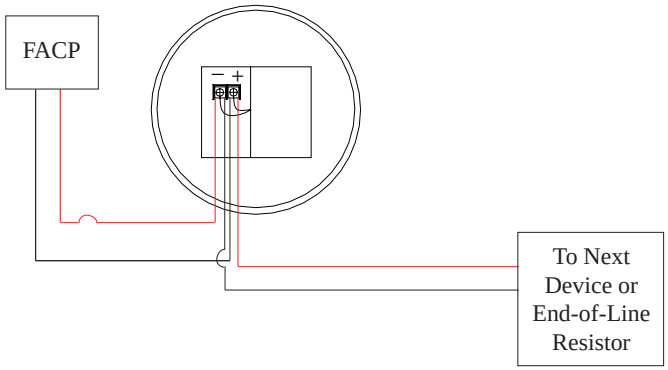
FIG. 2 WEATHERPROOF BACKBOX

BOX HAS ONE THREADED 1/2" CONDUIT ENTRANCE



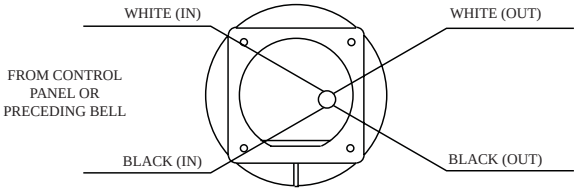
DWG# 776-2

FIG. 3



WIRING (REAR VIEW)

A.C. BELLS



CAUTION:
WHEN ELECTRICAL SUPERVISION IS REQUIRED USE IN AND OUT LEADS AS SHOWN.

NOTES:

1. WHEN USING AC BELLS, TERMINATE EACH EXTRA WIRE SEPARATELY AFTER LAST BELL.
2. END-OF-LINE RESISTOR IS NOT REQUIRED ON AC BELLS.

DWG# 776-3

INSTALLATION

1. The bell shall be installed in accordance with NFPA 13, 72, or local AHJ. The top of the device shall be no less than 90" AFF and not less than 6" below the ceiling.
2. Remove the gong.
3. Connect wiring (see Fig. 3).
4. Mount bell mechanism to backbox (bell mechanism must be mounted with the striker pointing down).
5. Reinstall the gong (be sure that the gong positioning pin, in the mechanism housing, is in the hole in the gong).
6. Test all bells for proper operation and observe that they can be heard where required (bells must be heard in all areas as designated by the authority having jurisdiction).

Figure No. 6350-6365

Figure No. 6360-6365

STORZ LARGE DIAMETER

FIRE DEPT. CONNECTION

An auxiliary inlet connection to supplement the water supply to a fire protection system.

STANDARD EQUIPMENT: Aluminum adapter with storz inlet, female NPT outlet. Cast brass escutcheon plate. Hardcoated aluminum storz cap with attachment cable. Str. or 30 Degree units available. **OPTIONAL:** Storz with screen.

BRANDING: "Standpipe", "Auto Spkr", "Standpipe-Sprinkler" and "Dry Standpipe"

FINISH: Aluminum with Brass Plate

OPTIONAL FINISH: Chrome Plated

Figure No.	Body Style	Size
6350	30 Degree	4 x 4
6352	30 Degree	4 x 5
6353	30 Degree	6 x 4
6354	30 Degree	6 x 5
6355	30 Degree	6 x 6
6360	Str.	4 x 4
6361	Str.	5 x 5
6362	Str.	4 x 5
6363	Str.	6 x 4
6364	Str.	6 x 5
6365	Str.	6 x 6

Figure No. 6368-6371

STORZ FREESTANDING

FIRE DEPT. CONNECTION

STANDARD EQUIPMENT: K-Brite aluminum 90 Degree adapter with 90 Degree Storz inlet, female NPT outlet. Polished Chrome sleeve, plate and cap with cable attachment. **OPTIONAL:** Storz with screen.

BRANDING: "Standpipe", "Auto Spkr", "Standpipe-Sprinkler" and "Dry Standpipe"

FINISH: K-Brite aluminum adapter and cap with plated chrome sleeve and plate.

Figure No.	Size
6368	FNPT4 x 4STORZ
6369	FNPT4 x 5STORZ
6370	FNPT6 x 4STORZ
6371	FNPT6 x 5STORZ

250 lb. WWP Iron Body Check Valves

Reliable Automatic Sprinkler "G" Series Fire Protection Valve • Drilled & Tapped for Ball Drip Outlet • EPDM Seal • Bronze Seat • Stainless Steel Disc & Spring Actuated

250 PSI/17.2 Bar Non-Shock Cold Water

GROOVES CONFORM TO ANSI AWWA C-606 FOR STEEL PIPE•
UL/ULC LISTED • FM APPROVED •
APPROVED BY THE NEW YORK CITY MEA 258-93-E

MATERIAL LIST

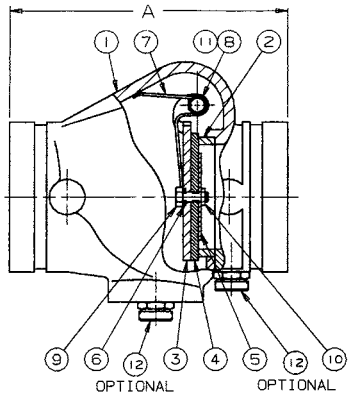
	PART	SPECIFICATION
*1.	Valve Body	Cast Iron, ASTM A 48 Class 30A
2.	Seat	Bronze C83600 or C93200, ASTM B 505
3.	Clapper	Stainless Steel 304, ASTM A 240
**4.	Facing Seal	EPDM Rubber
5.	Clamping Ring	Stainless Steel 304, ASTM A 240
**6.	Gasket	EPDM Rubber
7.	Spring	Stainless Steel 302, ASTM A 313
8.	Hinge Pin	Stainless Steel 303, ASTM A 582
9.	Bolt	Stainless Steel 304, ASTM F 593
**10.	Locknut	Stainless Steel 303, ASTM F 594
11.	Plug ⅛" NPT	Steel
12.	Plug ½" NPT	Steel

*** Not field replaceable.**

**** Replacement seal kit.**

G-917-W (Reliable "G" Series)

Grooved



G-917-W

DIMENSIONS—WEIGHTS—QUANTITIES

Size		Dimension A		Weight	
In.	mm.	In.	mm.	Lbs.	Kg.
2½	65	7.03	179	9	4
3	80	7.62	194	11	5
4	100	8.44	214	17	8
6	150	10.25	260	38	17

Ball Drip

An automatic ball drip is available for NIBCO Underwriter's check valves. The ball drip is installed at boss location "C" on the check valve of the fire department connection. It will close against pressure, but will open when pressure is off allowing water to drain from the fire department connection.

½" Ball Drip # RG 22000

¾" Ball Drip # RG 22100

c UL US LISTED

FM APPROVED

NIBCO INC. WORLD HEADQUARTERS • 1516 MIDDLEBURY ST. • ELKHART, IN 46516-4740 • USA • PH: 1.800.234.0227
TECH SERVICES PH: 1.888.446.4226 • FAX: 1.888.336.4226 • INTERNATIONAL OFFICE PH: +1.574.295.3327 • FAX: +1.574.295.3455
www.nibco.com

Bulletin 014 Rev. H

Model F1FR Series Quick Response Standard Spray

Model F1FR56 Sprinkler Types
Standard Upright
Standard Pendent
Conventional
Vertical Sidewall
Horizontal Sidewall

Model F1FR56 Recessed Sprinkler Types
Standard Pendent/F1/F2/FP
Horizontal Sidewall

Model F1FR56 Concealed Sprinkler Types
Standard Pendent

Model F1FR42, F1FRXLH & F1FR28 Sprinkler Types
Standard Upright
Standard Pendent

Model F1FR42, F1FRXLH & F1FR28 Recessed Sprinkler Types
Standard Pendent

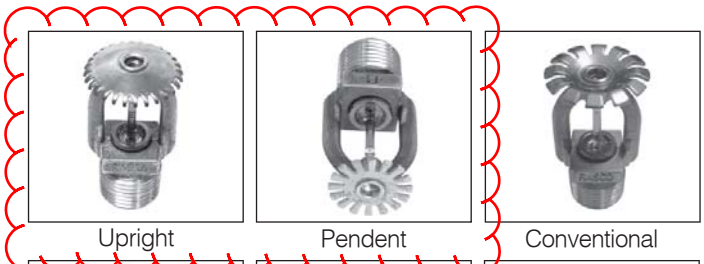
Listing & Approvals
1. Underwriters Laboratories Inc. and Certified for Canada (cULus).
2. Factory Mutual Approvals (FM)
3. Loss Prevention Council (LPCB, UK)
4. VdS Schadenverhütung GmbH

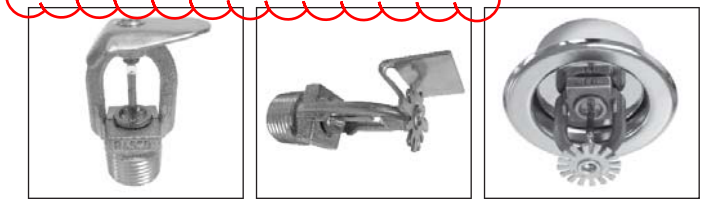
UL Listing Category
Sprinklers, Automatic & Open (VNIV)
Quick Response Sprinkler

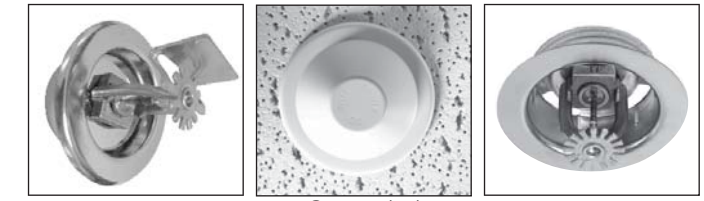
Product Description
Reliable Models F1FR56, F1FR42, F1FRXLH & F1FR28 Series Sprinklers are quick response sprinklers which combine the durability of a standard sprinkler with the attractive low profile of a decorative sprinkler.

The Models F1FR56, F1FR42, F1FRXLH & F1FR28 Series Recessed automatic sprinklers utilize a 3.0 mm frangible glass bulb. These sprinklers have demonstrated response times in laboratory tests which are five to ten times faster than standard response sprinklers. This quick response enables the Model F1FR56, F1FR42, F1FRXLH & F1FR28 Series sprinklers to apply water to a fire much faster than standard sprinklers of the same temperature rating.

The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response.


Upright | Pendent | Conventional


Vertical Sidewall | Horizontal Sidewall | Recessed Pendent/F1/F2


Recessed Horizontal Sidewall | Concealed Pendent | Recessed Pendent/FP


XLH Upright | XLH Pendent | XLH Recessed Pendent F1/F2

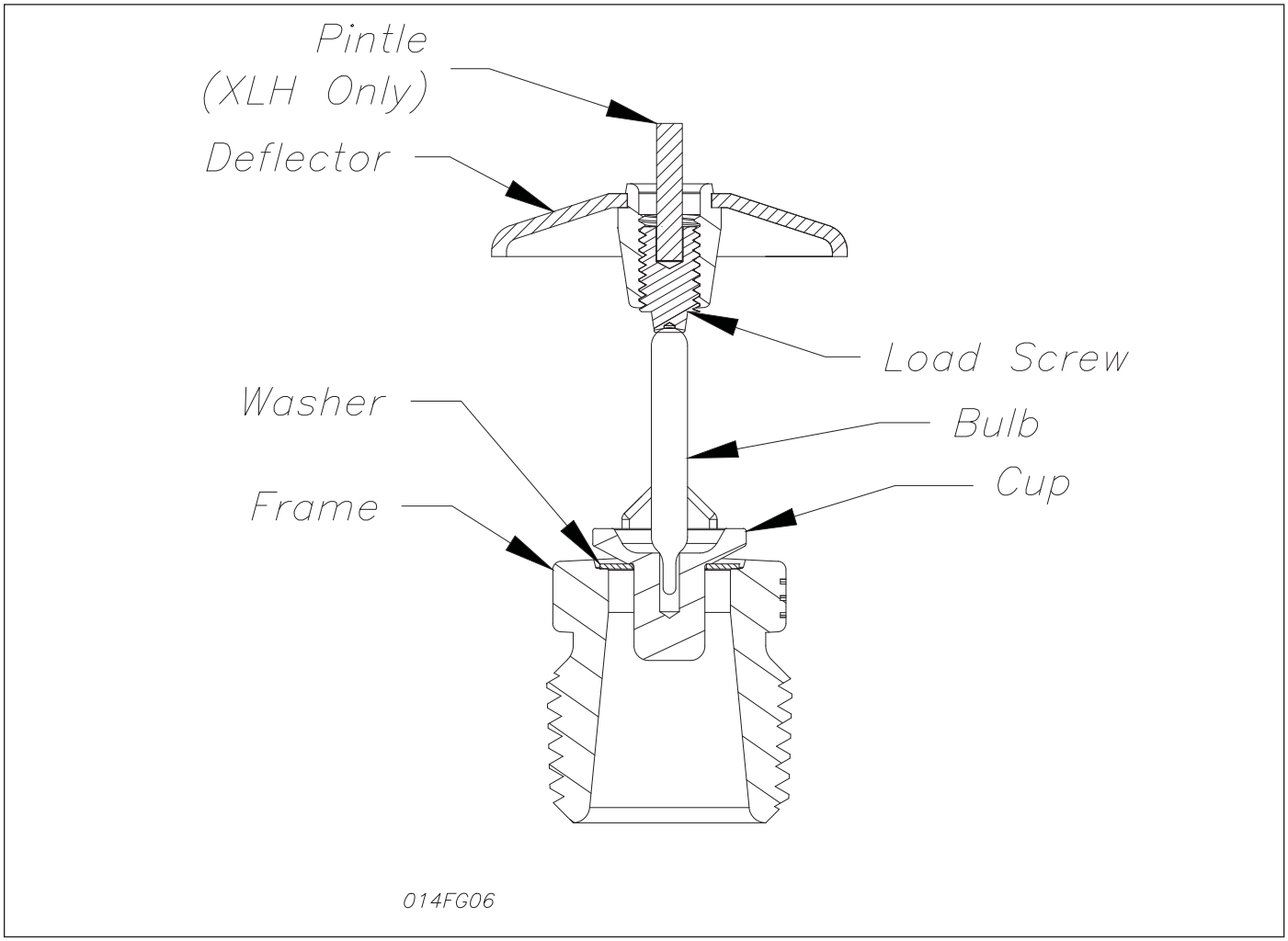

XLH Recessed Pendent FP

At normal temperatures, the glass bulb contains the fluid in both the liquid and vapor phases. The vapor phase can be seen as a small bubble. As heat is applied, the liquid expands, forcing the bubble smaller and smaller as the liquid pressure increases. Continued heating forces the liquid to push out against the bulb, causing the glass to shatter, opening the waterway and allowing the deflector to distribute the discharging water.

The Reliable Automatic Sprinkler Co., Inc., 103 Fairview Park Drive, Elmsford, New York 10523

Application

Quick response sprinklers are used in fixed fire protection systems: Wet, Dry, Deluge or Preaction. Care must be exercised that the orifice size, temperature rating, deflector style and sprinkler type are in accordance with the latest published standards of the National Fire Protection Association or the approving Authority Having Jurisdiction. Quick response sprinklers are intended for installation as specified in NFPA 13. Quick response sprinklers and standard response sprinklers should not be intermixed.



Model F1FR42, F1FRXLH Upright

Technical data:

Models	Discharge Coefficient	Response	Thread Size	Max. Working Pressure	Min. Working Pressure	Temperature Rating	Finish
F1FR56	K 5.6	Quick Response	1/2" NPT (R1/2)	175 PSI	7 PSI	See "Temperature Ratings" Table.	See "Finish Table"
F1FR42 F1FRXLH	K 4.2						
F1FR28	K 2.8						

Material Data:

Frame	Deflector	Load Screw	Pintle	Cup	Washer	Bulb
DZR Brass QM Brass	CDA Alloy 260, CDA Alloy 220 or CDA Alloy510	CDA Alloy 360 or CDA Alloy 544	CDA Alloy 360 or CDA Alloy 544	CDA Alloy 651 or CDA Alloy 693	Nickel Alloy 440 or Alloy 360 coated with PTFE Adhesive Tape	Glass

Model F1FR56, Upright, Pendent & Conventional Sprinklers
Model F1FR42, F1FRXLH & F1FR28 Upright & Pendent Sprinklers

Installation Wrench: Model D Sprinkler Wrench

Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organization	Sprinkler Identification Number (SIN)	
		US	Metric			Upright	Pendent
Standard-Upright (SSU) and pendent Deflectors Marked to Indicate Position							
1/2" (15mm) [1]	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	1,2,3,4	RA1425[1][3]	RA1414[1][2][3]
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	1	RA1423[1]	RA1413
3/8" (10mm)	1/2" NPT (R1/2)	2.8	40	2.25" (57mm)	1	RA1421[1]	RA1411
Conventional-Install in Upright or Pendent Position							
15mm [1]	1/2" NPT (R1/2)	5.6	80	57mm	3, 4	RA1475[3]	

[1] cULus listed corrosion resistant (Polyester coated) sprinkler.
[2] Polyester coated FM approved sprinkler.
[3] Polyester coated LPCB & VdS approved sprinkler RA1425, RA1414 & RA1475.

Upright

Pendent

Conventional

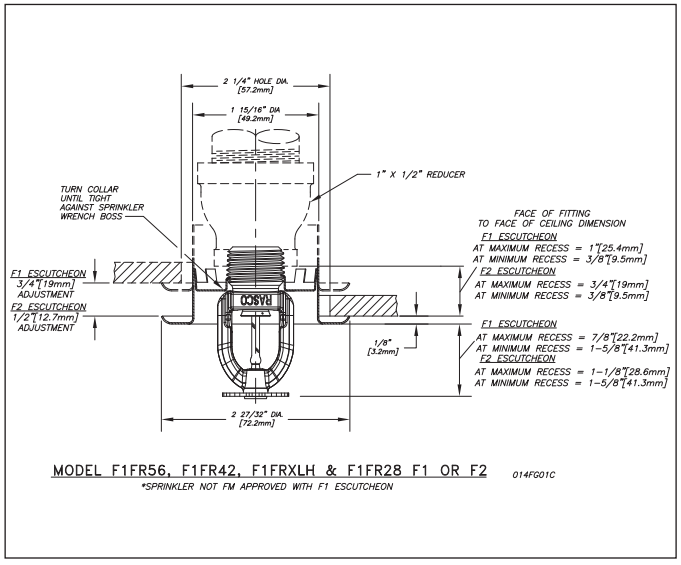
Model F1FR56, F1FR42, F1FRXLH & F1FR28 Quick Response Recessed Pendent Sprinkler[1]

Installation Wrench: Model GFR2 Sprinkler Wrench

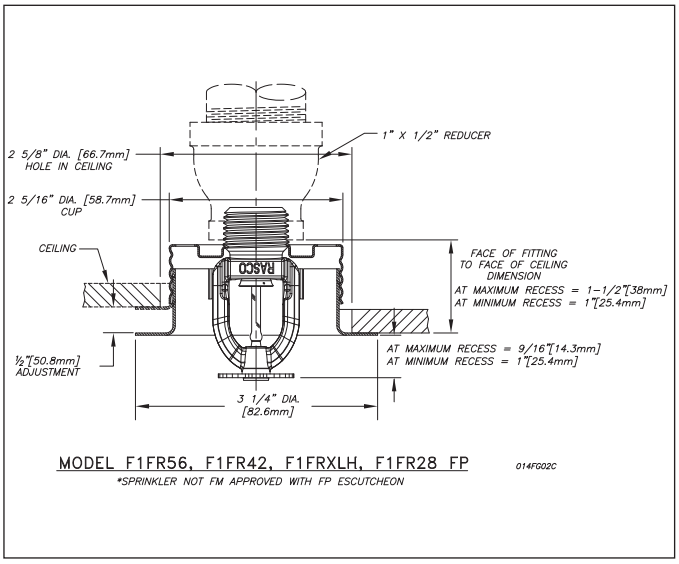
Installation Data:

Nominal Orifice	Thread Size	K Factor		Sprinkler Height	Sprinkler Identification Number (SIN)
		US	Metric		
1/2" (15mm)	1/2" NPT(R½)	5.6	80	2.25" (57mm)	RA1414
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	RA1413
3/8" (10mm)	1/2" NPT (R1/2)	2.8	40	2.25" (57mm)	RA1411

[1] Refer to escutcheon data table for approvals & dimensions



Model F1FR56, F1FRXLH & F1FR28 F1 or F2



Model F1FR56, F1FRXLH & F1FR28 FP

Model F1FR56 Quick Response Vertical Sidewall Sprinkler

Installation Wrench: Model D Sprinkler Wrench
Installation Position: Upright or Pendent
Approval Type: Light Hazard Occupancy
Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations	Sprinkler Identification Numbers (SIN)
		US	Metric			
½" (15mm)	½" NPT (R1/2)	5.6	8.0	2.25" (57mm)	1,2,3,4	RA1485[2]
15mm	½" NPT (R1/2)	5.6	8.0	2.25" (57mm)	4[1]	

[1] LPC Approval is for pendent position only.
[2] cULus Listed corrosion resistant (Polyester coated) sprinkler.

Vertical Sidewall

Sprinkler Type	Deflector to Ceiling Distance (Min. - Max.)
Upright	4" (102mm) - 12" (305mm)
Pendent	4" (102mm) - 12" (305mm)

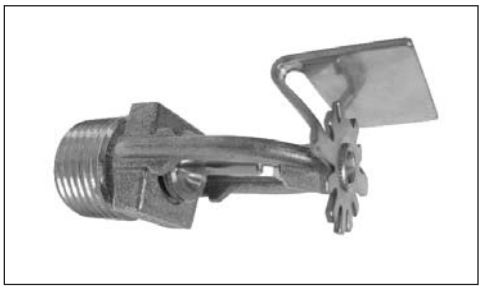
Model F1FR56 Quick Response Horizontal Sidewall Sprinkler

Deflector: HSW

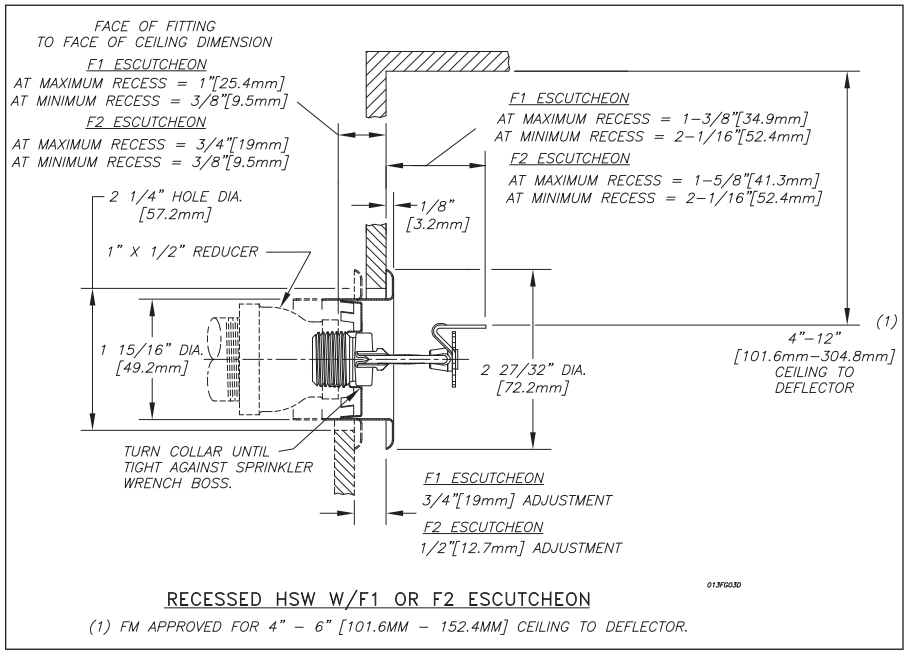
Installation Wrench: Model D Sprinkler Wrench
Installation Data: Horizontal Sidewall

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations and Type of Approval		Sprinkler Identification Numbers (SIN)
		US	Metric		Light Hazard	Ordinary Hazard	
½" (15mm)	½" NPT (R1/2)	5.6	80	2.63" (67mm)	1,2	1	RA1435[1]

[1] cULus Listed corrosion resistant (Polyester coated) sprinkler.



Horizontal Sidewall



Note: For Recessed HSW Sprinklers use installation wrench GFR2.

Model F1FR56 Quick Response Concealed Pendent Sprinklers

Installation Wrench: Model RC1 Sprinkler Wrench

Technical Data:

Nominal Orifice	"K" Factor		Thread Size	Model	Temp. Rating		Max. Ambient Temp	Bulb Color	Approvals	Sprinkler Identification Number(SIN)
	US	Metric			Sprinkler	Cover				
½" (15mm)	5.6	80	½" NPT	F1FR	135°F/57°C	135°F/57°C	100°F/38°C	Orange	1	RA1414
½" (15mm)	5.6	80	½" NPT	F1FR	155°F/68°C	135°F/57°C	100°F/38°C	Red	1, 4[1]	RA1414
½" (15mm)	5.6	80	½" NPT	F1FR	175°F/79°C	165°F/74°C	100°F/38°C	Yellow	1	RA1414
½" (15mm)	5.6	80	½" NPT	F1FR	200°F/93°C	165°F/74°C	150°F/65°C	Green	1	RA1414

[1] For VdS only = 155°F/68°C Norbulb and 1/2" [12,7mm] adjustment.

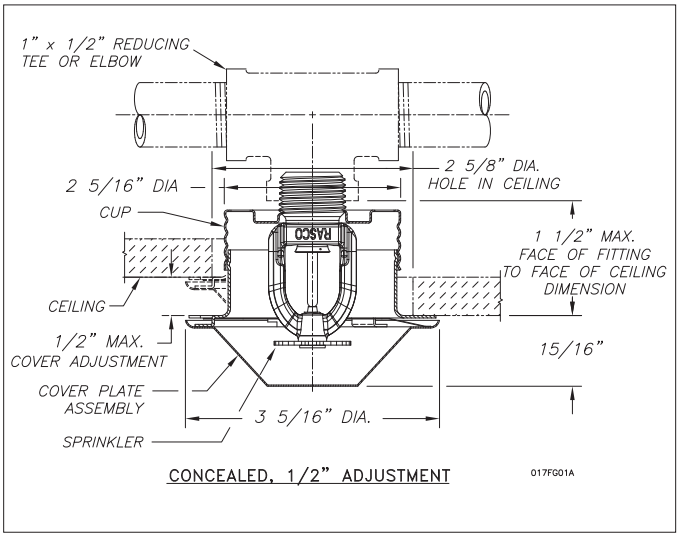


Figure 1

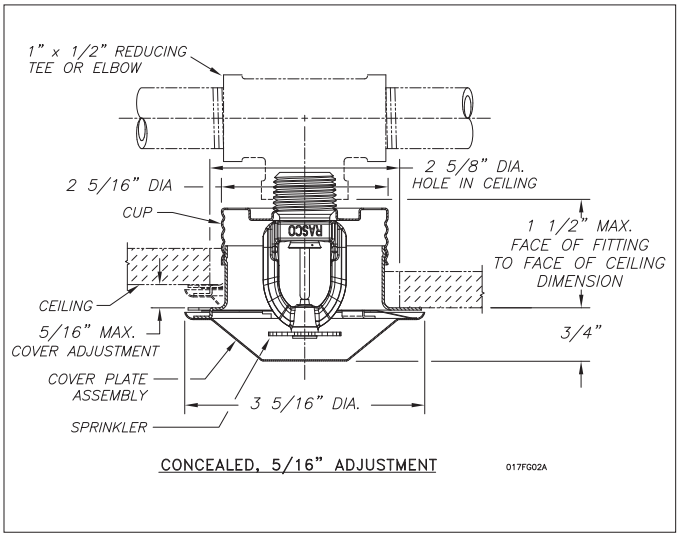


Figure 2

Installation Aid

A protective cap is included for use during installation.

Important: The F1FR56 Sprinkler with Model CCP cover plate is not an FM Approved combination.

Installation

Quick response sprinklers are intended for installation as specified in NFPA 13. Quick response sprinklers and standard response sprinklers should not be intermixed.

The Model F1FR56, F1FR42, F1FRXLH & F1FR28 Recessed Quick Response Sprinklers are to be installed as shown. The Model F1 or F2 Escutcheons illustrated are the only recessed escutcheons to be used with the Model F1FR56, F1FR42, F1FRXLH & F1FR28 Sprinklers. The use of any other recessed escutcheon will void all approvals and negate all warranties.

When installing Model F1FR56, F1FR42, F1FRXLH & F1FR28 Sprinklers, use the Model D Sprinkler Wrench. Use the Model GFR2 Wrench for installing F1FR56, F1FR42, F1FRXLH & F1FR28 Recessed Pendent Sprinklers. Any other type of wrench may damage these sprinklers.

NOTE: A leak tight ½" NPT (R1/2) sprinkler joint can be obtained with a torque of 8-18 ft-lbs (10,8 - 24,4 N-m). Do not tighten sprinklers over maximum recommended torque. It may cause leakage or impairment of the sprinklers.

*DuPont Registered Trade Mark

The Model F1FR56/ CCP Concealed Sprinkler uses the ½" orifice, ½" NPT (R1/2), 135°F (57°C), 155°F (68°C), 175°F (79°C) or 200°F (93°C) Model F1FR56 Pendent Sprinkler with a threaded Model CCP cup which is factory attached to the sprinkler. The assembly is completed by the installation of the attractive, low profile, 135°F (57°C) or 165°F (74°C) rated Model CCP push on cover plate assembly. The cover plate and sprinkler cup assemblies are joined using a cover plate skirt with flexible tabs for threaded engagement. A choice of two cover plate assemblies provide either ½" (13mm) or 5/16" (8mm) of cover adjustment.

Do not install these sprinklers in ceiling which have positive pressure in the space above.

After a 2⅝" (67mm) diameter hole is cut in the ceiling, the sprinkler is easily installed with the Model RC1 Wrench. A Teflon* based thread sealant should be applied to the sprinkler threads only. The Model RC1 Wrench is then used to engage the sprinkler wrenching surfaces and to install the sprinkler in the fitting. When inserting or removing the wrench from the sprinkler/cup assembly, care should be taken to prevent damage to the sprinkler. DO NOT WRENCH ON ANY OTHER PART OF THE SPRINKLER. The cover plate is then pushed onto the cup. Final adjustment is made by hand turning the cover plate until the skirt flange makes full contact with the ceiling. Cover plate removal requires turning in the counter clockwise direction.

After installation, inspect all sprinklers to ensure that there is a gap between the cover plate and ceiling and that the four cup slots are open and free from any air flow impediment to the space above.

Concealed cover plate/cup assemblies are listed only for use with specific sprinklers. The use of any other concealed cover plate/cup assembly with the Model F1FR56 Pendent Sprinkler or the use of the Model CCP Concealed cover plate assembly on any sprinkler with which it is not specifically listed my prevent good fire protection and will void all guarantees, warranties, listings and approvals.

Glass bulb sprinklers have orange bulb protectors to minimize bulb damage during shipping, handling and installation. REMOVE THIS PROTECTION AT THE TIME THE SPRINKLER SYSTEM IS PLACED IN SERVICE FOR FIRE PROTECTION. Removal of the protectors before this time may leave the bulb vulnerable to damage. RASCO wrenches are designed to install sprinklers when covers are in place. REMOVE PROTECTORS BY UNDOING THE CLASP BY HAND. DO NOT USE TOOLS TO REMOVE THE PROTECTORS.

Temperature Ratings

Classification	Sprinkler Temperature		Max. Ambient Temp.	Bulb Color
	°C	°F		
Ordinary	57	135	100°F (38°C)	Orange
Ordinary	68	155	100°F (38°C)	Red
Intermediate	79	175	150°F (66°C)	Yellow
Intermediate	93	200	150°F (66°C)	Green
High [1]	141	286	225°F (107°C)	Blue

[1] Not available for recessed sprinklers.

Escutcheon Data [1]

[1] SIN RA1435 – cULus permits use with F1, F2 or FP escutcheons for "light hazard" only, while FM limits use for same hazard with F2 escutcheon only.

Maintenance

The Model F1FR56, F1FR42, F1FRXLH and Model F1FR56, F1FR42, F1FRXLH & F1FR28 Recessed Sprinklers should be inspected quarterly and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gentle vacuuming. Remove any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Sprinkler Types

Standard Upright
Standard Pendent
Conventional
Recessed Pendent
Vertical Sidewall
Horizontal Sidewall
Recessed Horizontal sidewall
Concealed pendent

Maximum Working Pressure

175 psi (12 bar)
100% Factory tested hydrostatically to 500 psi (34.5 bar)

Finishes [1]

Standard Finishes		
Sprinkler	**Escutcheon**	**Cover plate[1]**
Bronze	Brass	
Chrome Plated	Chrome	Chrome
Polyester	Plated	te
Coated [4][5][6]	White Painted	
Special Application Finishes		
Sprinkler	**Escutcheon**	**Cover plate[1]**
Bright Brass [3]	Bright Brass	Bright Brass
Black Plated	Black Plated	Satin
Black Paint [2][6]	Black Paint	Off White
Off White [2][6]	Off White	Black Paint
Satin Chrome	Satin Chrome	Black Plated

Upr.

Pend.

[1] Other finishes and colors are available on special order. Consult the factory for details. Custom color painted sprinklers may not retain their UL Corrosion resistance listing. Coverplate custom paint is semi-gloss, unless specified otherwise.

[2] cULus Listed only.

[3] 200°F (93°C) maximum.

[4] cULus listed "corrosion resistance" applies to SIN Numbers RA1435 (HSW), RA1485(VSW), RA1425 (Upright) and RA1414 (Pendent) in standard black or white. Corrosion resistance in other polyester colors is available upon request.

[5] FM Approvals finish as "Polyester coated" applies to SIN Number RA1414 (Pendent) in standard black or white.

[6] LPCB and VdS Approved finish applies only to RA1425, RA1414 and RA1475.

Ordering Information

Specify:

1. Sprinkler Model
2. Sprinkler Type
3. Orifice Size
4. Deflector Type
5. Temperature Rating
6. Sprinkler Finish
7. Escutcheon Type
8. Escutcheon Finish (where applicable)
9. Cover plate Model
10. Cover plate Thread size
11. Cover plate Temperature
12. Cover plate Adjustment
13. Cover plate Finish

Note: When Model F1FR56 Recessed sprinklers are ordered, the sprinklers and escutcheons are packaged separately.

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Products manufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by

Reliable®

The Reliable Automatic Sprinkler Co., Inc.
(800) 431-1588 Sales Offices
(800) 848-6051 Sales Fax
(914) 829-2042 Corporate Offices
www.reliablesprinkler.com Internet Address

Recycled Paper

Revision lines indicate updated or new data.

EG. Printed in U.S.A. 05/12 P/N 9999970300

data sheet

ARGCO

GUARANTEED

FIRE SPRINKLER SPARE HEADBOXES

Heavy gauge steel construction

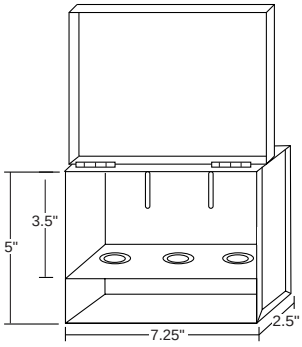
Knockouts and shelf to accommodate any 1/2” or 3/4” sprinkler head

All-welded construction and full length hinge

Red powder coated finish

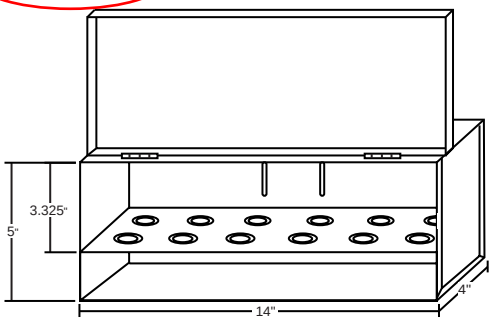
Slotted for easy mounting with screws, rivets or strapping

3 Head Box



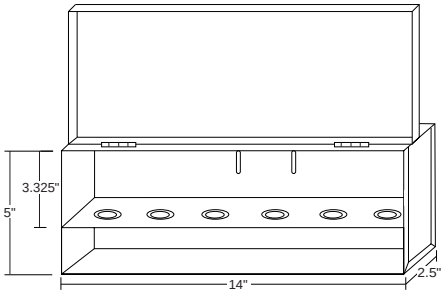
(65-10-152)

12 Head Box



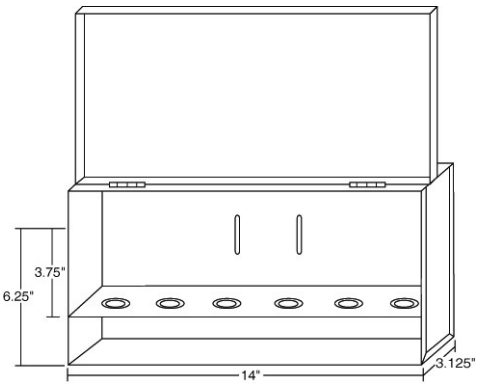
(65-10-150)

6 Head Box



(65-10-151)

6 Large Head Box



(65-10-151A)

FOR MORE INFORMATION CALL ARGCO AT 1-800-854-1015
OR LOG ONTO WWW.ARGCO.COM

Wheatland's

Schedule 10

Sprinkler Pipe

Wheatland's Schedule 10 Sprinkler Pipe is a high quality sprinkler pipe offering you the full range of assurances you require. Schedule 10 Sprinkler Pipe has passed some of the toughest lab tests ever created for sprinkler pipe.

Made in the U.S.A. by Wheatland Tube Company means made to the highest standards for consistant quality.

Wheatland's schedule 10 Sprinkler Pipe is made from the highest quality steel in one of the nation's most modern and most complete pipe manufacturing plants. Our proprietary mill coating offers you a clean, corrosion and heat resistant surface that outlasts and outperforms standard lacquer coatings. Plus, this coating can be quickly and easily painted without special preparation. Or it may be hot-dipped galvanized to meet FM requirements for dry systems in accordance with the zinc coating specification of ASTM A795 or A53.

Specifications and Approvals

Wheatland's Schedule 10 Lightwall Sprinkler Pipe meets or exceeds the following:

- UL Listed
- FM Approved
- ASTM A135, Grade A

Please refer to appropriate documentation for up-to-date listing and approval information. Specifications and descriptions are accurate as known at time of publication and are subject to change without notice.

Specifications

NPS	Nominal O.D		Nominal I.D		Nominal Wall		Nominal Weight		UL CRR*	Pieces Lift
	in.	mm	in.	mm	in.	mm	lbs./ft.	kg/m		
1 1/4	1.660	42.2	1.442	36.6	.109	2.77	1.81	2.69	7.3	61
1 1/2	1.900	48.3	1.682	42.7	.109	2.77	2.09	3.11	5.8	61
2	2.375	60.3	2.157	54.8	.109	2.77	2.64	3.93	4.7	37
2 1/2	2.875	73.0	2.635	66.9	.120	3.05	3.53	5.26	3.5	30
3	3.500	88.9	3.260	82.8	.120	3.05	4.34	6.46	2.6	19
4	4.500	114.3	4.260	108.2	.120	3.05	5.62	8.37	1.6	19
5	5.563	141.3	5.295	134.5	.134	3.40	7.78	11.58	1.5	13
6	6.625	168.3	6.357	161.5	.134	3.40	9.30	13.85	1.0	10

* Calculated using Standard UL CRR formula, UL Fire Protection Directory, Category VIZY

* The CRR is a ratio value used to measure the ability of a pipe to withstand corrosion. Schedule 40 steel pipe is used as the benchmark (value of 1.0).

Wheatland Tube Company
1 Council Avenue, P.O. Box 608 Wheatland, PA 16161-0608
Ph 800.257.8182 Fax 724.346.7260
www.wheatland.com

0207 1.0Mrev01

Wheatland's

Schedule 40

Sprinkler Pipe

Wheatland's Schedule 40 Sprinkler Pipe is a high quality sprinkler pipe offering you the full range of assurances you require. Schedule 40 Sprinkler Pipe has passed some of the toughest lab tests ever created for sprinkler pipe.

Made in the U.S.A. by Wheatland Tube Company means made to the highest standards for consistant quality.

Wheatland's schedule 40 Sprinkler Pipe is made from the highest quality steel in one of the nation's most modern and most complete pipe manufacturing plants. Our proprietary mill coating offers you a clean, corrosion and heat resistant surface that outlasts and outperforms standard lacquer coatings. Plus, this coating can be quickly and easily painted without special preparation. Or it may be hot-dipped galvanized to meet FM requirements for dry systems in accordance with the zinc coating specification of ASTM A795. Schedule 40 is also available as ASTM A 53 Type F, Grade A in NPS 1 - 6 and is UL Listed and FM Approved.

Specifications and Approvals

Wheatland's Schedule 40 Standard Wall Sprinkler Pipe meets or exceeds the following:

- UL Listed
- FM Approved
- ASTM A795, Type E, Grade A

Please refer to appropriate documentation for up-to-date listing and approval information. Specifications and descriptions are accurate as known at time of publication and are subject to change without notice.

Specifications

NPS	Nominal O.D		Nominal I.D		Nominal Wall		Nominal Weight		UL CRR*	Pieces Lift
	in.	mm	in.	mm	in.	mm	lbs./ft.	kg/m		
1"	1.315	33.4	1.049	26.6	.133	3.38	1.68	2.50	1.00	70
1 1/4"	1.660	42.2	1.380	35.1	.140	3.56	2.27	3.39	1.00	51
1 1/2"	1.900	48.3	1.610	40.9	.145	3.68	2.72	4.05	1.00	44
2"	2.375	60.3	2.067	52.5	.154	3.91	3.66	5.45	1.00	30

* Calculated using Standard UL CRR formula, UL Fire Protection Directory, Category VIZY

* The CRR is a ratio value used to measure the ability of a pipe to withstand corrosion. Schedule 40 steel pipe is used as the benchmark (value of 1.0).

Wheatland Tube Company
1 Council Avenue, P.O. Box 608 Wheatland, PA 16161-0608
Ph 800.257.8182 Fax 724.346.7260
www.wheatland.com

0207 1.0Mrev01

Northwest Pipe Company

FLAME-OUT®

THE LEADING LARGE O.D. SCHEDULE 10 SPRINKLER PIPE

PRODUCT DESCRIPTION:

Schedule 10 Steel Sprinkler Pipe manufactured to ASTM A-795, Type E Grade A. FM approved and UL listed for up to 300 PSI* working pressure in accordance with NFPA 13.

HYDROSTATICALLY TESTED

* Refer to appropriate documentation for up-to-date listing and approval information.

PERFORMANCE & CERTIFICATION

Each piece of FLAME-OUT pipe is **hydrostatically tested** and UV coated to ensure the product meets the most demanding industry standards.

FLAME-OUT pipe is listed by Underwriter's Laboratories and certified by FM Approvals for use with rubber gasketed fittings and mechanical tees that have also been UL and FM approved. For current listing of approved components, please see the most recent UL Fire Protection Equipment Directory and FM Research Approval Guide.

FM APPROVED

c UL us

ISO

FLAME OUT SPECIFICATIONS

NOMINAL PIPE SIZE (in.)	3	4	6	8
OUTSIDE DIAMETER (in.)	3.500	4.500	6.625	8.625
WALL THICKNESS (in.)	0.120	0.120	0.134	0.188
WEIGHT PER FOOT (lbs/ft)	4.33	5.61	9.29	16.94
HYDROTEST PRESSURE (psi)	1200	1280	1000	800
FRICTION LOSS*	.7230	.1970	.0280	.0078
CORROSION RESISTANCE	1.804	1.804	1.158	1.805

* C=120 @ 1000 GPM

SIZE AND BUNDLING SCHEDULE

	21				24			
	3	4	6	8	3	4	6	8
No. of Lengths	19	19	10	7	19	19	10	7
Weight (lbs)	1728	2239	1951	2490	1975	2558	2230	2845
Total Footage	399	399	210	147	456	456	240	168

Number of lengths, calculated weight and total footage per standard lift

INSTALLATION BENEFITS

FLAME-OUT offers the economy of thin-wall pipe, while providing all the safety advantages of heavy-wall pipe.

Light weight to assure easy handling and reduced installation costs.

Can be welded or used with grooved fittings and mechanical tees.

Can be cut-to-length and/or roll grooved at the plant for special projects.

ADDITIONAL INFORMATION

12005 N Burgard, Portland, Oregon 97203
800-824-9824, FAX 503-285-2429

PO Box 610, Atchison, Kansas 66002
800-423-0677, FAX 913-874-2801

www.nwpipe.com

Schedule 10 and Schedule 40

FM Approved and UL Listed Sprinkler Pipe

Bull Moose Tube Company is a recognized producer of quality pipe products. Our Schedule 10 and Schedule 40 are FM Approved and UL Listed (for U.S. and Canada), even though these products do not require separate approvals and listings. Bull Moose Tube made the decision to have them approved and listed for your peace of mind. Our Sch. 10 and Sch. 40 have been through the same rigorous testing as our other fine pipe products.

Bull Moose Tube's Sch. 10 and Sch. 40 pipes are made to ASTM A135 and ASTM A795. These products are typically supplied with our protective coating but can be supplied without the coating so they can be hot-dip galvanized to meet FM requirements for use in dry systems in accordance with the zinc coating specifications of ASTM A795 or ASTM A53. All Schedule 10 and Schedule 40 pipe has a pressure rating of 300 PSI.

Schedule 10 Pipe

Nominal Pipe Size (in)	Nominal O.D. (in)	Nominal I.D. (in)	Weight/Ft	Bundle Size
1	1.315	1.097	1.41 lbs/ft	91
1 1/4	1.660	1.442	1.81 lbs/ft	61
1 1/2	1.900	1.682	2.09 lbs/ft	61
2	2.375	2.157	2.64 lbs/ft	37
2 1/2	2.875	2.635	3.53 lbs/ft	30
3	3.500	3.260	4.34 lbs/ft	19
4	4.500	4.260	5.62 lbs/ft	19

Schedule 40 Pipe

Nominal Pipe Size (in)	Nominal O.D. (in)	Nominal I.D. (in)	Weight/Ft	Bundle Size
1	1.315	1.049	1.68 lbs/ft	70
1 1/4	1.660	1.380	2.27 lbs/ft	51
1 1/2	1.900	1.610	2.72 lbs/ft	44
2	2.375	2.067	3.66 lbs/ft	30
2 1/2	2.875	2.468	5.80 lbs/ft	30
3	3.500	3.068	7.58 lbs/ft	19
4	4.500	4.026	10.80 lbs/ft	19

PIPE PREPARATION

For proper operation, all pipe surfaces should be cleaned prior to installation. In order to provide a leak-tight seat for the gasket, pipe surfaces should be free from indentations and projections from the end of the pipe to the groove. All loose paint, scale, dirt, chips, grease, and rust must be removed prior to installation. Failure to take these important steps may result in improper coupling assembly, causing leakage. Also, check the manufacturer's instructions for the specific fitting used.

BULL MOOSE TUBE COMPANY
A CAPARO company

1819 Clarkson Road
Chesterfield, MO 63017
(800) 325-4467
FAX: (636) 537-2645
www.bullmoosetube.com
e-mail: sales@bullmoosetube.com

For additional information, contact your salesperson today at (800) 325-4467 or (636) 537-2600 in the USA, or from Canada call (800) 882-4666

c UL us LISTED

FM APPROVED

allied
TUBE & CONDUIT

SCHEDULE-10/40

Schedule-10®/Schedule-40®

Fully Listed and FM Approved Sprinkler Pipe

When you specify Schedule-10/Schedule-40 sprinkler pipe you get a UL listed and FM approved product. Although these products do not require separate approvals, Schedule-10/Schedule-40 gives you the extra quality assurance you demand. Our Sch-10 (1¼"– 8") pipe and Sch-40 (1"– 2½") pipe have passed the same thorough lab testing as our other listed pipe products, and receive periodic mill inspections from both UL and FM agents to ensure consistent quality.

Galvanized Pipe

Schedule-10/Schedule-40 product can be "hot-dip" galvanized to meet FM requirements for dry systems in accordance with the zinc coating specifications of ASTM A-123.

Superior Coating

Our advanced formula mill coating offers a clean, durable surface. It is also paint-ready for custom color applications without special preparation.

The internal surface of all black Allied Tube & Conduit Fire Sprinkler pipe products up to 4.5000" in diameter is coated with our new Antibacterial Formula, "ABF". In scientific laboratory test, ABS proved to have superior resistance to microbial colonization of pipe walls, thereby delaying or possibly preventing the onset of Microbiologically Influenced corrosion (MIC) when the First Sprinkler System is first installed.

American Made

Meets "Buy American" requirement and is available through distributors in the USA, Canada and Mexico.

Specifications & Approvals

Schedule-10/Schedule-40 pipe are in compliance with the following:

ASTM A-135, and NFPA 13. Both pipe products have a working pressure rating of 300 psi maximum and also meet the stringent requirement for the following tests:

- Welded Outlets
- Hydrostatic Pressure
- Side Wall Rupture
- Vibration Test

Sch-40 Specifications

NPS *In; mm*	Nominal I.D. *In; mm*	Wt. *Lbs/Ft; Kg/m*	Wt. (H2O Filled) *Lbs/Ft; Kg/m*	Pcs/ *Lift*	Wt/Lift (21') *Lbs; Kg*	Wt/Lift (24') *Lbs; Kg*	Wt/Lift (25') *Lbs; Kg*
1" *25*	1.049 *26.6*	1.680 *2.5*	2.05 *3.05*	70 *70*	2,470 *1,120*	2,822 *1,280*	2,940 *1,334*
1¼" *32*	1.380 *35.1*	2.270 *4.36*	2.93 *4.36*	51 *51*	2,431 *1,103*	2,778 *1,260*	2,894 *1,313*
1½" *40*	1.610 *40.9*	2.720 *4.0*	3.61 *5.37*	44 *44*	2,513 *1,140*	2,872 *1,303*	2,992 *1,357*
2" *50*	2.067 *52.5*	3.650 *5.4*	5.13 *7.63*	30 *30*	2,300 *1,043*	2,628 *1,192*	2,738 *1,242*
2½" *65*	2.469 *62.7*	5.790 *8.6*	7.86 *11.73*	19 *19*	2,310 *1,048*	2,640 *1,197*	2,750 *1,247*

Sch-10 Specifications

NPS *In; mm*	Nominal I.D. *In; mm*	Wt. *Lbs/Ft; Kg/m*	Wt. (H2O Filled) *Lbs/Ft; Kg/m*	Pcs/ *Lift*	Wt/Lift (21') *Lbs; Kg*	Wt/Lift (24') *Lbs; Kg*	Wt/Lift (25') *Lbs; Kg*
1" *25*	1.097 *27.9*	1.400 *2.1*	1.81 *2.70*	91 *91*	2,675 *1,213*	3,053 *1,385*	3,185 *1,445*
1¼" *32*	1.442 *36.6*	1.810 *2.7*	2.52 *3.75*	61 *61*	2,319 *1,052*	2,664 *1,208*	2,760 *1,252*
1½" *40*	1.682 *42.7*	2.080 *3.1*	3.04 *4.52*	61 *61*	2,664 *1,208*	3,045 *1,381*	3,172 *1,439*
2" *50*	2.157 *54.8*	2.640 *3.9*	4.22 *6.28*	37 *37*	2,051 *930*	2,344 *1,063*	2,442 *1,108*
2½" *65*	2.635 *66.9*	3.530 *5.3*	5.89 *8.77*	30 *30*	2,224 *1,009*	2,542 *1,153*	2,648 *1,201*
3" *80*	3.260 *82.8*	4.330 *6.4*	7.94 *11.82*	19 *19*	1,728 *784*	1,975 *896*	2,057 *933*
4" *90*	4.260 *108.2*	5.610 *8.3*	11.78 *17.53*	19 *19*	2,238 *1,015*	2,558 *1,160*	2,665 *1,209*
5" *125*	5.295 *134.5*	7.77 *11.56*	17.33 *25.80*	10 *10*	1,632 *740*	1,865 *846*	1,943 *881*
6" *150*	6.357 *161.5*	9.290 *13.8*	23.03 *34.27*	10 *10*	1,951 *885*	2,230 *1,012*	2,322 *1,053*
8" *200*	8.249 *209.5*	16.490 *24.5*	40.15 *59.75*	7 *7*	2,424 *1,100*	2,770 *1,256*	2,885 *1,309*

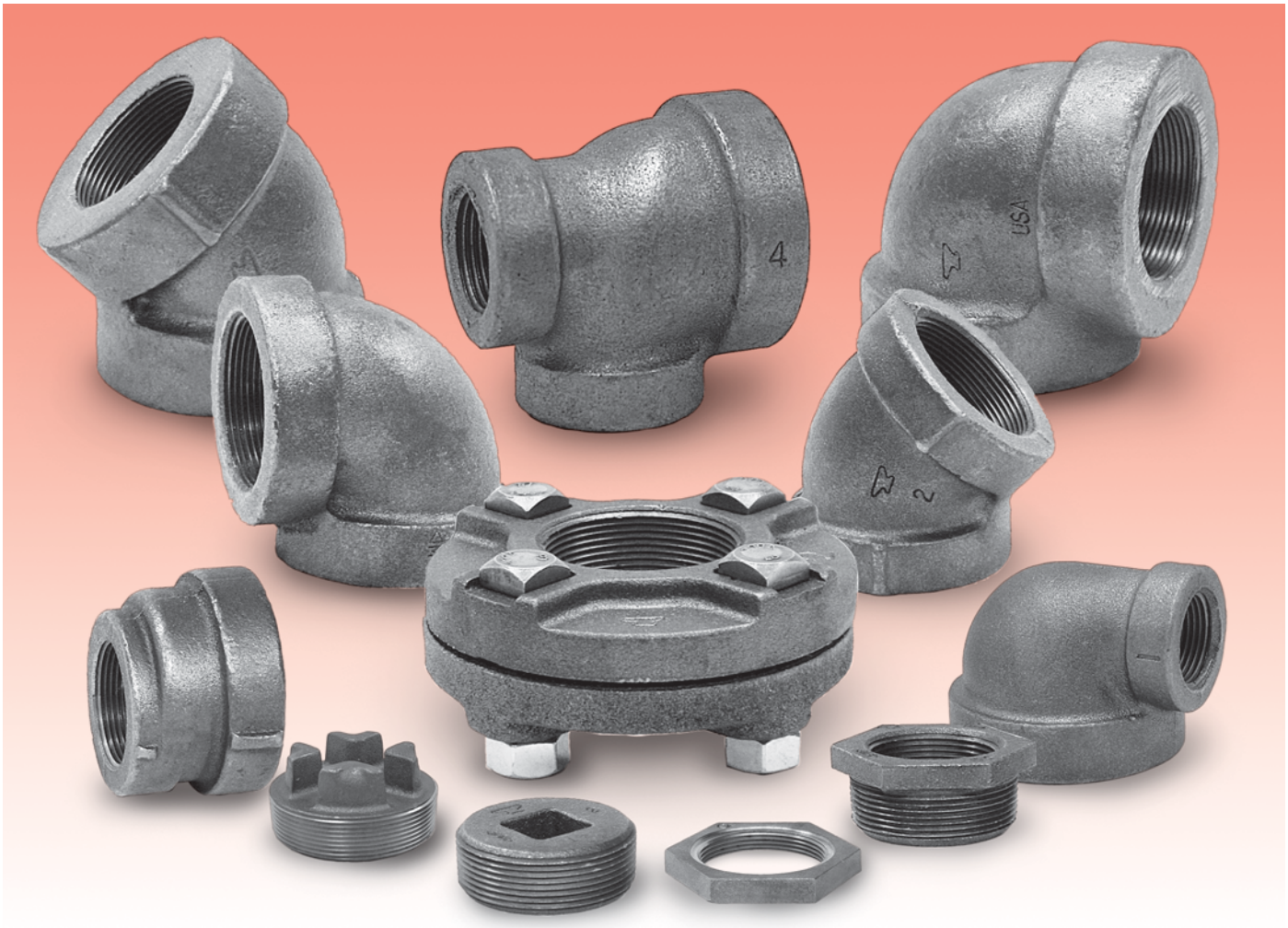
UL Listed FM Approved ULC Listed

tyco / Flow Control

allied TUBE & CONDUIT

16100 S. Lathrop • Harvey, IL 60426
11350 Norcom Rd. • Philadelphia, PA 19154
2525 N. 27 th Ave. • Phoenix, AZ 85009

Customer Service:
(800) 882-5543
Fax 708-339-1806



Anvil standard and extra heavy cast iron threaded fittings are manufactured in accordance with ASME-B16.4 (except plugs and bushings, ASME B16.14). Dimensions also conform to Federal Specifications, WW-P-501 (except plugs and bushings WW-P-471).

c UL us

FM APPROVED

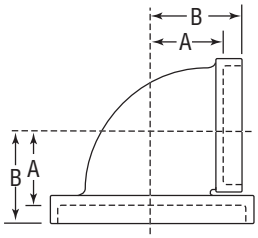
For Listings/Approval Details and Limitations, visit our website @ www.anvilintl.com or contact an Anvil/AnvilStar Sales Representative.

Cast Iron Threaded Fittings Pressure - Temperature Ratings					
Temperature		Pressure			
		Class 125		Class 250	
(°F)	*(°C)*	psi	*bar*	psi	*bar*
-20° to 150°	*-28.9 to 65.6*	175	*12.1*	400	*27.6*
200°	*93.3*	165	*11.4*	370	*25.5*
250°	*121.1*	150	*10.3*	340	*23.4*
300°	*148.9*	140	*9.7*	310	*21.4*
350°	*176.7*	125	*8.6*	300	*20.7*
400°	*204.4*	–	–	250	*17.2*

Cast Iron Threaded Fittings

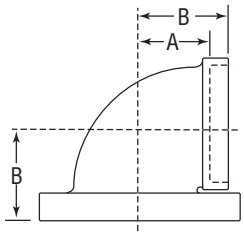
Class 125 (Standard)

FIGURE 351
90° Elbow



Size		A		B		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
1/4	*8*	1/2	*13*	13/16	*22*	0.16	*0.07*
3/8	*10*	9/16	*14*	15/16	*24*	0.25	*0.11*
1/2	*15*	11/16	*17*	1 1/8	*29*	0.40	*0.18*
3/4	*20*	13/16	*22*	1 15/16	*33*	0.60	*0.27*
1	*25*	15/16	*24*	1 1/2	*38*	0.92	*0.42*
1 1/4	*32*	1 1/8	*29*	1 3/4	*44*	1.44	*0.65*
1 1/2	*40*	1 5/16	*33*	1 15/16	*49*	1.95	*0.88*
2	*50*	1 9/16	*40*	2 1/4	*57*	3.13	*1.42*
2 1/2	*65*	1 13/16	*47*	2 11/16	*68*	4.94	*2.24*
3	*80*	2 3/16	*56*	3 1/8	*79*	7.21	*3.27*
3 1/2	*90*	2 7/16	*62*	3 7/16	*87*	9.67	*4.39*
4	*100*	2 11/16	*68*	3 13/16	*98*	12.17	*5.52*
5	*125*	3 5/16	*84*	4 1/2	*114*	21.46	*9.73*
6	*150*	3 7/8	*98*	5 1/8	*130*	31.33	*14.21*
8	*200*	5 3/16	*132*	6 9/16	*167*	64.56	*29.28*

FIGURE 371
90° Elbow,
Flange & Screw



Size		A		B		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
2 1/2	*65*	1 13/16	*47*	2 11/16	*68*	10.22	*4.63*
3	*80*	2 3/16	*56*	3 1/8	*79*	13.25	*6.01*
4	*100*	2 11/16	*68*	3 13/16	*98*	21.56	*9.78*
6	*150*	3 7/8	*98*	5 1/8	*130*	40.50	*18.37*

tNominal Pipe Sizes of 4" *(100 DN)* and larger have two holes tapped for stud or tap bolts.

Note: See page 37 for pressure-temperature ratings.

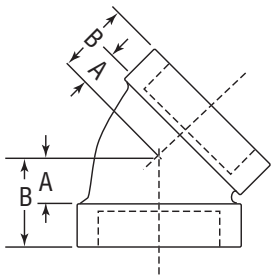
Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 356 (Straight)
FIGURE 356R (Reducing)
45° Elbow

FIGURE 356 (Straight)

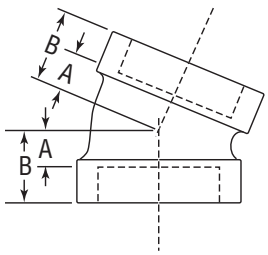
Figure 356R (Reducing)



Size		A		B		Unit Weight Black	
NPS	DN	in	mm	in	mm	lbs	kg
1/4	8	7/16	11	3/4	19	0.16	0.07
3/8	10	7/16	11	13/16	22	0.23	0.10
1/2	15	7/16	11	7/8	22	0.37	0.17
3/4	20	1/2	13	1	25	0.55	0.25
1	25	9/16	14	1 1/8	29	0.83	0.38
1 1/4	32	5/8	16	1 1/4	32	1.33	0.60
1 1/2	40	13/16	22	1 7/16	37	1.79	0.81
2	50	1	25	1 11/16	43	2.89	1.31
2 1/2	65	1 1/16	27	1 15/16	49	4.29	1.95
3	80	1 3/16	30	2 3/16	56	6.44	2.92
3 1/2	90	1 3/8	35	2 3/8	60	8.42	3.82
4	100	1 9/16	40	2 5/8	67	10.64	4.83
5	125	1 7/8	48	3 1/16	78	16.96	7.69
6	150	2 3/16	56	3 7/16	87	26.02	11.80
8	200	2 7/8	73	4 1/4	108	50.17	22.75

Size		A		B		C		D		Unit Weight Black	
NPS	DN	in	mm	in	mm	in	mm	in	mm	lbs	kg
1 x 1/2	25 x 15	1/2	15	7/8	22	1 1/16	27	1 5/16	33	0.95	0.43

FIGURE 356A
22 1/2° Elbow



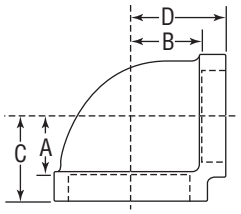
Size		A		B		Unit Weight Black	
NPS	DN	in	mm	in	mm	lbs	kg
3/4	20	3/8	10	7/8	22	0.52	0.24
1	25	7/16	11	1	25	0.80	0.36
1 1/4	32	1/2	13	1 1/8	29	1.40	0.63
1 1/2	40	5/8	16	1 1/4	32	1.64	0.74
2	50	3/4	19	1 7/16	37	2.50	1.13
2 1/2	65	3/4	19	1 5/8	41	3.95	1.79

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 352
90° Elbow, Reducing



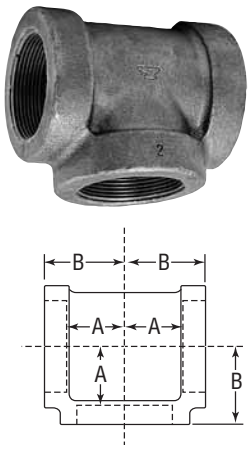
Size				A		B		C		D		Unit Weight Black	
NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
1/2	*15*	1/4	*8*	5/8	*16*	3/4	*19*	1 1/16	*27*	1 1/16	*27*	0.40	*0.18*
		3/8	*10*	5/8	*16*	11/16	*17*	1 1/16	*27*	1 1/16	*27*	0.34	*0.15*
3/4	*20*	1/2	*15*	11/16	*17*	13/16	*22*	1 1/4	*32*	1 1/4	*32*	0.51	*0.23*
1	*25*	1/2	*15*	11/16	*17*	15/16	*24*	1 3/8	*35*	1 3/8	*35*	0.67	*0.30*
		3/4	*20*	13/16	*22*	15/16	*24*	1 7/16	*37*	1 7/16	*37*	0.76	*0.34*
1 1/4	*32*	1/2	*15*	11/16	*17*	1 1/16	*27*	1 1/2	*38*	1 1/2	*38*	1.07	*0.49*
		3/4	*20*	13/16	*22*	1 1/8	*29*	1 5/8	*41*	1 5/8	*41*	1.02	*0.46*
		1	*25*	15/16	*24*	1 1/8	*29*	1 11/16	*43*	1 11/16	*43*	1.21	*0.55*
1 1/2	*40*	1/2	*15*	3/4	*19*	1 1/4	*32*	1 5/8	*41*	1 5/8	*41*	1.53	*0.69*
		3/4	*20*	7/8	*22*	1 5/16	*33*	1 13/16	*47*	1 13/16	*47*	1.55	*0.70*
		1	*25*	1	*25*	1 1/4	*32*	1 13/16	*47*	1 13/16	*47*	1.44	*0.65*
		1 1/4	*32*	1 3/16	*30*	1 1/4	*32*	1 7/8	*48*	1 7/8	*48*	1.74	*0.79*
2	*50*	1/2	*15*	1 3/16	*30*	1 7/16	*37*	1 3/8	*35*	1 3/8	*35*	2.22	*1.01*
		3/4	*20*	1 5/16	*33*	1 1/2	*38*	2	*51*	2	*51*	2.20	*1.00*
		1	*25*	1 1/16	*27*	1 7/16	*37*	2	*51*	2	*51*	2.08	*0.94*
		1 1/4	*32*	1 3/16	*30*	1 7/16	*37*	2 1/16	*52*	2 1/16	*52*	2.33	*1.06*
		1 1/2	*40*	1 5/16	*33*	1 1/2	*38*	2 1/8	*54*	2 1/8	*54*	2.59	*1.17*
2 1/2	*65*	1	*25*	1	*25*	1 3/4	*44*	2 5/16	*59*	2 5/16	*59*	2.93	*1.33*
		1 1/4	*32*	1 3/16	*30*	1 3/4	*44*	2 3/8	*60*	2 3/8	*60*	3.41	*1.55*
		1 1/2	*40*	1 5/16	*33*	1 13/16	*47*	2 7/16	*62*	2 7/16	*62*	3.68	*1.67*
		2	*50*	1 9/16	*40*	1 7/8	*48*	2 9/16	*65*	2 9/16	*65*	4.01	*1.82*
3	*80*	1 1/4	*32*	1 5/8	*41*	2 5/16	*59*	2 15/16	*75*	2 15/16	*75*	5.98	*2.71*
		1 1/2	*40*	1 5/8	*41*	2 5/16	*59*	2 15/16	*75*	2 15/16	*75*	5.65	*2.56*
		2	*50*	1 5/8	*41*	2 1/4	*57*	2 15/16	*75*	2 15/16	*75*	5.25	*2.38*
		2 1/2	*65*	1 7/8	*48*	2 3/16	*56*	3 1/16	*78*	3 1/16	*78*	6.44	*2.92*
3 1/2	*90*	3	*80*	2 3/16	*56*	2 7/16	*62*	3 3/8	*86*	3 3/8	*86*	8.95	*4.06*
4	*100*	2	*50*	2 3/16	*56*	2 15/16	*75*	3 5/8	*92*	3 5/8	*92*	11.89	*5.39*
		2 1/2	*65*	2 3/16	*56*	2 3/4	*70*	3 5/8	*92*	3 5/8	*92*	11.27	*5.11*
		3	*80*	2 3/16	*56*	2 11/16	*68*	3 5/8	*92*	3 5/8	*92*	10.63	*4.82*
5	*125*	4	*100*	2 13/16	*73*	3 5/16	*84*	4 3/8	*111*	4 3/8	*111*	16.47	*7.47*
6	*150*	3	*80*	2 5/16	*59*	3 13/16	*98*	4 13/16	*124*	4 13/16	*124*	19.43	*8.81*
		4	*100*	2 13/16	*73*	3 7/8	*98*	4 15/16	*125*	4 15/16	*125*	23.53	*10.67*
		5	*125*	3 3/8	*86*	3 13/16	*98*	5	*127*	5	*127*	26.66	*12.09*
8	*200*	6	*150*	4 3/16	*106*	5 1/8	*130*	6 3/8	*162*	6 3/8	*162*	51.11	*23.18*

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

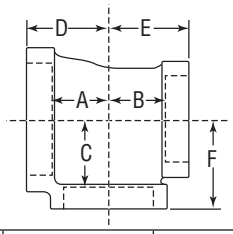
Class 125 (Standard)

FIGURE 358
Tee



Size		A		B		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
1/4	*8*	1/2	*13*	13/16	*22*	0.22	*0.10*
3/8	*10*	5/8	*16*	1	*25*	0.35	*0.16*
1/2	*15*	11/16	*17*	1 1/8	*29*	0.56	*0.25*
3/4	*20*	13/16	*22*	1 5/16	*33*	0.84	*0.38*
1	*25*	15/16	*24*	1 1/2	*38*	1.25	*0.57*
1 1/4	*32*	1 1/8	*29*	1 3/4	*44*	2.03	*0.92*
1 1/2	*40*	1 5/16	*33*	1 15/16	*49*	2.70	*1.22*
2	*50*	1 9/16	*40*	2 1/4	*57*	4.23	*1.92*
2 1/2	*65*	1 13/16	*47*	2 11/16	*68*	6.67	*3.02*
3	*80*	2 3/16	*56*	3 1/8	*79*	10.00	*4.54*
3 1/2	*90*	2 7/16	*62*	3 7/16	*87*	13.29	*6.03*
4	*100*	2 11/16	*68*	3 3/4	*95*	16.33	*7.41*
5	*125*	3 5/16	*84*	4 1/2	*114*	27.33	*12.39*
6	*150*	3 7/8	*98*	5 1/8	*130*	40.85	*18.53*
8	*200*	5 3/16	*132*	6 9/16	*167*	79.00	*35.83*

FIGURE 359
Tee Reducing



Size						A		B		C		D		E		F		Unit Weight Black	
NPS	*DN*	NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
1/2	*15*	1/2	*15*	1/4	*8*	1 1/16	*17*	11/16	*17*	13/16	*22*	1 1/8	*29*	1 1/8	*29*	1 1/8	*29*	0.57	*0.26*
				3/8	*10*	1 1/16	*17*	11/16	*17*	3/4	*19*	1 1/8	*29*	1 1/8	*29*	1 1/8	*29*	0.57	*0.26*
				3/4	*20*	1 3/16	*22*	13/16	*22*	11/16	*17*	1 1/4	*32*	1 1/4	*32*	13/16	*22*	0.68	*0.31*
				1	*25*	1	*25*	1	*25*	13/16	*22*	1 7/16	*37*	1 7/16	*37*	1 3/8	*35*	1.00	*0.45*
3/4	*20*	1/4	*8*	3/4	*20*	1 3/16	*22*	15/16	*24*	13/16	*22*	15/16	*24*	1 1/4	*32*	15/16	*24*	0.79	*0.36*
		1/2	*15*	1/2	*15*	1 1/16	*17*	11/16	*17*	13/16	*22*	13/16	*22*	1 1/8	*29*	1 1/4	*32*	0.64	*0.29*
				3/4	*20*	1 3/16	*22*	13/16	*22*	13/16	*22*	15/16	*24*	1 1/4	*32*	15/16	*24*	0.75	*0.34*
		3/4	*20*	1/4	*8*	9/16	*14*	9/16	*14*	7/8	*22*	11/16	*17*	11/16	*17*	13/16	*22*	0.62	*0.28*
				3/8	*10*	1 1/16	*17*	11/16	*17*	15/16	*24*	13/16	*22*	13/16	*22*	1 1/4	*32*	0.75	*0.34*
				1/2	*15*	1 1/16	*17*	11/16	*17*	13/16	*22*	13/16	*22*	13/16	*22*	1 1/4	*32*	0.76	*0.34*
				1	*25*	1 5/16	*24*	15/16	*24*	13/16	*22*	1 7/16	*37*	1 7/16	*37*	1 3/8	*35*	0.99	*0.45*
1	*25*	1/4	*8*	1	*25*	1 5/16	*24*	15/16	*24*	15/16	*24*	1 1/2	*38*	1 1/4	*32*	1 1/2	*38*	1.08	*0.49*
		1/2	*15*	1/2	*15*	1 1/16	*17*	3/4	*19*	15/16	*24*	1 1/4	*32*	13/16	*22*	1 3/8	*35*	0.90	*0.41*
				3/4	*20*	1 3/16	*22*	13/16	*22*	15/16	*24*	1 3/8	*35*	1 1/4	*32*	1 7/16	*37*	0.91	*0.41*
				1	*25*	1 5/16	*24*	15/16	*24*	15/16	*24*	1 1/2	*38*	1 3/8	*35*	1 1/2	*38*	1.08	*0.49*
		3/4	*20*	1/2	*15*	1 1/16	*17*	11/16	*17*	15/16	*24*	1 1/4	*32*	13/16	*22*	1 3/8	*35*	0.89	*0.40*
				3/4	*20*	1 3/16	*22*	13/16	*22*	15/16	*24*	1 3/8	*35*	15/16	*24*	1 7/16	*37*	1.00	*0.45*
				1	*25*	1 5/16	*24*	15/16	*24*	15/16	*24*	1 1/2	*38*	1 7/16	*37*	1 1/2	*38*	1.13	*0.51*
		1	*25*	1/4	*8*	1 1/16	*17*	11/16	*17*	1 1/8	*29*	1 1/8	*29*	1 1/4	*32*	1 3/8	*35*	1.01	*0.46*
				1/2	*15*	1 1/16	*17*	11/16	*17*	15/16	*24*	1 1/4	*32*	1 1/4	*32*	1 3/8	*35*	1.01	*0.46*
				3/4	*20*	1 3/16	*22*	13/16	*22*	15/16	*24*	1 3/8	*35*	1 3/8	*35*	1 7/16	*37*	1.11	*0.50*
				1 1/4	*32*	1 1/8	*29*	1 1/8	*29*	15/16	*24*	1 11/16	*43*	1 11/16	*43*	1 9/16	*40*	1.49	*0.68*
				1 1/2	*40*	1 1/4	*32*	1 1/4	*32*	1	*25*	1 13/16	*47*	1 13/16	*47*	1 5/8	*41*	1.84	*0.83*
				2	*50*	1 7/16	*37*	1 7/16	*37*	1	*25*	2	*50*	2	*50*	1 3/4	*44*	2.70	*1.22*

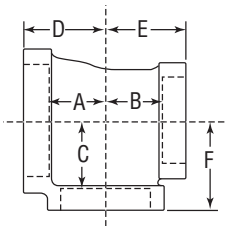
Note: See page 37 for pressure-temperature ratings.

Continued on next page.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 359
Tee Reducing



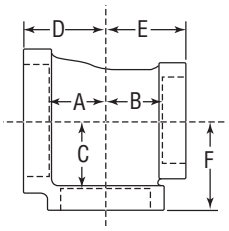
Size						A		B		C		D		E		F		Unit Weight Black	
NPS	DN	NPS	DN	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
1¼	32	½	15	½	15	13/16	22	13/16	22	1 1/8	29	1 7/16	37	15/16	24	1 5/8	41	1.00	0.45
				1	25	1 5/16	24	15/16	24	1 1/8	29	1 9/16	40	1 3/8	35	1 11/16	43	1.38	0.63
				1¼	32	1 1/8	29	1 1/8	29	1 1/8	29	1 3/4	44	1 9/16	40	1 3/4	44	1.64	0.74
		¾	20	¾	20	13/16	22	13/16	22	1 1/8	29	1 7/16	37	15/16	24	1 5/8	41	1.27	0.58
				1	25	1 5/16	24	15/16	24	1 1/8	29	1 9/16	40	1 7/16	37	1 11/16	43	1.43	0.65
				1¼	32	1 1/8	29	1 1/8	29	1 1/8	29	1 3/4	44	1 5/8	41	1 3/4	44	1.73	0.78
		1	25	½	15	1 1/16	17	11/16	17	1 1/8	29	15/16	24	1 1/4	32	1 9/16	40	1.27	0.58
				¾	20	1 3/16	22	13/16	22	1 1/8	29	1 7/16	37	1 3/8	35	1 5/8	41	1.36	0.62
				1	25	1 5/16	24	15/16	24	1 1/8	29	1 9/16	40	1 9/16	40	1 11/16	43	1.53	0.69
				1¼	32	1 1/8	29	1 1/8	29	1 1/8	29	1 3/4	44	1 11/16	43	1 3/4	44	1.79	0.81
				1½	40	1 1/4	32	1 1/4	32	13/16	22	1 7/8	48	1 13/16	47	1 13/16	47	2.07	0.94
				2	50	1 7/16	37	1 7/16	37	13/16	22	2 1/16	52	2	50	1 7/8	48	2.66	1.21
		1¼	32	½	15	1 1/16	17	11/16	17	1 1/8	29	15/16	24	15/16	24	1 9/16	40	1.47	0.67
				¾	20	1 3/16	22	13/16	22	1 1/8	29	1 7/16	37	1 7/16	37	1 5/8	41	1.57	0.71
				1	25	1 5/16	24	15/16	24	1 1/8	29	1 9/16	40	1 9/16	40	1 11/16	43	1.73	0.78
				1½	40	1 1/4	32	1 1/4	32	13/16	22	1 7/8	48	1 7/8	48	1 13/16	47	2.29	1.04
				2	50	1 7/16	37	1 7/16	37	13/16	22	2 1/16	52	2 1/16	52	1 7/8	48	2.81	1.27
1½	40	½	15	1¼	32	13/16	22	1 1/8	29	1 1/4	32	1 13/16	47	1 9/16	40	1 7/8	48	1.93	0.88
				1½	40	15/16	24	1 1/4	32	15/16	24	1 15/16	49	1 11/16	43	1 15/16	49	2.14	0.97
		¾	20	1½	40	15/16	24	1 1/4	32	15/16	24	1 15/16	49	1 3/4	44	1 15/16	49	2.18	0.99
		1	25	½	15	13/16	22	3/4	19	1 1/4	32	1 7/16	37	15/16	24	1 11/16	43	1.75	0.79
				¾	20	7/8	22	13/16	22	1 1/4	32	1 1/2	38	1 3/8	35	1 3/4	44	1.70	0.77
				1	25	1	25	15/16	24	1 1/4	32	1 5/8	41	1 1/2	38	1 13/16	47	1.72	0.78
				1¼	32	13/16	22	1 1/8	29	1 1/4	32	1 13/16	47	1 11/16	43	1 7/8	48	2.08	0.94
				1½	40	15/16	24	1 1/4	32	15/16	24	1 15/16	49	1 13/16	47	1 15/16	49	2.29	1.04
				2	50	1 1/2	38	1 7/16	37	15/16	24	2 1/8	54	2	50	2	51	2.91	1.32
		1¼	32	½	15	13/16	22	11/16	17	1 1/4	32	1 7/16	37	15/16	24	1 11/16	43	1.67	0.76
				¾	20	7/8	22	13/16	22	1 1/4	32	1 1/2	38	1 7/16	37	1 3/4	44	1.79	0.81
				1	25	1	25	15/16	24	1 1/4	32	1 5/8	41	1 9/16	40	1 13/16	47	1.97	0.89
				1¼	32	13/16	22	1 1/8	29	1 1/4	32	1 13/16	47	1 3/4	44	17/8	48	2.28	1.03
				1½	40	15/16	24	1 1/4	32	15/16	24	1 15/16	49	1 7/8	48	1 15/16	49	2.50	1.13
				2	50	1 1/2	38	1 7/16	37	15/16	24	2 1/8	54	2 1/16	52	2	51	3.07	1.39
		1½	40	½	15	13/16	22	13/16	22	1 1/4	32	1 7/16	37	1 7/16	37	1 11/16	43	1.84	0.83
				¾	20	7/8	22	7/8	22	1 1/4	32	1 1/2	38	1 1/2	38	1 3/4	44	1.95	0.88
				1	25	1	25	1	25	1 1/4	32	1 5/8	41	1 5/8	41	1 13/16	47	2.13	0.97
				1¼	32	13/16	22	13/16	22	1 1/4	32	1 13/16	47	1 13/16	47	1 7/8	48	2.44	1.11
				2	50	1 1/2	38	1 1/2	38	15/16	24	2 1/8	54	2 1/8	54	2	51	3.23	1.46
				2½	65	1 13/16	47	1 13/16	47	15/16	24	2 7/16	62	2 7/16	62	2 3/16	56	4.15	1.88

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 359
Tee Reducing



Size						A		B		C		D		E		F		Unit Weight Black	
NPS	*DN*	NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
2	*50*	½	*15*	1½	*40*	15/16	*24*	1 3/8	*35*	1½	*38*	2	*51*	1 13/16	*47*	2 1/8	*54*	2.95	*1.34*
				2	*50*	1 9/16	*40*	1 7/16	*37*	1 9/16	*40*	2 1/4	*57*	1 7/8	*48*	2 1/4	*57*	3.30	*1.50*
		¾	*20*	1¼	*32*	1 3/16	*22*	1 1/8	*29*	1 7/16	*37*	1 7/8	*48*	1 3/4	*44*	2 1/16	*52*	2.50	*1.13*
				1½	*40*	1 5/16	*24*	15/16	*24*	1½	*38*	2	*51*	1 13/16	*47*	2 1/8	*54*	3.40	*1.54*
				2	*50*	1 9/16	*40*	1 7/16	*37*	1 9/16	*40*	2 1/4	*57*	1 15/16	*49*	2 1/4	*57*	3.31	*1.50*
		1	*25*	1	*25*	11/16	*17*	11/16	*17*	1 7/16	*37*	1 3/4	*44*	1 5/8	*41*	2	*51*	2.70	*1.22*
				1¼	*32*	13/16	*22*	1 1/8	*29*	1½	*38*	1 7/8	*48*	1 3/4	*44*	2 1/16	*52*	2.94	*1.33*
				1½	*40*	15/16	*24*	1¼	*32*	1½	*38*	2	*51*	1 13/16	*47*	2 1/8	*54*	2.85	*1.29*
				2	*50*	1 9/16	*40*	1 7/16	*37*	1 9/16	*40*	2 1/4	*57*	2	*51*	2 1/4	*57*	3.46	*1.57*
				2½	*65*	1 7/8	*48*	1 13/16	*47*	1 9/16	*40*	2 9/16	*65*	2 3/8	*60*	2 7/16	*62*	4.88	*2.21*
		1¼	*32*	½	*15*	11/16	*17*	1	*25*	1 7/16	*37*	1 3/4	*44*	1 5/8	*41*	2	*51*	2.48	*1.12*
				¾	*20*	7/8	*22*	7/8	*22*	1 7/16	*37*	1 9/16	*40*	1½	*38*	1 15/16	*49*	2.50	*1.13*
				1	*25*	11/16	*17*	1	*25*	1 7/16	*37*	1 3/4	*44*	1 5/8	*41*	2	*51*	2.73	*1.24*
				1¼	*32*	13/16	*22*	1 1/8	*29*	1 7/16	*37*	1 7/8	*48*	1 3/4	*44*	2 1/16	*52*	2.90	*1.32*
				1½	*40*	15/16	*24*	1¼	*32*	1½	*38*	2	*51*	1 7/8	*48*	2 1/8	*54*	3.13	*1.42*
				2	*50*	1 9/16	*40*	1 7/16	*37*	1 9/16	*40*	2 1/4	*57*	2 1/16	*52*	2 1/4	*57*	3.71	*1.68*
				2½	*65*	1 7/8	*48*	1¾	*44*	1 9/16	*40*	2 9/16	*65*	2 3/8	*60*	2 7/16	*62*	4.54	*2.06*
		1½	*40*	½	*15*	13/16	*22*	13/16	*22*	1 7/16	*37*	1½	*38*	1 7/16	*37*	1 7/8	*48*	2.34	*1.06*
				¾	*20*	7/8	*22*	7/8	*22*	1 7/16	*37*	1 9/16	*40*	1½	*38*	1 15/16	*49*	2.46	*1.12*
				1	*25*	11/16	*17*	1	*25*	1 7/16	*37*	1 3/4	*44*	1 5/8	*41*	2	*51*	2.66	*1.21*
				1¼	*32*	13/16	*22*	13/16	*22*	1 7/16	*37*	1 7/8	*48*	1 13/16	*47*	2 1/16	*52*	2.98	*1.35*
				1½	*40*	15/16	*24*	15/16	*24*	1½	*38*	2	*51*	1 15/16	*49*	2 1/8	*54*	3.24	*1.47*
				2	*50*	1 9/16	*40*	1½	*38*	1 9/16	*40*	2 1/4	*57*	2 1/8	*54*	2 1/4	*57*	3.70	*1.68*
				2½	*65*	1 7/8	*48*	1 15/16	*49*	1 9/16	*40*	2 9/16	*65*	2 9/16	*65*	2 7/16	*62*	5.46	*2.48*
		2	*50*	½	*15*	13/16	*22*	13/16	*22*	1 7/16	*37*	1½	*38*	1½	*38*	1 7/8	*48*	2.74	*1.24*
				¾	*20*	7/8	*22*	7/8	*22*	1 7/16	*37*	1 9/16	*40*	1 9/16	*40*	1 15/16	*49*	2.86	*1.30*
				1	*25*	11/16	*17*	11/16	*17*	1 7/16	*37*	1 3/4	*44*	1 3/4	*44*	2	*51*	3.05	*1.38*
				1¼	*32*	13/16	*22*	13/16	*22*	1 7/16	*37*	1 7/8	*48*	1 7/8	*48*	2 1/16	*52*	3.38	*1.53*
				1½	*40*	15/16	*24*	15/16	*24*	1½	*38*	2	*51*	2	*51*	2 1/8	*54*	3.59	*1.63*
				2½	*65*	1 7/8	*48*	1 7/8	*48*	1 9/16	*40*	2 9/16	*65*	2 9/16	*65*	2 7/16	*62*	5.17	*2.34*
				3	*100*	3	*76*	3	*76*	2 7/16	*62*	3 11/16	*94*	3 11/16	*94*	3½	*89*	7.87	*3.57*

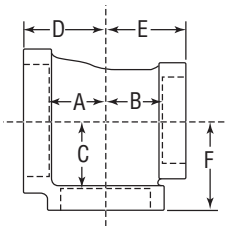
Continued on next page.

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 359
Tee Reducing



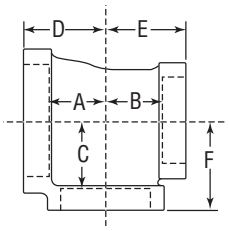
Size						A		B		C		D		E		F		Unit Weight Black	
NPS	DN	NPS	DN	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
2 1/2	65	1/2	15	2 1/2	65	1 13/16	47	1 13/16	47	1 13/16	47	2 11/16	68	2 1/4	57	2 11/16	68	5.20	2.36
		3/4	20	2 1/2	65	1 13/16	47	1 3/4	44	1 13/16	47	2 11/16	68	2 1/4	57	2 11/16	68	5.10	2.31
		1	25	2	50	1 9/16	40	1 9/16	40	1 7/8	48	2 7/16	62	2 1/8	54	2 9/16	65	5.03	2.28
				2 1/2	65	1 13/16	47	1 3/4	44	1 13/16	47	2 11/16	68	2 5/16	59	2 11/16	68	5.36	2.43
		1 1/4	32	2	50	1 9/16	40	1 1/2	38	1 7/8	48	2 7/16	62	2 1/8	54	2 9/16	65	4.96	2.25
				2 1/2	65	1 13/16	47	1 3/4	44	1 13/16	47	2 11/16	68	2 3/8	60	2 11/16	68	5.40	2.45
		1 1/2	40	1 1/2	40	15/16	24	15/16	22	1 13/16	47	2 3/16	56	1 15/16	49	2 7/16	62	4.23	1.92
				2	50	1 9/16	40	1 1/2	38	1 7/8	48	2 7/16	62	2 1/8	54	2 9/16	65	4.85	2.20
				2 1/2	65	1 13/16	47	1 13/16	47	1 13/16	47	2 11/16	68	2 7/16	62	2 11/16	68	4.85	2.20
		2	50	1/2	15	3/4	19	13/16	22	1 3/4	44	1 11/16	43	1 1/2	38	2 3/16	56	5.82	2.64
				3/4	20	7/8	22	7/8	22	1 3/4	44	1 3/4	44	1 9/16	40	2 1/4	57	3.62	1.64
				1	25	1	25	11/16	17	1 3/4	44	1 15/16	49	1 3/4	44	2 5/16	59	3.92	1.78
				1 1/4	32	13/16	22	13/16	22	1 3/4	44	2 1/16	52	1 7/8	48	2 3/8	60	4.26	1.93
				1 1/2	40	15/16	24	15/16	24	1 13/16	47	2 3/16	56	2	51	2 7/16	62	4.42	2.00
				2	50	1 9/16	40	1 9/16	40	1 7/8	48	2 7/16	62	2 1/4	57	2 9/16	65	5.17	2.34
				2 1/2	65	1 13/16	47	1 7/8	48	1 13/16	47	2 11/16	68	2 9/16	65	2 11/16	68	6.00	2.72
				3	80	2 1/16	52	2 1/8	54	1 7/8	48	3	80	2 7/8	73	2 13/16	73	7.35	3.33
		2 1/2	65	1/2	15	3/4	19	3/4	19	1 3/4	44	1 11/16	43	1 11/16	43	2 3/16	56	4.00	1.81
				3/4	20	7/8	22	7/8	22	1 3/4	44	1 3/4	44	1 3/4	44	2 1/4	57	4.29	1.95
				1	25	1	25	1	25	1 3/4	44	1 15/16	49	1 15/16	49	2 5/16	59	4.48	2.03
				1 1/4	32	13/16	22	13/16	22	1 3/4	44	2 1/16	52	2 1/16	52	2 3/8	60	4.83	2.19
				1 1/2	40	15/16	24	15/16	24	1 13/16	47	2 3/16	56	2 3/16	56	2 7/16	62	5.14	2.33
				2	50	1 9/16	40	1 9/16	40	1 7/8	48	2 7/16	62	2 7/16	62	2 9/16	65	5.88	2.67
				3	80	2 1/16	52	2 1/16	52	1 7/8	48	3	80	3	80	2 13/16	73	8.09	3.67
				4	100	2 3/4	70	2 13/16	73	2 7/16	62	3 11/16	94	3 11/16	94	3 1/2	89	14.03	6.36
3	80	1/2	15	3	80	2 1/8	54	2 1/4	57	2 1/8	54	3 1/8	79	2 11/16	68	3 1/8	79	7.60	3.45
		3/4	20	3	80	2 1/8	54	2 1/8	54	2 1/8	54	3 1/8	79	2 11/16	68	3 1/8	79	8.25	3.74
		1	25	3	80	2 1/8	54	2 1/8	54	2 1/8	54	3 1/8	79	2 11/16	68	3 1/8	79	8.30	3.76
		1 1/4	32	3	80	2 1/8	54	2 1/8	54	2 1/8	54	3 1/8	79	2 13/16	73	3 1/8	79	8.46	3.84
		1 1/2	40	3	80	2 1/8	54	2 3/16	56	2 1/8	54	3 1/8	79	2 13/16	73	3 1/8	79	8.13	3.69
		2	50	1 1/2	40	1 3/8	35	1 1/2	38	2 3/16	56	2 5/16	59	2 3/16	56	2 13/16	73	6.83	3.10
				2	50	1 9/16	40	1 9/16	40	2 3/16	56	2 9/16	65	2 1/4	57	2 15/16	75	7.29	3.31
				2 1/2	65	1 7/8	48	1 15/16	49	2 1/8	54	2 13/16	73	2 9/16	65	3 1/16	78	7.10	3.22
				3	80	2 1/8	54	2 3/16	56	2 1/8	54	3 1/8	79	2 15/16	75	3 1/8	79	8.79	3.99
		2 1/2	65	1	25	1	25	15/16	24	2 1/8	54	2 1/16	52	1 15/16	49	2 11/16	68	5.51	2.50
				1 1/4	32	1 1/4	32	13/16	22	2 1/8	54	2 3/16	56	2 1/16	52	2 3/4	70	5.92	2.68
				1 1/2	40	1 3/8	35	15/16	24	2 3/16	56	2 5/16	59	2 3/16	56	2 13/16	73	6.23	2.83
				2	50	1 9/16	40	1 1/2	38	2 3/16	56	2 9/16	65	2 7/16	62	2 15/16	75	6.81	3.09
				2 1/2	65	1 7/8	48	1 13/16	47	2 1/8	54	2 13/16	73	2 11/16	68	3 1/16	78	7.66	3.47
				3	80	2 1/8	54	2 1/8	54	2 1/8	54	3 1/8	79	3 1/16	78	3 1/8	79	9.13	4.14
		3	80	1/2	15	15/16	24	15/16	24	2 3/16	56	1 7/8	48	1 7/8	48	2 5/8	67	6.08	2.76
				3/4	20	15/16	24	15/16	24	2 1/8	54	1 7/8	48	1 7/8	48	2 5/8	67	6.06	2.75
				1	25	1	25	1	25	2 1/8	54	2 1/16	52	2 1/16	52	2 11/16	68	6.27	2.84
				1 1/4	32	1 1/4	32	1 1/4	32	2 1/8	54	2 3/16	56	2 3/16	56	2 3/4	70	6.75	3.06
				1 1/2	40	1 3/8	35	1 3/8	35	2 3/16	56	2 5/16	59	2 5/16	59	2 15/16	75	7.10	3.22
				2	50	1 9/16	40	1 9/16	40	2 3/16	56	2 9/16	65	2 9/16	65	2 7/8	73	7.75	3.51
				2 1/2	65	1 7/8	48	1 7/8	48	2 1/8	54	2 13/16	73	2 13/16	73	3 1/16	78	8.92	4.05
				4	100	2 11/16	68	2 11/16	68	2 7/16	62	3 11/16	94	3 11/16	94	3 1/2	89	12.80	5.80

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 359
Tee Reducing



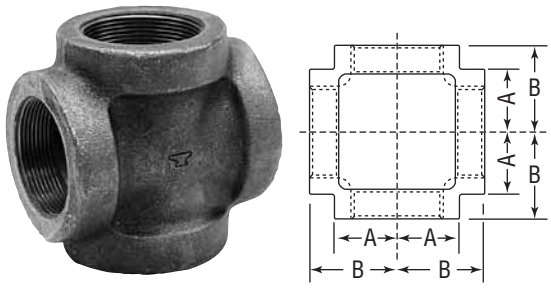
Size						A		B		C		D		E		F		Unit Weight Black	
NPS	*DN*	NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
3 1/2	*90*	3 1/2	*90*	1 1/2	*40*	1 3/8	*35*	1 3/8	*35*	2 7/16	*62*	2 3/8	*60*	2 3/8	*60*	3 1/16	*78*	8.87	*4.02*
				2	*50*	1 5/8	*41*	1 5/8	*41*	2 7/16	*62*	2 5/8	*67*	2 5/8	*67*	3 3/16	*81*	9.94	*4.51*
4	*100*	1	*25*	4	*100*	2 3/4	*70*	2 15/16	*75*	2 3/4	*70*	3 3/4	*95*	3 1/2	*89*	3 3/4	*95*	13.52	*6.13*
		1 1/2	*40*	4	*100*	2 3/4	*70*	2 7/8	*73*	2 3/4	*70*	3 3/4	*95*	3 1/2	*89*	3 3/4	*95*	13.47	*6.11*
		2	*50*	2	*50*	1 11/16	*43*	1 7/8	*48*	2 3/4	*70*	2 11/16	*68*	2 9/16	*65*	3 1/2	*89*	11.34	*5.14*
				4	*100*	2 3/4	*70*	2 3/4	*70*	2 3/4	*70*	3 3/4	*95*	3 1/2	*89*	3 3/4	*95*	13.89	*6.30*
		2 1/2	*65*	2 1/2	*65*	1 7/8	*48*	1 13/16	*47*	2 5/8	*67*	2 15/16	*75*	2 13/16	*73*	3 9/16	*90*	11.78	*5.34*
				4	*100*	2 3/4	*70*	2 3/4	*70*	2 3/4	*70*	3 3/4	*95*	3 5/8	*92*	3 3/4	*95*	15.75	*7.14*
		3	*80*	2	*50*	1 11/16	*43*	1 9/16	*40*	2 3/4	*70*	2 11/16	*68*	2 9/16	*65*	3 1/2	*89*	10.21	*4.63*
				2 1/2	*65*	1 7/8	*48*	1 7/8	*48*	2 5/8	*67*	2 15/16	*75*	2 13/16	*73*	3 9/16	*90*	11.25	*5.10*
				3	*80*	2 1/4	*57*	2 1/8	*54*	2 11/16	*68*	3 1/4	*83*	3 1/8	*79*	3 5/8	*92*	12.50	*5.67*
				4	*100*	2 3/4	*70*	2 11/16	*68*	2 3/4	*70*	3 3/4	*95*	3 5/8	*92*	3 3/4	*95*	15.04	*6.82*
		4	*100*	3/4	*20*	1 1/4	*32*	1 1/4	*32*	2 13/16	*73*	2 5/16	*59*	2 5/16	*59*	3 5/16	*84*	10.58	*4.80*
				1	*25*	13/16	*22*	13/16	*22*	2 3/4	*70*	2 5/16	*59*	2 5/16	*59*	3 5/16	*84*	10.40	*4.72*
				1 1/4	*32*	15/16	*24*	15/16	*24*	2 5/8	*67*	2 5/16	*59*	2 5/16	*59*	3 5/16	*84*	10.38	*4.71*
				1 1/2	*40*	1 7/16	*37*	1 7/16	*37*	2 11/16	*68*	2 7/16	*62*	2 7/16	*62*	3 5/16	*84*	10.75	*4.88*
				2	*50*	1 11/16	*43*	1 11/16	*43*	2 3/4	*70*	2 11/16	*68*	2 11/16	*68*	3 1/2	*89*	11.63	*5.27*
				2 1/2	*65*	2	*51*	2	*51*	2 5/8	*67*	2 15/16	*75*	2 15/16	*75*	3 9/16	*90*	12.85	*5.83*
				3	*80*	2 1/4	*57*	2 1/4	*57*	2 11/16	*68*	3 1/4	*83*	3 1/4	*83*	3 5/8	*92*	14.12	*6.40*
				5	*125*	3 3/8	*86*	3 3/8	*86*	2 13/16	*73*	4 3/8	*111*	4 3/8	*111*	4	*102*	20.88	*9.47*
				6	*150*	3 7/8	*98*	3 7/8	*98*	2 7/8	*73*	4 15/16	*125*	4 15/16	*125*	4 1/16	*103*	26.36	*11.95*
5	*125*	5	*125*	2	*50*	1 3/4	*44*	1 3/4	*44*	3 7/16	*87*	2 15/16	*75*	2 15/16	*75*	4 1/8	*105*	17.43	*7.90*
				2 1/2	*65*	2 1/16	*52*	2 1/16	*52*	3 3/8	*86*	3 3/16	*81*	3 3/16	*81*	4 1/4	*108*	18.84	*8.54*
				3	*80*	2 5/16	*59*	2 5/16	*59*	3 1/4	*83*	3 1/2	*89*	3 1/2	*89*	4 1/4	*108*	20.00	*9.07*
				4	*100*	2 13/16	*71*	2 13/16	*71*	3 3/8	*86*	4	*102*	4	*102*	4 3/8	*111*	23.83	*10.81*
6	*150*	4		4	*100*	2 7/8	*73*	2 13/16	*71*	3 7/8	*98*	4 1/16	*103*	4	*102*	4 15/16	*125*	30.00	*13.61*
		6	*150*	2 1/2	*65*	2	*51*	2	*51*	3 13/16	*97*	3 1/4	*83*	3 1/4	*83*	4 3/4	*121*	25.67	*11.64*
				3	*80*	2 3/8	*60*	2 3/8	*60*	3 13/16	*97*	3 9/16	*90*	3 9/16	*90*	4 13/16	*122*	27.46	*12.45*
				4	*100*	2 7/8	*73*	2 7/8	*73*	3 7/8	*98*	4 1/16	*103*	4 1/16	*103*	4 15/16	*125*	32.44	*14.71*
				5	*125*	3 3/8	*86*	3 3/8	*86*	3 13/16	*97*	4 5/8	*117*	4 5/8	*117*	5	*127*	37.00	*16.78*

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

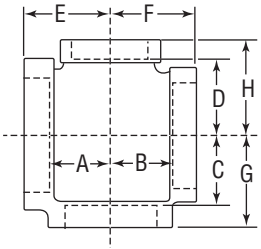
Class 125 (Standard)

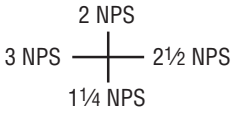
FIGURE 360
Cross



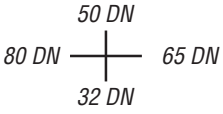
Size		A		B		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
1/2	*15*	13/16	*22*	9/16	*14*	2.80	*1.27*
3/4	*20*	1 5/16	*33*	13/16	*22*	1.03	*0.47*
1	*25*	1 1/2	*38*	15/16	*24*	1.59	*0.72*
1 1/4	*32*	1 3/4	*44*	1 1/8	*29*	2.42	*1.10*
1 1/2	*40*	1 15/16	*49*	1 5/16	*33*	3.21	*1.46*
2	*50*	2 1/4	*57*	1 9/16	*40*	5.28	*2.39*
2 1/2	*65*	2 11/16	*68*	1 13/16	*47*	8.07	*3.66*
3	*80*	3 1/8	*79*	2 3/16	*56*	11.84	*5.37*
4	*100*	3 13/16	*98*	2 3/4	*70*	19.63	*8.90*
5	*125*	4 1/2	*114*	3 5/16	*84*	31.16	*14.13*
6	*150*	5 1/8	*130*	3 7/8	*98*	47.67	*21.62*

FIGURE 361
Cross Reducing





Read as:
3 x 2½ x 2 x 1¼



Read as:
80 x 65 x 50 x 32

Size								A		B		C		D		E, F		G, H		Unit Weight	
NPS	*DN*	*NPS*	*DN*	*NPS*	*DN*	*NPS*	*DN*	*in*	*mm*	*in*	*mm*	*in*	*mm*	*in*	*mm*	*in*	*mm*	*in*	*mm*	*lbs*	*kg*
1	*25*	1	*25*	3/4	*20*	3/4	*20*	13/16	*22*	13/16	*22*	15/16	*24*	15/16	*24*	1 3/8	*35*	1 7/16	*37*	1.30	*0.59*
1 1/4	*32*	1 1/4	*32*	1	*25*	1	*25*	15/16	*24*	15/16	*24*	1 1/8	*29*	1 1/8	*29*	1 9/16	*40*	1 11/16	*43*	2.04	*0.93*
1 1/2	*40*	1	*25*	1	*25*	1	*25*	1	*25*	1 1/8	*29*	1 1/4	*32*	1 1/4	*32*	1 5/8	*41*	1 13/16	*47*	2.74	*1.24*
		1 1/4	*32*	1	*25*	1	*25*	1	*25*	1	*25*	1 1/4	*32*	1 1/4	*32*	1 5/8	*41*	1 13/16	*47*	2.67	*1.21*
		1 1/2	*40*	1	*25*	1	*25*	1	*25*	1	*25*	1 1/4	*32*	1 1/4	*32*	1 5/8	*41*	1 13/16	*47*	2.51	*1.14*
				1 1/4	*32*	1	*25*	1 1/8	*29*	1 1/8	*29*	13/16	*22*	15/16	*24*	1 13/16	*47*	1 7/8	*48*	3.90	*1.77*
						1 1/4	*32*	1 1/8	*29*	1 1/8	*29*	1 3/8	*35*	1 3/8	*35*	1 13/16	*47*	1 7/8	*48*	3.95	*1.79*
2	*50*	1 1/2	*40*	1	*25*	1	*25*	11/16	*17*	1 1/8	*29*	1 7/16	*37*	1 7/16	*37*	1 3/4	*44*	2	*51*	3.57	*1.62*
				1 1/4	*32*	1	*25*	1 1/8	*29*	13/16	*22*	1 1/2	*38*	1 7/16	*37*	1 7/8	*48*	2 1/8	*54*	4.25	*1.93*
						1 1/4	*32*	13/16	*22*	13/16	*22*	1 1/2	*38*	1 1/2	*38*	1 7/8	*48*	2 1/16	*52*	4.18	*1.90*
		2	*50*	1	*25*	1	*25*	11/16	*17*	11/16	*17*	1 7/16	*37*	1 7/16	*37*	1 3/4	*44*	2	*51*	3.22	*1.46*
				1 1/4	*32*	1 1/4	*32*	1 1/8	*29*	1 1/8	*29*	1 7/16	*37*	1 7/16	*37*	1 7/8	*48*	2 1/8	*54*	4.00	*1.81*
				1 1/2	*40*	1 1/2	*40*	1 1/4	*32*	1 1/4	*32*	1 7/16	*37*	1 7/16	*37*	2	*51*	2 1/8	*54*	4.08	*1.85*
2 1/2	*65*	2	*50*	1	*25*	1	*25*	1	*25*	11/16	*17*	1 13/16	*47*	1 13/16	*47*	1 15/16	*49*	2 5/16	*59*	5.11	*2.32*
				1 1/2	*40*	1 1/2	*40*	1 1/4	*32*	15/16	*24*	1 7/8	*48*	1 7/8	*48*	2 3/16	*56*	2 7/16	*62*	6.13	*2.78*
				2	*50*	2	*50*	1 1/2	*38*	1 3/4	*44*	1 7/8	*48*	1 7/8	*48*	2 7/16	*62*	2 9/16	*65*	7.23	*3.28*
		2 1/2	*65*	1	*25*	1	*25*	1	*25*	1	*25*	1 13/16	*47*	1 13/16	*47*	1 15/16	*49*	2 5/16	*59*	5.06	*2.29*
				1 1/4	*32*	1	*25*	13/16	*22*	13/16	*22*	1 3/4	*44*	1 13/16	*47*	2 1/16	*52*	2 3/8	*60*	5.39	*2.44*
						1 1/4	*32*	1 1/8	*29*	1 1/8	*29*	1 13/16	*47*	1 13/16	*47*	2 1/16	*52*	2 3/8	*60*	5.26	*2.39*
				1 1/2	*40*	1 1/2	*40*	1 1/4	*32*	1 1/4	*32*	1 7/8	*48*	1 7/8	*48*	2 3/16	*56*	2 7/16	*62*	5.68	*2.58*
				2	*50*	2	*50*	1 9/16	*40*	1 9/16	*40*	1 15/16	*49*	1 15/16	*49*	2 7/16	*62*	2 9/16	*65*	6.82	*3.09*
3	*80*	3	*80*	1 1/2	*40*	1 1/2	*40*	1 3/8	*35*	1 3/8	*35*	2 3/16	*56*	2 3/16	*56*	2 5/16	*59*	2 13/16	*73*	7.91	*3.59*
				2	*50*	2	*50*	1 5/8	*41*	1 5/8	*41*	2 3/16	*56*	2 3/16	*56*	2 9/16	*65*	2 15/16	*75*	8.85	*4.01*
4	*100*	4	*100*	2	*50*	2	*50*	2	*50*	2	*50*	2 11/16	*68*	2 11/16	*68*	2 3/4	*70*	3 7/16	*87*	12.00	*5.44*

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

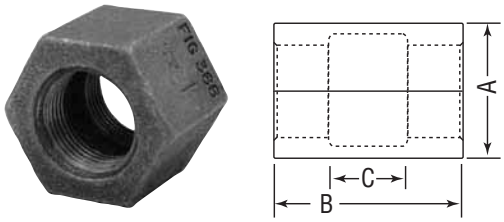
FIGURE 366 Screwed Hex Coupling	Size		Across Flats A		B		C		Unit Weight Black	
	NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
	1	*25*	$1^{15}/_{16}$	*49*	$1^{11}/_{16}$	*43*	$^{9}/_{16}$	*14*	0.82	*0.37*

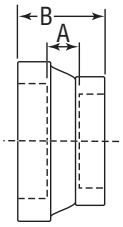
FIGURE 487 Flanged Union Gasket Type	Size		Diam. of Flanges		No. of Bolts	Unit Weight Black		Unit Weight Galv.	
Assembled with gaskets	NPS	*DN*	in	*mm*	–	lbs	*kg*	lbs	*kg*
	$^{1}/_{2}$	*15*	$2^{15}/_{16}$	*75*	3	1.75	*0.79*	1.75	*0.79*
	$^{3}/_{4}$	*20*	3	*76*	3	2.00	*0.91*	2.00	*0.91*
	1	*25*	$3^{1}/_{4}$	*83*	3	2.25	*1.02*	2.25	*1.02*
	$1^{1}/_{4}$	*32*	$4^{3}/_{16}$	*106*	4	4.75	*2.15*	4.75	*2.15*
	$1^{1}/_{2}$	*40*	$4^{3}/_{8}$	*111*	4	5.00	*2.27*	5.00	*2.27*
	2	*50*	5	*127*	4	6.50	*2.95*	6.50	*2.95*
	$2^{1}/_{2}$	*65*	$5^{5}/_{8}$	*143*	4	8.50	*3.85*	8.50	*3.85*
	3	*80*	$6^{3}/_{8}$	*162*	4	11.00	*4.99*	11.00	*4.99*
	$3^{1}/_{2}$	*90*	$6^{7}/_{8}$	*175*	4	12.75	*5.78*	–	–
	4	*100*	$7^{11}/_{16}$	*195*	5	18.00	*8.16*	18.00	*8.16*
	5	*125*	$8^{15}/_{16}$	*227*	5	22.00	*9.98*	–	–
	6	*150*	$10^{1}/_{4}$	*260*	6	30.00	*13.61*	30.00	*13.61*
	8	*200*	$12^{15}/_{16}$	*329*	8	51.00	*23.13*	51.00	*23.13*

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 367
Concentric Reducer



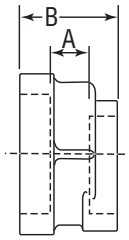
Size				A		B		Unit Weight Black	
NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
3/4	*20*	1/2	*15*	5/8	*16*	1 9/16	*40*	0.40	*0.18*
1	*25*	1/2 (Hex)	*15*	11/16	*17*	1 11/16	*43*	0.54	*0.24*
		3/4 (Hex)	*20*	7/16	*11*	1 1/2	*38*	0.63	*0.29*
1 1/4	*32*	1/2	*15*	9/16	*14*	1 5/8	*41*	0.84	*0.38*
		3/4	*20*	1	*25*	2 1/8	*54*	0.90	*0.41*
		1	*25*	15/16	*24*	2 1/8	*54*	1.07	*0.49*
1 1/2	*40*	1/2	*15*	1/2	*13*	1 5/8	*41*	1.00	*0.45*
		3/4	*20*	1/2	*13*	1 5/8	*41*	1.20	*0.54*
		1	*25*	1/2	*13*	1 3/4	*44*	1.50	*0.68*
		1 1/4	*32*	1	*25*	2 1/4	*57*	1.45	*0.66*
2	*50*	1/2	*15*	5/8	*16*	2	*51*	2.00	*0.91*
		3/4	*20*	3/4	*19*	2	*51*	1.90	*0.86*
		1	*25*	3/4	*19*	2	*51*	1.83	*0.83*
		1 1/4	*32*	13/16	*22*	2 1/8	*54*	1.78	*0.81*
		1 1/2	*40*	7/8	*22*	2 3/16	*56*	1.98	*0.90*
2 1/2	*65*	1 1/2	*40*	3/4	*19*	2	*51*	3.10	*1.41*
		2	*50*	1	*25*	2 9/16	*65*	2.98	*1.35*
3	*80*	3/4	*20*	15/16	*24*	2 1/2	*64*	4.31	*1.95*
		2	*50*	1 1/16	*27*	2 3/4	*70*	3.96	*1.80*
		2 1/2	*65*	15/16	*24*	2 13/16	*73*	4.40	*2.00*
4	*100*	2	*50*	1 3/16	*30*	2 15/16	*75*	6.50	*2.95*
		2 1/2	*65*	1 3/16	*30*	3 1/8	*79*	7.78	*3.53*
		3	*80*	1 1/16	*27*	3 1/8	*79*	7.01	*3.18*
5	*125*	4	*100*	1 1/16	*27*	3 5/16	*84*	10.48	*4.75*
6	*150*	4	*100*	1 1/8	*29*	3 7/16	*87*	13.83	*6.27*
		5	*125*	1 1/8	*29*	3 9/16	*90*	15.53	*7.04*
8	*200*	6	*150*	1 1/4	*32*	3 7/8	*98*	29.10	*13.20*

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 368
Eccentric Reducer



Size				A		B*		Unit Weight Black	
NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
3/4	*20*	1/2	*15*	9/16	*14*	1 1/2	*38*	0.45	*0.20*
1	*25*	1/2	*15*	1/2	*13*	1 7/16	*37*	0.57	*0.26*
		3/4	*20*	7/16	*11*	1 1/2	*38*	0.61	*0.28*
1 1/4	*32*	1/2	*15*	9/16	*14*	1 5/8	*41*	1.00	*0.45*
		3/4	*20*	1/2	*13*	1 5/8	*41*	0.90	*0.41*
		1	*25*	1/2	*13*	1 11/16	*43*	1.00	*0.45*
1 1/2	*40*	1/2	*15*	11/16	*17*	1 3/4	*44*	1.11	*0.50*
		3/4	*20*	9/16	*14*	1 11/16	*43*	1.17	*0.53*
		1	*25*	9/16	*14*	1 3/4	*44*	1.21	*0.55*
		1 1/4	*32*	5/8	*16*	1 7/8	*48*	1.26	*0.57*
2	*50*	1/2	*15*	3/4	*19*	1 15/16	*49*	1.80	*0.82*
		3/4	*20*	3/4	*19*	2	*51*	1.83	*0.83*
		1	*25*	11/16	*17*	2 1/16	*52*	1.86	*0.84*
		1 1/4	*32*	13/16	*22*	2 1/8	*54*	1.87	*0.85*
		1 1/2	*40*	7/8	*22*	2 3/16	*56*	1.93	*0.88*
2 1/2	*65*	1	*25*	13/16	*22*	2 1/4	*57*	2.74	*1.24*
		1 1/4	*32*	7/8	*22*	2 3/8	*60*	2.80	*1.27*
		1 1/2	*40*	7/8	*22*	2 3/8	*60*	2.94	*1.33*
		2	*50*	1	*25*	2 9/16	*65*	2.95	*1.34*
3	*80*	1	*25*	7/8	*22*	2 7/16	*62*	3.95	*1.79*
		1 1/4	*32*	15/16	*24*	2 9/16	*65*	3.80	*1.72*
		1 1/2	*40*	15/16	*24*	2 9/16	*65*	4.16	*1.89*
		2	*50*	1 1/16	*27*	2 3/4	*70*	4.61	*2.09*
		2 1/2	*65*	15/16	*24*	2 13/16	*73*	4.80	*2.18*
3 1/2	*90*	2	*50*	1 1/16	*27*	2 3/4	*70*	5.23	*2.37*
4	*100*	1 1/4	*32*	1 1/16	*27*	2 3/4	*70*	6.58	*2.98*
		1 1/2	*40*	1 1/8	*29*	2 13/16	*73*	6.61	*3.00*
		2	*50*	1 3/16	*30*	2 15/16	*75*	6.91	*3.13*
		2 1/2	*65*	1 1/8	*29*	3 1/16	*78*	7.26	*3.29*
		3	*80*	1 1/16	*27*	3 1/8	*79*	7.64	*3.46*
5	*125*	2 1/2	*65*	1 1/8	*29*	3 3/16	*81*	11.38	*5.16*
		3	*80*	1 1/16	*27*	3 1/4	*83*	11.44	*5.19*
		4	*100*	1 1/16	*27*	3 5/16	*84*	11.19	*5.07*
6	*150*	3	*80*	1 1/16	*27*	3 5/16	*84*	14.66	*6.65*
		4	*100*	1 1/8	*29*	3 7/16	*87*	15.36	*6.97*

* Dimension "B" does not conform to ASME standard.

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 383
Hex Bushing

⬢ Inside hex
See page 35 (Malleable Iron) for other available sizes.

Size						Unit Weight			
						Black		Galv.	
NPS	*DN*	Hex	All Cast Iron	NPS	*DN*	lbs	*kg*	lbs	*kg*
1 1/2	*40*		C	1/4	*8*	0.47	*0.21*	0.47	*0.21*
		⬢	C	3/8	*10*	0.47	*0.21*	0.47	*0.21*
		⬢	C	1/2	*15*	0.42	*0.19*	0.42	*0.19*
		⬢	C	3/4	*20*	0.47	*0.21*	0.47	*0.21*
			C	1	*25*	0.50	*0.23*	0.50	*0.23*
2	*50*		C	1/4	*8*	0.75	*0.34*	0.75	*0.34*
			C	3/8	*10*	0.75	*0.34*	0.75	*0.34*
		⬢	C	1/2	*15*	0.70	*0.32*	0.70	*0.32*
		⬢	C	3/4	*20*	0.71	*0.32*	0.71	*0.32*
		⬢	C	1	*25*	0.73	*0.33*	0.73	*0.33*
		⬢	C	1 1/4	*32*	0.81	*0.37*	0.81	*0.37*
2 1/2	*65*	⬢	C	1/2	*15*	1.28	*0.58*	1.28	*0.58*
		⬢	C	3/4	*20*	1.25	*0.57*	1.25	*0.57*
		⬢	C	1	*25*	1.16	*0.53*	1.16	*0.53*
		⬢	C	1 1/4	*32*	1.24	*0.56*	1.24	*0.56*
		⬢	C	1 1/2	*40*	1.29	*0.59*	1.29	*0.59*
3	*80*	⬢	C	1/2	*15*	1.93	*0.88*	1.93	*0.88*
		⬢	C	3/4	*20*	1.92	*0.87*	1.92	*0.87*
		⬢	C	1	*25*	1.90	*0.86*	1.90	*0.86*
		⬢	C	1 1/4	*32*	1.77	*0.80*	1.77	*0.80*
		⬢	C	1 1/2	*40*	1.79	*0.81*	1.79	*0.81*
			C	2	*50*	1.90	*0.86*	1.90	*0.86*
			C	2 1/2	*65*	1.63	*0.74*	1.63	*0.74*
3 1/2	*80*	⬢	C	1	*25*	2.42	*1.10*	2.42	*1.10*
		⬢	C	1 1/4	*32*	2.56	*1.16*	2.56	*1.16*
		⬢	C	1 1/2	*40*	2.65	*1.20*	2.65	*1.20*
		⬢	C	2	*50*	2.54	*1.15*	2.54	*1.15*
			C	2 1/2	*65*	3.23	*1.46*	3.23	*1.46*
			C	3	*80*	1.96	*0.89*	1.96	*0.89*

Continued on next page.

According to specifications, hex bushings and cored plugs should be used with 150# malleable iron and 125# cast iron. Solid plugs and face bushings are recommended for use with 250# and 300# fittings.

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

Continued from previous page.

FIGURE 383
Hex Bushing

⬢ Inside hex
See page 35 (Malleable Iron) for other available sizes.

Size						Unit Weight			
						Black		Galv.	
NPS	*DN*	Hex	All Cast Iron	NPS	*DN*	lbs	*kg*	lbs	*kg*
4	*100*	⬢	C	1	*25*	3.59	*1.63*	3.59	*1.63*
		⬢	C	1¼	*32*	3.54	*1.61*	3.54	*1.61*
		⬢	C	1½	*40*	3.44	*1.56*	3.44	*1.56*
		⬢	C	2	*50*	3.11	*1.41*	3.11	*1.41*
		⬢	C	2½	*65*	3.29	*1.49*	3.29	*1.49*
			C	3	*80*	3.15	*1.43*	3.15	*1.43*
			C	3½	*90*	2.50	*1.13*	2.50	*1.13*
5	*125*	⬢	C	2	*50*	5.12	*2.32*	5.12	*2.32*
		⬢	C	2½	*65*	4.87	*2.21*	4.87	*2.21*
		⬢	C	3	*80*	4.83	*2.19*	4.83	*2.19*
			C	3½	*90*	4.00	*1.81*	–	–
			C	4	*100*	3.94	*1.79*	3.94	*1.79*
6	*150*	⬢	C	2	*50*	8.00	*3.63*	8.00	*3.63*
		⬢	C	2½	*65*	7.72	*3.50*	–	–
		⬢	C	3	*80*	7.75	*3.51*	7.75	*3.51*
		⬢	C	4	*100*	6.83	*3.10*	6.83	*3.10*
			C	5	*125*	5.24	*2.38*	5.24	*2.38*
8	*200*	⬢	C	3	*80*	15.50	*7.03*	–	–
		⬢	C	4	*100*	13.93	*6.32*	–	–
		⬢	C	5	*125*	13.65	*6.19*	–	–
			C	6	*150*	13.19	*5.98*	13.19	*5.98*
10	*250*	⬢	C	6	*150*	24.50	*11.11*	–	–
			C	8	*200*	22.00	*9.98*	–	–

FIGURE 385
Face Bushing

See page 35 (Malleable Iron) for other available sizes.

Size				Unit Weight	
				Black	
NPS	*DN*	NPS	*DN*	lbs	*kg*
3	*80*	2	*50*	13.30	*6.03*
4	*100*	2½	*65*	2.55	*1.16*
		3	*80*	19.20	*8.71*

According to specifications, hex bushings and cored plugs should be used with 150# malleable iron and 125# cast iron. Solid plugs and face bushings are recommended for use with 250# and 300# fittings.

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 387 Square Head Plugs, Cored

Size		Unit Weight			
		Black		Galv.	
NPS	*DN*	lbs	*kg*	lbs	*kg*
3/4	*20*	0.13	*0.06*	0.13	*0.06*
1	*25*	0.25	*0.11*	0.25	*0.11*
1 1/4	*32*	0.39	*0.18*	0.39	*0.18*
1 1/2	*40*	0.50	*0.23*	0.50	*0.23*
2	*50*	0.82	*0.37*	0.82	*0.37*
2 1/2	*65*	1.32	*0.60*	1.32	*0.60*
3	*80*	1.87	*0.85*	1.87	*0.85*
3 1/2	*90*	2.50	*1.13*	2.50	*1.13*
4	*100*	4.00	*1.81*	4.00	*1.81*

FIGURE 388 Square Head Plugs, Solid

Size		Unit Weight			
		Black		Galv.	
NPS	*DN*	lbs	*kg*	lbs	*kg*
1/2	*15*	0.10	*0.05*	0.10	*0.05*
3/4	*20*	0.17	*0.08*	0.17	*0.08*
1	*25*	0.32	*0.15*	0.32	*0.15*
1 1/4	*32*	0.53	*0.24*	0.53	*0.24*
1 1/2	*40*	0.76	*0.34*	0.76	*0.34*
2	*50*	1.23	*0.56*	1.23	*0.56*
2 1/2	*65*	2.00	*0.91*	2.00	*0.91*
3	*80*	3.18	*1.44*	3.18	*1.44*
3 1/2	*90*	4.38	*1.99*	–	–

FIGURE 389 Bar Plugs, Cored

Size		Unit Weight			
		Black		Galv.	
NPS	*DN*	lbs	*kg*	lbs	*kg*
4	*100*	3.82	*1.73*	3.82	*1.73*
5	*125*	6.50	*2.95*	6.50	*2.95*
6	*150*	9.94	*4.51*	9.94	*4.51*
8	*200*	20.26	*9.19*	20.26	*9.19*

FIGURE 380 Bar Plugs, Solid

Size		Unit Weight	
		Black	
NPS	*DN*	lbs	*kg*
4	*100*	5.68	*2.58*
5	*125*	9.60	*4.35*
6	*150*	14.78	*6.70*

FIGURE 390 Countersunk Plugs

Size		Unit Weight			
		Black		Galv.	
NPS	*DN*	lbs	*kg*	lbs	*kg*
1	*25*	0.20	*0.09*	0.20	*0.09*
1 1/4	*32*	0.32	*0.15*	0.32	*0.15*
1 1/2	*40*	0.47	*0.21*	0.47	*0.21*
2	*50*	0.84	*0.38*	0.84	*0.38*
2 1/2	*65*	1.40	*0.63*	–	–
3	*80*	2.25	*1.02*	–	–
3 1/2	*90*	3.02	*1.37*	–	–
4	*100*	3.76	*1.71*	–	–

See page 32 (Malleable Iron) for other available sizes.

FIGURE 381 Cap

Size		Unit Weight			
		Black		Galv.	
NPS	*DN*	lbs	*kg*	lbs	*kg*
2 1/2	*65*	2.55	*1.16*	–	–
3	*80*	4.10	*1.86*	–	–
4	*100*	6.40	*2.90*	–	–
5	*125*	10.70	*4.85*	–	–
6	*150*	14.20	*6.44*	14.20	*6.44*
8	*200*	27.23	*12.35*	27.23	*12.35*

According to specifications, hex bushings and cored plugs should be used with 150# malleable iron and 125# cast iron. Solid plugs and face bushings are recommended for use with 250# and 300# fittings.

Note: See page 37 for pressure-temperature ratings.

Cast Iron Threaded Fittings

Class 125 (Standard)

FIGURE 370 Locknut	Size		Minimum Dimensions								Unit Weight	
			A		B		C		D		Black	
	NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
	2 1/2	*65*	3.500	*89*	3.180	*81*	.590	*15*	0.90	*2*	1.13	*0.51*
	3	*80*	4.270	*108*	3.840	*98*	.670	*17*	0.90	*2*	1.60	*0.73*
For nominal sizes smaller than 2½" *(65 DN)* see Malleable Iron page 27.	4	*100*	5.380	*137*	5.000	*127*	.800	*20*	.130	*3*	1.10	*0.50*

Cast Iron Threaded Fittings

Class 250 (Extra Heavy)

FIGURE 421 90° Elbow	Size		A		B		Unit Weight Black	
	NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
	1/4	*8*	5/8	*16*	15/16	*24*	0.37	*0.17*
	1/2	*15*	13/16	*22*	1 1/4	*32*	0.75	*0.34*
	3/4	*20*	15/16	*24*	1 7/16	*37*	1.13	*0.51*
	1	*25*	1 1/16	*27*	1 5/8	*41*	1.79	*0.81*
	1 1/4	*32*	1 5/16	*33*	1 15/16	*49*	3.00	*1.36*
	1 1/2	*40*	1 1/2	*38*	2 1/8	*54*	4.05	*1.84*
	2	*50*	1 13/16	*47*	2 1/2	*64*	6.76	*3.07*
	2 1/2	*65*	2	*51*	2 15/16	*75*	10.56	*4.79*
	3	*80*	2 3/8	*60*	3 3/8	*86*	15.25	*6.92*

FIGURE 424 45° Elbow	Size		A		B		Unit Weight Black	
	NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
	1/2	*15*	9/16	*14*	1	*25*	0.66	*0.30*
	3/4	*20*	5/8	*16*	1 1/8	*29*	1.04	*0.47*
	1	*25*	3/4	*19*	1 5/16	*33*	1.56	*0.71*
	1 1/4	*32*	7/8	*22*	1 1/2	*38*	2.70	*1.22*
	1 1/2	*40*	1 1/16	*27*	1 11/16	*43*	3.55	*1.61*
	2	*50*	1 5/16	*33*	2	*51*	6.07	*2.75*
	2 1/2	*65*	1 5/16	*33*	2 1/4	*57*	9.79	*4.44*

Note: See page 37 for pressure-temperature ratings.

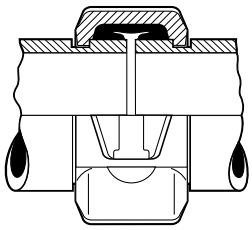
Flexible Coupling

STYLE 75

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

Style 75 is available where moderate pressures are expected or weight considerations are a factor. Up to 50% lighter in weight than the Style 77, the Style 75 coupling is recommended for service up to 500 psi/3450 kPa depending on size. Housings are cast in two identical pieces in all sizes. Hot-dip galvanized and special coatings are available for all sizes.

The Victaulic standard flexible coupling offering for grade "EHP" or "T" gaskets is the Style 177 installation-ready flexible coupling. For all available sizes, the Style 177 is the standard flexible coupling Victaulic supplies in North America for piping systems using Grade "EHP" or "T" gaskets. Contact Victaulic for further details.



Exaggerated for clarity

MATERIAL SPECIFICATIONS

Housing: Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

Housing Coating: Orange enamel.
- **Optional:** Hot dipped galvanized and others.

Gasket: (specify choice*)

- **Grade "E" EPDM**
  EPDM (Green color code). Temperature range –30°F to +230°F/–34°C to +110°C. Recommended for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL classified in accordance with ANSI/NSF 61 for cold +86°F/+30°C and hot +180°F/+82°C potable water service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

- **Grade "T" nitrile**
  Nitrile (Orange color code). Temperature range –20°F to +180°F/–29°C to +82°C. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range; except hot, dry air over +140°F/+60°C and water over +150°F/+66°C. NOT RECOMMENDED FOR HOT WATER SERVICES.

* Services listed are General Service Recommendations only. It should be noted that there are services for which these gaskets are not recommended. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service recommendations and for a listing of services which are not recommended.

NOTE: Additional gasket styles are available. Contact Victaulic for details.

Bolts/Nuts: Heat-treated plated carbon steel, trackhead meeting the physical and chemical requirements of ASTM A-449 and physical requirements of ASTM A-183.

JOB/OWNER
System No. _____
Location _____

CONTRACTOR
Submitted By _____
Date _____

ENGINEER
Spec Sect _____ Para _____
Approved _____
Date _____

Flexible Coupling

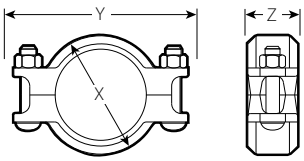
STYLE 75

DIMENSIONS

Size		Max. Work Pressure *	Max. End Load *	Allow. Pipe End Sep. †	Deflect. Fr. C_L†		Bolt/Nut@ No – Size	Dimensions – Inches/mm			Approx. Wgt. Each
Nominal Size Inches mm	Actual Outside Diameter Inches mm	psi kPa	Lbs. N	Inches mm	Per Cplg. Deg.	Pipe In./Ft. mm/m	Inches	X	Y	Z	Lbs. kg
1 25	1.315 33.4	500 3450	680 3025	0 – 0.06 0 – 1.6	2° – 43′	0.57 48	2 – ⅜ x 2	2.38 61	4.27 108	1.77 45	1.3 0.6
1 ¼ 32	1.660 42.2	500 3450	1080 4805	0 – 0.06 0 – 1.6	2° – 10′	0.45 38	2 – ⅜ x 2	2.68 68	4.61 117	1.77 45	1.4 0.6
1 ½ 40	1.900 48.3	500 3450	1.420 6320	0 – 0.06 0 – 1.6	1° – 56′	0.40 33	2 – ⅜ x 2	2.91 74	4.82 122	1.77 45	1.5 0.6
2 50	2.375 60.3	500 3450	2.215 9860	0 – 0.06 0 – 1.6	1° – 31′	0.32 26	2 – ⅜ x 2	3.43 87	5.22 133	1.88 48	1.7 0.8
2 ½ 65	2.875 73.0	500 3450	3.245 14440	0 – 0.06 0 – 1.6	1° – 15′	0.26 22	2 – ⅜ x 2	3.88 98	5.68 144	1.88 48	1.9 0.9
76.1 mm	3.000 76.1	500 3450	3.535 15730	0 – 0.06 0 – 1.6	1° – 12′	0.26 22	2 – ⅜ x 2	4.00 102	5.90 150	1.88 48	1.9 0.9
3 80	3.500 88.9	500 3450	4.800 21360	0 – 0.06 0 – 1.6	1° – 2′	0.22 18	2 – ½ x 2 ¾	4.50 114	7.00 178	1.88 48	2.9 1.3
3 ½ 90	4.000 101.6	500 3450	6.300 28035	0 – 0.06 0 – 1.6	0° – 54′	0.19 16	2 – ½ x 2 ¾	5.00 127	7.50 191	1.88 48	2.9 1.3
4 100	4.500 114.3	500 3450	7.950 35380	0 – 0.13 0 – 3.2	1° – 36′	0.34 28	2 – ½ x 2 ¾	5.80 147	8.03 204	2.13 54	4.1 1.9
108.0 mm	4.250 108.0	450 3100	6.380 28395	0 – 0.13 0 – 3.2	1° – 41′	0.35 29	2 – 12 x 70.0	5.55 141	7.79 198	2.13 54	3.7 1.7
4 ½ 120	5.000 127.0	450 3100	8.820 39250	0 – 0.13 0 – 3.2	1° – 26′	0.25 21	2 – ⅝ x 3 ¼	6.13 156	9.43 240	2.13 54	5.5 2.5
5 125	5.563 141.3	450 3100	10.935 48660	0 – 0.13 0 – 3.2	1° – 18′	0.27 23	2 – ⅝ x 3 ¼	6.88 175	10.07 256	2.13 54	5.8 2.6
133.0 mm	5.250 133.0	450 3100	9.735 43325	0 – 0.13 0 – 3.2	1° – 21′	0.28 24	2 – 16 x 82.5	6.55 166	9.37 238	2.13 54	6.0 2.7
139.7 mm	5.500 139.7	450 3100	10.665 47460	0 – 0.13 0 – 3.2	1° – 18′	0.28 24	2 – ⅝ x 3 ¼	6.80 173	9.59 244	2.13 54	6.3 2.9
152.4 mm	6.000 152.4	450 3100	12.735 56670	0 – 0.13 0 – 3.2	1° – 12′	0.21 18	2 – ⅝ x 3 ¼	7.38 187	10.48 266	1.88 48	6.2 2.8
6 150	6.625 168.3	450 3100	15.525 69085	0 – 0.13 0 – 3.2	1° – 5′	0.23 18	2 – ⅝ x 3 ¼	8.00 203	11.07 281	2.13 54	7.0 3.2

Continued on page 3.

* † @ Refer to notes on page 3.



Flexible Coupling

STYLE 75

DIMENSIONS

Size		Max. Work Pressure *	Max. End Load *	Allow. Pipe End Sep. †	Deflect. Fr. C_L†		Bolt/Nut@ No – Size	Dimensions – Inches/mm			Approx. Wgt. Each
Nominal Size Inches mm	Actual Outside Diameter Inches mm	psi kPa	Lbs. N	Inches mm	Per Cplg. Deg.	Pipe In./Ft. mm/m	Inches	X	Y	Z	Lbs. kg
159.0 mm	6.250 159.0	450 3100	13.800 61405	0 – 0.13 0 – 3.2	1° – 9′	0.24 20	2 – 16 x 82.5	7.63 194	10.49 266	2.13 54	6.8 3.1
203.2 mm	8.000 203.2	450 3100	22.635 100725	0 – 0.13 0 – 3.2	0° – 54′	0.16 13	2 – ¾ x 4 ¼	9.72 247	13.33 339	2.31 58	12.6 5.7
8 200	8.625 219.1	450 3100	26.280 116945	0 – 0.13 0 – 3.2	0° – 50′	0.18 14	2 – ¾ x 4 ¼	10.34 263	13.97 355	2.32 59	12.4 5.6
254.0 mm	10.000 254.0	350 2400	27.500 122375	0 – 0.13 0 – 3.2	0° – 43′	0.15 11	2 – ⅞ x 5 ½	12.16 309	15.81 402	2.53 64	20.8 9.4
304.8 mm	12.000 304.8	350 2400	39.500 175775	0 – 0.13 0 – 3.2	0° – 36′	0.13 9	2 – ⅞ x 5 ½	14.16 360	17.69 449	2.53 64	23.6 10.7

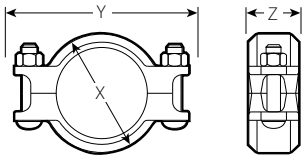
* Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 1/2 times the figures shown.

† Allowable Pipe End Separation and Deflection figures show the maximum nominal range of movement available at each joint for standard roll grooved pipe. Figures for standard cut grooved pipe may be doubled. These figures are maximums; for design and installation purposes these figures should be reduced by: 50% for ¾ – 3 1/2"/20 – 90 mm; 25% for 4"/100 mm and larger.

@ Number of bolts required equals number of housing segments.

Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.



Flexible Coupling

STYLE 75

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

INSTALLATION

Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

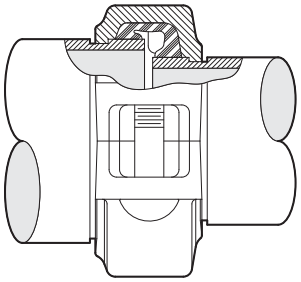
06.05 1470 REV K UPDATED 3/2009

Reducing Coupling

STYLE 750

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

The Style 750 Reducing Coupling permits direct reduction on the piping run. Designed to replace two couplings and a reducing fitting, the Style 750 features a special reducing gasket for pressure responsive sealing. A steel washer which prevents telescoping of the smaller pipe inside the larger pipe during vertical systems assembly is available upon request.



Exaggerated for clarity

MATERIAL SPECIFICATIONS

Housing: Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

Housing Coating: Orange enamel

- **Optional:** Hot dipped galvanized and others

Gasket: (Specify choice*):

- **Grade "E" EPDM (All other sizes)**
  EPDM (Green color code). Temperature range –30°F to +230°F/–34°C to +110°C. Recommended for cold and hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL classified in accordance with ANSI/NSF 61 for cold +86°F/+30°C and hot +180°F/+82°C potable water service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

- **Grade "T" nitrile**
  Nitrile (Orange color code). Temperature range –20°F to +180°F/–29°C to +82°C. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range. Not recommended for hot water services over +150°F/+66°C or for hot dry air over +140°F/+60°C.

* Services listed are General Service Recommendations only. It should be noted that there are services for which these gaskets are not recommended. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service recommendations and for a listing of services which are not recommended.

- **Optional:** Assembly Washer: Galvanized, carbon steel

Bolts/Nuts: Heat-treated plated carbon steel, trackhead meeting the physical and chemical requirements of ASTM A-449 and physical requirements of ASTM A-183.

JOB/OWNER
System No. _____
Location _____

CONTRACTOR
Submitted By _____
Date _____

ENGINEER
Spec Sect _____ Para _____
Approved _____
Date _____

Reducing Coupling

STYLE 750

DIMENSIONS

Size			Max. Work Pressure *	Max. End Load *	Allow. Pipe End Sep. †	Deflect. Fr. C_L†		Bolt/Nut@ No - Size	Dimensions – Inches/mm			Approx. Wgt. Each
Nominal Size Inches/mm			psi kPa	Lbs. N	Inches/ mm	Per Cplg. Deg.	Pipe In./Ft. mm/m	Inches	X	Y	Z	Lbs. kg
2 50	×	1 25	350 2410	500 2225	0 – 0.07 0 – 1.8	0° – 57'	0.20 17	2 – 3/8 x 2	3.38 85	5.28 134	1.88 48	2.7 1.2
		1 ½ 40	350 2410	1000 4450	0 – 0.07 0 – 1.8	0° – 57'	0.20 17	2 – 3/8 x 2	3.38 85	5.28 134	1.88 48	2.0 1.0
2 ½ 65	×	2 50	500 3450	2215 9850	0 – 0.07 0 – 1.8	0° – 47'	0.16 14	2 – 3/8 x 2	4.00 102	5.93 151	1.88 48	3.1 1.4
76.1 mm	×	2 50	350 2410	1550 6900	0 – 0.07 0 – 1.8	0° – 47'	0.16 14	2 – ½ x 2 ¾	4.38 111	6.63 168	1.88 48	4.6 2.1
3 80	×	2 50	350 2410	1550 6900	0 – 0.07 0 – 1.8	0° – 39'	0.13 11	2 – ½ x 2 ¾	4.75 121	7.13 181	1.88 48	4.9 2.2
		2 ½ 65	500 3450	3250 14460	0 – 0.07 0 – 1.8	0° – 39'	0.13 11	2 – ½ x 2 ¾	4.75 121	7.13 181	1.88 48	4.3 2.0
88.9 mm	×	76.1 mm	350 2410	2275 10125	0 – 0.07 0 – 1.8	0° – 39'	0.13 11	2 – ½ x 2 ¾	4.75 121	7.13 181	1.88 48	4.2 1.9
4 100	×	2 50	350 2410	1550 6900	0 – 0.13 0 – 3.2	1° – 19'	0.28 25	2 – 5/8 x 3 ¼	6.25 159	8.90 226	2.25 57	8.1 3.7
		2 ½ 65	350 2410	2275 10125	0 – 0.13 0 – 3.2	1° – 19'	0.28 25	2 – 5/8 x 3 ¼	6.25 159	8.90 226	2.25 57	8.6 3.9
		3 80	500 3450	4810 21400	0 – 0.13 0 – 3.2	1° – 19'	0.28 25	2 – 5/8 x 3 ¼	6.00 152	8.90 226	2.25 57	6.7 3.0
114.3 mm	×	76.1 mm	350 2410	2475 11014	0 – 0.13 0 – 3.2	1° – 19'	0.28 25	2 – 5/8 x 3 ¼	6.25 159	8.90 226	2.25 57	6.9 3.1
5 125	×	4 100	350 2410	5565 24765	0 – 0.13 0 – 3.2	1° – 3'	0.22 19	2 – ¾ x 4 ¼	7.18 182	10.70 272	2.13 54	11.2 5.1
6 150	×	4 100	350 2410	5565 24765	0 – 0.13 0 – 3.2	0° – 52'	0.18 15	2 – ¾ x 4 ¼	8.63 181	11.90 302	2.25 57	16.7 7.6
		5 125	350 2410	8500 37825	0 – 0.13 0 – 3.2	0° – 52'	0.18 15	2 – ¾ x 4 ¼	8.31 211	11.90 302	2.25 57	12.9 5.9
165.1 mm	×	4 100	350 2410	5565 24765	0 – 0.13 0 – 3.2	0° – 55'	0.19 16	2 – ¾ x 4 ¼	8.63 219	11.90 302	2.25 57	15.2 6.9
8 200	×	6 150	350 2410	12000 53400	0 – 0.13 0 – 3.2	0° – 38'	0.13 11	2 – 7/8 x 5	10.81 275	14.88 378	2.50 64	22.4 10.2
219.1 mm	×	165.1 mm	350 2410	1625	0 – 0.13 0 – 3.2	0° – 38'	0.13 11	2 – 7/8 x 5	10.75 273	14.88 378	2.50 64	23.2 10.5
10 273	×	8 219.1	350 2410	20450	0 – 0.13 0 – 3.2	0° – 25'	0.9 8	2 – 1 x 5 ½	13.12 333	17.26 438	2.62 67	31.4 14.2

Style 750 Reducing couplings should not be used with end caps (#60) in systems where a vacuum may be developed. Contact Victaulic for details.

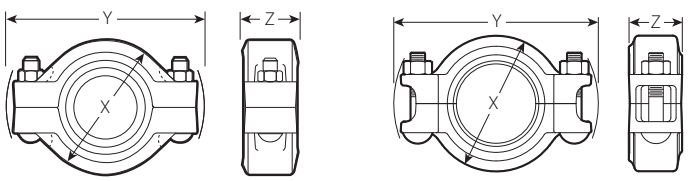
* Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard **roll** or **cut** grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe. Maximum working pressure rating based on larger pipe size. Maximum End Load rating based on smaller pipe size. WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.

† Allowable Pipe End Separation and Deflection figures show the maximum nominal range of movement available at each joint for standard **roll** grooved pipe. Figures for standard **cut** grooved pipe may be doubled. These figures are maximums; for design and installation purposes these figures should be reduced by: 50% for ¾ – 3 ½"/20 – 90 mm; 25% for 4"/100 mm and larger.

@ Number of bolts required equals number of housing segments.

Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.

WARNING: Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.



Reducing Coupling

STYLE 750

FLOW DATA

HEAD LOSS

The head loss across Style 750 Reducing coupling is very small and is essentially the same as for standard short body reducing pipe fittings.

Equivalent lengths of standard weight steel pipe are shown in the tables. All data is based on water flowing at ambient temperature.

FLOW REDUCING

Size			Equiv. Pipe Length
Nominal Size Inches/mm			Sm. Dia. Feet/m
2 50	×	1 25	5.9 1.8
		1 ½ 40	2.0 0.6
2 ½ 65	×	2 50	1.9 0.6
76.1 mm	×	2 50	1.9 0.6
3 80	×	2 50	5.5 1.7
		2 ½ 65	3.8 1.2
88.9 mm	×	76.1 mm	3.8 1.2
4 100	×	2 50	6.0 1.8
		2 ½ 65	6.0 1.8
		3 80	6.0 1.8
114.3 mm	×	76.1 mm	6.0 1.8
5 125	×	4 100	3.0 0.9
6 150	×	4 100	6.0 1.8
		5 125	4.5 1.4
165.1 mm	×	4 100	6.0 1.8
8 200	×	6 150	7.3 2.2
219.1 mm	×	165.1 mm	7.3 2.23
10 273	×	8 219.1	8.7 2.65

FLOW EXPANDING

Size			Equiv. Pipe Length
Nominal Size Inches/mm			Sm. Dia. Feet/m
1 25	×	2 50	2.7 0.8
1 ½ 40	×	2 50	1.9 0.6
2 50	×	2 ½ 65	1.0 0.3
		76.1 mm	1.0 0.3
		3 80	3.5 1.1
		4 100	3.0 0.9
2 ½ 65	×	3 80	2.5 0.8
		4 100	3.0 0.9
76.1 mm	×	88.9 mm	2.5 0.8
		114.3 mm	3.0 0.9
3 80	×	4 100	2.5 0.8
4 100	×	5 125	3.3 1.0
		6 150	4.6 1.4
		165.1 mm	4.6 1.4
5 125	×	6 150	2.3 0.7
6 150	×	8 200	6.0 1.8
165.1 mm	×	219.1 mm	5.4 1.65
8 219.1	×	10 273	6.3 19.2

Reducing Coupling

STYLE 750

INSTALLATION

Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

WCAS-6UPKD7

06.08 1536 REV I UPDATED 6/2008

FireLock® Fittings

See Victaulic publication 10.01 for details

FireLock® products comprise a unique system specifically designed for fire protection services. FireLock full-flow elbows and tees are a CAD-developed, hydrodynamic design that has a shorter center-to-end dimension than standard fittings. A noticeable bulge allows the water to make a smoother turn to maintain similar flow characteristics as standard full flow fittings.

FireLock fittings are designed for use exclusively with Style 005 and Style 009 FireLock couplings. Use of other couplings or flange adapters may result in bolt pad interference.

Victaulic FireLock fittings pressure ratings conform to the ratings of Victaulic FireLock Style 005 couplings.

MATERIAL SPECIFICATIONS

Fitting: Ductile iron conforming to ASTM A-536, grade 65-45-12.

Fitting Coating: Orange enamel.
- **Optional:** Hot dipped galvanized.

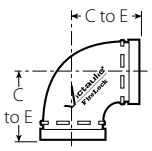
JOB/OWNER
System No. _____
Location _____

CONTRACTOR
Submitted By _____
Date _____

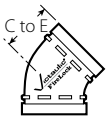
ENGINEER
Spec Sect _____ Para _____
Approved _____
Date _____

FireLock® Fittings

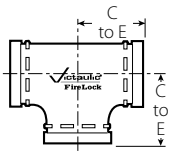
DIMENSIONS



NO. 001



NO. 003



NO. 002

NO. 006

Size		No. 001 90° Elbow		No. 003 45° Elbow		No. 002 Straight Tee		No. 006 Cap	
Nominal Size Inches mm	Actual Outside Diameter Inches mm	C to E Inches mm	Approx. Weight Each Lbs. kg	C to E Inches mm	Approx. Weight Each Lbs. kg	C to E Inches mm	Approx. Weight Each Lbs. kg	Thickness "T" Inches mm	Approx. Weight Each Lbs. kg
1 ¼ 32	1.660 42.4	—	—	—	—	—	—	0.8 21	0.3 0.1
1 ½ 40	1.900 48.3	— —	— —	— —	— —	— —	— —	0.82 21	0.4 0.2
2 50	2.375 60.3	2.75 70	1.7 0.8	2.00 51	1.8 0.8	2.75 70	2.4 1.1	0.88 22	0.6 0.3
2 ½ 65	2.875 73.0	3.00 76	3.1 1.4	2.25 57	2.2 1.0	3.00 76	3.6 1.6	0.88 22	1.0 0.5
76.1 mm	3.000 76.1	3.00 76	3.30 1.5	2.25 57	2.4 1.1	—	—	—	—
3 80	3.500 88.9	3.38 86	4.0 1.8	2.50 64	3.1 1.4	3.38 86	5.3 2.4	0.88 22	1.2 0.5
108 mm	4.250 108.0	4.00 102	5.7 2.6	3.00 76	5.1 2.3	4.00 102	7.5 3.4	—	—
4 100	4.500 114.3	4.00 102	6.7 3.0	3.00 76	5.6 2.5	4.00 102	8.7 3.9	1.00 25	2.4 1.1
5 125	5.563 141.3	4.88 124	12.6 5.7	3.25 83	8.3 3.8	4.88 124	15.7 7.1	1.00 25	4.1 1.9
159 mm	6.250 158.8	5.50 140	12.6 5.7	3.50 89	9.2 4.2	5.50 140	17.9 8.0	—	—
6 150	6.625 168.3	5.50 140	18.3 8.3	3.50 89	11.7 5.3	5.50 140	22.7 10.3	1.00 25	5.9 2.7
8 200	8.625 219.1	6.81 173	25.5 11.6	4.25 108	20.4 9.3	6.94 176	38.7 17.6	1.13 29	12.7 5.8

FireLock® Fittings

FLOW DATA

Size		Frictional Resistance Equivalent Feet/meters of Straight Pipe †			
		Elbows		No. 002 Straight Tee	
Nominal Size Inches mm	Actual Outside Diameter Inches mm	No. 001 90° Elbow	No. 003 45° Elbow	Branch	Run
1 ¼ 32	1.660 42.4	1.5 0.5	0.8 0.2	3.7 1.1	1.5 0.5
1 ½ 40	1.900 48.3	2.2 0.7	1.1 0.3	5.5 1.7	2.2 0.7
2 50	2.375 60.3	3.5 1.1	1.8 0.5	8.5 2.6	3.5 1.1
2 ½ 65	2.875 73.0	4.3 1.3	2.2 0.7	10.8 3.3	4.3 1.3
76.1 mm	3.000 76.1	4.5 1.4	2.3 0.7	11.0 3.4	4.5 1.4
3 80	3.500 88.9	5.0 1.5	2.6 0.8	13.0 4.0	5.0 1.5
108 mm	4.250 108.0	6.4 2.0	3.2 0.9	15.3 4.7	6.4 2.0
4 100	4.500 114.3	6.8 2.1	3.4 1.0	16.0 4.9	6.8 2.1
5 125	5.563 141.3	8.5 2.6	4.2 1.3	21.0 6.4	8.5 2.6
159 mm	6.250 158.8	9.4 2.9	4.9 1.5	25.0 7.6	9.6 2.9
6 150	6.625 168.3	10.0 3.0	5.0 1.5	25.0 7.6	10.0 3.0
8 200	8.625 219.1	13.0 4.0	5.0 1.5	33.0 10.1	13.0 4.0

† The flow data listed is based upon the pressure drop of Schedule 40 pipe.

FireLock® Fittings

GENERAL NOTES

NOTE: When assembling FireLock EZ couplings onto end caps, take additional care to make certain the end cap is fully seated against the gasket end stop. For FireLock EZ Style 009 and Style 009V couplings, use FireLock No. 006 end caps containing the "EZ" marking on the inside face or No. 60 end caps containing the "QV EZ" marking on the inside face. Non-Victaulic end cap products shall not be used with Style 009/009V couplings.

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

WCAS-7MX2JY

FireLock® Outlet-T

STYLE 922

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

The Style 922 Outlet-T provides a convenient method of incorporating ½, ¾, and 1"/15, 20 and 25 mm outlets for directly connecting sprinklers, drop nipples, sprigs, gauges, drains and other outlet products. Available for 1¼ through 76.1 mm/32 to 76.1 mm piping systems, Style 922 outlets are UL/ULC Listed, LPC, Vds/FM approved for branch connections on wet and dry systems.

The locating collar engages into the hole prepared in the pipe. When tightened, the assembly compresses the gasket onto the OD of the pipe. The Style 922 Outlet-T is UL/FM rated up to 300 psi/2068 kPa and VdS rated up to 16 bar at the ambient temperatures typical for fire protection systems.

Style 922 is suitable for use on standard, lightwall, Schedule 5 and other specialty pipes.* It is supplied with a clear, rust inhibitive coating. Contact Victaulic for other optional coatings.

*Consult Section 10.01 for specific listings/approvals.

MATERIAL SPECIFICATIONS

Housing: Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

Gasket:

- **Grade "E" EPDM - Type A**
  (Violet color code). FireLock products have been Listed by Underwriters Laboratories Inc. and Approved by Factory Mutual Research for wet and dry (oil free air) sprinkler services up to the rated working pressure using the Grade "E" Type A Gasket System.

Bolts/Nuts: Heat-treated plated carbon steel, trackhead meeting the physical and chemical requirements of ASTM A-449 and physical requirements of ASTM A-183.

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

Approved _____

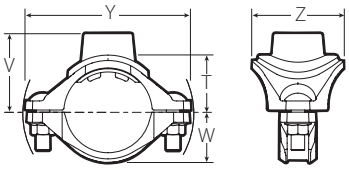
Date _____

FireLock® Outlet-T

STYLE 922

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

DIMENSIONS



Nominal Size inches/mm			Hole Diameter	Dimensions – inches/millimeters					Approx. Weight Each
Run	X	Branch FPT†	+0.06/+1.5 -0.00/-0.0	T*	V	W	Y	Z	lbs/kg
1 ¼ 32	X	½ 15	1 3⁄16 30.2	1.30 33.0	1.83 46.5	1.10 27.9	3.87 98.3	2.56 65.0	1.0 0.45
		¾ 20	1 3⁄16 30.2	1.28 32.5	1.83 46.5	1.10 27.9	3.87 98.3	2.56 65.0	1.1 0.50
		1 25	1 3⁄16 30.2	1.52 38.6	2.18 55.4	1.10 27.9	3.87 98.3	2.56 65.0	1.2 0.54
1 ½ 40	X	½ 15	1 3⁄16 30.2	1.42 36.1	1.95 49.5	1.22 31.0	4.08 103.6	2.56 65.0	1.2 0.54
		¾ 20	1 3⁄16 30.2	1.40 35.6	1.95 49.5	1.22 31.0	4.08 103.6	2.56 65.0	1.2 0.54
		1 25	1 3⁄16 30.2	1.64 41.7	2.30 58.4	1.22 31.0	4.08 103.6	2.56 65.0	1.3 0.59
2 50	X	½ 15	1 3⁄16 30.2	1.66 42.2	2.19 55.6	1.46 37.1	4.60 116.8	2.56 65.0	1.3 0.59
		¾ 20	1 3⁄16 30.2	1.64 41.7	2.19 55.6	1.46 37.1	4.60 116.8	2.56 65.0	1.4 0.64
		1 25	1 3⁄16 30.2	1.88 47.8	2.54 64.5	1.46 37.1	4.60 116.8	2.56 65.0	1.5 0.68
2½ 65	X	½ 15	1 3⁄16 30.2	1.91 48.5	2.44 62.0	1.71 43.4	5.40 137.2	2.56 65.0	1.6 0.73
		¾ 20	1 3⁄16 30.2	1.89 48.0	2.44 62.0	1.71 43.4	5.40 137.2	2.56 65.0	1.6 0.73
		1 25	1 3⁄16 30.2	2.13 54.1	2.79 70.9	1.71 43.4	5.40 137.2	2.56 65.0	1.6 0.73
76.1 mm	X	½ 15	1 3⁄16 30.2	1.91 48.5	2.44 62.0	1.71 43.4	5.50 139.7	2.56 65.0	1.6 0.73
		¾ 20	1 3⁄16 30.2	1.89 48.0	2.44 62.0	1.71 43.4	5.50 139.7	2.56 65.0	1.6 0.73
		1 25	1 3⁄16 30.2	2.13 54.1	2.79 70.9	1.71 43.4	5.50 139.7	2.56 65.0	1.7 0.80

† Victaulic female threaded products are designed to accommodate standard NPT or BSPT (optional) male pipe threads only. Use of male threaded products with special features, such as probes, dry pendent sprinklers, etc., should be verified as suitable for use with this Victaulic product. Failure to verify suitability in advance may result in assembly problems or leakage.

*Center of run to engaged pipe end for NPT threads (dimensions are approximate).

FireLock® Outlet-T

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

STYLE 922

PERFORMANCE

Nominal Size			Equivalent Length of 1" Pipe
Inches/mm			Feet/meters
1 ¼ 32	X	1 25	8.5 2.6
1 ½ 40	X	1 25	8.5 2.6
2 50	X	1 25	8.5 2.6
2 ½ 65	X	1 25	8.5 2.6
76.1 mm	X	1 25	8.5 2.6

FireLock® Outlet-T

STYLE 922

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

US & WORLD HEADQUARTERS

P.O. Box 31
Easton, PA 18044-0031 USA

4901 Kesslersville Road
Easton, PA 18040 USA

1-800-PICK-VIC (1-800-742-5842)
1-610-559-3300
1-610-250-8817 (fax)
pickvic@victaulic.com

www.victaulic.com

CANADA

905-884-7444
905-884-9774 (fax)
viccanada@victaulic.com

EUROPE

32-9-381-15-00
32-9-380-44-38 (fax)
viceuro@victaulic.be

UNITED KINGDOM

44 (0) 1438741100
44 (0) 1438313883 (fax)
viceuro@victaulic.be

CENTRAL AND SOUTH AMERICA

1-610-559-3300
1-610-559-3608 (fax)
vical@victaulic.com

ASIA PACIFIC

86-21-54253300
86-21-54253671 (fax)
vicap@victaulic.com

MIDDLE EAST

971-4-883-88-70
971-4-883-88-60 (fax)

WCAS-6QKGYH

UPDATED 8/2006
10.52 3355 REV D

FireLock EZ™ Rigid Coupling

STYLE 009H

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

The FireLock EZ Style 009H coupling is a rigid, installation-ready coupling for fire protection pipe joining. The coupling's unique design eliminates loose parts, insures consistent installation and provides substantial gains in productivity.

IMPORTANT

FireLock EZ Style 009H couplings are recommended for use ONLY on fire protection systems.

PATENTED

LISTINGS/APPROVALS *

The information provided below is based on the latest listing and approval data at the time of publication. Listings/Approvals are subject to change and/or additions by the approvals agencies. Contact Victaulic for performance on other pipe and the latest listings and approvals.

Standard Pipe

Size	cULus/FM			VdS
Nominal Size Inches/ mm	Sch. 5 psi/KPa	Sch.10 psi/kPa	Sch. 40 psi/KPa	psi/kPa
1¼ 32	175 1206	365 2517	365 2517	365 2517
1½ 40	175 1206	365 2517	365 2517	365 2517
2 50	175 1206	365 2517	365 2517	365 2517
2½ 65	N/A	365 2517	365 2517	365 2517
76.1mm	N/A	365 2517	365 2517	365 2517
3 80	N/A	365 2517	365 2517	365 2517
4 100	N/A	365 2517	365 2517	365 2517

* Listed/Approved for wet and dry pipe systems (> –40°F/–40°C).
For rigid pipe connections in systems operating below 0°F/–18°C Victaulic recommends Style 005 FireLock rigid couplings with Grade "L" silicone gaskets.
Please refer to the Victaulic Installation Manual (I-009H_009_009V.pdf) for details concerning when supplemental lubrication is required.

Speciality Pipe

Pipe	Size	Pressure Rating – psi/		Pipe	Size	Pressure Rating – psi		Pipe	Size	Pressure Rating – psi	
Sch.	Inches	cULus	FM	Sch.	Inches	cULus	FM	Sch.	Inches	cULus	FM
BLT	1 ¼ – 2	300 2068	300 2068	EZT	1 ¼ – 2	300 2068	300 2068	MT	1 ¼ – 2	300 2068	300 2068
DF	1 ¼ – 4	300 2068	300 2068	FF	1 ¼ – 4	300 2068	300 2068	MLT	1 ¼ – 2	N/A	300 2068
DT	1 ¼ – 2	300 2068	300 2068	FLF	1 ¼ – 4	N/A	300 2068	ST	1 ¼ – 2	N/A	300 2068
EF	1 ¼ – 4	175 1206	175 1206	FLT	1 ¼ – 2	N/A	300 2068	STF	1 ¼ – 4	N/A	300 2068
EL	1 ¼ – 2	300 2068	300 2068	FLTL	1 ¼ – 2	N/A	300 2068	TF	2 ¼ – 4	N/A	300 2068
ET40	1 ¼ – 2	300 2068	300 2068	GL	1 ¼ – 2	300 2068	300 2068	WLS	1 ¼ – 2	300 2068	300 2068
EZF	3 – 4	300 2068	300 2068	MF	1 ¼ – 4	300 2068	300 2068	WST	1 ¼ – 2	N/A	175 1206
								XL	1 ¼ – 2	300 2068	300 2068

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

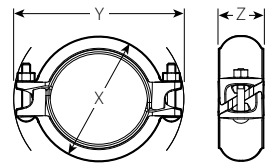
Approved _____

Date _____

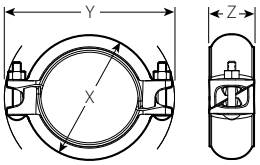
FireLock EZ™ Rigid Coupling

STYLE 009H

STYLE 009H DIMENSIONS



STYLE 009H PRE-ASSEMBLED (PUSH ON CONDITION)



STYLE 009H JOINT ASSEMBLED

Size		Max. Work. Press. *	Max. End Load *	Allow. Pipe End Sep. †	@ Bolt/Nut No. – Size	Dimensions – Inches/mm					Aprx. Wgt. Ea.
Nominal Size Inches mm	Actual Outside Dia. Inches mm	psi kPa	Lbs. N	Inches mm	Inches	Pre-assembled (Stab in condition)		Joint Assembled			Lbs. kg
						X	Y	X	Y	Z	
1 ¼ 32	1.660 42.4	365 2517	790 3514	0.10 2.54	2 - ⅜ x 2 - M10 x 2	2.95 75	4.77 121	2.70 69	4.63 118	1.93 49	1.4 0.7
1 ½ 40	1.900 48.3	365 2517	1035 4604	0.10 2.54	2 - ⅜ x 2 - M10 x 2	3.19 81	4.97 126	2.94 75	4.79 122	1.93 49	1.5 0.7
2 50	2.375 60.3	365 2517	1616 7193	0.12 3.05	2 - ⅜ x 2 - M10 x 2	3.79 96	5.53 140	3.45 88	5.42 138	1.93 49	1.9 0.9
2 ½ 65	2.875 73.0	365 2517	2370 10542	0.12 3.05	2 - ⅜ x 2 ½ - M10 x 2 ½	4.29 109	6.09 155	3.92 100	5.85 149	1.93 49	2.1 1.0
76.1 mm	3.000 76.1	365 2517	2580 11476	0.12 3.05	2 - ⅜ x 2 ½ - M10 x 2 ½	4.40 112	6.31 160	4.05 103	5.90 150	1.93 49	2.1 1.0
3 80	3.500 88.9	365 2517	3512 15622	0.12 3.05	2 - ⅜ x 2 ½ - M10 x 2 ½	4.91 125	6.70 170	4.55 116	6.46 164	1.93 49	2.3 1.0
4 100	4.500 114.3	365 2517	5805 25822	0.17 4.32	2 - ⅜ x 2 ½ - M10 x 2 ½	5.95 151	7.82 199	5.54 141	7.47 190	2.14 55	2.9 1.3

* Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. See page 1 of this document for Listed/Approved ratings on other pipe.

WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown in the chart on page 1, specific to pipe schedule and size.

† The allowable pipe separation dimension shown is for system layout purposes only. FireLock EZ couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

@ Number of bolts required equals number of housing segments.

FireLock EZ™ Rigid Coupling

STYLE 009H

MATERIAL SPECIFICATIONS

Housing: Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

Housing Coating:
- Orange enamel (North America)
- Red enamel (Europe)

Optional Coatings:
- Hot dipped galvanized

Gasket:
- **Grade "E" EPDM (Type A)**
  FireLock EZ products have been Listed by Underwriters Laboratories Inc., Underwriters Laboratories of Canada Limited, and Approved by Factory Mutual Research for wet and dry (oil free air) sprinkler services within the rated working pressure.

Bolts/Nuts: Heat-treated plated carbon steel, trackhead meeting the physical and chemical requirements of ASTM A-449 and physical requirements of ASTM A-183.

GENERAL NOTES

NOTE: When assembling FireLock EZ couplings onto end caps, take additional care to make certain the end cap is fully seated against the gasket end stop. For FireLock EZ Style 009H couplings, use FireLock No. 006 end caps containing the "EZ" marking on the inside face or No. 60 end caps containing the "QV EZ" marking on the inside face. Non-Victaulic end cap products shall not be used with Style 009H couplings.

IMPORTANT: Gaskets intended for the Style 009 or Style 009V couplings cannot be used with the Style 009H coupling. There is no interchanging of gaskets or housings between coupling styles.

INSTALLATION

Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

WARRANTY

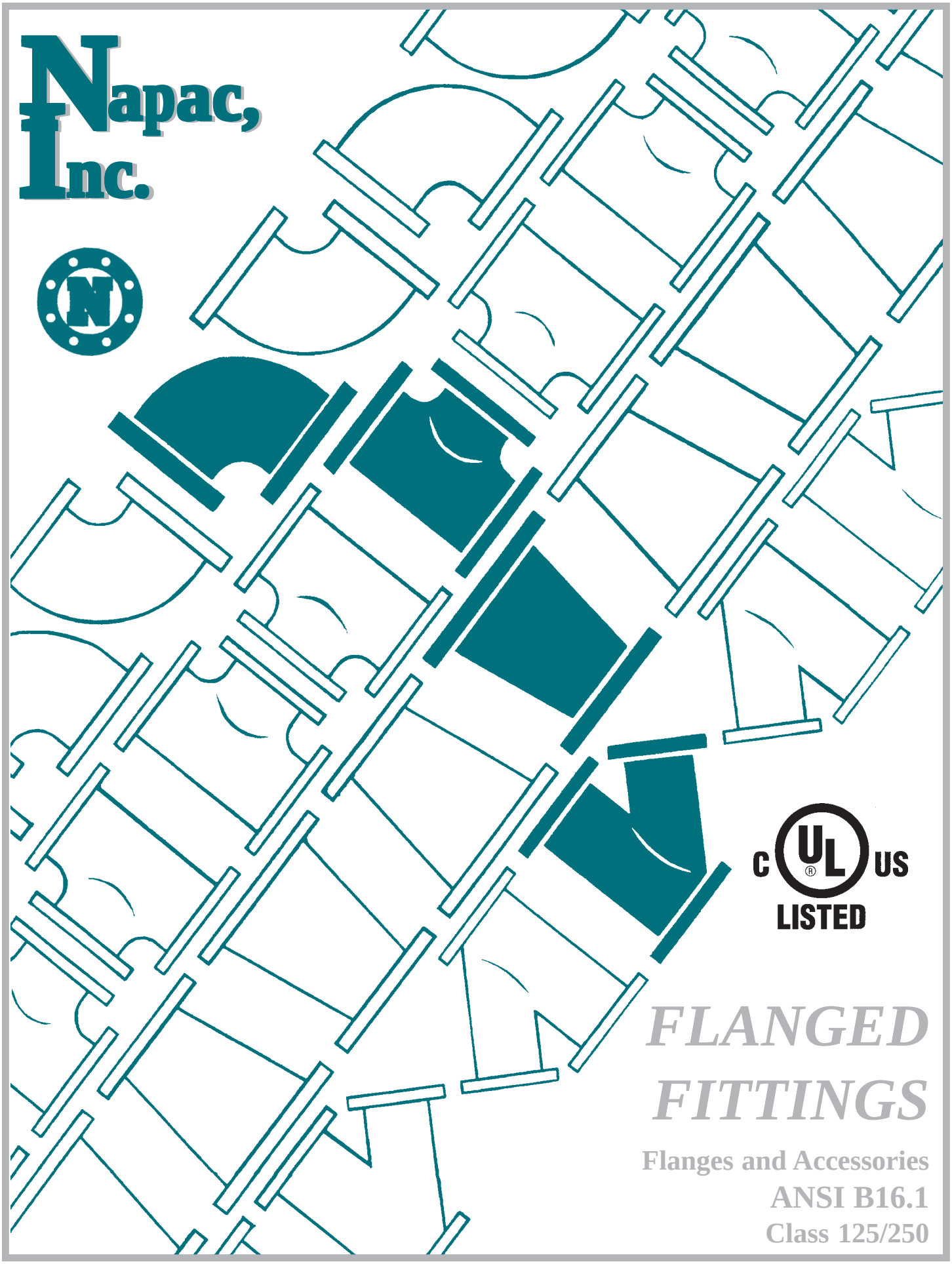
Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

10.61 5731 REV A UPDATED 9/2009

Napac, Inc.

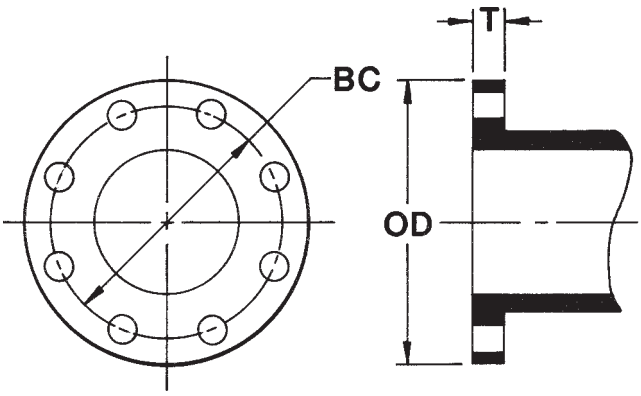


c UL us LISTED

FLANGED FITTINGS

Flanges and Accessories
ANSI B16.1
Class 125/250

FLANGE DETAILS - Class 125

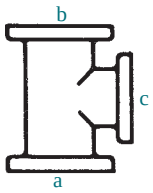


Size	O.D.	B.C.	T	Bolt Hole Dia.	Bolt Dia. & Length	No. of Bolts
2	6.00	4.50	5/8	3/4	5/8 x 2 1/2	4
2 1/2	7.00	5.00	11/16	3/4	5/8 x 2 1/2	4
3	7.50	6.00	3/4	3/4	5/8 x 2 1/2	4
4	9.00	7.50	15/16	3/4	5/8 x 3	8
5	10.00	8.50	15/16	7/8	3/4 x 3 1/2	8
6	11.00	9.50	1	7/8	3/4 x 3 1/2	8
8	13.50	11.75	1 1/8	7/8	3/4 x 3 1/2	8
10	16.00	14.25	1 3/16	1	7/8 x 4	12
12	19.00	17.00	1 1/4	1	7/8 x 4	12
14	21.00	18.75	1 3/8	1 1/8	1 x 4 1/2	12
16	23.50	21.25	1 7/16	1 1/8	1 x 4 1/2	16
18	25.00	22.75	1 9/16	1 1/4	1 1/8 x 5	16
20	27.50	25.00	1 11/16	1 1/4	1 1/8 x 5	20
24	32.00	29.50	1 7/8	1 3/8	1 1/4 x 5 1/2	20

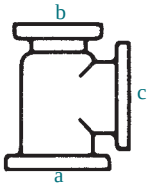
All dimensional data in inches and lbs.

DESIGNATION of OUTLETS In accordance with ANSI B16.1

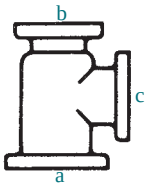
REDUCING TEES



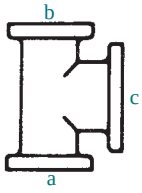
REDUCING ON OUTLET



REDUCING ON ONE RUN

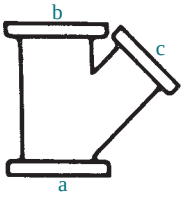


REDUCING ON ONE RUN AND OUTLET



REDUCING ON BOTH RUNS (BULLHEAD)

REDUCING LATERAL



REDUCING ON BRANCH

The largest opening establishes the basic size of a reducing fitting. The largest opening is named first, except for bullhead tees, which are reducing on both runs, and for double branch elbows where both branches are reducing. The outlet is the largest opening and named last in both cases.

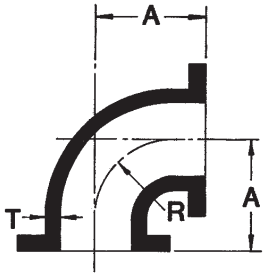
In designating the openings of reducing fittings, they should be read in the order indicated by the sequence of the letters a, b, c.

UNITED BRAND FITTINGS

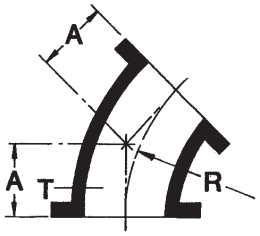
Our dedication to the mechanical piping industry has given us the opportunity to provide you with a quality line of flanged fittings exceeding the competition. Manufactured from high strength grey cast iron and ductile iron, our Flanged Fittings Series are available in 1" - 24" sizes in a variety of elbows, tees, crosses, laterals, reducers, and blind flanges. All are manufactured in accordance with ANSI B16.1, and all are available with special rust inhibitive primers and epoxy coatings.

ELBOWS

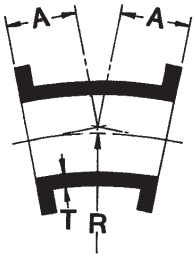
ANSI B16.1 Class 125



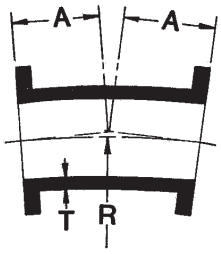
SERIES 10
90°



SERIES 11
45°



SERIES 12
22 1/2°



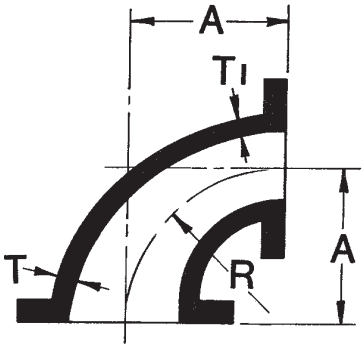
SERIES 13
11 1/4°

Size	90° Elbow				45° Elbow				22 1/2° Elbow				11 1/4° Elbow				T
	Part No.	A	R	Wgt.	Part No.	A	R	Wgt.	Part No.	A	R	Wgt.	Part No.	A	R	Wgt.	
2	10F-0202-G	4.5	3.0	14	11F-0202-G	2.5	2.4	12	-	-	-	-	-	-	-	-	.31
2 1/2	10F-025025-G	5.0	3.5	19	11F-025025-G	3.0	3.6	17	-	-	-	-	-	-	-	-	.31
3	10F-0303-G	5.5	4.0	25	11F-0303-G	3.0	3.6	20	12F-0303-G	3.0	7.6	20	13F-0303-G	3.0	15.25	20	.38
4	10F-0404-G	6.5	4.5	45	11F-0404-G	4.0	4.8	40	12F-0404-G	4.0	10.06	40	13F-0404-G	4.0	20.31	40	.50
5	10F-0505-G	7.5	5.5	52	11F-0505-G	4.5	6.0	45	-	-	-	-	-	-	-	-	.50
6	10F-0606-G	8.0	6.0	65	11F-0606-G	5.0	7.3	55	12F-0606-G	5.0	15.06	55	13F-0606-G	5.0	30.50	55	.56
8	10F-0808-G	9.0	7.0	105	11F-0808-G	5.5	8.4	90	12F-0808-G	5.5	17.62	90	13F-0808-G	5.5	35.50	90	.62
10	10F-1010-G	11.0	9.0	165	11F-1010-G	6.5	10.9	130	12F-1010-G	6.5	22.62	135	13F-1010-G	6.5	45.69	135	.75
12	10F-1212-G	12.0	10.0	235	11F-1212-G	7.5	13.3	195	12F-1212-G	7.5	27.62	205	13F-1212-G	7.5	55.81	205	.81
14*	10F-1414-D	14.0	11.5	290	11F-1414-D	7.5	12.06	220	-	-	-	-	-	-	-	-	.66
16*	10F-1616-D	15.0	12.5	370	11F-1616-D	8.0	13.25	280	-	-	-	-	-	-	-	-	.70
18*	10F-1818-D	16.5	14.0	450	11F-1818-D	8.5	14.50	325	-	-	-	-	-	-	-	-	.75
20*	10F-2020-D	18.0	15.5	580	11F-2020-D	9.5	16.88	430	-	-	-	-	-	-	-	-	.80
24*	10F-2424-D	22.0	18.5	900	11F-2424-D	11.0	18.12	630	-	-	-	-	-	-	-	-	.89

**14"~24" are made from high strength ductile iron to ANSI A21.10, AWWA C110, WWP 250.*

90° REDUCING ELBOW

ANSI B16.1 Class 125



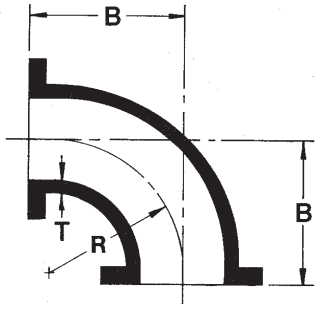
SERIES 10R

Size	Part No.	A	R	T	T1	Weight
3 x 2	10F-0302-G	5.5	4.0	.38	.31	19
3 x 2 1/2	10F-03025-G	5.5	4.0	.38	.31	22
4 x 2	10F-0402-G	6.5	4.0	.50	.31	29
4 x 2 1/2	10F-04025-G	6.5	4.0	.50	.31	31
4 x 3	10F-0403-G	6.5	4.5	.50	.38	33
5 x 4	10F-0504-G	7.5	5.0	.50	.50	48
6 x 3	10F-0603-G	8.0	6.0	.56	.38	45
6 x 4	10F-0604-G	8.0	6.0	.56	.50	55
6 x 5	10F-0605-G	8.0	6.0	.56	.50	65
8 x 4	10F-0804-G	9.0	7.0	.62	.50	75
8 x 5	10F-0805-G	9.0	7.0	.62	.56	80
8 x 6	10F-0806-G	9.0	7.0	.62	.56	85
10 x 4	10F-1004-G	11.0	9.0	.75	.50	110
10 x 6	10F-1006-G	11.0	9.0	.75	.56	135
10 x 8	10F-1008-G	11.0	9.0	.75	.62	150
12 x 4	10F-1204-G	12.0	10.0	.81	.50	140
12 x 6	10F-1206-G	12.0	10.0	.81	.56	160
12 x 8	10F-1208-G	12.0	10.0	.81	.62	180
12 x 10	10F-1210-G	12.0	10.0	.81	.75	210
14 x 12*	10F-1412-D	14.0	11.5	.66	.75	270
16 x 12*	10F-1612-D	15.0	12.5	.70	.75	310
16 x 14*	10F-1614-D	15.0	12.5	.70	.66	330

**14"~24" are made from high strength ductile iron to ANSI A21.10, AWWA C110, WWP 250.*

90º LONG RADIUS ELBOW

ANSI B16.1 Class 125



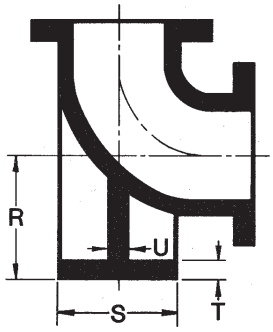
SERIES 15

Size	Part No.	B	R	T	Weight
3	15F-0303-G	7.5	6.0	.38	28
4	15F-0404-G	9.0	7.0	.50	48
6	15F-0606-G	11.5	9.5	.56	85
8	15F-0808-G	14.0	17.0	.62	145
10	15F-1010-G	16.5	14.0	.75	230
12	15F-1212-G	19.0	17.0	.81	350

Larger sizes thru 24" available upon request.

90º BASE ELBOW

ANSI B16.1 Class 125



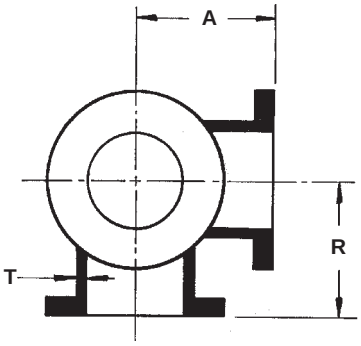
SERIES 16

Size	Part No.	R	S (Dia.)	T	U	Weight
3	16F-0303-G	4.0	5.0	.28	.50	36
4	16F-0404-G	5.5	6.0	.62	.50	55
6	16F-0606-G	7.0	7.0	.69	.62	85
8	16F-0808-G	8.38	9.0	.94	.88	145
10	16F-1010-G	9.75	9.0	.94	.88	210
12	16F-1212-G	11.25	11.0	1.0	1.0	300

Larger sizes thru 24" available upon request.

SIDE OUTLET 90º ELBOW

ANSI B16.1 Class 125



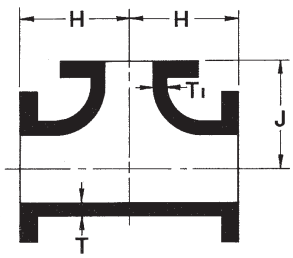
SERIES 18

Size	Part No.	A	R	T	Weight
4	18F-0404-G	6.5	6.5	.50	60
6	18F-0606-G	8.0	8.0	.56	95
8	18F-0808-G	9.0	9.0	.62	150
10	18F-1010-G	11.0	11.0	.75	235
12	18F-1212-G	12.0	12.0	.81	335

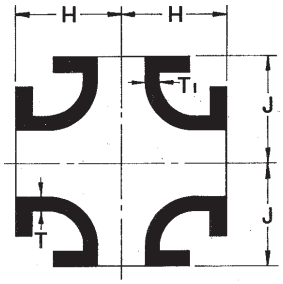
Larger sizes thru 24" available upon request.

TEES & CROSSES

ANSI B16.1 Class 125



SERIES 20



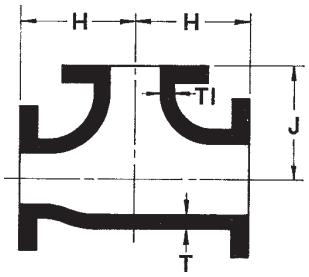
SERIES 35

Size	Part No.		H	J	T	T1	Weight	
	Tee	Cross					Tee	Cross
2	20F-0202-G	35F-0202-G	4.5	4.5	.31	.31	20	30
2 1/2	20F-025025-G	35F-025025-G	5.0	5.0	.31	.31	30	39
3 x 2	20F-0302-G	-	5.5	5.5	.38	.31	35	-
3 x 2 1/2	20F-03025-G	-	5.5	5.5	.38	.31	38	-
3	20F-0303-G	35F-0303-G	5.5	5.5	.38	.31	40	50
4 x 2	20F-0402-G	-	6.5	6.5	.50	.31	50	-
4 x 2 1/2	20F-04025-G	-	6.5	6.5	.50	.31	55	-
4 x 3	20F-0403-G	-	6.5	6.5	.50	.38	60	-
4	20F-0404-G	35F-0404-G	6.5	6.5	.50	.50	65	80
5	20F-0505-G	35F-0505-G	7.5	7.5	.50	.50	85	105
6 x 2	20F-0602-G	-	8.0	8.0	.56	.31	86	-
6 x 3	20F-0603-G	-	8.0	8.0	.56	.38	85	-
6 x 4	20F-0604-G	35F-0604-G	8.0	8.0	.56	.50	90	110
6	20F-0606-G	35F-0606-G	8.0	8.0	.56	.56	95	120
8 x 3	29F-0803-G	-	9.0	9.0	.62	.38	140	-
8 x 4	20F-0804-G	-	9.0	9.0	.62	.50	140	-
8 x 6	20F-0806-G	35F-0806-G	9.0	9.0	.62	.56	145	165
8	20F-0808-G	35F-0808-G	9.0	9.0	.62	.62	155	195
10 x 3	20F-1003-G	-	11.0	11.0	.75	.38	200	-
10 x 4	20F-1004-G	-	11.0	11.0	.75	.50	205	-
10 x 6	20F-1006-G	-	11.0	11.0	.75	.56	215	-
10 x 8	20F-1008-G	-	11.0	11.0	.75	.62	225	-
10	20F-1010-G	35F-1010-G	11.0	11.0	.75	.75	270	330
12 x 4	20F-1204-G	-	12.0	12.0	.81	.50	290	-
12 x 6	20F-1206-G	-	12.0	12.0	.81	.56	295	-
12 x 8	20F-1208-G	-	12.0	12.0	.81	.62	310	-
12 x 10	20F-1210-G	-	12.0	12.0	.81	.75	360	-
12	20F-1212-G	35F-1212-G	12.0	12.0	.81	.81	385	460
14*	20F-1414-D	35F-1414-D	14.0	14.0	.66	.66	435	-
16*	20F-1616-D	35F-1616-D	15.0	15.0	.70	.70	550	-
18*	20F-1818-D	35F-1818-D	16.5	16.5	.75	.75	665	-
20*	20F-2020-D	35F-2020-D	18.0	18.0	.80	.80	855	-
24*	20F-2424-D	35F-2424-D	22.0	22.0	.89	.89	1330	-

**14"~24" are made from high strength ductile iron to ANSI A21.10, AWWA C110, WWP 250.*

REDUCING TEE
(on Run and/or Branch)

ANSI B16.1 Class 125



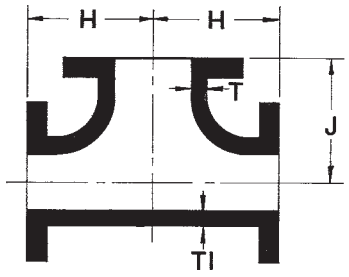
SERIES 26

Size	Part No.	H	J	T	T1	Weight
4 x 3 x 4	26F-0434-G	6.5	6.5	.50	.38	59
6 x 4 x 4	26F-0644-G	8.0	8.0	.56	.50	90
6 x 4 x 6	26F-0646-G	8.0	8.0	.56	.50	95
8 x 4 x 8	26F-0848-G	9.0	9.0	.62	.50	146
8 x 6 x 4	26F-0864-G	9.0	9.0	.62	.56	125
8 x 6 x 6	26F-0866-G	9.0	9.0	.62	.56	145
8 x 6 x 8	26F-0868-G	9.0	9.0	.62	.56	160
10 x 8 x 8	26F-1088-G	11.0	11.0	.75	.62	232
10 x 8 x 10	26F-10810-G	11.0	11.0	.75	.62	262
12 x 8 x 8	26F-1288-G	12.0	12.0	.81	.62	298
12 x 10 x 10	26F-121010-G	12.0	12.0	.81	.75	340
12 x 10 x 12	26F-121012-G	12.0	12.0	.81	.75	365

Larger sizes thru 24" available upon request.

BULLHEAD TEE

ANSI B16.1 Class 125



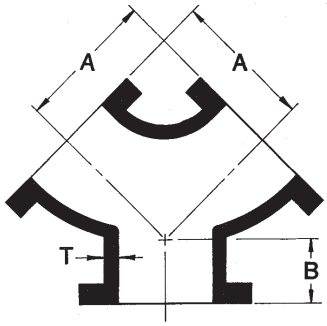
SERIES 27

Size	Part No.	H	J	T	T1	Weight
4 x 4 x 6	27F-0446-G	8.0	8.0	.50	.56	88
6 x 6 x 8	27F-0668-G	9.0	9.0	.56	.62	142
8 x 8 x 10	27F-08810-G	11.0	11.0	.62	.75	240
10 x 10 x 12	27F-101012-G	12.0	12.0	.75	.81	340

Larger sizes thru 24" available upon request.

TRUE WYES

ANSI B16.1 Class 125



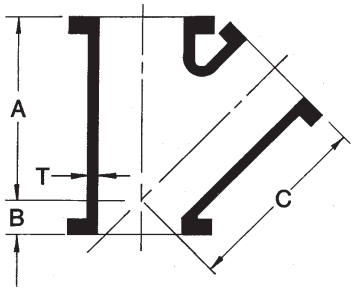
SERIES 32

Size	Part No.	A	B	T	Weight
4	32F-0404-G	6.5	3.0	.50	50
6	32F-0606-G	8.0	3.5	.56	80
8	32F-0808-G	9.0	4.5	.62	125

Larger sizes thru 24" available upon request.

LATERAL WYES

ANSI B16.1 Class 125



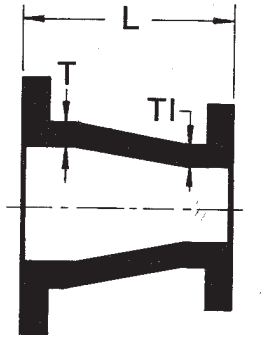
SERIES 30

Size	Part No.	A	B	C	T	T1	Weight
3	30F-0303-G	10.0	3.0	10.0	.38	-	45
4	30F-0404-G	12.0	3.0	12.0	.50	-	75
6	30F-0606-G	14.5	3.5	14.5	.56	-	120
6 x 4	30F-0604-G	14.5	3.5	14.5	.56	.50	105
8	30F-0808-G	17.5	4.5	17.5	.62	-	200
8 x 6	30F-0806-G	17.5	4.5	17.5	.62	.56	175
10	30F-1010-G	20.5	5.0	20.5	.75	-	335
12	30F-1212-G	24.5	5.5	24.5	.81	-	515

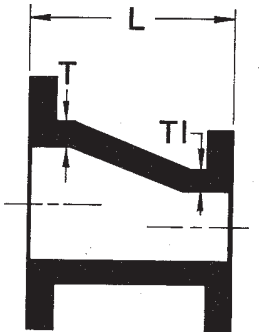
Larger sizes thru 24" available upon request.

CONCENTRIC & ECCENTRIC REDUCERS

ANSI B16.1 Class 125



(CONCENTRIC)
SERIES 50

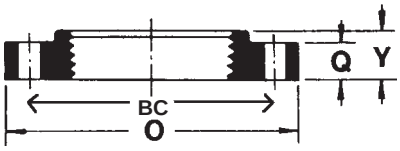


(ECCENTRIC)
SERIES 51

Size	Part No. (Concentric)	Part No. (Eccentric)	L	T	T1	Weight
2 x 1 1/2	50F-02025-G	-	5.5	.31	.30	12
2 1/2 x 2	50F-02502-G	-	5.5	.31	.31	14
3 x 1 1/2	50F-03015-G	-	6	.38	.30	15
3 x 2	50F-0302-G	51F-0302-G	6	.38	.31	16
3 x 2 1/2	50F-03025-G	51F-03025-G	6	.38	.31	20
4 x 2	50F-0402-G	51F-0402-G	7	.50	.31	25
4 x 2 1/2	50F-04025-G	51F-04025-G	7	.50	.31	28
4 x 3	50F-0403-G	51F-0403-G	7	.50	.38	30
5 x 2 1/2	50F-05025-G	51F-05025-G	8	.50	.31	31
5 x 3	50F-0503-G	51F-0503-G	8	.50	.38	32
5 x 4	50F-0504-G	51F-0504-G	8	.50	.50	39
6 x 2 1/2	50F-06025-G	51F-06025-G	9	.56	.31	38
6 x 3	50F-0603-G	51F-0603-G	9	.56	.38	40
6 x 4	50F-0604-G	51F-0604-G	9	.56	.50	45
6 x 5	50F-0605-G	51F-0605-G	9	.56	.50	50
8 x 4	50F-0804-G	51F-0804-G	11	.62	.50	65
8 x 5	50F-0805-G	51F-0805-G	11	.62	.50	70
8 x 6	50F-0806-G	51F-0806-G	11	.62	.56	75
10 x 4	50F-1004-G	51F-1004-G	12	.75	.50	85
10 x 5	50F-1005-F	51F-1005-G	12	.75	.50	88
10 x 6	50F-1006-G	51F-1006-G	12	.75	.56	90
10 x 8	50F-1008-G	51F-1008-G	12	.75	.62	110
12 x 4	50F-1204-G	51F-1204-G	14	.81	.50	120
12 x 6	50F-1206-G	51F-1206-G	14	.81	.56	130
12 x 8	50F-1208-G	51F-1208-G	14	.81	.62	145
12 x 10	50F-1210-G	51F-1210-G	14	.81	.75	170
14 x 6*	50F-1406-D	51F-1406-D	16	.66	.55	155
14 x 8*	50F-1408-D	51F-1408-D	16	.66	.60	175
14 x 10*	50F-1410-D	51F-1410-D	16	.66	.68	190
14 x 12*	50F-1412-D	51F-1412-D	16	.66	.75	220
16 x 6*	50F-1606-D	51F-1606-D	18	.70	.55	190
16 x 8*	50F-1608-D	51F-1608-D	18	.70	.60	210
16 x 10*	50F-1610-D	51F-1610-D	18	.70	.68	235
16 x 12*	50F-1612-D	51F-1612-D	18	.70	.75	265
16 x 14*	50F-1614-D	51F-1614-D	18	.70	.66	280
18 x 8*	50F-1808-D	51F-1808-D	19	.75	.60	240
18 x 10*	50F-1810-D	51F-1810-D	19	.75	.68	265
18 x 12*	50F-1812-D	51F-1812-D	19	.75	.75	295
18 x 14*	50F-1814-D	51F-1814-D	19	.75	.66	310
18 x 16*	50F-1816-D	51F-1816-D	19	.75	.70	340
20 x 10*	50F-2010-D	51F-2010-D	20	.80	.68	310
20 x 12*	50F-2012-D	51F-2012-D	20	.80	.75	345
20 x 14*	50F-2014-D	51F-2014-D	20	.80	.66	355
20 x 16*	50F-2016-D	51F-2016-D	20	.80	.70	390
20 x 18*	50F-2018-D	51F-2018-D	20	.80	.75	410
24 x 12*	50F-2412-D	51F-2412-D	24	.89	.75	480
24 x 14*	50F-2414-D	51F-2414-D	24	.89	.66	490
24 x 16*	50F-2416-D	51F-2416-D	24	.89	.70	525
24 x 18*	50F-2418-D	51F-2418-D	24	.89	.75	550
24 x 20*	50F-2420-D	51F-2420-D	24	.89	.80	590

14"~24" are made from high strength ductile iron to ANSI A21.10, AWWA C110, WWP 250.

STANDARD COMPANION FLANGE (Cast Iron)



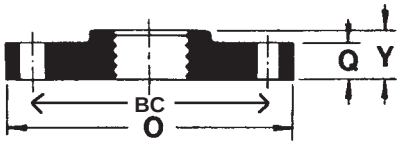
SERIES 306

Larger sizes thru 24" available upon request.

ANSI B16.1 Class 125

Nominal Size	Product No.	BC	O	Q	Y	Bolt Holes		Wgt.
						No.	Size	
1	306-100-0425	3.12	4 1/4	7/16	11/16	4	0.62	1.75
1 1/4	306-125-0463	3.50	4 5/8	1/2	13/16	4	0.62	2.00
1 1/2	306-150-0500	3.88	5	9/16	7/8	4	0.62	2.25
2	306-200-0600	4.75	6	5/8	1	4	0.75	4.00
2 1/2	306-250-0700	5.50	7	11/16	1 1/8	4	0.75	6.00
3	306-300-0750	6.00	7 1/2	3/4	1 3/16	4	0.75	7.63
3 1/2	306-350-0850	7.00	8 1/2	13/16	1 1/4	8	0.75	9.50
4	306-400-0900	7.50	9	15/16	1 5/16	8	0.75	11.75
5	306-500-1000	8.50	10	15/16	1 7/16	8	0.88	14.00
6	306-600-1100	9.50	11	1	1 9/16	8	0.88	16.50
8	306-800-1350	11.75	13 1/2	1 1/8	1 3/4	8	0.88	26.00
10	306-1000-1600	14.25	16	1 3/16	1 15//16	12	1.00	38.00
12	306-1200-1900	17.00	19	1 1/4	2 3/16	12	1.00	51.00

REDUCING COMPANION FLANGE (Cast Iron)



SERIES 316

ANSI B16.1 Class 125

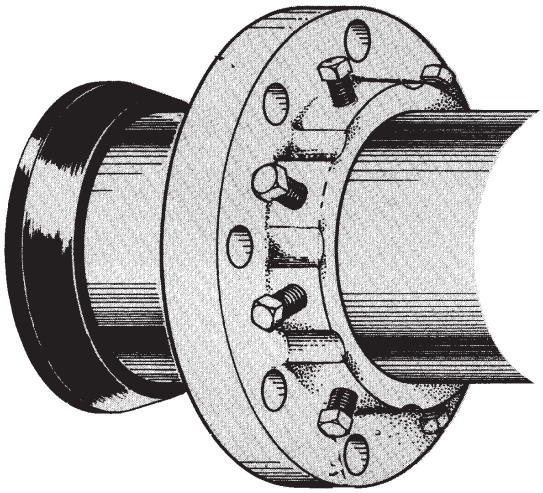
Nominal Size		Product No.	Thread Size	BC	O	Q	Y	Bolt Holes		Weight
Pipe x O.D.	Flg. x Pipe							No.	Size	
1 x 5	1 1/2 x 1	316-100-0500	1	3.88	5	9/16	11/16	4	0.62	2.75
1 1/4 x 5	1 1/2 x 1 1/4	316-125-0500	1 1/4				13/16			2.50
1 x 6	2 x 1	316-100-0600	1	4.75	6	5/8	11/16	4	0.75	5.00
1 1/4 x 6	2 x 1 1/4	316-125-0600	1 1/4				13/16			4.75
1 1/2 x 6	2 x 1 1/2	316-150-0600	1 1/2				7/8			4.50
1 1/2 x 7	2 1/2 x 1 1/2	316-150-0700	1 1/2	5.50	7	11/16	7/8	4	0.75	7.00
2 x 7	2 1/2 x 2	316-200-0700	2				1			6.75
1 x 7 1/2	3 x 1	316-100-0750	1	6.00	7 1/2	3/4	13/16	4	0.75	9.00
1 1/2 x 7 1/2	3 x 1 1/2	316-150-0750	1 1/2				7/8			8.75
2 x 7 1/2	3 x 2	316-200-0750	2				1			8.50
2 1/2 x 7 1/2	3 x 2 1/2	316-250-0750	2 1/2				1 1/8			8.00
1 1/2 x 9	4 x 1 1/2	316-150-0900	1 1/2	7.50	9	15/16	1	8	0.75	14.75
2 x 9	4 x 2	316-200-0900	2				1			14.00
2 1/2 x 9	4 x 2 1/2	316-250-0900	2 1/2				1 1/8			13.50
3 x 9	4 x 3	316-300-0900	3				1 3/16			12.75
2 x 10	5 x 3	316-300-1000	3	8.50	10	15/16	1 3/16	8	0.88	17.00
4 x 10	5 x 4	316-400-1000	4				1 5/16			16.00
1 1/2 x 11	6 x 1 1/2	316-150-1100	1 1/2	9.50	11	1	1 1/16	8	0.88	27.00
2 x 11	6 x 2	316-200-1100	2				1 1/16			26.00
2 1/2 x 11	6 x 2 1/2	316-250-1100	2 1/2				1 1/8			25.00
3 x 11	6 x 3	316-300-1100	3				1 3/16			23.00
4 x 11	6 x 4	316-400-1100	4				1 5/16			21.00
5 x 11	6 x 5	316-500-1100	5				1 7/16			19.00
2 x 13 1/2	8 x 2	316-200-1350	2	11.75	13 1/2	1 1/8	1 3/16	8	0.88	44.00
3 x 13 1/2	8 x 3	316-300-1350	3				1 3/16			40.00
4 x 13 1/2	8 x 4	316-400-1350	4				1 5/16			37.00
5 x 13 1/2	8 x 5	316-500-1350	5				1 7/16			34.00
6 x 13 1/2	8 x 6	316-600-1350	6				1 9/16			31.00
2 x 16	10 x 2	316-200-1600	2	14.25	16	1 3/16	1 15/16	12	1.00	61.00
6 x 16	10 x 6	316-600-1600	6				1 15/16			53.00
8 x 16	10 x 8	316-800-1600	8				1 15/16			50.00
2 x 19	12 x 2	316-200-1900	2	17.00	19	1 1/4	2 3/16	12	1.00	84.00
8 x 19	12 x 8	316-800-1900	8				2 3/16			81.00
10 x 19	12 x 10	316-1000-1900	10				2 3/16			72.00

Larger sizes thru 24" available upon request.

REDI-FLANGE™

ANSI B16.1 Class 125
ANSI B16.5 Class 150

No Welding!
No Threading!



STANDARDS:
Ductile Iron - ASTM A536 Grade 65-45-12. Drilling to ANSI B16.1 - 125 lb.
ANSI B16.5 - 150 lb.

SET SCREW: AISI steel. Tensile 160,000 psi minimum.

GASKET: SBR (BUNA-N).

HYDROSTATIC TEST PRESSURE:
MODEL - RFC-2 - 125 lb./150 lb.
2 in. - 8 in. 600 psi
10 in. - 12 in. 525 psi

MODEL - RFC-4 - 125 lb./150 lb.
3 in. - 12 in. 750 psi
14 in. - 24 in. 300 psi

The *Redi-Flange*™ joins valves, fittings and equipment with integral flanged ends to plain end pipe, without the need of pipe end preparation. Absolutely no threading, welding, or grooving is necessary. The working principle of the *Redi-Flange*™ is relatively simple. Slide the flange over plain end pipe and follow it with a standard mechanical joint gasket. When the *Redi-Flange*™ is brought to mate against an existing flange, and the flange bolts are tightened, a compression type seal is created against the mating flange and pipe surface. End restraint is provided when the set screws are tightened.

Nom. Pipe Size	Part No.	D.I. Pipe O.D. RFC-2-D	Steel Pipe O.D. RFC-2-S	Flange O.D.	Bolt Circle	Bolt Hole Dia.	Set Screws		Wgt. Approx.
							No.	Size	
2	RFC-201	2.38	2.50	6	4 3/4	3/4	2	1/2 x 1	3.5
2 1/2	RFC-202	-	2.88	7	5 1/2	3/4	4	1/2 x 1	4
3	RFC-203	3.96	3.50	7 1/2	6	3/4	4	1/2 x 1	5
4	RFC-204	4.80	4.50	9	7 1/2	3/4	4	1/2 x 1	8
5	RFC-205	-	5.56	10	8 1/2	7/8	8	1/2 x 1	9
6	RFC-206	6.90	6.625	11	9 1/2	7/8	8	1/2 x 1	10
8	RFC-208	9.05	8.625	13 1/2	11 3/4	7/8	8	5/8 x 1 1/4	17
10	RFC-210	11.10	10.75	16	14 1/4	1	12	5/8 x 1 1/4	22
12	RFC-212	13.20	12.75	19	17	1	12	5/8 x 1 1/4	31

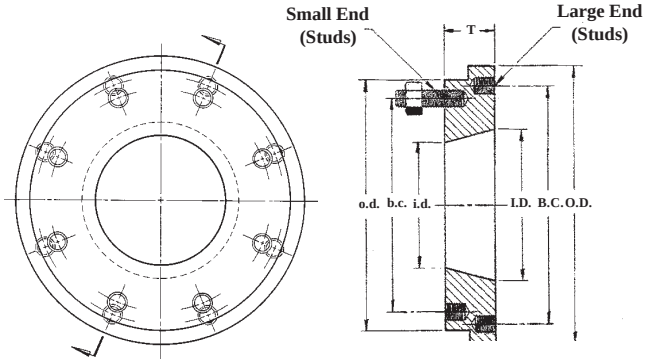
Nom. Pipe Size	Part No.	D.I. Pipe O.D. RFC-4-D	Steel Pipe O.D. RFC-4-S	Flange O.D.	Bolt Circle	Boly Hole Dia.	Set Screws		Wgt. Approx.
							No.	Size	
3	RFC-403	3.96	3.50	7 1/2	6	3/4	4	1/2 x 1	8
4	RFC-404	4.80	4.50	9	7 1/2	3/4	4	1/2 x 1	11
6	RFC-406	6.90	6.625	11	9 1/2	7/8	8	5/8 x 1 1/4	14
8	RFC-408	9.05	8.625	13 1/2	11 3/4	7/8	8	5/8 x 1 1/4	21
10	RFC-410	11.10	10.75	16	14 1/4	1	12	5/8 x 1 1/4	38
12	RFC-412	13.20	12.75	19	17	1	12	5/8 x 1 1/4	56
14	RFC-414	15.30	NA	21	18 3/4	1 1/8	12	5/8 x 1 1/4	70
16	RFC-416	17.40	NA	23 1/2	21 1/4	1 1/8	16	5/8 x 1 1/4	79
18	RFC-418	19.50	NA	25	22 3/4	1 1/4	16	3/4 x 2	90
20	RFC-420	21.60	NA	27 1/2	25	1 1/4	20	3/4 x 2	145
24	RFC-424	25.80	NA	32	29 1/2	1 3/8	20	3/4 x 2	175

COMPACT FLANGE REDUCER
Class 125/150 Flanges

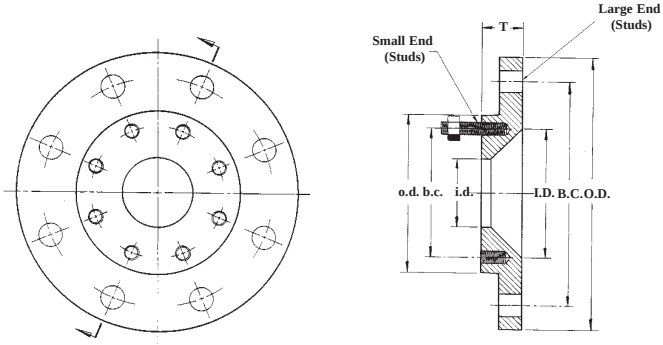
Mates with ANSI Class 125/150 flange drillings

Material: Ductile Iron
ASTM A536 or ASTM A36
Steel

TYPE A



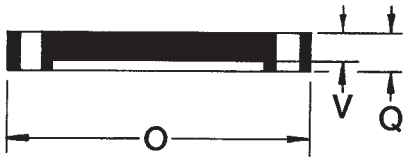
TYPE B



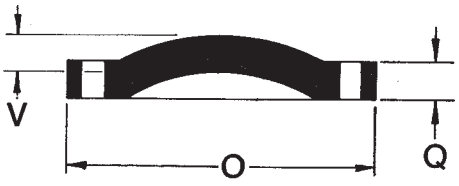
Flange Sizes	Part No.	Large End			Small End			T	Type	Large End Studs		Small End Studs	
		I.D.	O.D.	B.C.	i.d.	o.d.	b.c.			Qty.	Size	Qty.	Size
2 x 1 1/2	740-110-100	2.00	6.00	4.75	1.50	6.00	3.88	1.50	A	4	5/8 x 2 1/2	4	1/2 x 2 1/2
2 1/2 x 1 1/2	740-120-100	2.50	7.00	5.50	1.50	6.00	3.88	1.50	A	4	5/8 x 2 1/2	4	1/2 x 2 1/2
2 1/2 x 2	740-120-110	2.50	7.00	5.50	2.00	6.00	4.75	1.50	A	4	5/8 x 2 1/2	4	5/8 x 2 1/2
3 x 1 1/2	740-130-100	3.00	7.50	6.00	1.50	6.00	3.88	1.50	A	4	5/8 x 2 1/2	4	1/2 x 2 1/2
3 x 2	740-130-110	3.00	7.50	6.00	2.00	6.00	4.75	1.50	A	4	5/8 x 3	4	5/8 x 3
3 x 2 1/2	740-130-120	3.00	7.50	6.00	2.50	7.00	5.50	1.50	A	4	5/8 x 2 1/2	4	5/8 x 2 1/2
4 x 2	740-140-110	4.00	9.00	7.50	2.00	6.00	4.75	1.50	A	8	5/8 x 2 1/2	4	5/8 x 2 1/2
4 x 2 1/2	740-140-120	4.00	9.00	7.50	2.50	7.00	5.50	1.50	A	8	5/8 x 2 1/2	4	5/8 x 2 1/2
4 x 3	740-140-130	4.00	9.00	7.50	3.00	7.50	6.00	1.50	A	8	5/8 x 2 1/2	4	5/8 x 2 1/2
6 x 2 1/2	790-160-120	6.00	11.00	9.50	2.50	7.00	5.50	1.50	B	-	-	8	3/4 X 3 1/2
6 x 3	790-160-130	6.00	11.00	9.50	3.00	7.50	6.00	1.50	B	-	-	8	3/4 X 3 1/2
6 x 4	740-160-140	6.00	11.00	9.50	4.00	9.00	7.50	2.00	A	8	3/4 x 3	8	5/8 x 2 1/2
6 x 5	740-160-150	6.00	11.00	9.50	5.00	10.00	8.50	2.00	A	8	3/4 x 3	8	3/4 x 3
8 x 4	790-180-140	8.00	13.50	11.75	4.00	9.00	7.50	2.00	B	-	-	8	3/4 x 3 1/2
8 x 5	740-180-150	8.00	13.50	11.75	5.00	10.00	8.50	2.00	A	8	3/4 x 3 1/2	8	3/4 x 3
8 x 6	740-180-160	8.00	13.50	11.75	6.00	11.00	9.50	2.00	A	8	3/4 x 3 1/2	8	3/4 x 3
10 x 2	790-200-110	10.00	16.00	14.25	2.00	6.00	4.75	1.50	B	-	-	4	5/8 x 2 1/2
10 x 4	790-200-140	10.00	16.00	14.25	4.00	9.00	7.50	2.00	B	-	-	12	7/8 x 4
10 x 5	790-200-150	10.00	16.00	14.25	5.00	10.00	8.50	2.00	B	-	-	12	7/8 x 4
10 x 6	740-200-160	10.00	16.00	14.25	6.00	11.00	9.50	2.00	A	12	7/8 x 3 3/4	8	3/4 x 3
10 x 8	740-200-180	10.00	16.00	14.25	8.00	13.50	11.75	2.00	A	12	7/8 x 3 3/4	8	3/4 x 3 1/2
12 x 4	790-220-140	12.00	19.00	17.00	4.00	9.00	7.50	2.00	B	-	-	12	7/8 x 4
12 x 6	790-220-160	12.00	19.00	17.00	6.00	11.00	9.50	2.00	B	-	-	12	7/8 x 4
12 x 8	740-220-180	12.00	19.00	17.00	8.00	13.50	11.75	2.00	A	12	7/8 x 3 3/4	8	3/4 x 3 1/2
12 x 10	740-220-200	12.00	19.00	17.00	10.00	16.00	14.25	2.00	A	12	7/8 x 3 3/4	12	7/8 x 3 3/4
14 x 6	790-240-160	14.00	21.00	18.75	6.00	11.00	9.50	2.50	B	-	-	12	1 x 4 1/2
14 x 8	790-240-180	14.00	21.00	18.75	8.00	13.50	11.75	2.50	B	-	-	12	1 x 4 1/2
14 x 10	740-240-200	14.00	21.00	18.75	10.00	16.00	14.25	2.50	A	12	1 x 4	12	7/8 x 3 1/2
14 x 12	740-240-220	14.00	21.00	18.75	12.00	19.00	17.00	2.50	A	12	1 x 4	12	7/8 x 3 1/2
16 x 6	790-260-160	16.00	23.50	21.25	3.00	11.00	9.50	2.50	B	-	-	16	1 x 4 1/2
16 x 8	790-260-180	16.00	23.50	21.25	8.00	13.50	11.75	2.50	B	-	-	16	1 x 4 1/2
16 x 10	790-260-200	16.00	23.50	21.25	10.00	16.00	14.25	2.50	B	-	-	16	1 x 4
16 x 12	740-260-220	16.00	23.50	21.25	12.00	19.00	17.00	2.50	A	16	1 x 4	12	7/8 x 3 1/2
16 x 14	740-260-240	16.00	23.50	21.25	14.00	21.00	18.75	2.50	A	16	1 x 4	12	1 x 4

BLIND FLANGES

ANSI B16.1 Class 125



SERIES 60 (1”-10”)



SERIES 60 (12”)

Size	Part No.	O	Q	V	Weight
1	60F-0100-G	4.25	.44	.38	2
1 1/4	60F-0125-G	4.62	.50	.44	2.25
1 1/2	60F-0150-G	5.00	.56	.50	3.75
2	60F-0200-G	6.00	.62	.62	5
2 1/2	60F-0250-G	7.00	.68	.62	7
3	60F-0300-G	7.50	.75	.69	9
3 1/2	60F-0350-G	8.50	.81	.75	14
4	60F-0400-G	9.00	.94	.88	16
5	60F-0500-G	10.00	.94	.88	18
6	60F-0600-G	11.00	1.00	.94	25
8	60F-0800-G	13.50	1.12	1.06	42
10	60F-1000-G	16.00	1.19	1.12	62
12	60F-1200-G	19.00	1.25	.81	85
14*	60F-1400-D	21.00	1.38	.88	120
16*	60F-1600-D	23.50	1.44	1.00	145
18*	60F-1800-D	25.00	1.56	1.06	185
20*	60F-2000-D	27.50	1.69	1.12	245
24*	60F-2400-D	32.00	1.88	1.25	370

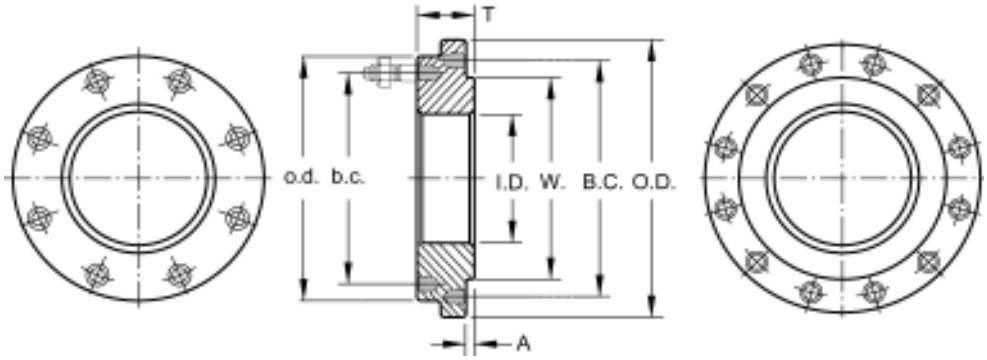
**14”~24” are made from high strength ductile iron to ANSI A21.10, AWWA C110, WWP 250.*

FLANGE CONVERTERS

ANSI B16.1 Class 125

Class 125/150

Class 250/300



Part No.	CLASS 125/150					CLASS 250/300							Weight
	Flange Size/I.D.	o.d.	b.c.	No. of Bolt Holes	Stud Bolt Size	W	B.C.	O.D.	A	T	No. of Bolt Holes	Stud Bolt Size	
840-140	4	9	7.5	8	5/8 x 2 1/2	6.94	7.88	10	0.06	2	8	3/4 x 3 1/2	28
840-150	5	10	8.5	8	3/4 x 3	8.31	9.25	11	0.06	2	8	3/4 x 3 1/2	32
840-160	6	11	9.5	8	3/4 x 3	9.69	10.62	12.5	0.06	2	12	3/4 x 3 1/2	42
840-180	8	13.5	11.75	8	3/4 x 3 1/2	11.94	13	15	0.06	2 1/4	12	7/8 x 4	66
840-200	10	16	14.25	12	7/8 x 3 1/2	14.06	15.25	17.5	0.06	2 3/4	16	1 x 4 1/2	100
840-220	12	19	17	12	7/8 x 3 1/2	16.44	17.75	20.5	0.06	2 3/4	16	1 1/8 x 5	160

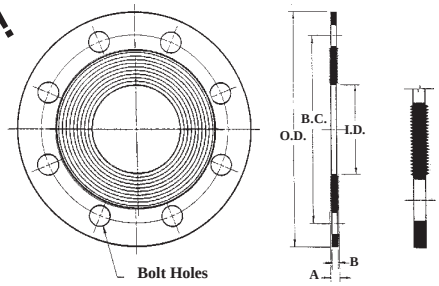
SEAL-TITE FLANGE GASKET

ANSI B16.1 Class 125

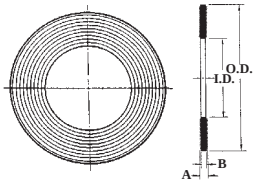
Low Torque!

Serrated Face!

Full Face Flange Gasket



Ring Type Flange Gasket

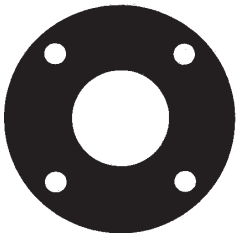


Material: Buna-N

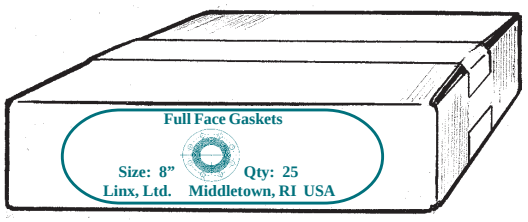
Nominal Size	Part No. (Full Face)	Part No. (Ring)	ID	OD (Full Face)	OD (Ring)	A	B	BC (Full Face)	Box Quantity (Full Face)	Box Quantity (Ring)
2	FFG-050-150	RG-050-100	2.15	6.00	3.90	5/32	1/8	4.75	25	25
2 1/2	FFG-065-175	RG-065-120	2.73	7.00	4.70	5/32	1/8	5.50	25	25
3	FFG-080-188	RG-080-132	3.20	7.50	5.15	5/32	1/8	6.00	25	25
4	FFG-100-210	RG-100-162	3.98	9.00	6.30	5/32	1/8	7.50	25	25
5	FFG-125-250	RG-125-194	5.07	10.00	7.60	5/32	1/8	8.50	25	25
6	FFG-150-275	RG-150-218	6.01	11.00	8.50	5/32	1/8	9.50	25	25
8	FFG-200-340	RG-200-272	8.11	13.50	10.60	5/32	1/8	11.75	25	25
10	FFG-250-400	RG-250-328	10.06	16.00	12.80	5/32	1/8	14.25	25	25
12	FFG-300-475	RG-300-378	12.09	19.00	14.75	5/32	1/8	17.00	25	25
14	FFG-350-525	RG-350-445	14.12	21.00	17.15	5/32	1/8	18.75	20	25
16	FFG-400-588	RG-400-510	16.19	23.50	19.90	5/32	1/8	21.25	20	25
18	FFG-450-625	RG-450-542	18.25	25.00	21.15	5/32	1/8	22.75	20	20
20	FFG-500-688	RG-500-606	20.28	27.50	23.60	5/32	1/8	25.00	20	20
24	FFG-600-800	RG-600-717	24.34	32.00	27.95	5/32	1/8	29.50	20	20

FLAT FLANGE GASKET

Full Face



Ring Type



Material: Red Rubber Non-Asbestos

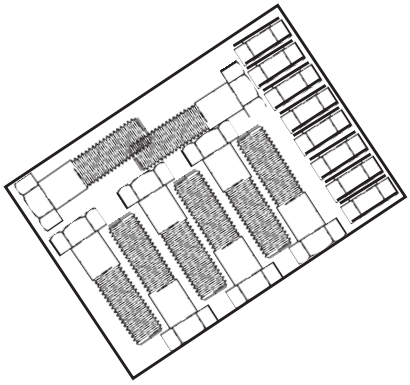
Nominal Size	Part No. (Full Face)	Part No. (Ring)	OD (Full Face)	OD (Ring)	Thickness	Bolt Circle (Full Face)	Box Quantity (Full Face)	Box Quantity (Ring)
2	FFF-050-150	FRG-050-100	6.00	3.90	1/8	4.75	25	25
2 1/2	FFF-065-175	FRG-065-120	7.00	4.70	1/8	5.50	25	25
3	FFF-080-188	FRG-080-132	7.50	5.15	1/8	6.00	25	25
4	FFF-100-210	FRG-100-162	9.00	6.30	1/8	7.50	25	25
5	FFF-125-250	FRG-125-194	10.00	7.60	1/8	8.50	25	25
6	FFF-150-275	FRG-150-218	11.00	8.50	1/8	9.50	25	25
8	FFF-200-340	FRG-200-272	13.50	10.60	1/8	11.75	25	25
10	FFF-250-400	FRG-250-328	16.00	12.80	1/8	14.25	25	25
12	FFF-300-475	FRG-300-378	19.00	14.75	1/8	17.00	25	25
14	FFF-350-525	FRG-350-445	21.00	17.15	1/8	18.75	20	25
16	FFF-400-588	FRG-400-510	23.50	19.90	1/8	21.25	20	25
18	FFF-450-625	FRG-450-542	25.00	21.15	1/8	22.75	20	20
20	FFF-500-688	FRG-500-606	27.50	23.60	1/8	25.00	20	20
24	FFF-600-800	FRG-600-717	32.00	27.95	1/8	29.50	20	20

Bolt and Nut Packs for Class 125/150 Flanges

ANSI B16.1 Class 125
ANSI B16.5 Class 250

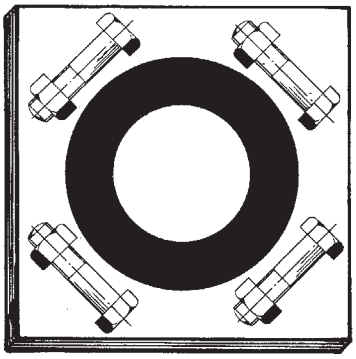
Heavy Hex Head Bolts (ANSI B18.2.1/ASTM-A307 Grade B)
Heavy Hex Nuts (ANSI B18.2.2/ASTM-A563 Grade A)

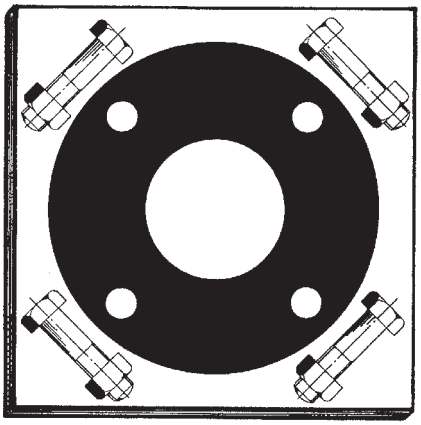
Part No.	Class 125/150 Flange Size	Bolt Diameter and Length	No. of Bolts per Poly Bag	Master Box (Qty. of Sets)	Master Box Weight (Lbs.)
FBZ03	2 2 1/2 3	5/8 x 2 1/2	4	32	50
FBZ04	4	5/8 x 3	8	16	55
FBZ08	5 6 8	3/4 x 3 1/2	8	8	50
FBZ12	10 12	7/8 x 4	12	4	55
FBZ14	14	1 x 4 1/2	12	2	40
FBZ16	16	1 x 4 1/2	16	2	52
FBZ18	18	1 1/8 x 5	16	1	37
FBZ20	20	1 1/8 x 5	20	1	44
FBZ24	24	1 1/4 x 5 1/2	20	1	70



Available-plain, zinc plated, hot dipped galvanized, and type 304 stainless steel.

FLANGE ACCESSORY PACKS



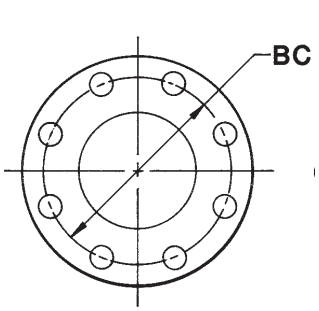


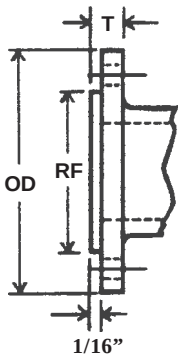
Class 125/150 Flange Size	1/8" Full Face Seal-Tite (Serrated)	1/8" Ring Type Seal-Tite (Serrated)	1/8" Full Face Red Rubber	1/8" Ring Type Red Rubber	1/8" Full Face Non-Asbestos	1/8" Ring Type Non-Asbestos
2	FBR-020-*	RBP-020-*	FRP-020-*	RRP-020-*	FNP-020-*	RNP-020-*
2 1/2	FBR-020-025-	RBP-020-025-	FRP-020-025-	RRP-020-025-	FNP-020-025-	RNP-020-025-
3	FBR-030-	RBP-030-	FRP-030-	RRP-030-	FNP-030-	RNP-030-
4	FBR-040-	RBP-040-	FRP-040-	RRP-040-	FNP-040-	RNP-040-
5	FBR-050-	RBP-050-	FRP-050-	RRP-050-	FNP-050-	RNP-050-
6	FBR-060-	RBP-060-	FRP-060-	RRP-060-	FNP-060-	RNP-060-
8	FBR-080-	RBP-080-	FRP-080-	RRP-080-	FNP-080-	RNP-080-
10	FBR-100-	RBP-100-	FRP-100-	RRP-100-	FNP-100-	RNP-100-
12	FBR-120-	RBP-120-	FRP-120-	RRP-120-	FNP-120-	RNP-120-
14	FBR-140-	RBP-140-	FRP-140-	RRP-140-	FNP-140-	RNP-140-
16	FBR-160-	RBP-160-	FRP-160-	RRP-160-	FNP-160-	RNP-160-
18	FBR-180-	RBP-180-	FRP-180-	RRP-180-	FNP-180-	RNP-180-
20	FBR-200-	RBP-200-	FRP-200-	RRP-200-	FNP-200-	RNP-200-
24	FBR-240-	RBP-240-	FRP-240-	RRP-240-	FNP-240-	RNP-240-

Zinc plated bolts and nuts.

FLANGE DETAILS - Class 250

ANSI B16.1 Class 250



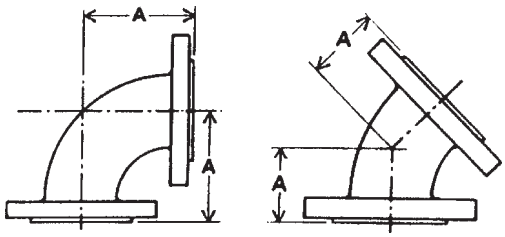


Size	OD	T	RF	BC	Bolt Hole Dia.	Bolt Dia. & Length	No. of Bolts
3	8 1/4	1 3/16	5 11/16	6 5/8	7/8	3/4 x 3 1/2	8
4	10	1 3/4	6 15/16	7 7/8	7/8	3/4 x 3 3/4	8
5	11	1 7/8	8 5/16	9 1/4	7/8	3/4 x 4	8
6	12 1/2	1 15/16	9 11/16	10 5/8	7/8	3/4 x 4	12
8	15	2 3/16	11 15/16	13	1	7/8 x 4 1/4	12
10	17 1/2	2 3/8	14 1/16	15 1/4	1 1/8	1 x 5 1/4	16
12	20 1/2	2 9/16	16 7/16	17 3/4	1 1/4	1 1/8 x 5 1/2	16

All dimensional data in inches and lbs.

ELBOWS

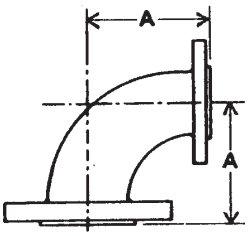
ANSI B16.1 Class 250



Size	90° Elbow			45° Elbow		
	Part No.	A	Wgt.	Part No.	A	Wgt.
3	100F-0303-G	6	40	110F-0303-G	3 1/2	35
4	100F-0404-G	7	66	110F-0404-G	4 1/2	60
6	100F-0606-G	8 1/2	124	110F-0606-G	5 1/2	103
8	100F-0808-G	10	192	110F-0808-G	6	158
10	100F-1010-G	11 1/2	311	110F-1010-G	7	247
12	100F-1212-G	13	430	110F-1212-G	8	355

90° REDUCING ELBOW

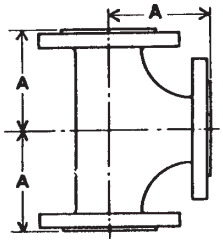
ANSI B16.1 Class 250



Size	Part No.	A	Weight
6 x 4	100F-0604-G	8 1/2	95
8 x 6	100F-0806-G	10	161
10 x 8	100F-1008	11 1/2	240

TEES

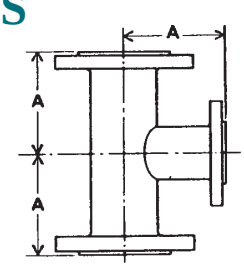
ANSI B16.1 Class 250



Size	Part No.	A	Weight
4	200F-0404-G	7	98
6	200F-0606-G	8 1/2	184
8	200F-0808-G	10	280
10	200F-1010-G	11 1/2	435
12	200F-1212-G	13	599

REDUCING TEES

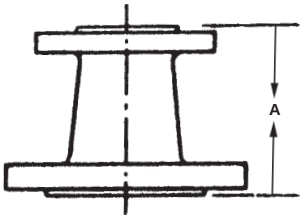
ANSI B16.1 Class 250



Size	Part No.	A	Weight
6 x 6 x 4	260F-060604-G	8 1/2	150
8 x 8 x 6	260F-080806-G	10	246

REDUCERS

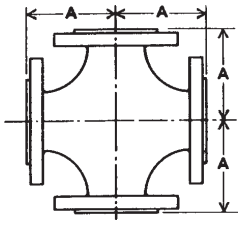
ANSI B16.1 Class 250



Size	Part No.	A	Weight
4 x 3	500F-0403-G	7	40
6 x 4	500F-0604-G	9	77
6 x 5	500F-0605-G	9	85
8 x 6	500F-0806-G	11	142
10 x 8	500F-1008-G	12	196

CROSSES

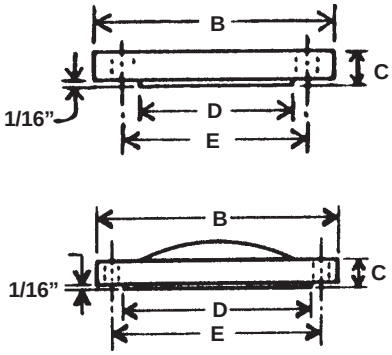
ANSI B16.1 Class 250



Size	Part No.	A	Weight
4	350F-0404-G	7	139
6	350F-0606-G	8 1/2	228
8	350F-0808-G	10	370

BLIND FLANGES

ANSI B16.1 Class 250

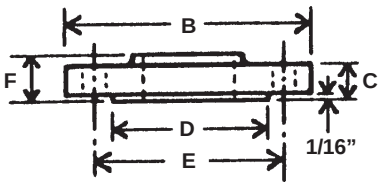


Dished faces for use with 10” and 12” extra heavy Blind Flanges.

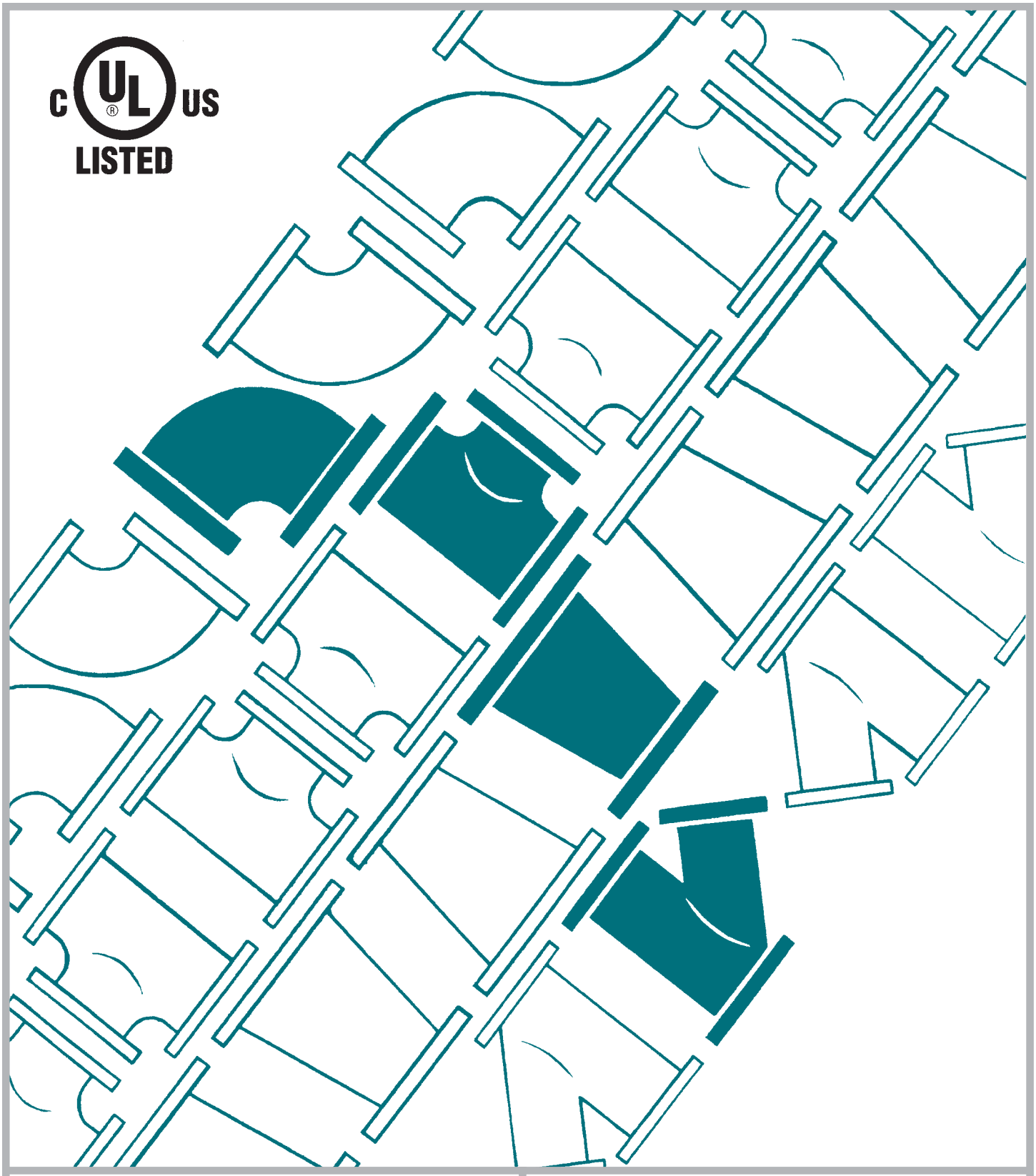
Nominal Pipe Size	Flange Size	Part No.	C	B	D	E	Weight
3	3 x 8 1/4	600F-0303-G	1 3/16	8 1/4	5 11/16	6 5/8	14
4	4 x 10	600F-0404-G	1 1/4	10	6 15/16	7 7/8	25
6	6 x 12 1/2	600F-0606-G	1 7/16	12 1/2	9 11/16	10 5/8	43
8	8 x 15	600F-0808-G	1 5/8	15	11 15/16	13	69
10	10 x 17 1/2	600F-1010-G	1 7/8	17 1/2	14 1/16	15 1/4	100
12	12 x 20 1/2	600F-1212-G	2	20 1/2	16 7/16	17 3/4	148

THREADED FLANGES

ANSI B16.1 Class 250



Nominal Pipe Size	Flange Size	Part No.	C	B	D	E	F	Weight
3	3 x 8 1/4	760F-0303-G	1 1/8	8 1/4	5 11/16	6 5/8	1 11/16	12
4	4 x 10	760F-0404-G	1 1/4	10	6 15/16	7 7/8	1 3/4	21
6	6 x 12 1/2	760F-0606-G	1 7/16	12 1/2	9 11/16	10 5/8	1 15/16	33
8	8 x 15	760F-0808-G	1 5/8	15	11 15/16	13	2 3/16	51
10	10 x 17 1/2	760F-1010-G	1 7/8	17 1/2	14 1/16	15 1/4	2 3/8	77
12	12 x 20 1/2	760F-1212-G	2	20 1/2	16 7/16	17 3/4	2 9/16	103



Napac, Inc.
229 Southbridge Street
Worcester, Massachusetts 01608 USA
Tel.: 800-807-2215
Fax: 800-807-2214

Weld-Miser™ Tee-Let®

Welding Outlet Fittings

UL FM ULC
APPROVED
For listing/approval details contact your AnvilStar Representative.

For Fire Protection & Other Low Pressure Piping Systems

Merit Weld-Miser™ Tee-Let® Welding Branch Outlet Fittings offer the user a high strength, low cost forged threaded and grooved line of fittings specifically designed and manufactured to be installed on Schedules 5 thru 10, proprietary thin wall flow pipe and standard wall pipe.

Merit Tee-Lets are forged steel welding outlet fittings. The material used in manufacture meets the chemical and physical requirements of ASTM A 53, Grades A or B, Type E, Tee-Lets employ a low weld volume design to provide for either a partial or full penetration weld employing a single pass with minimum burn-through and pipe distortion. Weld Miser Tee-Lets are recommended for use on proprietary thin wall, Schedules 5, 10 and 40 pipe. Threads comply with ANSI B1.20.1 or ISO7/1. They are UL Listed and FM Approved for use conforming to the requirements of Bulletin 13 1999 of the National Fire Protection Association. When used in fire sprinkler systems, Tee-Lets are rated for 300 psi. When used in mechanical systems, maximum pressures are calculated using criteria developed for ASME B31 piping code.

Tee-Let Welded Outlet Fitting (UL VIZU — EX6032, FM Approval Guide Chapter 1 – Pipe Fittings)

Outlet Model	Outlet Pipe Size (Inch)	Header Pipe Size (Inch)	Rated Pressure (psig)
Tee-Let Type A (F-Threaded End)	½, ¾, 1	½ - 8 (Sch.10, 40)	300
	1¼, 1½, 2, 2½, 3, 4	½ - 4 (Sch. 5, DynaFlow)	
	2	4 (EZ-Flow)	
	2, 4	6 (EZ-Flow)	
Tee-Let Type C (Grooved End)	1¼ - 8	1¼ - 8 (Sch.10, 40)	300
	2½ - 8	½ - 4 (Sch. 5, DynaFlow)	
Tee-Let Type C/R (Roll Grooved End)	1¼ - 6	1¼ - 8 (All Schedules)	300

1) Size on size (ie 2 x 2) Tee-Lets are not FM Approved

2) FM rated working pressure when welded on Sch. 5 or nonthreadable lightwell pipe is 175 psi.

Project Information:		Approval Stamp:
Project:		
Date:	**Phone:**	
Architect / Engineer:		
Contractor:		
Address:		
Notes 1:		
Notes 2:		

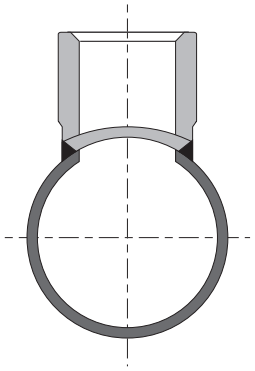
Weld-Miser™ Tee-Let®

Welding Outlet Fittings

Unified Design™ Series

Merit's Unified Design Series carries all important design considerations into its entire line of welding branch outlet fittings.

Merit® Weld-Miser™ Tee-Lets® are designed and Manufactured to reduce the amount of weld required to install the Tee-Lets on thin wall or proprietary flow pipe. Typically only one weld-pass completes the installation. Merit Tee-Lets install with less weld volume than any other brand of welding outlet fittings for fire sprinkler applications. To accomplish this:



- The contoured end of the fittings employs a reduced outside diameter. Two major advantages are immediately apparent:
- The thinner wall on the contoured end permits welding temperatures to be matched to the thickness of the branch line or main thereby insuring complete penetration without cold welds, weld roll-off, burn-through or excessive distortion.
- On smaller sizes a heavier section is maintained on the threaded end of the fitting. This protects the threads from damage during shipping and handling prior to installation as well as from weld distortion.
- Each outlet size 1½" and larger, whether male or female threaded, cut grooved or beveled requires the same hole size in the header pipe. This simplifies the installation process.

General Specifications

- Tee-Let welding outlet fittings are manufactured from highly weldable steel which conforms to the chemical and physical requirements of ASTM A-53, Grades A or B, Type E. Ease of installation is assured when automatic welding equipment is used to install Merit Tee-Lets.
- Threads are cut in accordance with the requirements of ANSI B1.20.1, national standard for tapered pipe threads, or ISO-7-1 threads are available.
- Tee-Let threaded and grooved welding outlet fittings are UL/ULC Listed and FM approved for use in the fire sprinkler systems installed in accordance with the requirements of NFPA Bulletin 13. They are rated for 300 PSI operation in fire sprinkler systems, and higher pressures in other non-critical piping systems.
- Tee-Lets are offered in a wide variety of header sizes. The consolidated header sizes shown in the following charts allow the fittings to be installed on more than one header size, permitting the first size listed to fit the header perfectly, while a small gap along the longitudinal center line of the header will appear for the second size listed.
- Merit® Weld-Miser™ Tee-Lets® are identified by a lot number that provides full traceability per ISO-9000 specifications.

For Your Piping Systems Specify Weld-Miser™ Tee-Let®

Branch Outlet Fittings shall be Merit Weld-Miser Tee-Let, Lightweight forged steel, employing low weld volume profile to provide for full penetration welds with minimum burn through and pipe distortion on Schedule 5 thru 10, proprietary thin wall, and standard wall pipe. Threads are to be ANSI B1.20.1, or ISO-7-1, and the bore of the fittings calculated to improve flow. Welding outlets to be UL Listed, FM Approved for use conforming to NFPA, Bulletin 13 and pressure rated for 300 PSI maximum.

How to Order - Use either of the following methods for ordering Merit® Weld-Miser™ Tee-Let®.

Method No. 1

Specify quantity desired followed by the part number shown in the "dimensions" chart for the type and size of outlet desired.

Quantity	Part Number

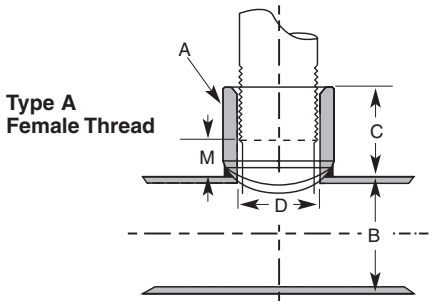
Method No. 2

Use the following system

Quantity	–	Outlet Size	x	Header Size	Weight	Type End	Merit Tee-Let	Steel Material
Always order a few more than actually required for the job.		Column "A" of Chart		Insert size consolidation from Column "B" of chart	Sch. 10 Standard	A - Female Thread B - Male Thread C - Cut Groove C/R - Roll Groove		

Weld-Miser™ Tee-Let®

Welding Outlet Fittings



Weld-Miser™ Tee-Let® Dimensions & Part Numbers

Part Number	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter D	Make Up M	Weight Each
NPT (BSPT)	*In (mm)*	*In (mm)*	*In (mm)*	*In (mm)*	*In (mm)*	*Lb. (kg)*
1002002 –	¼ x 6 x	1¼ - 8 6 - 200				0.080 0.04
1005012 –	½ x 13 x	1¼ - 1½ 32 - 40	1.063 27.0	0.700 17.8	0.500 12.7	0.171 0.08
1005015 –		1½ - 2 40 - 50	1.063 27.0	0.700 17.8	0.500 12.7	0.171 0.08
1005020 –		2 - 2½ 50 - 65	1.063 27.0	0.700 17.8	0.500 12.7	0.171 0.08
1005025 –		2½ - 8 65 - 200	1.063 27.0	0.700 17.8	0.500 12.7	0.169 0.08
1007012 –	¾ x 19 x	1¼ - 1½ 32 - 40	1.125 28.6	0.900 22.9	0.500 12.7	0.260 0.12
1007015 –		1½ - 2 40 - 50	1.125 28.6	0.900 22.9	0.500 12.7	0.260 0.12
1007020 –		2 - 2½ 50 - 65	1.125 28.6	0.900 22.9	0.500 12.7	0.260 0.12
1007025 –		2½ - 8 65 - 200	1.125 28.6	0.900 22.9	0.500 12.7	0.256 0.12
1010012 1110012	1 x 25 x	1¼ - 1½ 32 - 40	1.250 31.8	1.145 29.1	0.500 12.7	0.331 0.15
1010015 1110015		1½ - 2 40 - 50	1.250 31.8	1.145 29.1	0.500 12.7	0.331 0.15
1010020 1110020		2 - 2½ 50 - 65	1.250 31.8	1.145 29.1	0.500 12.7	0.320 0.15
1010025 1110025		2½ - 3 65 - 80	1.250 31.8	1.145 29.1	0.500 12.7	0.314 0.14
1010030 1110030		3 - 4 80 - 100	1.250 31.8	1.145 29.1	0.500 12.7	0.309 0.14
1010050 1110050		5 - 8 125 - 200	1.250 31.8	1.145 29.1	0.500 12.7	0.291 0.13
1012012 1112012	1¼ x 32 x	1¼ - 1½ 32 - 40	1.375 34.9	1.490 37.8	0.500 12.7	0.432 .019
1012015 1112015		1½ - 2 40 - 50	1.375 34.9	1.490 37.8	0.500 12.7	0.421 .019
1012020 1112020		2 - 2½ 50 - 65	1.375 34.9	1.490 37.8	0.500 12.7	0.421 .019
1012025 1112025		2½ - 3 65 - 80	1.375 34.9	1.490 37.8	0.500 12.7	0.411 .019
1012030 1112030		3 - 4 80 - 100	1.375 34.9	1.490 37.8	0.500 12.7	0.389 .018
1012050 1112050		5 - 8 125 - 200	1.375 34.9	1.490 37.8	0.500 12.7	0.389 .018
1015015 1115015	1½ x 40 x	1½ 40	1.625 41.3	1.610 40.9	0.875 22.2	0.477 .022
1015020 1115020		2 50	1.625 41.3	1.610 40.9	0.875 22.2	0.477 .022
1015025 1115025		2½ 65	1.625 41.3	1.610 40.9	0.875 22.2	0.477 .022
1015030 1115030		3 - 4 80 - 100	1.625 41.3	1.610 40.9	0.875 22.2	0.477 .022
1015040 1115040		4 100	1.625 41.3	1.610 40.9	0.875 22.2	0.477 .022
1015050 1115050		5 - 8 125 - 200	1.625 41.3	1.610 40.9	0.875 22.2	0.477 .022

Weld-Miser™ Tee-Let® Dimensions & Part Numbers

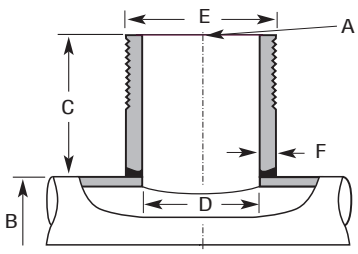
Part Number	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter D	Make Up M	Weight Each
NPT (BSPT)	*In (mm)*	*In (mm)*	*In (mm)*	*In (mm)*	*In (mm)*	*Lb. (kg)*
1020020 1120020	2 x 50 x	2 50	1.750 44.5	2.067 52.5	0.875 22.2	0.857 0.38
1020025 1120025		2½ 65	1.750 44.5	2.067 52.5	0.875 22.2	0.829 0.38
1020030 1120030		3 80	1.750 44.5	2.067 52.5	0.875 22.2	0.829 0.39
1020040 1120040		4 100	1.750 44.5	2.067 52.5	0.875 22.2	0.800 0.36
1020050 1120050		5 125	1.750 44.5	2.067 52.5	0.875 22.2	0.743 0.34
1020060 1120060		6 150	1.750 44.5	2.067 52.5	0.875 22.2	0.743 0.34
1020080 1120080		8 200	1.750 44.5	2.067 52.5	0.875 22.2	0.743 0.34
1025025 1125025	2½ x 65 x	2½ 65	2.215 54.0	2.469 62.7	1.125 28.6	1.250 0.55
1025030 1125030		3 80	2.215 54.0	2.469 62.7	1.125 28.6	1.200 0.55
1025040 1125040		4 100	2.215 54.0	2.469 62.7	1.125 28.6	1.150 0.52
1025050 1125050		5 125	2.215 54.0	2.469 62.7	1.125 28.6	1.150 0.52
1025060 1125060		6 150	2.215 54.0	2.469 62.7	1.125 28.6	1.150 0.52
1025080 1125080		8 200	2.215 54.0	2.469 62.7	1.125 28.6	1.150 0.52
1030030 –	3 x 80 x	3 80	2.500 63.5	3.068 77.9	1.500 38.1	3.100 1.41
1030040 –		4 100	2.500 63.5	3.068 77.9	1.500 38.1	3.100 1.41
1030050 –		5 125	2.500 63.5	3.068 77.9	1.500 38.1	3.100 1.412
1030060 –		6 150	2.500 63.5	3.068 77.9	1.500 38.1	3.100 1.412
1030080 –		8 200	2.500 63.5	3.068 77.9	1.500 38.1	3.100 1.41
1040040 –	4 x 100 x	4 100	3.000 76.2	4.026 102.3	2.000 50.8	5.000 2.27
1040050 –		5 125	3.000 76.2	4.026 102.3	2.000 50.8	5.000 2.27
1040060 –		6 150	3.000 76.2	4.026 102.3	2.000 50.8	5.000 2.27
1040080 –		8 200	3.000 76.2	4.026 102.3	2.000 50.8	5.000 2.27

Note:
Part #1002002 is not UL Listed or FM Approved
All size on size (ie 2 x 2) Tee-Lets are not FM Approved

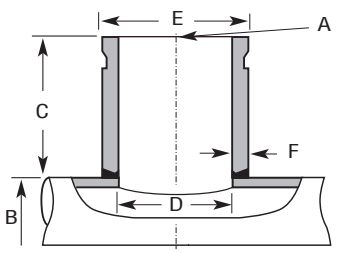
Weld-Miser™ Tee-Let®

Welding Outlet Fittings

Type B
Male Thread
Standard Weight



Type C
Cut Groove
Standard Weight



Weld-Miser™ Tee-Let® - Dimensions (Nominal sizes 1" thru 2")

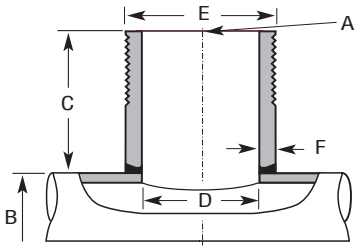
Male Thread Std. Wt.	Cut Groove Std. Wt.	Roll Groove Sch. 10	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter D	Outside Diameter E	Wall Thickness F	Weight Each
NPT (BSPT)	*NPT (BSPT)*	*NPT (BSPT)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*Lb. (kg)*
1310012	2010012	2210012		1¼ - 1½ *32 - 40*	3 *80*	1.049 *26.6*	1.315 *33.4*	0.133 *3.4*	1.500 *30*
1310015	2010015	2210015		1½ - 2 *40 - 50*	3 *80*	1.049 *26.6*	1.315 *33.4*	0.133 *3.4*	1.500 *30*
1310020	2010020	2210020	1 x *25 x*	2 - 2½ *50 - 65*	3 *80*	1.049 *26.6*	1.315 *33.4*	0.133 *3.4*	1.500 *30*
1310025	2010025	2210025		2½ - 4 *65 - 100*	3 *80*	1.049 *26.6*	1.315 *33.4*	0.133 *3.4*	1.500 *30*
1310050	2010050	2210050		5 - 8 *125 - 200*	3 *80*	1.049 *26.6*	1.315 *33.4*	0.133 *3.4*	1.500 *30*
1312012	2012012	2212012		1¼ *32*	3 *80*	1.368 *34.7*	1.660 *42.2*	0.140 *3.6*	1.500 *30*
1312015	2012015	2212015		1½ *40*	3 *80*	1.368 *34.7*	1.660 *42.2*	0.140 *3.6*	1.500 *30*
1312020	2012020	2212020	1¼ x *32 x*	2 - 2½ *50 - 65*	3 *80*	1.368 *34.7*	1.660 *42.2*	0.140 *3.6*	1.500 *30*
1312025	2012025	2212025		3 - 4 *80 - 100*	3 *80*	1.368 *34.7*	1.660 *42.2*	0.140 *3.6*	1.500 *30*
1312050	2012050	2212050		5 - 8 *125 - 200*	3 *80*	1.368 *34.7*	1.660 *42.2*	0.140 *3.6*	1.500 *30*
1315015	2015015	2215015		1½ *40*	3 *80*	1.610 *40.9*	1.900 *48.3*	0.145 *3.7*	1.500 *30*
1315020	2015020	2215020		2 *50*	3 *80*	1.610 *40.9*	1.900 *48.3*	0.145 *3.7*	1.500 *30*
1315025	2015025	2215025	1½ x *40 x*	2½ *65*	3 *80*	1.610 *40.9*	1.900 *48.3*	0.145 *3.7*	1.500 *30*
1315030	2015030	2215030		3 - 4 *80 - 100*	3 *80*	1.610 *40.9*	1.900 *48.3*	0.145 *3.7*	1.500 *30*
1315050	2015050	2215050		5 - 8 *125 - 200*	3 *80*	1.610 *40.9*	1.900 *48.3*	0.145 *3.7*	1.500 *30*
1320020	2020020	–		2 *50*	3 *80*	2.067 *52.5*	2.375 *60.3*	0.154 *3.9*	1.500 *30*
1320025	2020025	–		2½ *65*	3 *80*	2.067 *52.5*	2.375 *60.3*	0.154 *3.9*	1.500 *30*
1320030	2020030	–		3 *80*	3 *80*	2.067 *52.5*	2.375 *60.3*	0.154 *3.9*	1.500 *30*
1320035	2020040	–	2 x *50 x*	4 *100*	3 *80*	2.067 *52.5*	2.375 *60.3*	0.154 *3.9*	1.500 *30*
1320050	2020050	–		5 *125*	3 *80*	2.067 *52.5*	2.375 *60.3*	0.154 *3.9*	1.500 *30*
1320060	2020060	–		6 *150*	3 *80*	2.067 *52.5*	2.375 *60.3*	0.154 *3.9*	1.500 *30*
1320080	2020080	–		8 *200*	3 *80*	2.067 *52.5*	2.375 *60.3*	0.154 *3.9*	1.500 *30*

Note: Tee-Lets are manufactured to fit size-on-size, that is the contoured shape on a given Tee-Let is made to fit perfectly on the first listed header size. If installed on the second header size marked on the fitting, a slight gap of approximately 1/32" will appear along the longitudinal centerline of the header. For example, a 1" x 2 - 2½" Tee-Let, is a 1" outlet fitting manufactured to fit perfectly on the 2" header size listed, while leaving a 1/32" gap along the longitudinal centerline of the 2½" size. If a perfect fit is required for a 2½" header pipe, then a 1" x 2½ - 3" Tee-Let would be ordered. Size consolidations are employed to reduce inventory and provide for greater flexibility.

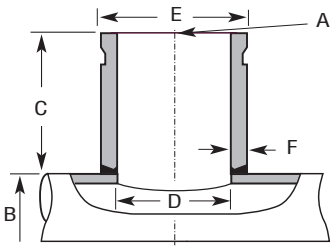
Weld-Miser™ Tee-Let®

Welding Outlet Fittings

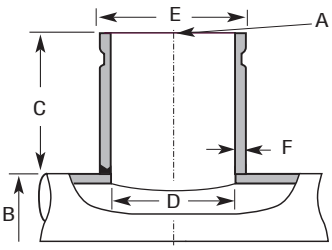
Type B
Male Thread
Standard Weight



Type C
Cut Groove
Standard Weight



Type C/R
Roll Groove
Schedule 10



Weld-Miser™ Tee-Let® - Dimensions (Nominal sizes 2½" thru 8")

Male Thread Std. Wt.	Cut Groove Std. Wt.	Roll Groove Sch. 10	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter - D		Outside Diameter E	Wall Thickness - F		Weight Each
						Standard Weight	Schedule 10		Standard Weight	Schedule 10	
NPT (BSPT)	*NPT (BSPT)*	*NPT (BSPT)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*In.(mm)*	*Lb. (kg)*
1325025	2025025 *2125025*	2225025	2½ x *65 x*	2½ *65*	3 *80*	2.469 *62.7*	2.635 *67.0*	2.875 *76.2*	0.203 *5.0*	0.120 *3.0*	1.500 *30*
1325030	2025030 *2125030*	2225030		3 *80*	3 *80*	2.469 *62.7*	2.635 *67.0*	2.875 *76.2*	0.203 *5.0*	0.120 *3.0*	1.500 *30*
1325035	2025040 *2125040*	2225035		4 *100*	3 *80*	2.469 *62.7*	2.635 *67.0*	2.875 *76.2*	0.203 *5.0*	0.120 *3.0*	1.500 *30*
1325050	2025050 *2125050*	2225050		5 *125*	3 *80*	2.469 *62.7*	2.635 *67.0*	2.875 *76.2*	0.203 *5.0*	0.120 *3.0*	1.500 *30*
1325060	2025060 *2125060*	2225060		6 *175*	3 *80*	2.469 *62.7*	2.635 *67.0*	2.875 *76.2*	0.203 *5.0*	0.120 *3.0*	1.500 *30*
1325080	2025080 *2125080*	2225080		8 *200*	3 *80*	2.469 *62.7*	2.635 *67.0*	2.875 *76.2*	0.203 *5.0*	0.120 *3.0*	1.500 *30*
1330030	2030030	2230030	3 x *80 x*	3 *80*	3 *80*	3.068 *78.0*	3.260 *83.0*	3.500 *88.0*	0.216 *5.0*	0.120 *3.0*	1.500 *30*
1330035	2030035	2230035		3½ *85*	3 *80*	3.068 *78.0*	3.260 *83.0*	3.500 *88.0*	0.216 *5.0*	0.120 *3.0*	1.500 *30*
1330040	2030040	2230040		4 *100*	3 *80*	3.068 *78.0*	3.260 *83.0*	3.500 *88.0*	0.216 *5.0*	0.120 *3.0*	1.500 *30*
1330050	2030050	2230050		5 *125*	3 *80*	3.068 *78.0*	3.260 *83.0*	3.500 *88.0*	0.216 *5.0*	0.120 *3.0*	1.500 *30*
1330060	2030060	2230060		6 *150*	3 *80*	3.068 *78.0*	3.260 *83.0*	3.500 *88.0*	0.216 *5.0*	0.120 *3.0*	1.500 *30*
1330080	2030080	2230080		8 *200*	3 *80*	3.068 *78.0*	3.260 *83.0*	3.500 *88.0*	0.216 *5.0*	0.120 *3.0*	1.500 *30*
1340040	2040040	2240040	4 x *100 x*	4 *100*	4 *100*	4.026 *102.0*	4.260 *108.0*	4.500 *114.0*	0.237 *6.0*	0.120 *3.0*	1.500 *30*
1340050	2040050	2240050		5 *125*	4 *100*	4.026 *102.0*	4.260 *108.0*	4.500 *114.0*	0.237 *6.0*	0.120 *3.0*	1.500 *30*
1340060	2040060	2240060		6 *150*	4 *100*	4.026 *102.0*	4.260 *108.0*	4.500 *114.0*	0.237 *6.0*	0.120 *3.0*	1.500 *30*
1340080	2040080	2240080		8 *200*	4 *100*	4.026 *102.0*	4.260 *108.0*	4.500 *114.0*	0.237 *6.0*	0.120 *3.0*	1.50 *30*
–	2060060	2260060	6 x *150 x*	6 *150*	4 *100*	6.065 *155.0*	6.357 *161.5*	6.625 *168.3*	0.280 *7.1*	0.134 *3.0*	1.500 *30*
–	2060080	2260080		8 *200*	4 *100*	6.065 *155.0*	6.357 *161.5*	6.625 *168.3*	0.280 *7.1*	0.134 *3.0*	1.50 *30*
–	2080080	–	8 x *200 x*	8 *200*	4 *100*	7.981 *203.0*	8.329 *212.0*	8.625 *213.0*	0.322 *8.0*	0.148 *3.0*	1.50 *30*

Note: Tee-Lets are manufactured to fit size-on-size, that is the contoured shape on a given Tee-Let is made to fit perfectly on the first listed header size. If installed on the second header size marked on the fitting, a slight gap of approximately 1⁄32" will appear along the longitudinal centerline of the header. For example, a 1" x 2 - 2½" Tee-Let, is a 1" outlet fitting manufactured to fit perfectly on the 2" header size listed, while leaving a 1⁄32" gap along the longitudinal centerline of the 2½" size. If a perfect fit is required for a 2½" header pipe, then a 1" x 2½ - 3" Tee-Let would be ordered. Size consolidations are employed to reduce inventory and provide for greater flexibility.

"Innovators of Pipe Fabrication Equipment"

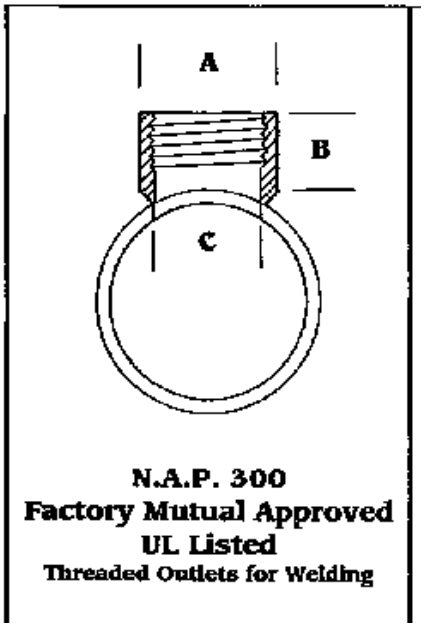
NAP 300 Weld Outlets

NAP Weld Outlets

NAP 300 Weld Outlets are hot forged from domestic steel, with a thick wall to absorb heat without distortion. The fittings are polished to bare metal and are oil-free. This makes for a better weld with no smoke. The NAP 300 weld outlets are easy to level, have accurate facing and a narrow vee for more professional looking weld with just one pass.

Key Benefits

- Our Fitting is designed with a narrow vee for fast one-pass welding and a thick wall to absorb heat with out distortion
- The part is polished and treated with a dry rust inhibitor for better welding and less smoke



Size Info

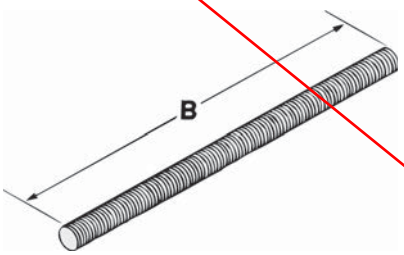
Outletsize	1/2	1/2	3/4	3/4	1	1	1	1	11/4	11/4	11/4	11/4	11/2	11/2	11/2	11/2	2	2	2	2
Runsize	11/4-21/2	3-8	11/4-2	21/2-8	11/4	1/2-2	21/2-4	5-8	11/2	2-21/2	3-4	5-8	2	21/2-3	4-5	6-8	21/2	3	4-5	6-8
A	1.165	1.165	1.418	1.418	1.621	1.621	1.621	1.621	1.975	1.975	1.975	1.975	2.229	2.229	2.229	2.229	2.836	2.836	2.836	2.8
B	1.160	1.160	1.170	1.170	1.380	1.380	1.380	1.380	1.410	1.410	1.410	1.410	1.420	1.420	1.420	1.420	1.550	1.550	1.550	1.5
C	.686	.686	.880	.880	1.130	1.130	1.130	1.130	1.455	1.455	1.455	1.455	1.732	1.732	1.732	1.732	2.208	2.208	2.208	2.2

Shipping Info

Size	Carton Quantity	Carton Weight
1/2"	200	35#
3/4"	150	39#
1"	100	35#
1 1/4"	75	35#
1 1/2"	50	30#
2"	35	30#
2 1/2"	15	19#

BACK

Fig. 10 THREADED STUDS



FUNCTION: Designed for use in pipe hanger assembly.

MATERIAL: Low carbon steel

FINISH: Plain

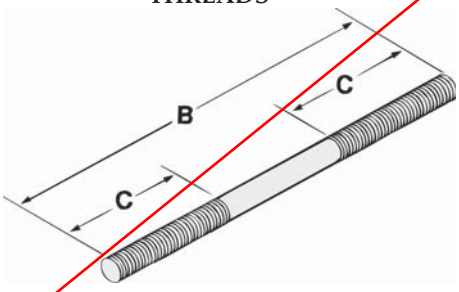
ORDERING: Specify rod size, length (B) and figure number.

Rod Size	Max. Rec. Load/lbs.		Wt. Per Inch/lbs.
	650°F	750°F	
3/8 x B	610	540	.02
1/2 x B	1130	1010	.04
5/8 x B	1810	1610	.07
3/4 x B	2710	2420	.11
7/8 x B	3770	3360	.14

Available in stainless steel. To order, specify 304 or 316 and add suffix SS to figure number.
Price on request.

Fig. 15 & 15L MACHINE THREAD HANGER ROD

Fig. 15 RIGHT-HAND THREADS
Fig. 15L RIGHT- AND LEFT-HAND THREADS



FUNCTION: Designed for use in pipe hanger assembly.

MATERIAL: Low carbon steel

FINISH: Plain

ORDERING: Specify rod size, length (B) and figure number.

Rod Size	Thread Length C	Max. Rec. Load/lbs.		Wt. Per Inch/lbs.
		650°F	750°F	
3/8 x B	2 1/2	610	540	.03
1/2 x B	2 1/2	1130	1010	.06
5/8 x B	2 1/2	1810	1610	.09
3/4 x B	3	2710	2420	.13
7/8 x B	3 1/2	3770	3360	.17
1 x B	4	4960	4420	.22

Available in stainless steel. To order, specify 304 or 316 and add suffix SS to figure number.
Price on request.

Fig. 20 & 21 CONTINUOUS THREADED ROD

Fig. 20* PLAIN
Fig. 21 ELECTRO-GALVANIZED

*Available in stainless steel. To order, specify 304 or 316 and add suffix SS to figure number.
Price on request.

FUNCTION: Useful in applications where stud lengths cannot be predetermined.

MATERIAL: Low carbon steel

ORDERING: Specify rod size, length and figure number.

Rod Size	Packaging Feet Per Bundle			Max. Rec. Load/lbs.		Wt. Per Foot/lbs.
	6 ft.	10 ft.	12 ft.	650°F	750°F	
1/4-20	300	500	600	240	210	.12
3/8-16	150	200	240	610	540	.29
1/2-13	72	120	144	1130	1010	.54
5/8-11	48	80	96	1810	1610	.83
3/4-10	30	50	60	2710	2420	1.25
7/8-9	24	40	48	3770	3360	1.65
1-8	12	20	24	4960	4420	2.25

Adjustable Swivel Ring Hangers

Fig. 141 & 141F NFPA SWIVEL RING HANGER

FUNCTION: Designed for the suspension of non-insulated stationary pipe lines. The knurled insert nut that allows a vertical adjustment after installation, is tapped to NFPA reduced rod size standards. Fig. 141F has a layer of felt which separates the pipe from the hanger to reduce vibration and sound.

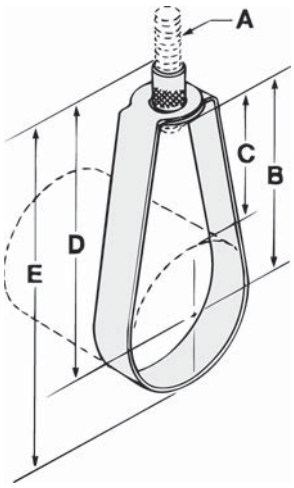
APPROVALS: Underwriters' Laboratories listed and Factory Mutual approved Fig. 141 3/4" to 8" sizes only. Complies with Federal Specification A-A-1192A (Type 10), Manufacturers' Standardization Society SP-69 (Type 10) and NFPA standards for reduced rod sizes.

ORDERING: Specify pipe size and figure number.

Fig. 141 PRE-GALVANIZED

Fig. 141F PRE-GALVANIZED WITH FELT LINING

Pipe Size	Rod Size A	B	Adj. C	D	E	Max. Rec. Load/lbs.	Wt. Each (in lbs.)
1/2	3/8	1 7/8	1 7/16	2 3/4	3 1/16	300	.09
3/4	3/8	1 11/16	1 1/8	2 1/2	3 1/16	300	.10
1	3/8	1 5/8	1	2 1/2	3 3/16	300	.10
1 1/4	3/8	1 15/16	1 1/16	2 13/16	3 9/16	300	.10
1 1/2	3/8	2 1/8	1 1/16	3 1/8	3 7/8	300	.11
2	3/8	2 7/16	1 1/8	3 5/16	4 3/8	300	.12
2 1/2	3/8	2 3/4	1 1/4	3 11/16	5	525	.25
3	3/8	2 7/8	1 1/8	3 3/4	5 9/16	525	.30
3 1/2	3/8	3 3/8	1 3/8	4 5/16	6 5/16	525	.33
4	3/8	3 7/8	1 1/2	4 1/2	7	650	.41
5	1/2	4 5/8	1 5/8	5 5/8	8 3/8	1000	.58
6	1/2	5 5/8	2 1/4	6 1/2	9 13/16	1000	.92
8	1/2	6 13/16	2 7/16	7 15/16	12 1/4	1000	1.16



Note: *If ordering Fig. 141F felt lined hangers for pipe sizes of 3 1/2" or under, order the next largest size to allow for the thickness of the felt lining.*

MATERIAL: Low carbon steel

Fig. 151 & 151F SWIVEL RING HANGER

FUNCTION: Designed for the suspension of non-insulated stationary pipe lines. The knurled insert nut, allows for vertical adjustment after installation. Fig. 151F has a layer of felt which separates the pipe from the hanger to reduce vibration and sound.

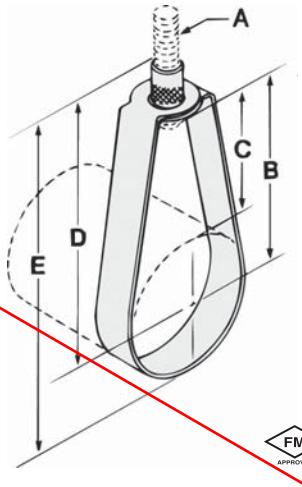
APPROVALS: Underwriters' Laboratories listed and Factory Mutual approved Fig. 151 2 1/2" to 8" sizes only. Complies with Federal Specification A-A-1192A (Type 10), and Manufacturers' Standardization Society SP-69 (Type 10).

ORDERING: Specify pipe size and figure number.

Fig. 151 PRE-GALVANIZED

Fig. 151F PRE-GALVANIZED WITH FELT LINING

Pipe Size	Rod Size A	B	Adj. C	D	E	Max. Rec. Load/lbs.	Wt. Each (in lbs.)
2 1/2	1/2	2 3/4	1 1/4	3 11/16	5 1/8	600	.32
3	1/2	3 1/8	1 1/8	4	5 7/8	600	.35
3 1/2	1/2	3 5/8	1 1/2	4 5/16	6 5/8	600	.39
4	5/8	3 7/8	1 1/4	4 15/16	7 1/8	1000	.43
5	5/8	4 3/8	1 3/8	5 5/8	8 1/2	1000	.65
6	3/4	5 5/16	2	6 11/16	10 1/8	1250	1.06
8	3/4	6 15/16	2 5/8	8 5/16	12 7/8	1250	1.24



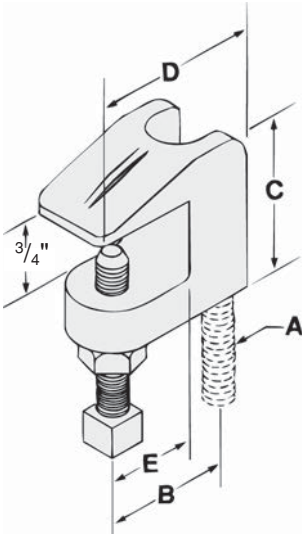
Note: *If ordering Fig. 151F felt lined hangers for pipe sizes of 3 1/2" or under, order the next largest size to allow for the thickness of the felt lining.*

MATERIAL: Low carbon steel

Beam Clamps

Fig. 350 & 350-1 MALLEABLE IRON BEAM CLAMP

Fig. 350 WITH LOCKNUT
Fig. 350-1 WITHOUT LOCKNUT



FUNCTION: Designed for attaching hanger rod to the top flange of a beam or bar joist, where the flange thickness does not exceed 3/4 inch. The open U design permits rod adjustment. The universal design of the 3/8 Fig. 350 allows it to be used in an inverted position on the bottom flange of a beam as well.

APPROVALS: Underwriters' Laboratories listed. Factory Mutual approved 3/8" and 1/2" sizes only. Complies with Federal Specification A-A-1192A (Type 19) and Manufacturers' Standardization Society SP-69 (Type 19). When used in an inverted position on the bottom of a beam flange the 3/8 Fig. 350 also complies with Federal Specification A-A-1192A (Type 23) and Manufacturers' Standardization Society SP-69 (Type 23) (Only for Fig. 350 with locknut).

MATERIAL: Malleable iron with hardened steel cup point set screw

FINISH: Plain or electro-galvanized

ORDERING: Specify rod size, finish and figure number.

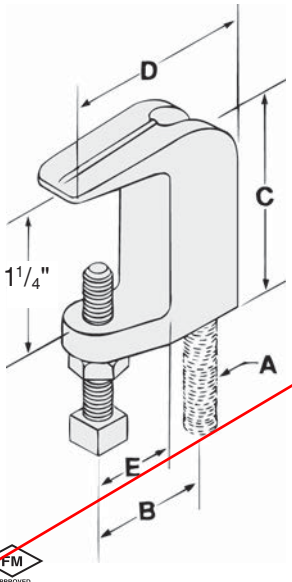
Rod Size A	B	C	D	E	Max. Pipe Size	Max. Rec. Load/lbs.	Wt. Each (in lbs.) w/o nut	Wt. Each (in lbs.) with nut
Δ3/8	1	1 1/2	1 5/8	1/2	4	400	.32	.33
1/2	1	1 1/2	1 11/16	1/2	8	500	.33	.34
5/8	1 1/16	1 1/2	1 7/8	5/8	8	600	.38	.39
3/4	1 5/16	1 3/4	2 3/8	5/8	8	800	.59	.63
7/8	1 5/16	1 3/4	2 3/8	5/8	8	1200	.56	.60

Note: *See MSS SP-69 specs for proper set screw torque values.*

Δ Reversible design approved for bottom beam use.

Fig. 360 & 360-1 MALLEABLE IRON WIDE MOUTH BEAM CLAMP

Fig. 360 WITH LOCKNUT
Fig. 360-1 WITHOUT LOCKNUT



FUNCTION: Designed for attaching hanger rod to the top flange of a beam or bar joist, where the flange thickness does not exceed 1 1/4 inches. The open U design permits rod adjustment.

APPROVALS: Underwriters' Laboratories listed and Factory Mutual approved (3/8 & 1/2 sizes only). Complies with Federal Specification A-A-1192A (Type 19) and Manufacturers' Standardization Society SP-69 (Type 19) (Only for Fig. 360 with locknut).

MATERIAL: Malleable iron with hardened steel cup point set screw

FINISH: Plain or electro-galvanized

ORDERING: Specify rod size, finish and figure number.

Rod Size A	B	C	D	E	Max. Pipe Size	Max. Rec. Load/lbs.	Wt. Each (in lbs.) w/o nut	Wt. Each (in lbs.) with nut
3/8	1 1/16	1 7/8	1 5/8	1/2	4	400	.36	.37
1/2	1 1/16	1 7/8	1 5/8	1/2	8	500	.34	.35
5/8	1 3/8	2 5/16	2 1/4	3/4	5	850	.74	.74
3/4	1 3/8	2 3/8	2 3/8	3/4	6	900	.85	.87

Note: *See MSS SP-69 specs for proper set screw torque values.*

Beam Clamps

Fig. 259
RETAINING STRAP
For Fig. 250 & 270

FUNCTION: Designed for use with Fig. 250, 250-1, 270 and 270-1 to eliminate possible movement of the beam clamp due to vibration.

MATERIAL: Low carbon steel

FINISH: Plain or electro-galvanized

ORDERING: Specify type number, length, finish and figure number.

Type No.	Wt. Each (in lbs.) Length C (inches) 4 1/2	6	8	10	12	14
1	.15	.22	.33	.36	.43	.50
2	.21	.28	.36	.45	.52	.59

Note: 1 inch should be added to beam flange width to determine length.

Type No. Selection Chart		
	Model No.	
Size	250	270
3/8	1	2
1/2	1	2
5/8	1	2
3/4	1	2

Available in stainless steel. To order, specify 304 or 316 and add suffix SS to figure number. Price on request.

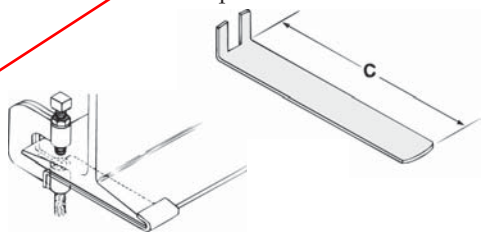


Fig. 290
PURLIN CLAMP

FUNCTION: Designed for use with large-lip rolled steel purlins to eliminate the need to modify steel purlin for standard C-clamp.

APPROVALS: Underwriters' Laboratories listed and Factory Mutual approved.

MATERIAL: Malleable iron with hardened steel cup point set screw.

FINISH: Plain

ORDERING: Specify figure number.

Rod Size	Max. Pipe Size	Max. Rec. Load/lbs.	Wt. Each (in lbs.)
3/8	4	400	.82

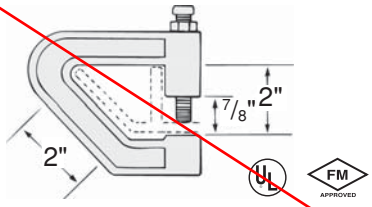


Fig. 358
RETRO-FIT
RETAINING STRAP

Fig. 359
RETAINING STRAP
For Fig. 350 & 360

FUNCTION: Designed for use with Fig. 350, 350-1, 360 and 360-1 to eliminate possible movement of the beam clamp due to vibration.

MATERIAL: Low carbon steel

FINISH: #358 Pre-galvanized; #359 Plain or electro-galvanized

ORDERING: Specify rod size, length, finish and figure number.

Fig. 358 Rod Size	Wt. Each (in lbs.) Length C (inches) 4 1/2	6	8	10	12	14
3/8	.06	.092	.124	.16	.19	.22

Fig. 359 Rod Size	Wt. Each (in lbs.) Length C (inches) 4 1/2	6	8	10	12	14
3/8	.15	.21	.28	.35	.42	.49
1/2	.15	.21	.28	.35	.42	.49
5/8	.20	.26	.35	.44	.53	.62
3/4	.20	.26	.35	.44	.53	.62
7/8	.31	.42	.56	.70	.84	.98

Available in stainless steel. To order, specify 304 or 316 and add suffix SS to figure number. Price on request.

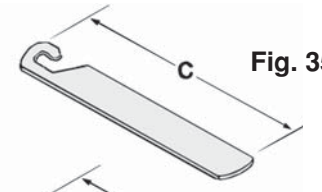


Fig. 358

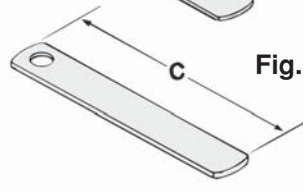
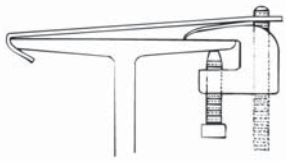


Fig. 359



Riser Clamps

FUNCTION: Designed for supporting and stabilizing vertical pipe runs. The PVC coating on Fig. 553 protects the pipe from the metal surface of the clamp. When possible, the clamp should be placed under a coupling, hub, or lugs welded to the pipe.

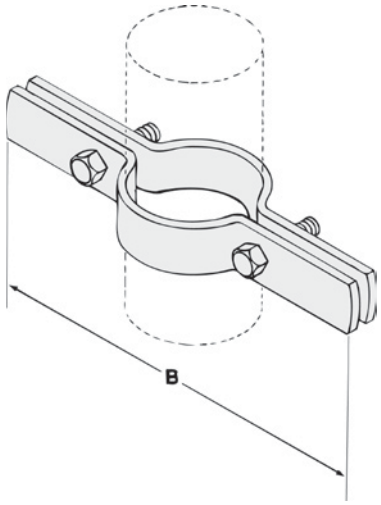
APPROVALS: Complies with Federal Specification A-A-1192A (Type 8). Underwriters' Laboratories listed and Factory Mutual approved 3/4" to 8" sizes only. Manufacturers' Standardization Society SP-69 (Type 8).

MATERIAL: Low carbon steel

ORDERING: Specify pipe size and figure number.

Fig. 550, 551 & 553 RISER CLAMP

Fig. 550* PLAIN
Fig. 551 ELECTRO-GALVANIZED
Fig. 553 PLAIN WITH PVC COATING



*Available in stainless steel. To order, specify 304 or 316 and add suffix SS to figure number. Price on request.

Pipe Size	B	Bolt Size	Max. Rec. Load/lbs.	Wt. Each (in lbs.)
1/2	9	3/8 X 1 1/4	220	1.05
3/4	9 3/8	3/8 X 1 1/4	220	1.10
1	9 5/8	3/8 X 1 1/4	220	1.10
1 1/4	10	3/8 X 1 1/4	250	1.60
1 1/2	10 3/8	3/8 X 1 1/4	250	1.60
2	10 3/4	3/8 X 1 1/4	300	1.70
2 1/2	11 1/4	3/8 X 1 1/2	400	1.90
3	11 3/4	3/8 X 1 1/2	500	1.90
3 1/2	13	3/8 X 1 1/2	600	2.30
4	13 1/2	1/2 X 1 3/4	750	2.40
5	14 1/2	1/2 X 1 3/4	1500	3.60
6	16	1/2 X 1 3/4	1600	4.00
8	18	5/8 X 2	2500	7.60
10	21 1/2	5/8 X 2	2500	11.10
12	24	5/8 X 2 1/2	2700	16.50
14	25	5/8 X 3	2700	17.70
16	26 1/4	3/4 X 3 1/2	2900	30.40
18	28 3/8	3/4 X 3 1/2	2900	33.30
20	30	3/4 X 3 1/2	2900	36.30
24	34 3/4	7/8 X 3 1/2	2900	48.68
30	40 3/4	7/8 X 3 1/2	2900	60.16

Installation practice for Model 550 Riser Clamps

The Model #550 riser clamp is designed for supporting and stabilizing vertical pipe runs. When possible the clamp should be placed under a coupling, hub or welded lugs on steel pipe.

ITW Buildex

SAMMYS®

2011 PRODUCT CATALOG

www.itwbuildex.com 800-BUILDEX

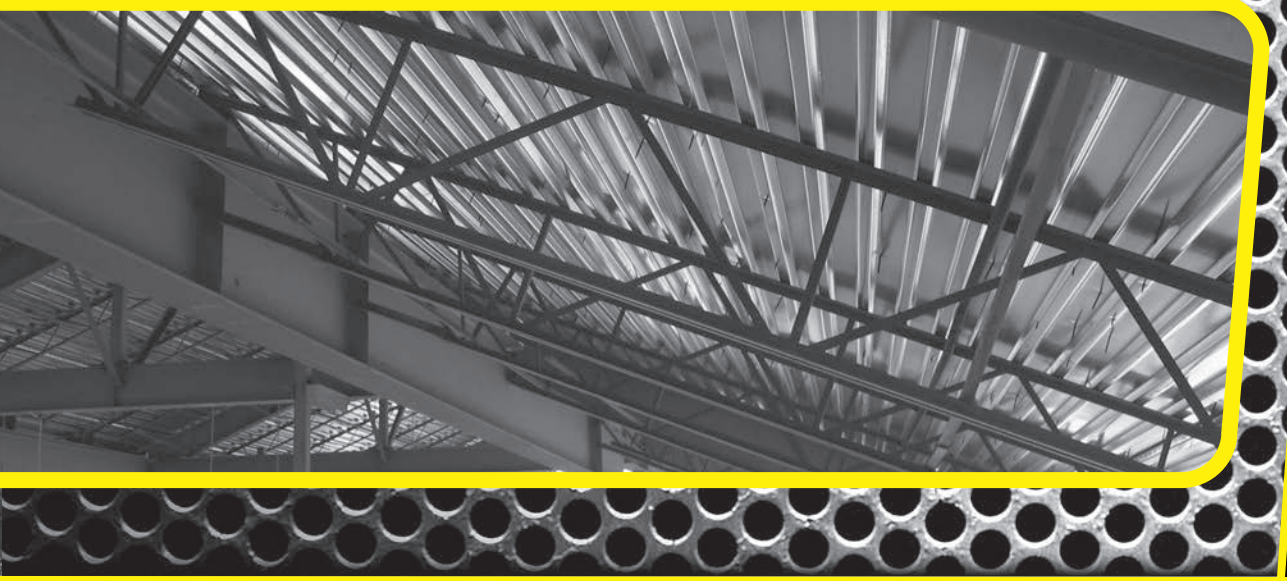


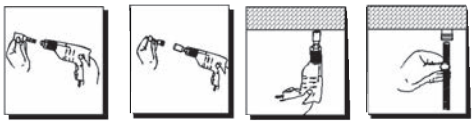
TABLE OF CONTENTS

INSTALLATION INSTRUCTIONS FOR WOOD & STEEL

INSTALLATION STEPS - VERTICAL INTO WOOD & STEEL:

1. *Insert the appropriate nut driver into a 3/8" or 1/2" portable drill.*
2. *Insert the SAMMYS® into the #14 (black) nut driver (p/n 8113910). Drill should be in a vertical position.*
3. *Push the face of the nut driver tight to the member. Begin installation when the nut driver spins freely on the SAMMYS, stop drill and remove.*
4. *The SAMMYS is now ready to receive 1/4", 3/8", 1/2" or metric all thread rod, bolt stock. (The 1/2" requires the #14SW red nut driver)*

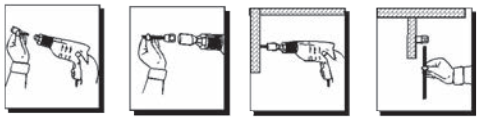
Note: *When installing DSTR, follow the above instructions, then add retainer nut and torque to 20 foot lbs. for maximumpullout in purlin steel.*



INSTALLATION STEPS - HORIZONTAL INTO WOOD & STEEL:

1. *Insert the appropriate nut driver into a 3/8" or 1/2" portable drill.*
2. *Insert the SAMMYS into the #14SW (red) nut driver (p/n 8114910). With drill unit in a horizontal position and at a right angle to the structural member, begin installation.*
3. *When the nut driver spins freely on the SAMMYS, stop the drill and remove.*
4. *The unit is now ready to receive 1/4", 3/8", M10, M8 or metric all thread rod or bolt stock.*

Note: *When installing SWDR, follow the above instructions, then add retainer nut and torque to 20 foot lbs. for maximum pullout in purlin steel.*



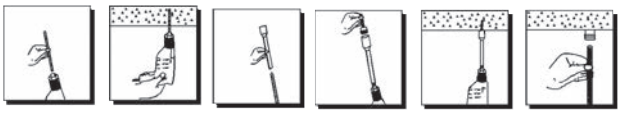
INSTALLATION INSTRUCTIONS FOR CONCRETE

INSTALLATION STEPS - VERTICAL INTO CONCRETE:

1. *Using an SDS 250 carbide tip bit or a HEX RECEIVER with a #250 carbide tip bit, pre-drill the concrete member to a depth of 2" with a hammer/rotary hammer drill set on impact mode.*
2. *After pre-drilling has been completed, install the SLEEVE TOOL over the bit (the bit should remain in the drill), and insert the #14 (black) nut driver (p/n 8113910) into the opposite end (see Vertical Installation note above).*
3. *Insert the CST screw into the nut driver.*
4. *Place tip of screw into the pre-drilled hole, turn impact/drill unit to drill mode and begin insertion. When the nut driver spins freely on the CST screw, installation is complete. Stop and remove drill.*
5. *The concrete screw is ready to receive 1/4", 3/8", 1/2", or metric all thread rod or bolt stock. (#14SW red nut driver used with 1/2" screw)*

Note: *Use a 1200 maximum RPM drill for installation.*

Note: *Do not install concrete screws while the drill unit is in impact mode — doing so will destroy the pullout factor of the screw.*

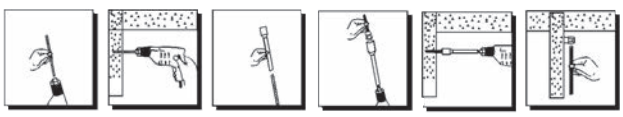


INSTALLATION STEPS - HORIZONTAL INTO CONCRETE:

1. *Using an SDS 250 carbide tip bit or a HEX RECEIVER with a #250 carbide tip bit, pre-drill the concrete member to a depth of 2" with a hammer/rotary hammer drill set on impact mode.*
2. *After pre-drilling has been completed, install the SLEEVE TOOL over the bit (the bit should remain in the drill), and insert the #14SW (red) nut driver (p/n 8114910) into the opposite end.*
3. *Insert the SWC screw into the nut driver.*
4. *Place tip of screw into the pre-drilled hole, turn impact/drill unit to drill mode and begin insertion. When the nut driver spins free on the SWC screw, installation is complete. Stop and remove drill.*
5. *The SWC screw is ready to receive 1/4", 3/8" or metric all thread rod or bolt stock.*

Note: *Use a 1200 maximum RPM drill for installation.*

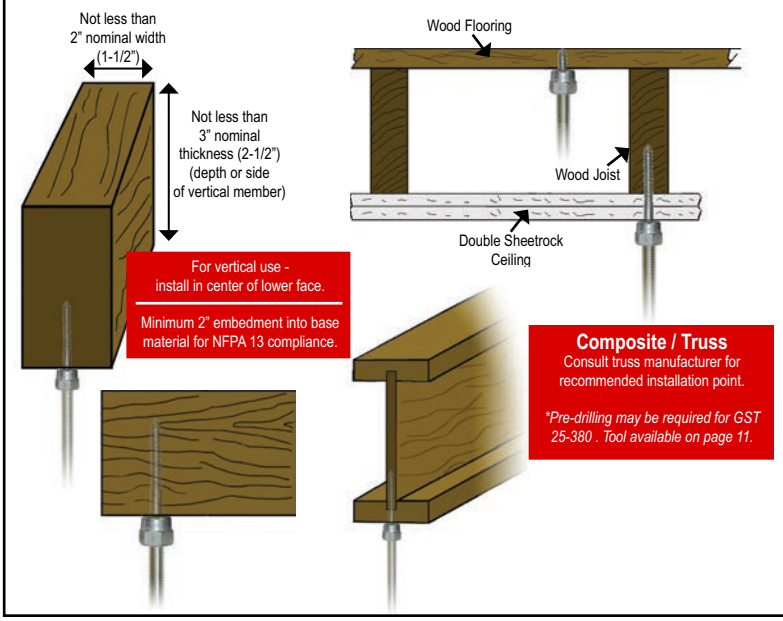
Note: *Do not install concrete screws while the drill unit is in impact mode — doing so will destroy the pullout factor of the fastener.*



SPECIAL NUT DRIVER SYSTEM: The nut drivers were designed with a unique spin-off feature which provides a fast and safe installation each time. When the face of the driver comes into contact with the material you are installing into, continue drilling until nut driver spins free. Installation is then complete. Warranty requires the use of the appropriate nut driver for installations.

SAMMYS® FOR WOOD - Vertical Application

Application



Product Features

- No pre-drilling required.
- Quick to install using the Sammy Nut Driver with an 18V cordless drill/driver.
- Saves time from traditional methods.
- Reduces installation costs.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Box Qty	Case Qty
VERTICAL MOUNT									
	1/4"	8002957	GST 100	1/4 x 1"	210 (7/16" OSB) 670 (3/4" Ply)			25	125
	1/4"	8003957	GST 200	1/4 x 2"	1760 (Fir)			25	125
	1/4"	8004957	GST 300	1/4 x 3"	2060 (Fir)			25	125
UL	3/8"	8007957	GST 10	1/4 x 1"	210 (7/16" OSB) 670 (3/4" Ply)	300		25	125
UL, FM	3/8"	8008957	GST 20	1/4 x 2"	1760 (Fir)	850	1475	25	125
UL	3/8"	8068925	GST 20-SS	1/4 x 2"	1760 (Fir)	850		25	125
UL	3/8"	8009925	GST 25-380	3/8 x 2-1/2"	2113 (Fir)	1500		25	125
UL, FM	3/8"	8010957	GST 30	1/4 x 3"	2060 (Fir)	1500	1475	25	125
	3/8"	8069925	GST 30-SS	1/4 x 3"	2060 (Fir)			25	125
	3/8"	8011925	GST 40	1/4 x 4"	2180 (Fir)			25	125
	1/2"	8013925	GST 2	1/4 x 2"	1760 (Fir)			25	125
	1/2"	8014925	GST 2.5-380	3/8 x 2-1/2"	2113 (Fir)			25	125
	1/2"	8015925	GST 3	1/4 x 3"	2275 (Fir)			25	125

#14 Black
Nut Driver
Part # 8113910

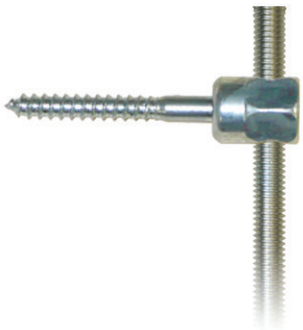
#14 SW Red
Nut Driver
Part # 8114910

MADE IN U.S.A

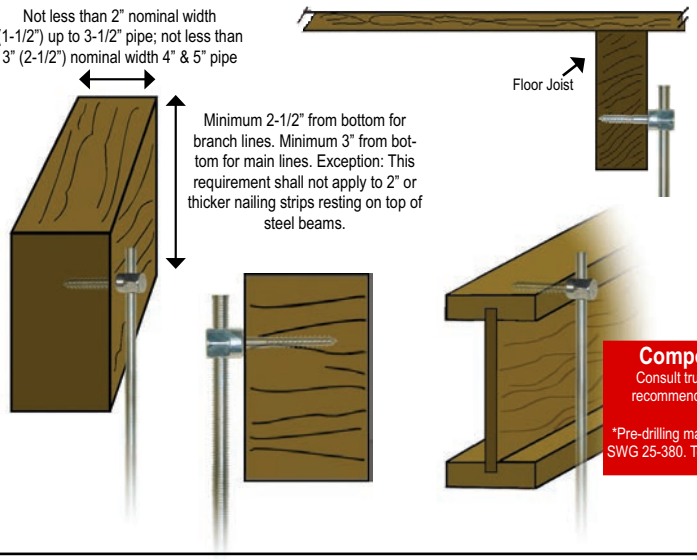
RoHS Compliant

SPECIAL NUT DRIVER SYSTEM: The nut drivers were designed with a unique spin-off feature which provides a fast and safe installation each time. When the face of the driver comes into contact with the material you are installing into, continue drilling until nut driver spins free. Installation is then complete. Warranty requires the use of the appropriate nut driver for installations.

SIDEWINDER® FOR WOOD - Horizontal Application



Application



Composite / Truss
Consult truss manufacturer for recommended installation point.

*Pre-drilling may be required for Model SWG 25-380. Tool available on page 11.

Product Features

- No pre-drilling required.
- Quick to install using the Sammy Nut Driver with an 18V cordless drill/driver.
- Saves time from traditional methods.
- Reduces installation costs.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

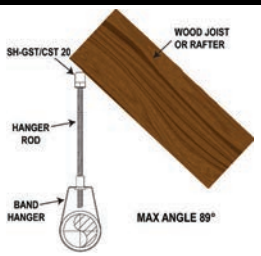
Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	Box Qty	Case Qty
HORIZONTAL MOUNT								
	1/4"	8019957	SWG 200	1/4 x 2"	1725 (Fir)		25	125
	3/8"	8020957	SWG 10	1/4 x 1"	622 (Fir)	300	25	125
	3/8"	8021957	SWG 20	1/4 x 2"	1725 (Fir)	1050	25	125
	3/8"	8073925	SWG 20-SS	1/4 x 2"	1725 (Fir)	850	25	125
	3/8"*	8022925	SWG 25-380	3/8 x 2-1/2"	2249 (Fir)	1500	25	125
	3/8"	8023925	SWG 30	1/4 x 3"	1884 (Fir)		25	125

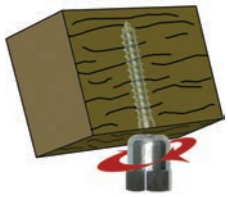
#14 SW Red Nut Driver Part # 8114910

* May require pre-drilling; consult joist manufacturer.

SAMMYS SWIVEL HEAD™ FOR WOOD - Swivel Application

Application





Product Features

- Eliminates distortion of threaded rod.
- Accommodates up to 3 ½" x 12 pitch roof.
- Allows 17° deflection from vertical.
- Saves time from traditional methods.
- Reduces installation costs.
- Made in the U.S.A.

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thickness	Box Qty	Case Qty
SWIVEL MOUNT										
	3/8"	8139957	SH-GST 20	1/4 x 2"	1257 (Fir)	1050	1475		25	125
	3/8"	8141957	SH-GST 30	1/4 x 3"	1720 (Fir)	1500	1475		25	125
	3/8"*	8269957	SH-GST/CST 20	5/16 x 1-3/4"	1903 Dim. Lumber 1406 @ 45°off vertical Dim. Lumber	1500 850 @ 45°			25	125
	1/2"	8303957	SH-GST/CST 2.0	5/16 x 1-3/4"	903 Dim. Lumber 1406 @ 45°off vertical Dim. Lumber				25	125

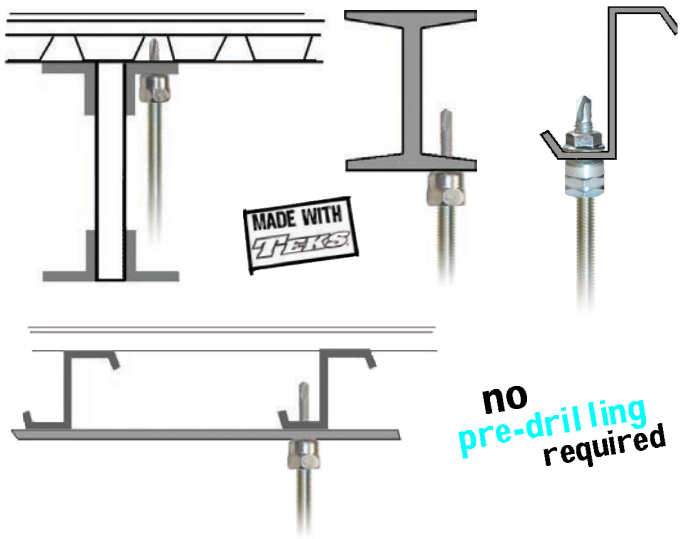
#14 Black Nut Driver Part # 8113910

#14 SH Orange Nut Driver Part # 8273910

* May require pre-drilling; consult joist manufacturer.

SAMMYS® FOR STEEL - Vertical Application

Application



Product Features

- Made with Teks® self-drilling fasteners - no pre-drilling required.
- Installs into steel range from 20 gauge – 1/2" thicknesses.
- Saves time from traditional methods.
- Reduces installation costs.
- Quick to install using the Sammys Nut Driver with an 18V cordless drill/driver.
- A standard screwgun with a depth sensitive nosepiece should be used to install Teks. For optimal fastener performance, the screwgun should be a minimum of 6 amps and have an RPM range of 0-2500.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

#14 Black Nut Driver Part # 8113910

#14 SW Red Nut Driver Part # 8114910

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thick	Max Thick	Box Qty	Case Qty
VERTICAL MOUNT											
	1/4"	8024957	DSTR 100 *	1/4-20 x 1" TEKS 3	1510 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/4"	8025957	DST 100	1/4-14 x 1" TEKS 3	446 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/4"	8026957	DST 150	1/4-14 x 1-1/2" TEKS 3	970 (16 ga.)			.036"-20 ga	3/16"	25	125
	1/4"	8027957	DST 200	1/4-14 x 2" TEKS 3	446 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/4"	8030957	TEK 500	12-24 x 1-1/2" TEKS 5	3125 (3/16")			.188"-3/16"	1/2"	25	125
UL FM	3/8"	8038957	DSTR 1 *	1/4-20 x 1" TEKS 3	1510 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125
UL FM	3/8"	8037957	DSTR 1-1/2 *	12-24 x 1-1/2" TEKS 5	1510 (3/16")	1500	1475	.060"-16 ga.	1/2"	25	125
UL FM	3/8"	8039957	DSTR 516 *	5/16-18 x 1-1/4" TEKS 3	2200 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125
	3/8"	8040957	DST 10	1/4-14 x 1" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8077925	DST 10-SS	1/4-14 x 1" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8041957	DST 15	1/4-14 x 1-1/2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8078925	DST 15-SS	1/4-14 x 1-1/2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8042957	DST 20	1/4-14 x 2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8043957	DST 25	1/4-14 x 2-1/2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8044957	DST 30	1/4-14 x 3" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
UL FM	3/8"	8045957	DST 516	5/16-18 x 1-1/4" TEKS 3	1500 (3/16")	1500	1475	.125"-1/8"	3/16"	25	125
UL FM	3/8"	8046957	TEK 50	12-24 x 1-1/2" TEKS 5	3125 (3/16")	1500	1475	.250"-1/4"	1/2"	25	125
	1/2"	8031925	DST 2.0	1/4-14 x 2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.188"-3/16"	1/4"	25	125
	1/2"	8033925	DSTR 1.0 *	1/4-20 x 1" TEKS 3	1510 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/2"	8034925	DSTR 5.16 *	5/16-18 x 1-1/4" TEKS 3	2220 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/2"	8035925	DST 5.16	5/16-18 x 1-1/4" TEKS 3	1500 (3/16")			.125"-1/8"	3/16"	25	125
	1/2"	8036925	TEK 5.0	12-24 x 1-1/2" TEKS 5	3125 (3/16")			.188"-3/16"	1/2"	25	125

*Includes retaining nut

MADE IN U.S.A. RoHS Compliant

SPECIAL NUT DRIVER SYSTEM: The nut drivers were designed with a unique spin-off feature which provides a fast and safe installation each time. When the face of the driver comes into contact with the material you are installing into, continue drilling until nut driver spins free. Installation is then complete. Warranty requires the use of the appropriate nut driver for installations.

SIDEWINDER® FOR STEEL - Horizontal Application

Application

Product Features

- Made with Teks® self-drilling fasteners - no pre-drilling required.
- Installs into steel range from 20 gauge – 1/2" thicknesses.
- A standard screwgun with a depth sensitive nosepiece should be used to install Teks. For optimal fastener performance, the screwgun should be a minimum of 6 amps and have an RPM range of 0-2500.
- Saves time from traditional methods.
- Reduces installation costs.
- Quick to install using the Sammys Nut Driver with an 18V cordless drill/driver.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thickness	Max Thickness	Box Qty	Case Qty
HORIZONTAL MOUNT											
	1/4"	8047957	SWD 100	1/4-14 x 1" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	1/4"	8049957	SWDR 100 *	1/4-20 x 1" TEKS 3	1900 (20 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8050957	SWD 10	1/4-14 x 1" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	3/8"	8080925	SWD 10-SS	1/4-14 x 1" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	3/8"	8051957	SWD 15	1/4-14 x 1-1/2" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	3/8"	8052957	SWD 20	1/4-14 x 2" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	3/8"	8053957	SWD 516	5/16-18 x 1-1/4" TEKS 3	2480 (20 ga.)			.036"-20 ga	3/16"	25	125
UL FM	3/8"	8055957	SWDR 1 *	1/4-20 x 1" TEKS 3	1900 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125
UL FM	3/8"	8054957	SWDR 1-1/2 *	12-24 x 1-1/2" TEKS 5	2375 (3/16")	1500	1475	.188"-3/16"	1/2"	25	125
UL FM	3/8"	8056957	SWDR 516 *	5/16-18 x 1-1/4" TEKS 3	2480 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125
	3/8"	8057957	SWT 15	12-24 x 1-1/2" TEKS 5	2375 (3/16")			.188"-3/16"	1/2"	25	125

#14 SW Red Nut Driver Part # 8114910

*Includes retaining nut

SAMMYS SWIVEL HEAD™ FOR STEEL - Swivel Application

Application

Product Features

- Eliminates distortion of threaded rod in sloped roof applications.
- Accommodates 3-1/2 x 12 pitch.
- Installs into angled z-purlin; allows threaded rod to hang plumb.
- Allows 17° deflection from vertical.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thick	Max Thick	Box Qty	Case Qty
SWIVEL MOUNT											
UL FM	3/8"	8137957	SH-DSTR 1*	1/4-20 X 1" TEKS 3	3220 (3/16")	1500	1475	.035"	3/16"	25	125
UL	3/8"	8268957	SH-TEK 50	12-24 x 1-3/4" TEKS 5	2368 (1/2" steel Vertical) 1306 (45° off Vertical) 2281 (3/16" HSS) 1585 (3/16" HSS 45° off Vertical)	1500 (Vertical) 850 (45° off Vertical)	4" 2-1/2"	3/16"	1/2"	25	125
	1/2"	8270957	SH-TEK 5.0	12-24 x 1-3/4" TEKS 5	2368 (1/2" steel Vertical) 1306 (45° off Vertical) 2281 (3/16" HSS) 1585 (3/16" HSS 45° off Vertical)			3/16"	1/2"	25	125

#14 Black Nut Driver Part # 8113910

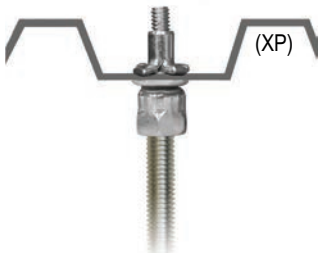
#14 SH Orange Nut Driver Part # 8273910

*Does not comply with ROHS requirements / Includes retaining nut

SAMMY X-PRESS® *Installs into Metal Deck, Purlin, or Tubular Steel*

SAMMY X-PRESS® - Vertical Application

Application

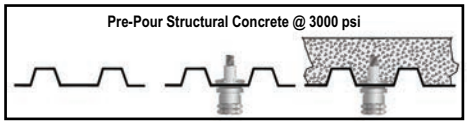


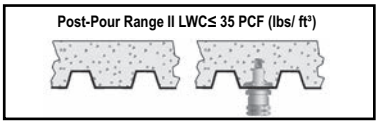
Product Features

- The ***Sammy X-Press*** expands to provide direct vertical attachment in:
  - light gauge steel deck or purlin (22 ga. - 1/8").
- Installs in seconds with Sammy X-Press It® Tool, saving time & installation costs.
- Use in applications where access to the back of the installed fastener is prohibited. ie. metal roof deck, tubular steel, or vapor barrier fabric.
- Less jobsite material needed.
- No retaining nut required.
- Provides design flexibility.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

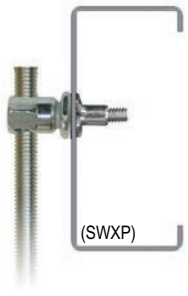
Approvals	Rod Size	Part Number	Model	Description	Ultimate Pullout (lbs)	UL Test Load (lbs)	UL Min Thick	FM Test Load (lbs)	FM Min Thick	Max Thick	Box Qty	Case Qty	Application
VERTICAL MOUNT													
UL	1/4"	8181922	XP 200	Sammy X-Press 200	1146 (22 ga)	185 (Luminaire) 250 (Luminaire)	.027" .056"			.125"	25	125	Metal Deck
UL, FM	3/8"	8150922	XP 20	Sammy X-Press 20	1146 (22 ga)	850 (2½" Pipe) 185 (Luminaire) 250 (Luminaire) 283 (Conduit & Cable)	.027" .027" .056" .029"	940 (2" Pipe) 1475 (4" Pipe)	.029" .104"	.125"	25	125	Metal Deck
UL, FM	3/8"	8153922	XP 35	Sammy X-Press 35	1783 (16 ga)	1500 (4" Pipe) 185 (Luminaire) 250 (Luminaire) 416 (Conduit & Cable)	.060" .029" .056" .059"	940 (2" Pipe) 1475 (4" Pipe)	.029" .104"	.125"	25	125	Purlin
UL	3/8"	8150922	XP 20	Sammy X-Press 20	1146 (22 ga)	850 (2½ Pipe)		Pre-Pour Structural Concrete@ 3000 psi Post-Pour Range II LWC≤ 35 PCF (lbs/ft³)			25	125	Metal Deck (Pre-Pour) Metal Deck (Post-Pour)





SIDEWINDER X-PRESS™ - Horizontal Application

Application



Product Features

- The ***Sidewinder X-Press*** expands to provide horizontal attachment in:
  - 16 ga - 3/16" steel - purlin, tubular steel.
- Installs in seconds with Sammy X-Press It® Tool, saving time & installation costs.
- Use in applications where access to the back of the installed fastener is prohibited; ie. metal roof deck, tubular steel, or vapor barrier fabric.
- Less jobsite material needed.
- No retaining nut required.
- Provides design flexibility.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

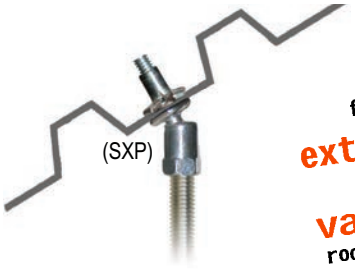
Approvals	Rod Size	Part Number	Model	Description	Ultimate Pullout (lbs)	UL Test Load (lbs)	UL Min Thick	FM Test Load (lbs)	Max Thick	Box Qty	Case Qty	Application
HORIZONTAL MOUNT												
UL	3/8"	8293957	SWXP 35	Sidewinder X-Press 35	1798 (16 ga)	1250 (3½" Pipe) 80 (Luminaire) 416 (Conduit & Cable)	.059"		.125"	25	125	Purlin

MADE IN U.S.A.

RoHS Compliant

SWIVEL X-PRESS™ - Swivel Application

Application



Product Features

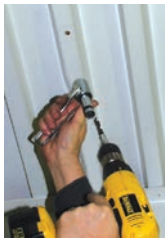
- The ***Swivel X-Press*** allows you to hang plumb in extreme roof pitches:
  - 89° in z-purlin
  - 45° in metal deck for 12/12 pitch
- Installs in seconds with Sammy X-Press It® Tool, saving time & installation costs.
- Use in applications where access to the back of the installed fastener is prohibited. ie. metal roof deck, tubular steel, or vapor barrier fabric.
- Less jobsite material needed.
- No retaining nut required.
- Provides design flexibility.
- Made in the U.S.A.

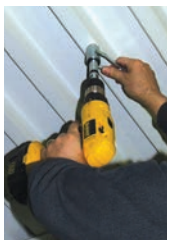
Watch a video demonstration at www.itwbuildex.com

Approvals	Rod Size	Part Number	Model	Description	Ultimate Pullout (lbs)	UL Test Load (lbs)	UL Min Thick	FM Test Load (lbs)	FM Min Thick	Max Thick	Box Qty	Case Qty	Application
SWIVEL MOUNT													
UL FM	3/8"	8294922	SXP 20	Swivel X-Press 20	1061 (22 ga Vert) 829 (45° Off Vert)	750 (2" Pipe) 170 Vertical (Luminaire) 80 @ 45° (Luminaire) 283 Vertical (Conduit & Cable) 233 @ 45° (Conduit & Cable)	.029"	635 (2" Pipe)	.029"	.125"	25	125	Metal Deck
UL FM	3/8"	8295922	SXP 35	Swivel X-Press 35	1675 (16 ga Vert) 1558 (89° Off Vert)	1250 (3-1/2" Pipe) 250 Vertical (Luminaire) 80 @ 90° (Luminaire) 500 Vertical (Conduit & Cable) 333 @ 89° (Conduit & Cable)	.059"	635 (2" Pipe)	.029"	.125"	25	125	Purlin
	1/2"	8272957	SXP 2.0	Swivel X-Press 2.0	1061 (22 ga Vert) 829 (45° Off Vert)		.027"	.125"			25	125	Metal Deck
	1/2"	8271957	SXP 3.5	Swivel X-Press 3.5	1675 (16 ga Vert) 1558 (89° Off Vert)		.060"	.125"			25	125	Purlin

SAMMY X-PRESS IT® Installation Tool

Application



Product Features

- The ***Sammy X-Press*** expands to provide direct vertical attachment in:
  - metal deck (22-16 gauge)
  - z-purlin (18-16 gauge)
- Made in the U.S.A.

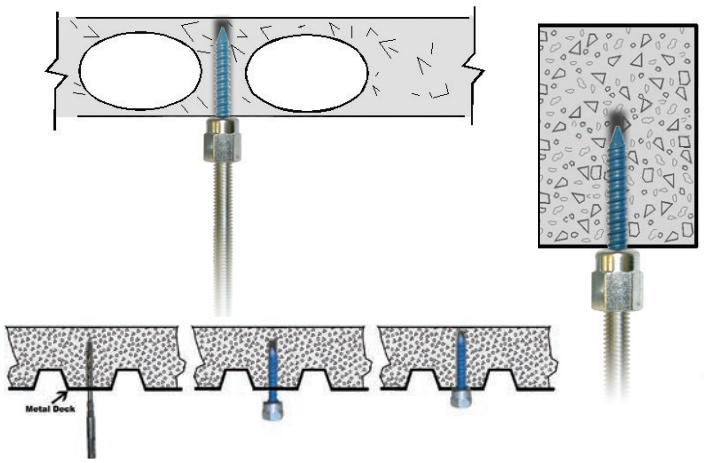
Watch a video demonstration at www.itwbuildex.com

Part Number	Model	Description	Qty
8194910	UXPIT*	Universal X-Press It Tool	1
8152910	XPDB	25/64" Drill Bit	1

*Tool Includes: Sleeve, Bit Receiver, Hex Wrench, and 25/64" Drill Bit.

SAMMYS® FOR CONCRETE - Vertical Application

Application



Product Features

- Easy two step process (Drill hole & drive Sammys concrete anchor).
- ¼" pre-drilled pilot hole required.
- Concrete Installation Tool available for a one tool installation process.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)*	FM Test Load (lbs)	Box Qty	Case Qty
VERTICAL MOUNT								
	1/4"	8058957	CST 200	5/16 x 1-3/4"	2400		25	125
FM	3/8"	8059957	CST 20	5/16 x 1-3/4"	2400	1475	25	125
	3/8"	8145925	CST 20-SS	5/16 x 1-3/4"	2400		25	125
	1/2"	8060925	CST 2	5/16 x 1-3/4"	2400		25	125

#14 Black Nut Driver Part # 8113910

#14SW Red Nut Driver Part # 8114910

* Tested in 3000 PSI concrete

SIDEWINDER® FOR CONCRETE - Horizontal Application

Application

Product Features

- Easy two step process (Drill hole & drive Sammys concrete anchor).
- ¼" pre-drilled pilot hole required.
- Concrete Installation Tool available for a one tool installation process.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)*	FM Test Load (lbs)	Box Qty	Case Qty
HORIZONTAL MOUNT								
	1/4"	8062957	SWC 200	5/16 x 1-3/4"	2450		25	125
FM	3/8"	8061957	SWC 20	5/16 x 1-3/4"	2450	1475	25	125

#14SW Red Nut Driver Part # 8114910

* Tested in 3000 PSI concrete

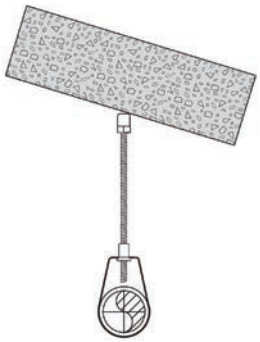
MADE IN U.S.A.

RoHS Compliant

SPECIAL NUT DRIVER SYSTEM: The nut drivers were designed with a unique spin-off feature which provides a fast and safe installation each time. When the face of the driver comes into contact with the material you are installing into, continue drilling until nut driver spins free. Installation is then complete. Warranty requires the use of the appropriate nut driver for installations.

SAMMYS SWIVEL HEAD™ FOR CONCRETE - Swivel Application

Application



Product Features

- Installs vertically and swivels up to 89° in wood & concrete structures.
- Eliminates distortion of threaded rod.
- 1/4" pre-drilled pilot hole required.
- Concrete installation tool available for a one piece installation process.
- Made in the U.S.A.

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)*	Box Qty	Case Qty
SWIVEL MOUNT							
	3/8"	8269957	SH-GST/CST 20	5/16 x 1-3/4"	2537 in 3000 psi concrete 1459 @ 45°off vertical in 3000 psi concrete 2852 in 6000 psi concrete 1636 @ 45°off vertical in 6000 psi concrete	25	125
	1/2"	8303957	SH-GST/CST 2.0	5/16 x 1-3/4"	2537 in 3000 psi concrete 1459 @ 45°off vertical in 3000 psi concrete 2852 in 6000 psi concrete 1636 @ 45°off vertical in 6000 psi concrete	25	125

#14 SH Orange Nut Driver Part # 8273910

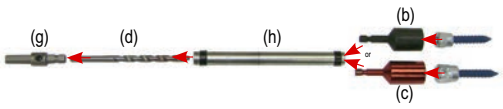
Note: UL Listed for wood - see page 5

* Tested in 3000 PSI concrete

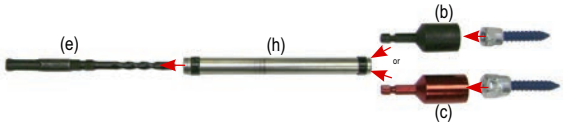
CONCRETE / WOOD INSTALLATION KIT

Application

Rotary Hammer Drill into concrete



Hammer Drill into concrete



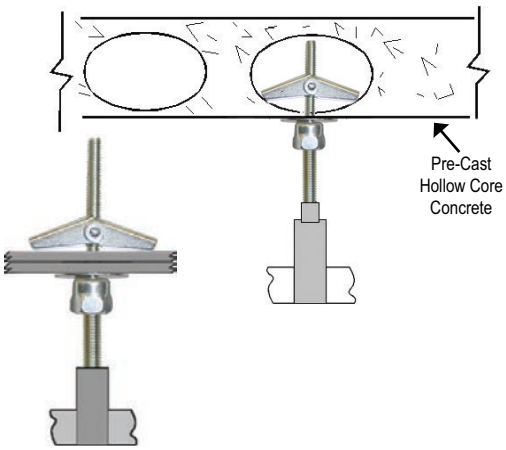
Part Number	Description	Each Qty
8122910	**Concrete Installation Kit (a)**	
	Kit includes the following items:	
8113910	#14 Black Nut Driver (b)	1
8114910	#14 SW Red Nut Driver (c)	1
8116910	#250 Bit (1/4") (d)	1
8117910	SDS Bit (1/4") (e)	1
8118910	7/32 Wood Bit (f)	1
8120910	HEX 250 Bit Receiver (1/4") (g)	1
8098910	SL 250 Sleeve (h)	1
8121910	SDS B250 Bit Receiver (1/4")*	1

**Only sold separately - not included in kit.*

ACCESSORIES

SAMMYS TOGGLE™

Application



Installation Steps

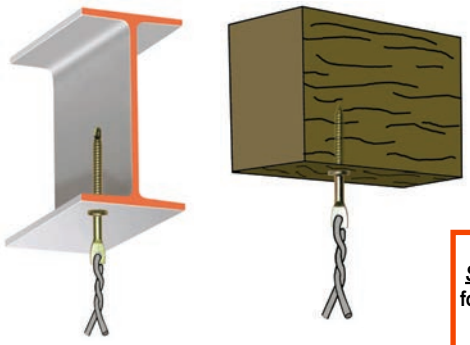
1. Pre-drill a 5/8" hole with a regular drill or hole saw.
2. Insert SST screw into #14 black nut driver. With wing nut and washer on bolt, insert wing nut through surface, and begin installation.
3. When bolt is secure and nut driver spins free, stop drill motor and remove.
4. SST screw is now ready to receive 1/4", 3/8", or Metric all thread rod or bolt stock.

#14 Black
Nut Driver
Part # 8113910

Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	Box Qty	Case Qty
1/4"	8063925	SST 300	1/4 x 3"	450 (Lath & Plaster) 404 (2 Layers 5/8 Rock)	25	125
3/8"	8064925	SST 30	1/4 x 3"	450 (Lath & Plaster) 404 (2 Layers 5/8 Rock)	25	125

CEILING SCREWS

Application



Use the *Speedy Pole Tool*™ for easy installation of ceiling screws without ladders or scaffolding!
(see pg 13 for details)

Product Features

- 3/16" eyelet to accommodate common wire size.
- ICC approvals can be found at www.itwbuildex.com under Evaluation Report # ER-5367.

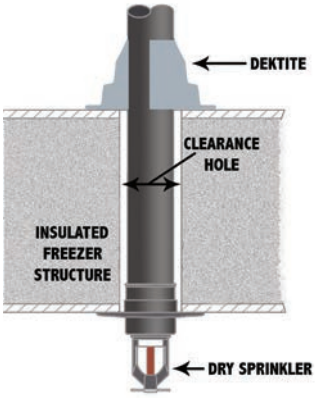
CWIT
Installation Tool
Part # 8110910

Approvals	Substrate	Part Number	Model	Point	Description	Overal Total Length	Ultimate Pullout (lbs)	Max Gauge	ICC Test Load (lbs)	Box Qty	Case Qty
ICC	STEEL	8107957	CWSD 1*	Teks	1/4 x 1"	2"	472 (20 ga)	16 ga.	170 (20 ga.)	25	125
ICC	STEEL WOOD	8190957	CWSD 15*	Gimlet Teks	1/4 x 1-1/2"	2-3/4"	472 (20 ga) 1393 (Fir)	20 ga.	170 (20 ga.)	25	125
ICC	STEEL	8108957	CWSD 2*	Teks	1/4 x 2"	3-1/4"	472 (20 ga)	16 ga.	170 (20 ga.)	25	125
ICC		8110910	CWIT Installation Tool								1

** Does not comply with ROHS requirements*

DEKTITE® PIPE FLASHING

Application



STAY UP TO CODE!

with a quicker, more efficient way to flash your refrigeration/freezer units.

Product Features

- Complies with NFPA 13 Code Changes.
- Flashing for dry pendant sprinklers subject to extreme temperature changes.
- One piece construction is easy to install.
- Pipe diameter markings ensure accurate fit.
- EPDM temperature range of -65°F to +250°F.

Part Number	Description	Pipe Outside Diameter	Dektite Base Diameter	Dektite Height	Box Qty
4001910	Mini	1/4" - 1-1/8"	3-1/2"	1-3/4"	20
4003910	1	1/4" - 2"	4-3/4"	3"	10
4004910	2	1-3/4" - 3-1/4"	6-1/4"	4"	10

SPEEDY POLE TOOL™ & UNIVERSAL SOCKET KIT

Universal Pole Tool Socket Kit (8129910) Includes:

- Adaptor Plug (a)
- Socket Driver for SAMMYS (b)
- Socket Driver for Ceiling Wire Screws (c)
- Socket Driver for 1/4" Standard Nut Drivers (d)
- Stuf Plug for Viper or Ladd Powder Actuated Attachment (e)

(Items not sold seperately)

Watch a video demonstration at www.itwbuildex.com

Product Features

- The Pole Tool and Universal Socket Kit provide easy and safe installation for:
  - Sammys
  - Threaded Rod
  - Pencil Rod
  - Ceiling Screws
  - Jack Chain
  - Wire
  - Screws
- Ideal for retrofit and hard-to-reach projects in wood and steel.

Part Number	Description	Box Qty
8123910	Pole Tool 6' (3' - 6')	1
8124910	Pole Tool 12' (4' - 12')	1
8125910	Pole Tool 18' (6' - 18')	1
8126910	Pole Tool 24' (8' - 24')	1
Speedy Pole Tool Installation (specify choice when ordering pole tool)		
8127910	Sammys Socket Driver	1
8128910	Ceiling Wire Socket Driver for wire and chain	1
8129910	Universal Pole Tool Socket Kit	1

SPOT-RITE LEVEL™

Part Number	Model	Ea. Qty
8130910	Spot Rite Level	1

Product Features

- 1/2", 3/4", and 1" threading
- Magnetic strip for ease of use
- Pocket Sized
- Lightweight
- 3-vial design for measurement of 0º, 45º, and 90º angles

APPROVALS

Part Number	Model	Rod Size	Mount Direction	UL Max Pipe Size	UL Test Load (lbs)	UL Min Wood Thickness	FM Max Pipe Size	FM Test Load (lbs)	FM Min Wood Thickness
SAMMYS FOR WOOD - PIPE HANGER									
8007957	GST 10	3/8"	Vertical	CPVC 1-1/2"	300	1-1/2"			
8020957	SWG 10	3/8"	Horizontal	CPVC 1-1/2"	300	1-1/2"			
8008957	GST 20	3/8"	Vertical	2-1/2"	850	1-1/2"	4"	1475	1-1/2"
8068925	GST 20-SS	3/8"	Vertical	2-1/2"	850	1-1/2"			
8010957	GST 30	3/8"	Vertical	4"	1500	1-1/2"	4"	1475	1-1/2"
8009925	GST 25-380	3/8"	Vertical	4"	1500	1-1/2"			
8022925	SWG 25-380	3/8"	Horizontal	3-1/2" - 4"*	1500	1-1/2"			
8021957	SWG 20	3/8"	Horizontal	2-1/2" - 3"**	1050	1-1/2"			
8073925	SWG 20-SS	3/8"	Horizontal	2-1/2"	850	1-1/2"			
8269957	SH-GST/CST 20	3/8"	45° Angle off Vertical	2-1/2"	850	1-1/2"			
8269957	SH-GST/CST 20	3/8"	45° Angle off Vertical	4"	1500	1-1/2"			
8139957	SH-GST 20	3/8"	17° Angle off Vertical	3"	1050	1-1/2"	4"	1475	1-1/2"
SAMMYS FOR STEEL - PIPE HANGER						**Min Steel Thick**			**Max Steel Thick**
8038957	DSTR 1	3/8"	Vertical	4"	1500	.035"	4"	1475	.105"
8037957	DSTR 1-1/2	3/8"	Vertical	4"	1500	.035"	4"	1475	.105"
8039957	DSTR 516	3/8"	Vertical	4"	1500	.037"	4"	1475	.105"
8045957	DST 516	3/8"	Vertical	4"	1500	.188"	4"	1475	.188"
8046957	TEK 50	3/8"	Vertical	4"	1500	.250"	4"	1475	.188"
8055957	SWDR 1	3/8"	Horizontal	4"	1500	.037"	4"	1475	.060"
8056957	SWDR 516	3/8"	Horizontal	4"	1500	.037"	4"	1475	.060"
8054957	SWDR 1-1/2	3/8"	Horizontal	4"	1500	.037"	4"	1475	.060"
8137957	SH-DSTR 1	3/8"	17° Angle off Vertical	4"	1500	.035"	4"	1475	.105"
8268957	SH-TEK 50	3/8"	Vertical 70° Angle off Vertical	2-1/2" 4"	850 1500				
8150922	XP 20	3/8"	Vertical	2-1/2"	850	.027"	2" 4"	940 1475	.029" .105"
8153922	XP 35	3/8"	Vertical	4"	1500	.060"	2" 4"	940 1475	.029" .125"
8294922	SXP 20	3/8"	Vertical or up to 45°	2"	750	.027"	2"	635	.029"
8295922	SXP 35	3/8"	Vertical or up to 89°	3-1/2"	1250	.060"	2"	635	.029"
8293957	SWXP 35	3/8"	Horizontal	3-1/2"	1250	.060"			
SAMMYS FOR CONCRETE - PIPE HANGER									
8059957	CST 20	3/8"	Vertical				4"	1475	3000
8061957	SWC 20	3/8"	Horizontal				4"	1475	3000
8150922	XP 20	3/8"	Vertical	2-1/2"	850	Pre-Pour Structural @ 3000psi			
8150922	XP 20	3/8"	Vertical	2-1/2"	850	Post-Pour Range II LWC ≤ 35 PCF (lbs/ft^3)			

Part Number	Model	Rod Size	Mount Direction	UL Load Rating (lbs)	UL Min Steel Thickness
SAMMYS FOR STEEL - LUMINAIRE FITTING					
8150922	XP 20	3/8"	Vertical	185 250	.027" .035"
8153922	XP 35	3/8"	Vertical	185 250	.027" .035"
8181922	XP 200	1/4"	Vertical	185 250	.027" .035"
8294922	SXP 20	3/8"	Vertical 45°	170 80	.027" .027"
8295922	SXP 35	3/8"	Vertical 90°	250 80	.060" .060"
8293957	SWXP 35	3/8"	Horizontal	80	.060"

Part Number	Model	Rod Size	Mount Direction	UL Load Rating (lbs)	UL Min. Steel Thickness	Listed Application
SAMMYS FOR STEEL - CONDUIT, TUBING, AND CABLE						
8150922	XP 20	3/8"	Vertical	283	.027"	Max 4 trade size EMT, RMC, and IMC & 5 trade size rigid PVC conduit
8153922	XP 35	3/8"	Vertical	500	.060"	Max 4 trade size EMT & 6 trade sze RMC, IMC, and rigid PVC conduit
8294922	SXP 20	3/8"	Vertical	283	.027"	Max 4 trade size EMT, RMC, and IMC & 5 trade size rigid PVC conduit
8295922	SXP 35	3/8"	Vertical	500	.060"	Max 4 trade size EMT & 6 trade sze RMC, IMC, and rigid PVC conduit
8293957	SWXP 35	3/8"	Horizontal	500	.060"	Max 4 trade size EMT & 6 trade sze RMC, IMC, and rigid PVC conduit
8149957	CZ2000	1/4" or 3/8"	Onto Vertical Rod			UL Listed 4S16 - Cable Hanger, Cat. No. C-Z2000 Plenum Rated, Complies w/ NEC Standards

Sheet Steel Gauges

Gauge No.	22 ga.	20 ga.	18 ga.	16 ga.	14 ga.	12 ga.	1/8"	3/16"	1/4"
Nominal Decimal Equivalent	.030"	.036"	.048"	.060"	.075"	.105"	.125"	.188"	.250"

*SWG 25-380 Maximum pipe size in composite wood joist allowed by UL is 3-1/2"
*SWG 25-380 Maximum pipe size in wood timber or joist allowed by UL is 4"
**SWG 20 Maximum pipe size in composite wood joist allowed by UL is 2-1/2"
**SWG 20 Maximum pipe size in wood timber or joist allowed by UL is 3"

UL compliance with NEC Standards.
UL and FM tests were performed in compliance with NFPA 13 Standards.
Fastening requirement: 5 times weight of water-filled schedule 40 pipe plus 250 pounds.

SPECIAL NOTES

Engineering Note
In 1996, the anchors listed by UL were tested in plate steel that measured .188" and .118". Subsequent testing was done for z-purlin applications in May 1997 using (.037") or 20 gauge steel. Most recently in 2008, testing with the new Sammy X-Press® was completed using (.030") or 22 gauge steel metal deck.

Sammys® Nut Drivers
Special nut drivers were designed to be used with Sammys. When the appropriate nut drivers are used for installation, the driver spins freely on the screw after installation is complete and eliminates the expected wrist snap, reduces over-torque, and prevents screw failure.

Steel Screws
Due to variations in hardness of certain metals, it should be noted that our self-drilling screws for steel will experience different drill speeds. 500-1500 RPM drill speed should be used.

Metric Products
Metric versions of the Sammy anchors are available at www.itwbuildex.com

Sammys for Seismic
Please visit www.itwbuildex.com for our current Seismic product offerring.

Vibratory Environments
For attaching or anchoring in high vibratory environments, special care should be taken not just for building attachments but also for the hangers or assemblies being supported. Consult local code authorities for accepted anchoring devices.

Composite Joist/Truss
Truss manufacturers vary installation recommendations for composite joist. UL testing was completed to validate that Sammys and Sidewinders SWG 20 and SWG 25-380 can be installed into the top cord of a truss. Sammy GST 20 can be installed into the center of the lower cord of a composite joist. Penetration of the upright center web is permitted by some joist manufacturers. Consult truss manufacturer for recommended installation point.

Pre-drilling may be required by joist manufacturers. If so, pre-drill pilot hole 1/8" smaller than root diameter of fastener.

Consult the table below:

Model	Root Diameter	Hole Size
GST 20	.182"	1/8"
GST 25-380	.280"	7/32"
SWG 20	.182"	1/8"
SWG 25-380	.280"	7/32"

To increase efficiency of the installation process, sleeve tools, bit receivers, and wood bits are available for pre-drilling.

NFPA/NEC Standards
All UL and FM testing complies with NFPA 13 and NEC standards. Check with your local (AHJ) Authority Having Jurisdiction to confirm application and usage.

UL Listings / FM Approvals
UL and FM reports are available at www.itwbuildex.com

c UL us LISTED
PIPE HANGER
ALSO LISTED AS CONDUIT AND CABLE HARDWARE
ALSO LISTED AS ANCHOR FOR LUMINAIRE
9R21

FM APPROVED

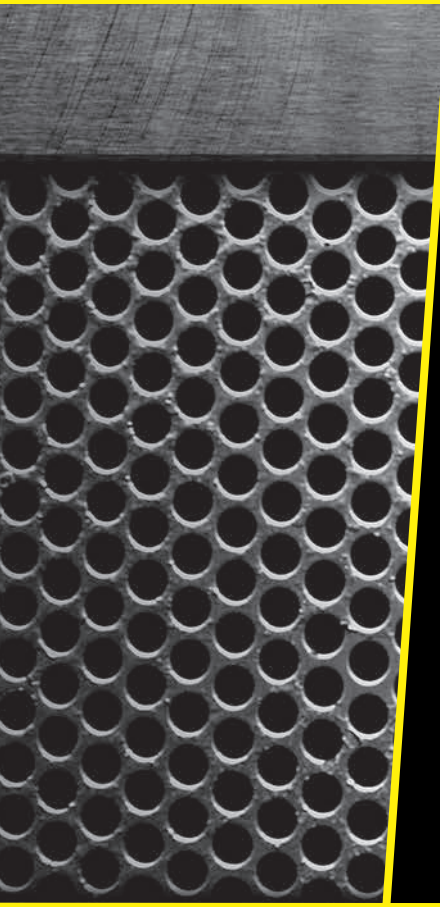
Technical Drawings
Technical drawings are available and can be downloaded at www.itwbuildex.com in the following formats: .dwg, .dxf, and .igs.

Made in the U.S.A. Products
MADE IN U.S.A

Contact Information
Technical Assistance: (800) BUILDEX Option #6 (x 3259)
Customer Service: (800) BUILDEX Option #1

CATALOG ISSUE

2011



BUILDING IDEAS THAT WORK FOR OVER 40 YEARS!

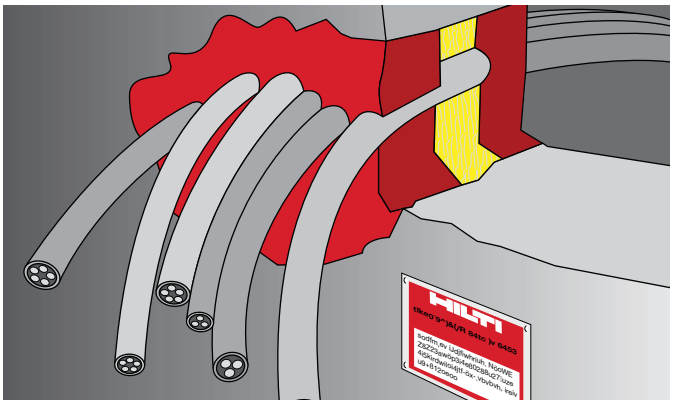
QUALITY

At ITW Buildex we pride ourselves on serving the construction industry for over 40 years with innovative, quality products that help our customers save time and money. We are commited to our customers by providing world class customer service and technical support. We are here to help!

ITW Buildex
1349 W. Bryn Mawr Ave.
Itasca, IL 60143
(P) 800-BUILDEX
(F) 630-595-3549
www.itwbuildex.com

081910v2

FS-ONE
High Performance Intumescent Firestop Sealant



Product description

- Intumescent (expands when exposed to fire) firestop sealant that helps protect combustible and non-combustible penetrations for up to 4 hours fire rating

Product features

- Smoke, gas and water resistant after material has cured
- Contains no halogen, solvents or asbestos
- High fire rating properties
- Water based, easy to clean
- Protects most typical firestop penetration applications
- Paintable
- Single component systems available
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

Areas of application

- Steel, copper and EMT pipes
- Insulated steel and copper pipes
- Cable bundles
- Closed or vented plastic pipes
- HVAC penetrations

For use with

- Concrete, masonry, drywall and wood floor assemblies
- Wall and floor assemblies rated up to 4 hours

Examples

- Sealing around combustible pipe penetrations in fire rated construction
- Sealing around non-combustible penetrations in fire rated construction

Technical Data*	FS-ONE
Chemical basis	Water-based intumescent acrylic dispersion
Color	Red
Application temperature	40°F to 104°F (5°C to 40°C)
Skin forming time	Approx. 20-30 min.
Curing time	Approx. 2 mm / 3 days
Movement capability	Approx. 5%
Expansion rate (unrestricted)	Up to 3-5 times original volume
Temperature resistance (cured)	–40°F to 212°F (–40°C to 100°C)
Surface burning characteristics (ASTM E 84-96)	Flame Spread: 0 Smoke Development: 5
Sound transmission classification (ASTM E 90-99)	56 (Relates to specific construction)
Approvals • California State Fire Marshal - No. 4485-1200:108 • City of New York - MEA 326-96-M Vol. IV	
Tested in accordance with • UL 1479 • ASTM E 814 • ASTM E 84	

*At 73°F (23°C) and 50% relative humidity

CLASSIFIED C UL US — FILL, VOID OR CAVITY MATERIAL FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS SEE UL FIRE RESISTANCE DIRECTORY 66Y7

FM APPROVED

FGC -BM- CZ SYSTEM COMPATIBLE

Installation instructions for FS-ONE

Notice

- Before handling, read Material Safety Data Sheet and product label for safe usage and health information.
- Instructions below are general guidelines — always refer to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information

Opening

1. Clean the opening. Surfaces to which FS-ONE will be applied should be cleaned of loose debris, dirt, oil, moisture, frost and wax. Structures supporting penetrating items must be installed in compliance with local building and electrical standards.

Application of firestop sealant

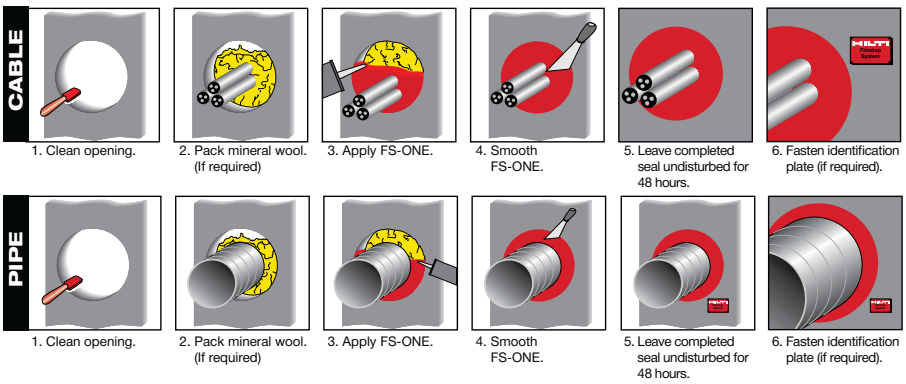
2. Install the prescribed backfilling material type and depth to obtain the desired rating (if required). Leave sufficient depth for applying FS-ONE.
3. Application of firestop sealant: Apply FS-ONE to the required depth in order to obtain the desired fire rating. Make sure FS-ONE contacts all surfaces to provide maximum adhesion. For application of FS-ONE use a standard caulking gun, foil pack gun, bulk loader and bulk gun. With FS-ONE buckets, Graco type sealant pumps may be used. (Contact pump manufacturer for proper selection).
4. Smoothing of firestop sealant: To complete the seal, tool immediately to give a smooth appearance. Excess sealant, prior to curing, can be cleaned away from adjacent surfaces and tools with water.
5. Leave completed seal undisturbed for 48 hours.
6. For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the identification plate and fasten it in a visible position next to the seal.

Not for use

- High movement expansion joints
- Underwater
- On materials where oil, plasticizers or solvents may bleed i.e. impregnated wood, oil based seals, green or partially vulcanized rubber
- In any penetration other than those specifically described in this manual or the test reports

Storage

- Store only in the original packaging in a location protected from moisture at temperatures between 40°F (5°C) and 86°F (30°C)
- Observe expiration date on the packag



Hilti. Outperform. Outlast.

Product name: **FS-ONE High Performance Intumescent Firestop Sealant**
Description: One-part acrylic-based sealant
Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	PEL:	TLV:	STEL:
Polyacrylate dispersion	Mixture	NE	NE	NE
Calcium carbonate	001317-65-3	5 mg/m³ (T)	10 mg/m³ (T)	NE
Zinc borate	138265-88-0	NE	NE	NE
Ammonium polyphosphate	068333-79-9	NE	NE	NE
Talc	014807-96-6	20 mppcf	2 mg/m³	NE
Expandable graphite	012777-87-6	5 mg/m³ (T)	2 mg/m³ (T)	NE
Ethylene glycol	000107-21-1	NE	C:100 mg/m³ (A)	NE
Polybutene	009003-29-6	NE	NE	NE
Iron oxide	001309-37-1	10 mg/m³	5 mg/m³	NE
Glass filament	065997-17-3	NE	5 mg/m³ (T)	NE
Silicon dioxide	014808-60-7	0.05 mg/m³ (T)	0.1 mg/m³ (T)	NE
Water	007732-18-5	NE	NE	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **C** = Ceiling. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable. **(T)** indicates "as total dust". **(R)** indicates "as respirable fraction". **(A)** indicates "as an aerosol". **mppcf** = million particles per cubic foot.

PHYSICAL DATA

Appearance:	Red paste.	**Odor:**	Odorless.
Vapor Density: (air = 1)	Not determined.	**Vapor Pressure:**	23mbar @ 20C / 68F
Boiling Point:	Not applicable.	**VOC Content:**	75.0 g/L.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Soluble.
Specific Gravity:	1.5	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Non-flammable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Not applicable. Use extinguishing media as appropriate for surrounding fire.		
Special Fire Fighting Procedures:	None known. Use a self-contained breathing apparatus when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None known. Thermal decomposition products can be formed such as oxides of carbon, sulfur and phosphorous.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong acids, peroxides, and oxidizing agents.		
Decomposition Products:	Thermal decomposition can yield CO and CO_2.		
Conditions to Avoid:	None known.		

HEALTH HAZARD DATA

Known Hazards:	None known.
Signs and Symptoms of Exposure:	Possibly irritating upon contact with the eyes or upon repeated contact with the skin.
Medical Conditions Aggravated by Exposure:	Eye and skin conditions.
Routes of Exposure:	Dermal.

Carcinogenicity:	IARC classifies crystalline silica (quartz sand) as Group I based upon evidence among workers in industries where there has been long-term and chronic exposure (via inhalation) to silica dust; e.g. mining, quarry, stone crushing, refractory brick and pottery workers. This product does not pose a dust hazard; therefore, this classification is not relevant. Based upon the nature and intended use of this product, it does not pose an increased cancer risk to workers.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Call a physician if symptoms occur.
Skin:	Immediately wipe off material and wash with soap and water. Material can adhere to the skin. If material has adhered to the skin, use an abrasive containing hand cleaner. If material does not come off, buff with a pumice stone.
Inhalation:	Move victim to fresh air if discomfort develops. Call a physician if symptoms persist.
Ingestion:	Seek medical attention. Do not induce vomiting unless directed by a physician. If a large quantity was ingested, give 1 to 2 glasses of water to dilute. Never give anything by mouth to an unconscious person.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Not required, however, safety glasses should be worn in most industrial settings.
Skin Protection:	Avoid skin contact. Cloth gloves are suitable for hand protection.
Respiratory Protection:	None normally required. Where ventilation is inadequate to control vapors, use a NIOSH-approved respirator with organic vapor cartridges. Never enter a confined space without an appropriate air-supplied respirator.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool, dry area preferably between 40o and 77o F. Keep from freezing. Do not store in direct sunlight. Avoid contact with the eyes or skin. Practice good hygiene; i.e. always wash thoroughly after handling and before eating or smoking. For industrial use only. Keep out of reach of children. Follow label/use instructions.
Spill Procedures:	Immediately wipe away spilled material before it hardens. Place in a container for proper disposal in accordance with all applicable local, state, or federal requirements.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE B
DOT Shipping Name:	Not regulated.
IATA / ICAO Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory. SARA Title III, Section 313: This product contains < 3% ethylene glycol (CAS 107-21-1) and < 15% zinc borate (re: zinc compounds) which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000 **Technical Service:** 1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

Hilti Firestop
Saving Lives
through innovation
and education

Certificate of Compliance

Certificate Number **20100512-R13240**
Report Reference **2010 May 12**
Issue Date **2010 May 12**

Underwriters Laboratories Inc.®

Issued to: Hilti, Inc.

54 S 122ND East AVe
Tulsa, OK 74146 USA

This is to certify that representative samples of Fill, Void or Cavity Materials
FS-ONE

Have been investigated by Underwriters Laboratories Inc.® (UL) or any authorized licensee of UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 1479, ANSI/UL 2079, CAN/ULC-S115-05
Third Edition, revised March 1, 2010

Additional Information: FS-ONE Sealant for use in Joint Systems and FS-ONE for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

Only those products bearing the UL Classification Mark should be considered as being covered by UL's Classification and Follow-Up Service.

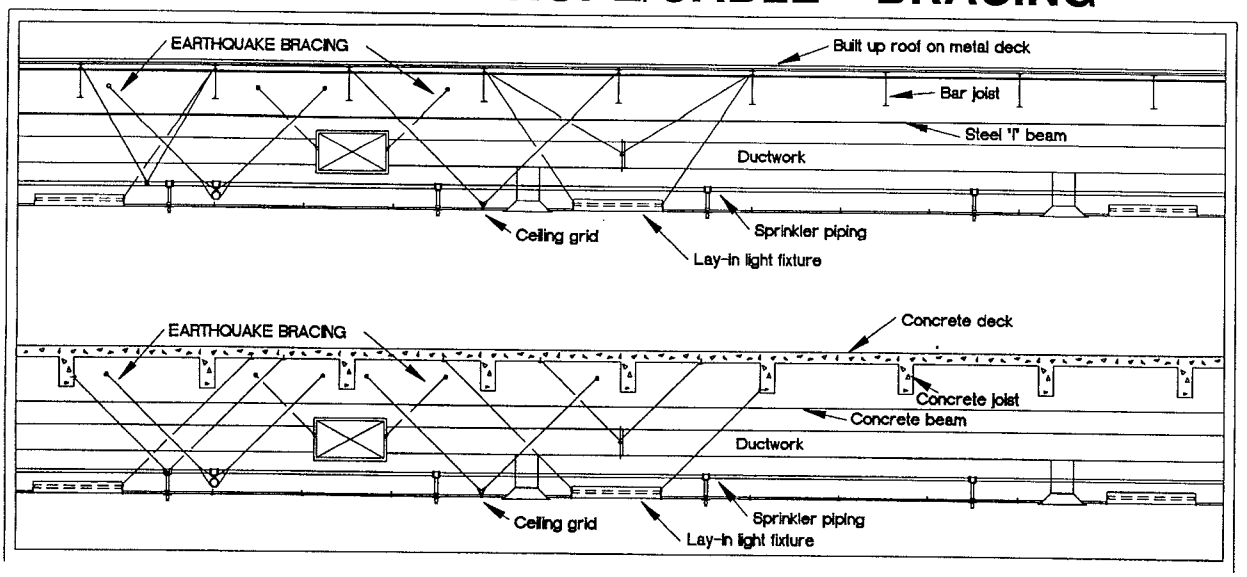
The UL Classification Mark includes: UL in a circle symbol: with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and, the product category name (product identity) as indicated in the appropriate UL Directory.

Look for the UL Classification Mark on the product

Issued by:
Mona Couloute
Mona Couloute
Underwriters Laboratories Inc.

Reviewed by:
Chris J. Johnson
Underwriters Laboratories Inc.

SEISMIC WIRE ROPE/CABLE™ BRACING



ADVANTAGES OF OUR SEISMIC WIRE ROPE/CABLE™ BRACES

*** UL LISTED ***

The only prestretched, color coded, break strength certified wire rope/cable bracing

*** DOCUMENTED CODE COMPLIANCE ***

for

UBC, BOCA, SBCCI, IBC, OSHPD, FEMA, NFPA, ASCE, SMACNA & ASHRAE

*** SHIPPED WITH CERTIFICATE OF PRESTRETCHING & MIN. BREAKING STRENGTH ***

*** ENGINEERING ASSISTANCE FOR PREPARING CODE COMPLYING DESIGNS ***

*** DAMPENS THE EFFECTS OF SEISMIC LOADS ***

*** IDEALLY SUITED FOR SEISMIC RESTRAINT OF ISOLATED SYSTEMS ***

*** UNLIMITED BRACE LENGTH ***

Our braces are not restricted in length due to buckling.

*** NO INCREASED TENSION LOADING ON SYSTEM HANGERS & THEIR ANCHORAGE ***

Unlike braces that resist seismic loads in compression.

*** EASE & ADAPTABILITY OF INSTALLATION ***

*** EASIER & FASTER FOR ONE MAN TO INSTALL ***

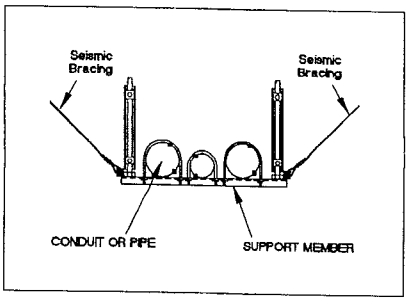
*** REDUCED DESIGN, MATERIALS & INSTALLATION COST ***

*** MADE IN U.S.A.***

CABLEWARE ® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

Loos & Co's
Seismic Wire Rope/Cable™ Bracing

Our standard braces are constructed of a splayed assembly of either 49 or 133 high strength, zinc coated, steel wires which are configured into wire rope/cable. This type of wire rope/cable is similar to that which we have successfully utilized, over the past 40 years, in satisfying the stringent requirements of the aircraft industry. We have made various unique improvements and developed design & installation features in our brace assemblies which greatly enhance their specialized adaptation to the seismic bracing needs of the building industry. See also Appendix "A " Tables detailing the Physical & Mechanical properties of our bracing.

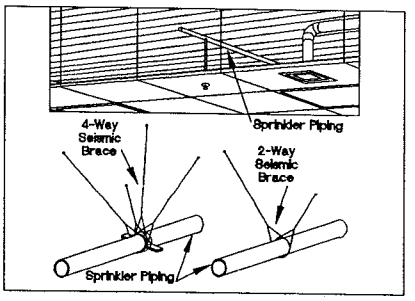


Pre-Stretched Assembly

Our Wire rope/cable is pre-stretched to its maximum recommended working load. This pre-stretching eliminates the permanent stretch which would otherwise result from the wire rope's construction.

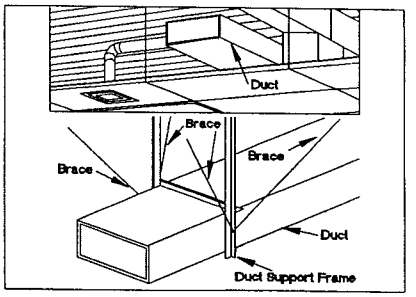
Dampening Seismic Loads

Pre-stretching causes our cable to act in its elastic range; in essence, behaving like a shock absorber. Our braces elongate by about 1 % of their length under maximum recommended working load and recover their original length upon removal of load. This elongation is well within the tolerable limits of components and systems and offers the advantages of dampening the effects of earthquake loads on components, connections, structural elements & fasteners.



Four Standard Color Coded Sizes

Our Standard braces are offered in four basic, minimum breaking strength, sizes (900 # - 1650 # - 4000 # - 6600 #); each size is correspondingly tinted in the colors (red - white - blue - yellow). This has been done for clarity of designation on plans and specifications as well as coordination & confirmation of proper field installation.



Special Design & Installation Features

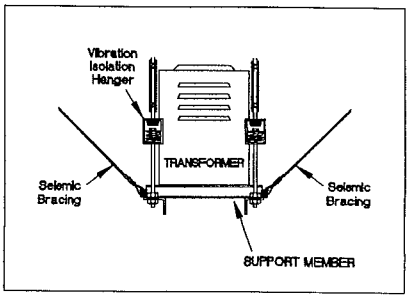
The breaking strengths of our standard braces have been specially designed to consider the magnitude of earthquake loads prescribed by Codes and Standards for typically used components of buildings as well as the ability of these components to transfer loads between braces.

Just as importantly, we have considered the practical load resistance limits of generally available fasteners as well as the ability of secondary structural framing members to resist the concentrated loads imparted by bracing.

Our braces are designed to resist earthquake loads in tension and are not restricted in length as are compression braces due to their radius of gyration limitations.

These features offer designers and installers the advantages of a high degree of flexibility in cost effectively satisfying code requirements as well as the ability to readily adapt our braces to a wider range of design & field installation conditions.

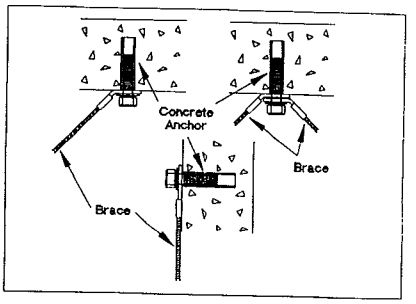
Our standard braces are extremely flexible & lightweight and are offered in precut lengths with or without fixed end fastener fittings as further described on the following pages. These features further facilitate efficient installation and reduce construction costs.



CABLEWARE ® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

Quality Assurance & Certified Break Strength

Loos & Co. is ISO 9002 Certified and maintains a fully staffed Quality Control Department which conducts a rigorous in plant program of inspection, testing and retesting of all its Seismic Wire Rope/Cable™ products to code/industry standards. Your further assurance of the quality of our bracing assemblies is verified by Loos & Co's Certificate of Minimum Breaking Strength which accompanies each shipment.



Concrete Structure

Code & industry Material Standards

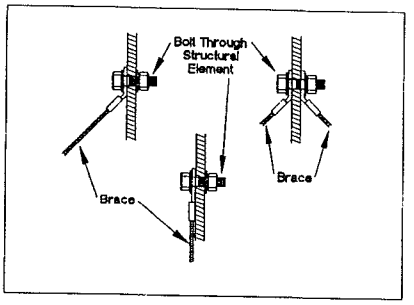
Loos & Co's Seismic Wire Rope/Cable™ is manufactured and tested to equal or exceed the minimum materials standard requirements of:

The Manual for Structural Applications of Steel Cables as originally published by the American Iron and Steel Institute (AISI) and now by the American Society of Civil Engineers (ASCE). This Manual/Standard is referenced by or contained in the BOCA, ICBO, SBCCI and International Building Codes as well as the NEHRP (FEMA).

The mechanical strength requirements of ASTM A 603 as referenced within the above AISI Manual and ASCE Standard.

Breaking strength failure testing under ASTM E-8 procedures.

The Wire Rope Users Manual of the Wire Rope Technical Board by the American Iron & Steel Institute (AISI).

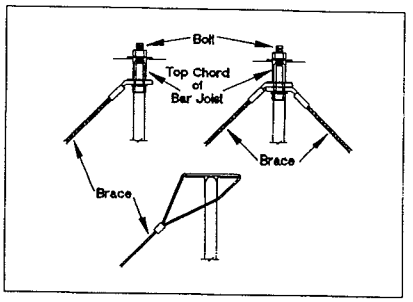


Wood or Steel Structure

Documented Code Compliance

In addition to the above materials standards, we have documented our seismic bracing's compliance with applicable provisions of Model Codes & Standards on resistance to earthquake loads as identified in Section 2 of this publication. These include the following:

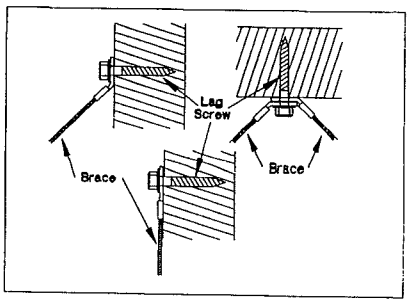
NEHRP (FEMA) Standards adopted under public Law 95-124 & 101-614
ICBO/Uniform Building Codes & Calif. Building Code-CCR Title 24-OSHPD &
BOCA, SBCCI and International Building Codes and ASCE-7
Tri-Services Manuals (Military/Corp of Engineers Construction)
NFPA 13 Standard on Earthquake Resistance of Fire Sprinkler Systems.



Bar Joist Structure

Special Order Bracing

Loos & Co. can readily supply wire rope cable for unusual bracing, structural support and other construction industry needs with special features such as: * certified break-strength capacities to over 100,000 pounds * special corrosion resistance, including stainless steel wire or fire treated coatings & * special lengths for unique uses and applications. For more information & catalogs on these and other capabilities, do not hesitate to contact us by using the special order forms on the last pages of this publication.



Wood Structure

We Service All Industries To The Most Exacting Specifications

THE FOLLOWING PAGES CONTAIN DETAIL INFORMATION ON DESIGN & SELECTION OF OUR BRACES FOR WOOD, CONCRETE AND STEEL CONSTRUCTION.(See also Section 2 & Appendices for Code Compliance Documentation, Supplemental Design Guidelines & Illustrations)

THE LAST PAGES OF THIS PUBLICATION CONTAIN FORMS AND INSTRUCTIONS FOR ORDERING SEISMIC WIRE ROPE/CABLE™ BRACING ASSEMBLIES WITH & WITHOUT FASTENERS, TOOLS AND ACCESSORIES. ADDITIONAL INFORMATION IS ALSO AVAILABLE ON OUR WEB SITE - **www.earthquakebrace.com**

LOOS & CO. INC.
CABLEWARE® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

DESCRIPTION OF SIZE, MODEL, FASTENER and LENGTH for STANDARD SEISMIC WIRE ROPE/CABLE™ BRACES

LOOS & CO., INC. has identified the most commonly needed Seismic Wire Rope/Cable™ Braces for most applications and which are readily adaptable to special conditions. Each of the possible combinations of size, model, fastener and standard length has been assigned a part number that is also reflected in our Price List. The required part number for a particular brace is generated from the various characteristics identified in the brace selection process.

When our Decal is used on shop drawings to identify the pertinent characteristics of the braces being used on the drawing, all of the information required for plan review, installation and ordering information will be on the Decal. This is because the number codes, that are to be filled in on the Decal, make up this Part Number. This will make it easy to fill out the Order Form directly from the information on the Decal without having to search through the entire drawing for the required information. (See Decals in the back of this Manual.) When the Order Form for Braces is filled out, the first four entries after the quantity (5 entries if fasteners are being ordered with the braces) compose the part number for the brace. This part number provides the factory with all of the information necessary to insure that our customers receive all of the bracing material required to satisfy their needs. (See Order Forms in the back of this Manual.)

All of the Tables, Code Information and Recommendations that are included in this publication are here to assist our customers, who may require such assistance, in determining their bracing requirements and ordering our products to satisfy them (See Section 2). For those of our customers who do not require assistance in determining their requirements, understanding the Part Numbering System will enable them to order brace packages to suit their needs by describing any Part Number that would result in the delivery of the desired brace components. Customers who do require assistance in determining their bracing requirements will also find it beneficial to understand this Part Numbering System. Simply put, we sell packages of bracing components. Each package includes either two or four cables in one of three standard sizes. Each cable has an end treatment for a desired type of connection to the building structure and an end treatment for the connection to the braced component. The end treatment for the connection to the structure will most often be a " Stake Eye " which is either straight or bent at a 45° angle and has a hole to receive a fastener. Some of these end treatments will have no end fitting because the cable is to be looped around a structural element or through a fastener (such as a "U" bolt). There are 5 Standard Brace Lengths ranging from one to thirteen feet. This " Brace Length " is the distance from the point of connection to the structure to the point of connection to the braced component. The factory will automatically increase the actual length of the cables to allow enough for making the necessary connections. Material required for making connections to the braced component, such as thimbles or pipe clamps, are not included in the brace Part Number but they can be included with each brace by indicating them on the order form with each brace.

DESCRIPTION OF STANDARD BRACE PART NUMBERS

BRACE MODEL
A = 2-way brace w/ straight stake eye
B = 2-way brace w/ 45° stake eye or no end fittings
C = 4-way brace w/ 45° stake eye or no end fittings
(Fastener Code determines hole size in stake eyes)

BRACE SIZE
(12, 18, 36 or 48)
See opposite page for break strengths and allowable loads

FASTENER CODE
(00 THROUGH 34)
00 = Looped connection to structure (No end fitting on cables)
1 through 34 = Code for fastener type and size (see Brace Selection Tables

BRACE LENGTH
(1, 4, 7, 10 OR 13)
Distance from fastener to braced component in feet.

WITH OR WITHOUT FASTENERS INCLUDED
F = Fasteners included with brace
BLANK = Fasteners not included

12 - A01 - 1F

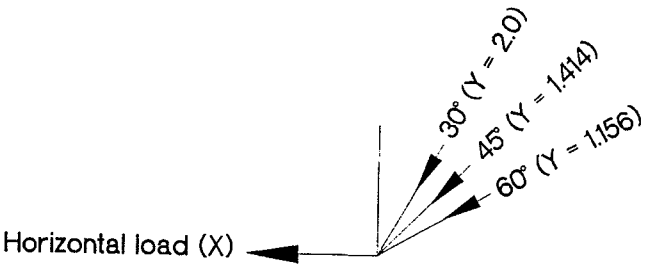
LOOS & CO. INC.
CABLEWARE® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

SEISMIC WIRE ROPE/CABLE™ BRACING
UNDERSTANDING THE BRACING TABLES

MADE IN USA

These bracing tables have been designed to speed and simplify the selection of the correct brace by organizing the information according to the type of building structure and the type of fasteners used to attach braces to that type of structure. The selection process is further simplified by listing the braces by their size with related fasteners and indicating their MAXIMUM RECOMMENDED HORIZONTAL LOAD in lbs. which eliminates many repetitive computations.

Braces are designed by determining the horizontal load of the component being braced and then multiplying by the proportion of the brace angle from vertical to the horizontal plane in order to a determine the load applied to the brace, its fasteners, connection to the braced component and the structural element to which the brace is attached.



The APPLIED LOAD = X x Y
For a 2,000 lb. horizontal load at a 45° brace angle, the load applied to the brace, its component parts and the structure would be 2,828 lbs.

Once the APPLIED LOAD is determined, brace components and fasteners must be selected which are capable of withstanding the applied load while maintaining the required safety factor. A brace that has an ultimate break strength (breaks or pulls apart) at 2,000 lbs. would have an allowable load of 1,333 lbs. with a safety factor of 1.5 (2.0 increased by 1/3 for earthquake loading). This brace would NOT be adequate for the 2,000 lb. horizontal load in the example above. The fasteners used to attach the brace to the structure would also have to be capable of withstanding the APPLIED LOAD.

In order to determine the MAXIMUM ALLOWABLE HORIZONTAL LOAD for the brace in this example, the 2,000 lb. ultimate break strength would be divided by the 1.5 safety factor to arrive at an allowable load of 1,333 lb. and then this allowable load would be divided by the proportion of the brace angle to the horizontal plane as follows :

1,333 lbs. divided by 2.0 for a 30° brace angle = 667 lbs. MAXIMUM HORIZONTAL LOAD
1,333 lbs. divided by 1.414 for a 45° brace angle = 943 lbs. MAXIMUM HORIZONTAL LOAD
1,333 lbs. divided by 1.156 for a 60° brace angle = 1,153 lbs. MAXIMUM HORIZONTAL LOAD

NOTE: PIPE, ANGLE & STRUT TYPE BRACES ACT IN BOTH TENSION AND COMPRESSION. THEIR LENGTH IS RESTRICTED BY A LENGTH TO LEAST RADIUS OF GYRATION RATIO OF 200 TO REDUCE THE RISK OF BUCKLING UNDER COMPRESSION. SEISMIC WIRE ROPE/CABLE™ BRACES ACT ONLY IN TENSION AND ARE NOT RESTRICTED IN LENGTH. THIS PERMITS THE USER TO ORDER BRACES SUBSTANTIALLY LONGER & AT MINIMAL ADDITIONAL COST WHILE ALLOWING FOR MAXIMUM FIELD ADJUSTMENT WITH NO IMPACT ON THE BRACE STRENGTH.

These bracing tables make it possible to select the correct brace directly from the known horizontal load without having to make the necessary additional calculations for applied loads on the brace, safety factor, etc., and determining the appropriate fastener. The RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOADS are based on the lower value of either the brace itself or NFPA recommendations for the fasteners indicated, according to the brace angle and the method of attachment.

For reference, the following is the basis used in the Bracing Tables for determining the maximum allowable horizontal loads of the braces themselves:

BRACE SIZE	COLOR CODE FOR PRODUCT IDENTIFICATION	CERTIFIED MINIMUM BREAK STRENGTH IN LBS.	ALLOWABLE LOAD WITH SAFETY FACTOR OF 1.5 IN LBS. * UL LOAD RATING	RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD BY BRACE ANGLE		
				30° - 44°	45° - 59°	60° - 90°
12	RED	900	* 600	300	424	519
18	WHITE	1,650	* 1,100	550	778	952
36	BLUE	4,000	* 2,667	1,333	1,886	2307
48	YELLOW	6,600	4,400	2,200	3,112	3,806

RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOADS shown in the bracing tables that are lower than those indicated in this table are due to a lower value for the fastener.

LOOS & CO. INC.
CABLEWARE ® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

HOW TO USE THE BRACING TABLES

These Bracing Tables are used to select braces of the appropriate size and strength for the known HORIZONTAL LOAD requirements of the braces. Brace strength is most often controlled by the strength of the fastener used to attach it to a structural element and by the structural element itself. Each of these Bracing Tables has a heading that identifies the type of fastener and building structure to which it applies.

While these tables would primarily be used to select braces after the bracing layout is complete and the horizontal load requirements are calculated, substantial efficiency can be achieved and redesign avoided by reviewing the available maximum horizontal loads beforehand for the braces that will have to be used. Layout of braces at the maximum allowable spacing may result in horizontal load requirements that are too high for any of the fasteners and structural elements that will have to be used.

These tables reflect our standard line of seismic braces which employ prestretched, galvanized steel, color coded wire rope/cable with certified minimum break strengths. If special coatings, stainless steel, higher mimimum break strengths, etc. are required for a particular application, please contact us.

For assistance in satisfying applicable building code requirements for seismic bracing of nonstructural building components, including bracing layout and load requirements and for our recommendations on how to satisfy them, refer to Section 2 of this publication.

Ordering information may be found in the back of this catalog. The Brace Size, Model Number and Fastener Code selected from these Bracing Tables will be required for ordering.

Each brace is individually packaged, when precut cables wth factory installed stake eyes are used and they can be ordered with fasteners and/or pipe clamps. ALL of the material required for the complete installation of the brace, including bolts, nuts, washers, etc., is in the package.

NOTE : The user may opt to field fabricate the brace assemblies by ordering spools of cable, oval sleeves and URC Clips in the required sizes. The strength of these field assemblies, including the proper field connections, will be identical to that of the factory packaged braces.

OUR PRIMARY RECOMMENDATIONS WHEN SELECTING BRACES

1. When the brace angle is uncertain, and it usually is, select braces according to the lowest recommended maximum allowable horizontal load.
2. Always order braces longer than anticipated to allow for maximum field adjustment for job conditions.
3. Instruct field personel to always install braces at a 45° or greater brace angle so that the vertical reaction will be neutralized by the weight of the braced component in most cases.
4. Always use a Locoloc®Hand Swaging tool in accordance with crimping instructions in order to maintain brace strength.

BRACE SELECTION PROCEDURE

(1) Turn to the Bracing Table with the heading for the fastener and type of building construction to which the brace will be attached.

(2) Select the Model Number for the brace configuration to be used.
NOTE : The Model "A" brace has straight cable ends to receive a fastener in the side of a structural element and with the brace pulling perpendicular to the fastener.
The Model "B" and "C" braces have 45° cable ends to receive a fastener either in the side or in the bottom of a structural element and with the brace pulling down and at an angle to the fastener.

(3) Go to the Load Column for the fastener configuration to be used.
NOTE : The left hand column is for Model "A" braces.
The middle column is for Model "B" and "C" braces with the FASTENER INSTALLED VERTICALLY.
The right hand column is for Model "B" and "C" braces with the FASTENER INSTALLED HORIZONTALLY.

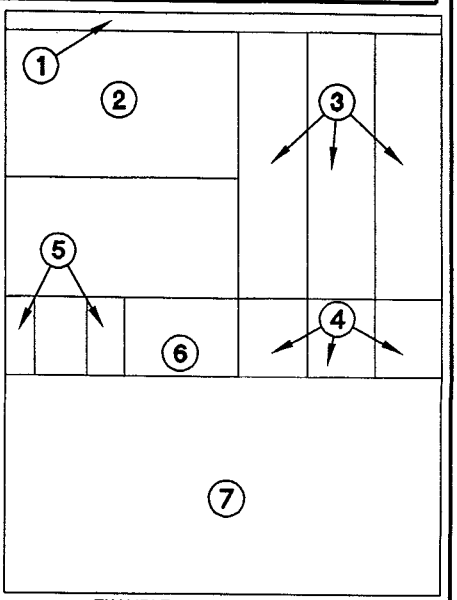
(4) Find a RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOAD that is HIGHER than the horizontal load required for the brace.
NOTE : Each Load Column is divided into three columns according to the brace angle. When in doubt, use the 30° Column.

(5) Read the Brace Size and Fastener Code for the required brace to the left of the Recommended Maximum Allowable Horizontal Load.
NOTE : Some of the Bracing Tables have loads and/or fasteners which depend on the thickness of the structural element to which the brace is attached. Be sure to watch for this in AREA (6) of the Table.
Examples of some of the possible methods of attaching braces to structural elements with the fasteners listed in AREA (6) are shown in AREA (7).

SEE PAGE 1-15 FOR DETAILS OF CONNECTIONS TO BRACED COMPONENTS.

The information contained in this catalog is, to the best of our knowledge, accurate. It gives recommendations only and users are cautioned to modify each installation as required to meet all federal, state and local laws and regulations which may supercede these recommendations.

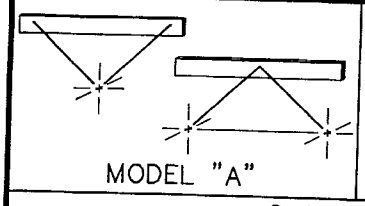
Because conditions of handling and use are beyond our control, we make no warranty, either expressed or implied, including warranties of merchantability and fitness for a particular purpose and we assume no liability, either in tort or contract for loss, damages whether direct, incidental or consequential, or penalties resulting from following our recommendations.

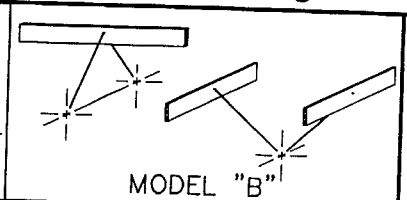


EXAMPLE OF BRACING TABLE

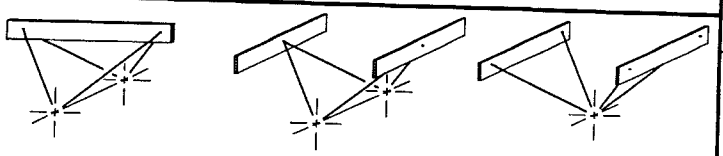
LOOS & CO. UNI
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : (941) 643-4558

Lag Screw Anchorage in WOOD Construction

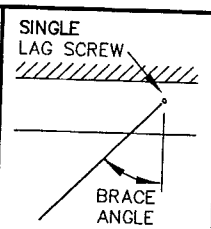




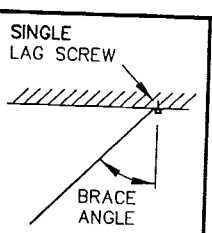
2-WAY BRACES



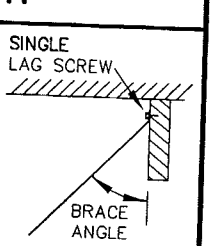
4-WAY BRACES



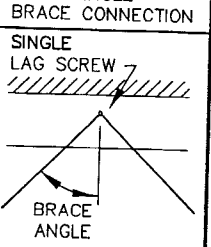
SINGLE BRACE CONNECTION



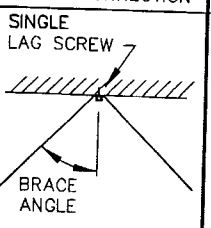
SINGLE BRACE CONNECTION



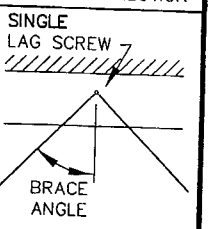
SINGLE BRACE CONNECTION



DOUBLE BRACE CONNECTION



DOUBLE BRACE CONNECTION



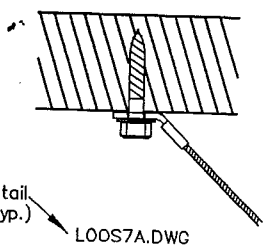
DOUBLE BRACE CONNECTION

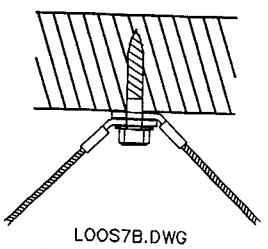
NOTE : The RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOADS listed in this table are based on the lower allowable load of either the fastener to the structural element to which the brace is attached or the brace itself. Allowable loads used for the fasteners are based on NFPA-13 according to the brace angle and the method of attachment. Allowable loads for the braces are based on their "UL LOAD RATINGS" (ultimate break strength with a safety factor of 1.5 for earthquake loading). This allowable load is then adjusted to show the maximum allowable horizontal load when applied to the brace at the angles indicated. The maximum load then allowed to be applied to the brace and its fasteners is equal to the recommended maximum allowable horizontal load multiplied by 2.0 for a 30° brace angle, by 1.414 for a 45° brace angle and by 1.156 for a 60° brace angle.

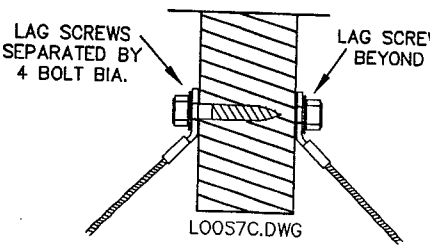
THE DESIGN PROFESSIONAL RESPONSIBLE FOR EACH PROJECT ON WHICH THESE BRACES ARE USED MUST APPROVE THE BRACING LAYOUT, THE CAPABILITY OF THE STRUCTURAL ELEMENTS TO WHICH THE BRACES ARE ATTACHED TO WITHSTAND THE APPLIED LOADS AND THE USE OF THE BRACES THEMSELVES WITH THEIR FASTENERS.

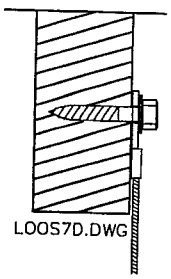
BRACE SIZE	BRACE MODEL NO.	FASTENER CODE	WOOD FASTENER TO STRUCTURE	MODEL "A" WITH STRAIGHT STAKE EYE CABLE END			MODEL "B" or "C" WITH 45° STAKE EYE CABLE END			MODEL "B" or "C" WITH 45° STAKE EYE CABLE END		
				FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE PARALLEL TO BEAM.			FASTENER INSTALLED IN BOTTOM OF DECK OR BEAM.			FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE ANGLED AWAY.		
				RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD			RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD			RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD		
				BRACE ANGLE			BRACE ANGLE			BRACE ANGLE		
				30°	45°	60°	30°	45°	60°	30°	45°	60°
12	A, B or C	01	#16 X 2 DRIVE SCREW	*158	*224	*274	*167	*224	*200	*114	*224	*290
12	A, B or C	02	3/8 X 3 LAG SCREW	230	324	400	300	325	292	168	325	519
12	A, B or C	03	3/8 X 4 LAG SCREW	250	352	435	300	354	317	183	354	519
12	A, B or C	04	1/2 X 4 LAG SCREW	300	424	519	300	424	456	264	424	519
18	A, B or C	05	1/2 X 4 LAG SCREW	360	507	626	473	509	456	264	509	818

* RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOADS INTERPOLATED FROM NFPA-13 HANGER FORMULA APPLIED TO DRIVE SCREWS WHEN USED WITH "U" HOOKS AT MAXIMUM HANGER SPACING FOR 2" PIPE.

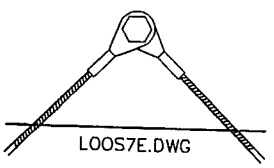


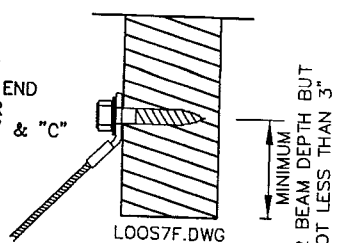






STRAIGHT CABLE END FOR MODEL "A" ONLY

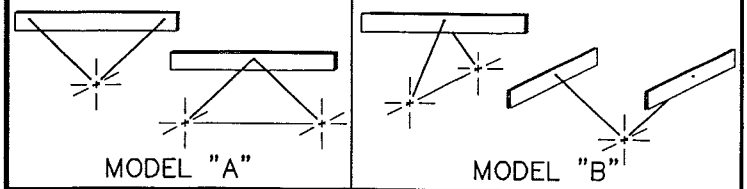




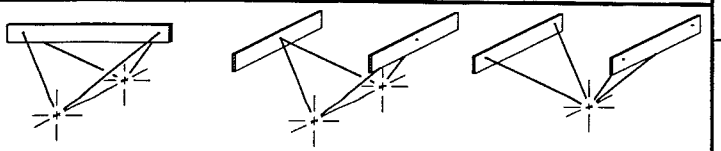
EXAMPLES OF LAG SCREW ANCHORAGE TO WOOD STRUCTURE
STAKE EYE AND CABLE ASSEMBLIES (SHOWN), URC & CABLE ASSEMBLIES SIMILAR & EQUAL STRENGTH.

LOOS & CO. INC.
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : (941) 643-4558

Bolted Anchorage in WOOD Construction



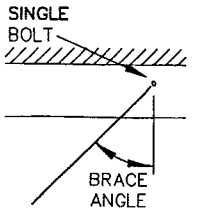
2-WAY BRACES



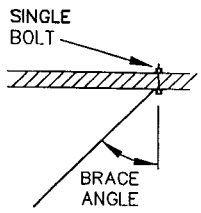
4-WAY BRACES

NOTE : The RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOADS listed in this table are based on the lower allowable load of either the fastener to the structural element to which the brace is attached or the brace itself. Allowable loads used for the fasteners are based on NFPA-13 according to the brace angle and the method of attachment. Allowable loads for the braces are based on their "UL LOAD RATINGS" (ultimate break strength with a safety factor of 1.5 for earthquake loading). This allowable load is then adjusted to show the maximum allowable horizontal load when applied to the brace at the angles indicated. The maximum load then allowed to be applied to the brace and its fasteners is equal to the recommended maximum allowable horizontal load multiplied by 2.0 for a 30° brace angle, by 1.414 for a 45° brace angle and by 1.156 for a 60° brace angle.

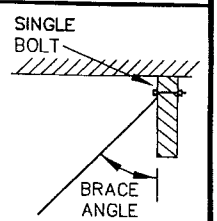
THE DESIGN PROFESSIONAL RESPONSIBLE FOR EACH PROJECT ON WHICH THESE BRACES ARE USED MUST APPROVE THE BRACING LAYOUT, THE CAPABILITY OF THE STRUCTURAL ELEMENTS TO WHICH THE BRACES ARE ATTACHED TO WITHSTAND THE APPLIED LOADS AND THE USE OF THE BRACES THEMSELVES WITH THEIR FASTENERS.



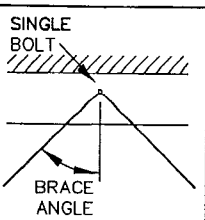
SINGLE BRACE CONNECTION



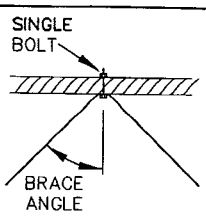
SINGLE BRACE CONNECTION



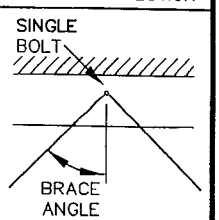
SINGLE BRACE CONNECTION



DOUBLE BRACE CONNECTION



DOUBLE BRACE CONNECTION



DOUBLE BRACE CONNECTION

MODEL "A" WITH STRAIGHT STAKE EYE CABLE END

FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE PARALLEL TO BEAM.

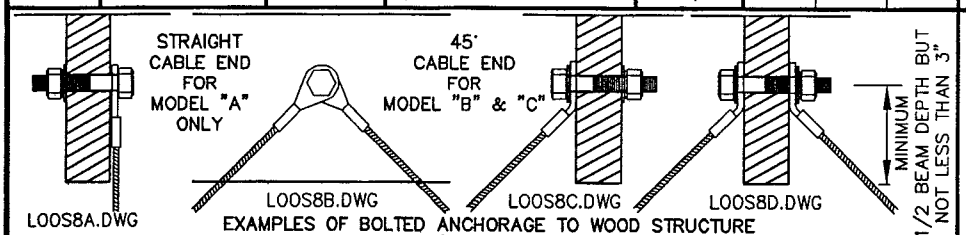
MODEL "B" or "C" WITH 45° STAKE EYE CABLE END

FASTENER INSTALLED IN BOTTOM OF DECK OR BEAM.

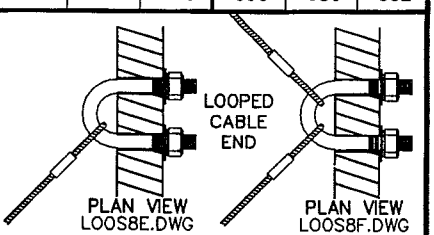
MODEL "B" or "C" WITH 45° STAKE EYE CABLE END

FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE ANGLED AWAY.

BRACE SIZE	BRACE MODEL NO.	FASTENER CODE	WOOD FASTENER TO STRUCTURE	WOOD THICKNESS	RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD BRACE ANGLE 30°	45°	60°	RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD BRACE ANGLE 30°	45°	60°	RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD BRACE ANGLE 30°	45°	60°
12	A, B or C	06	3/8 X 3 BOLT	1 1/2	150	211	261	300	300	300	173	300	519
12	A, B or C	09	1/2 X 3 BOLT	1 1/2	170	239	296	300	347	340	197	340	519
18	A, B or C	09	1/2 X 3 BOLT	1 1/2	170	239	296	340	340	340	197	340	589
12	A, B or C	06	3/8 X 3 BOLT	2	185	261	322	300	370	370	214	370	519
12	A, B or C	09	1/2 X 3 BOLT	2	210	296	365	300	420	420	243	420	519
18	A, B or C	09	1/2 X 3 BOLT	2	210	296	365	420	420	420	243	420	727
12	A, B or C	07	3/8 X 4 BOLT	2 1/2	230	324	400	300	424	460	266	424	519
12	A, B or C	10	1/2 X 4 BOLT	2 1/2	275	387	478	300	424	519	300	424	519
18	A, B or C	10	1/2 X 4 BOLT	2 1/2	275	387	478	550	550	550	318	550	952
12	A, B or C	07	3/8 X 4 BOLT	3	240	338	417	300	424	480	277	424	519
12	A, B or C	10	1/2 X 4 BOLT	3	300	424	519	300	424	519	300	424	519
18	A, B or C	10	1/2 X 4 BOLT	3	315	444	548	550	630	630	364	630	952
12	A, B or C	08	3/8 X 5 BOLT	3 5/8	230	324	400	300	424	460	268	424	519
12	A, B or C	11	1/2 X 5 BOLT	3 5/8	300	424	519	300	424	519	300	424	519
18	A, B or C	11	1/2 X 5 BOLT	3 5/8	360	507	626	550	720	720	416	720	952
12	A, B or C	12	1/2 X 7 BOLT	5 1/2	300	424	519	300	424	519	300	424	519
18	A, B or C	12	1/2 X 7 BOLT	5 1/2	340	479	591	550	680	680	393	680	952



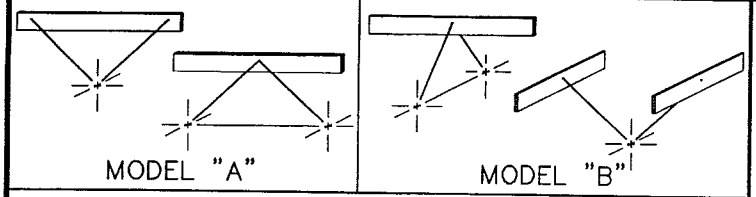
EXAMPLES OF BOLTED ANCHORAGE TO WOOD STRUCTURE
STAKE EYE AND CABLE ASSEMBLIES (SHOWN), URC & CABLE ASSEMBLIES SIMILAR.



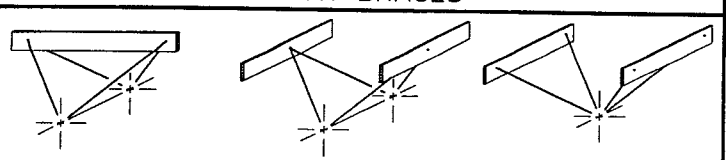
EXAMPLES OF "U" BOLT ANCHORAGE

LOOS & CO. U.S.A.
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : (941) 643-4558

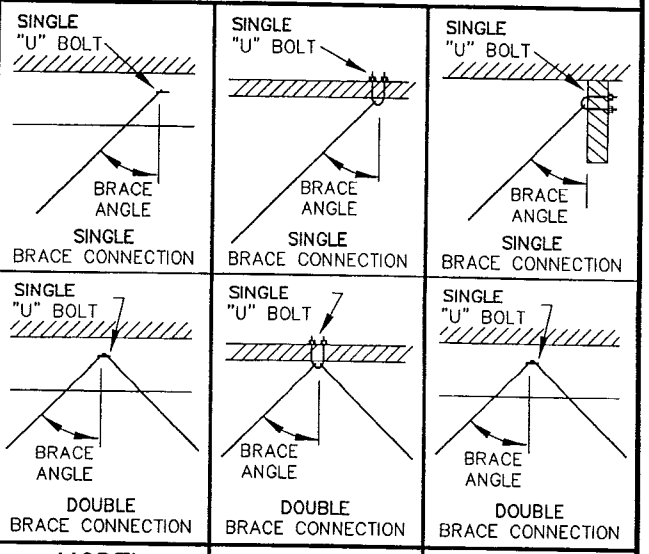
"U" BoltAnchorage in WOOD construction



2–WAY BRACES



4–WAY BRACES



NOTE : The RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOADS listed in this table are based on the lower allowable load of either the fastener to the structural element to which the brace is attached or the brace itself. Allowable loads used for the fasteners are based on NFPA–13 according to the brace angle and the method of attachment. Allowable loads for the braces are based on their "UL LOAD RATINGS" (ultimate break strength with a safety factor of 1.5 for earthquake loading). This allowable load is then adjusted to show the maximum allowable horizontal load when applied to the brace at the angles indicated. The maximum load then allowed to be applied to the brace and its fasteners is equal to the recommended maximum allowable horizontal load multiplied by 2.0 for a 30° brace angle, by 1.414 for a 45° brace angle and by 1.156 for a 60° brace angle.

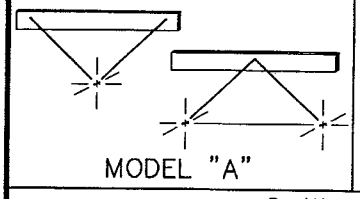
THE DESIGN PROFESSIONAL RESPONSIBLE FOR EACH PROJECT ON WHICH THESE BRACES ARE USED MUST APPROVE THE BRACING LAYOUT, THE CAPABILITY OF THE STRUCTURAL ELEMENTS TO WHICH THE BRACES ARE ATTACHED TO WITHSTAND THE APPLIED LOADS AND THE USE OF THE BRACES THEMSELVES WITH THEIR FASTENERS.

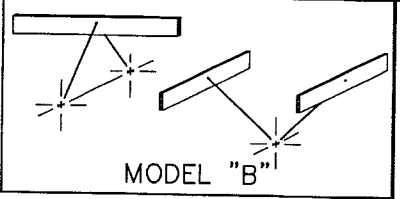
BRACE SIZE	BRACE MODEL NO.	FASTENER CODE	WOOD FASTENER TO STRUCTURE	WOOD THICKNESS	MODEL "A" WITH "U" THROUGH LOOPED CABLE END — FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE PARALLEL TO BEAM. RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD — BRACE ANGLE			MODEL "B" or "C" WITH "U" THROUGH LOOPED CABLE END — FASTENER INSTALLED IN BOTTOM OF DECK OR BEAM. RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD — BRACE ANGLE			MODEL "B" or "C" WITH "U" THROUGH LOOPED CABLE END — FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE ANGLED AWAY. RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD — BRACE ANGLE		
					30°	45°	60°	30°	45°	60°	30°	45°	60°
18	A, B or C	13	3/8 X 4 "U" BOLT	1 1/2	300	422	522	550	600	600	346	600	952
18	A, B or C	16	1/2 X 4 "U" BOLT	1 1/2	340	478	592	550	680	680	394	680	952
36	A, B or C	16	1/2 X 4 "U" BOLT	1 1/2	340	478	592	680	680	680	394	680	1178
36	A, B or C	20	5/8 X 4 "U" BOLT	1 1/2	390	550	678	780	780	780	450	780	1350
18	A, B or C	13	3/8 X 4 "U" BOLT	2	370	522	644	550	740	740	428	740	952
18	A, B or C	16	1/2 X 4 "U" BOLT	2	420	592	730	550	778	840	486	778	952
36	A, B or C	16	1/2 X 4 "U" BOLT	2	420	592	730	840	840	840	486	840	1454
36	A, B or C	20	5/8 X 4 "U" BOLT	2	470	662	818	940	940	940	544	940	1628
18	A, B or C	14	3/8 X 5 "U" BOLT	2 1/2	460	648	800	550	778	920	532	778	952
18	A, B or C	17	1/2 X 5 "U" BOLT	2 1/2	550	774	952	550	778	952	550	778	952
36	A, B or C	17	1/2 X 5 "U" BOLT	2 1/2	550	774	956	1100	1100	1100	636	1100	1904
36	A, B or C	21	5/8 X 5 "U" BOLT	2 1/2	620	874	1078	1240	1240	1240	716	1240	2148
18	A, B or C	14	3/8 X 5 "U" BOLT	3	480	676	834	550	778	952	550	778	952
18	A, B or C	17	1/2 X 5 "U" BOLT	3	550	778	952	550	778	952	550	778	952
36	A, B or C	17	1/2 X 5 "U" BOLT	3	630	888	1096	1260	1260	1260	728	1260	2182
36	A, B or C	21	5/8 X 5 "U" BOLT	3	710	1000	1234	1333	1420	1420	820	1420	2307
18	A, B or C	15	3/8 X 6 "U" BOLT	3 5/8	460	648	800	550	778	920	536	778	952
18	A, B or C	18	1/2 X 6 "U" BOLT	3 5/8	550	778	952	550	778	952	550	778	952
36	A, B or C	18	1/2 X 6 "U" BOLT	3 5/8	720	1012	1252	1333	1440	1440	832	1440	2307
36	A, B or C	22	5/8 X 6 "U" BOLT	3 5/8	850	1198	1478	1333	1700	1700	982	1700	2307
18	A, B or C	19	1/2 X 8 "U" BOLT	5 1/2	550	778	952	550	778	952	550	778	952
36	A, B or C	19	1/2 X 8 "U" BOLT	5 1/2	680	958	1182	1333	1360	1360	786	1360	2307
36	A, B or C	23	5/8 X 8 "U" BOLT	5 1/2	1020	1436	1774	1333	1886	2040	1180	1886	2307

SEE CADD DETAILS OF "U" BOLT ANCHORAGE TO WOOD CONSTRUCTION UNDER " BOLTED ANCHORAGE IN WOOD CONSTRUCTION ".

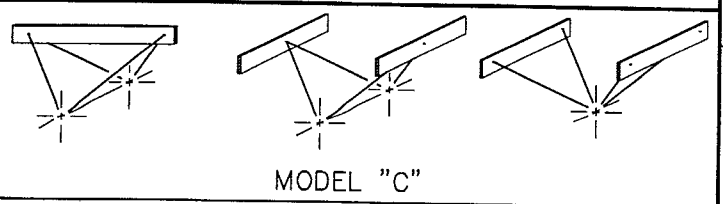
LOOS & CO. U.S.A.
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1–800–321–5667
FAX : (941) 643–4558

Anchorage in CONCRETE





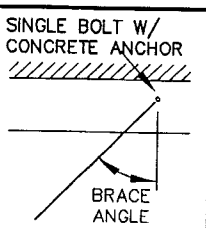
2-WAY BRACES



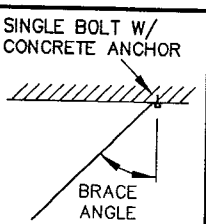
4-WAY BRACES

NOTE : The RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOADS listed in this table are based on the lower allowable load of either the fastener to the structural element to which the brace is attached or the brace itself. Allowable loads used for the fasteners are based on NFPA-13 according to the brace angle and the method of attachment. Allowable loads for the braces are based on their "UL LOAD RATINGS" (ultimate break strength with a safety factor of 1.5 for earthquake loading). This allowable load is then adjusted to show the maximum allowable horizontal load when applied to the brace at the angles indicated. The maximum load then allowed to be applied to the brace and its fasteners is equal to the recommended maximum allowable horizontal load multiplied by 2.0 for a 30° brace angle, by 1.414 for a 45° brace angle and by 1.156 for a 60° brace angle.

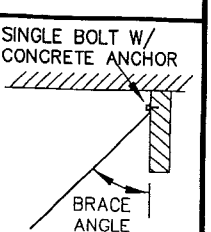
THE DESIGN PROFESSIONAL RESPONSIBLE FOR EACH PROJECT ON WHICH THESE BRACES ARE USED MUST APPROVE THE BRACING LAYOUT, THE CAPABILITY OF THE STRUCTURAL ELEMENTS TO WHICH THE BRACES ARE ATTACHED TO WITHSTAND THE APPLIED LOADS AND THE USE OF THE BRACES THEMSELVES WITH THEIR FASTENERS.



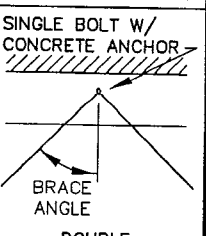
SINGLE BRACE CONNECTION



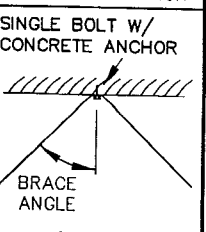
SINGLE BRACE CONNECTION



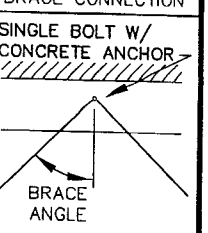
SINGLE BRACE CONNECTION



DOUBLE BRACE CONNECTION



DOUBLE BRACE CONNECTION

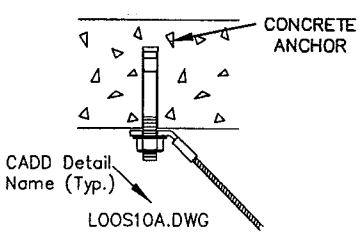


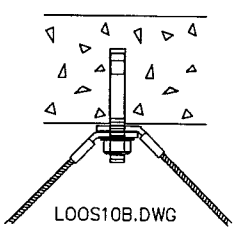
DOUBLE BRACE CONNECTION

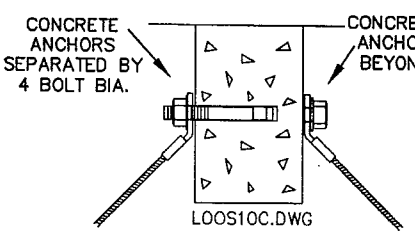
BRACE SIZE	BRACE MODEL NO.	FASTENER CODE	CONCRETE FASTENER TO STRUCTURE	MODEL "A" WITH STRAIGHT STAKE EYE CABLE END — FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE PARALLEL TO BEAM. — RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD — BRACE ANGLE 30°	45°	60°	MODEL "B" or "C" WITH 45° STAKE EYE CABLE END — FASTENER INSTALLED IN BOTTOM OF DECK OR BEAM. — RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD — BRACE ANGLE 30°	45°	60°	MODEL "B" or "C" WITH 45° STAKE EYE CABLE END — FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE ANGLED AWAY. — RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD — BRACE ANGLE 30°	45°	60°
12	A, B or C	24	1/4 X 3 1/4 WS-1432 ITW TRUBOLT	*210	*297	*363	*144	*218	*296	*171	*218	*250
12	A, B or C	25	3/8 X 3 3/4 WS-3836 ITW TRUBOLT	300	424	519	300	424	519	300	424	519
18	A, B or C	25	3/8 X 3 3/4 WS-3836 ITW TRUBOLT	550	778	952	498	778	952	550	778	952
36	A, B or C	26	1/2 X 5 1/2 WS-1254 ITW TRUBOLT	1333	1886	2307	923	1782	2076	1200	1782	1597

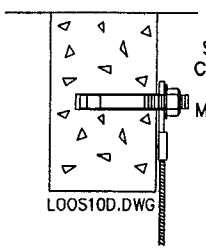
* RECOMMENDED MAXIMUM ALLOWABLE LOADS FOR 1/4 X 3 1/4 ITW TRUBOLT ARE BASED ON ICBO EVALUATION REPORT ER-1372 3/1/99 FOR 2 1/8" EMBEDMENT IN 2000 lb. STONE AGGREGATE CONCRETE.

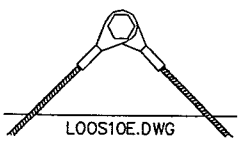
NOTE : This Brace Assembly Load Table is based on the NFPA-13 Table for Expansion Shields in Concrete. The California Code of Regulations has, and others may have, safety factor requirements that differ from those of NFPA. The 1997 ICBO Uniform Building Code requires that loads be doubled, if the anchor to embedment depth ratio is less than 8. The user must verify the use of the NFPA-13 Allowable Loads on Expansion Shields used in this Table.

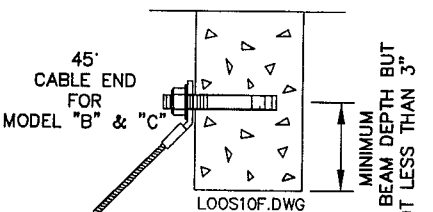












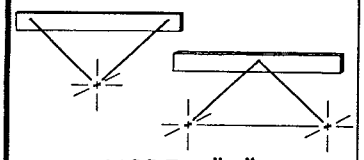
EXAMPLES OF ANCHORAGE TO CONCRETE STRUCTURE
STAKE EYE AND CABLE ASSEMBLIES (SHOWN), URC & CABLE ASSEMBLIES SIMILAR & EQUAL STRENGTH.

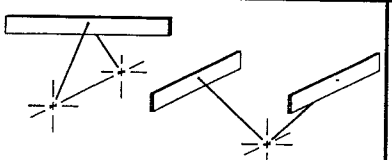
CONCRETE ANCHOR DIA. (In.)	MINIMUM EMBEDMENT DEPTH (In.)	INSTALL. TORQUE (Ft. Lbs.)
1/4"	1 1/8" (*)	8 (*)
3/8"	2 1/2" (per NFPA)	25 (*)
1/2"	3 1/4" (per NFPA)	55 (*)

* MANUFACTURER RECOMMENDED EMBEDMENT DEPTH OR INSTALLATION TORQUE.

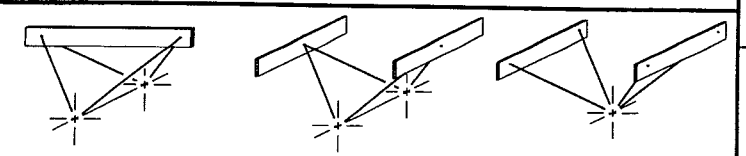
LOOS & CO. UNI
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : (941) 643-4558

Anchorage in STEEL

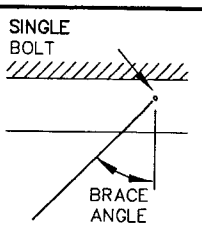




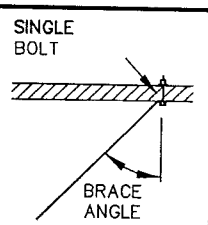
2-WAY BRACES



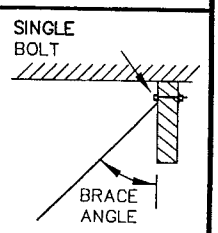
4-WAY BRACES



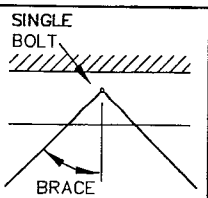
SINGLE BRACE CONNECTION



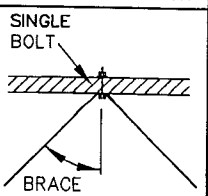
SINGLE BRACE CONNECTION



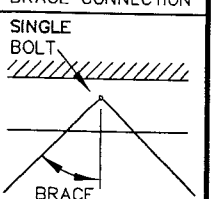
SINGLE BRACE CONNECTION



DOUBLE BRACE CONNECTION



DOUBLE BRACE CONNECTION



DOUBLE BRACE CONNECTION

NOTE : The RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOADS listed in this table are based on the lower allowable load of either the fastener to the structural element to which the brace is attached or the brace itself. Allowable loads used for the fasteners are based on NFPA-13 according to the brace angle and the method of attachment. Allowable loads for the braces are based on their "UL LOAD RATINGS" (ultimate break strength with a safety factor of 1.5 for earthquake loading). This allowable load is then adjusted to show the maximum allowable horizontal load when applied to the brace at the angles indicated. The maximum load then allowed to be applied to the brace and its fasteners is equal to the recommended maximum allowable horizontal load multiplied by 2.0 for a 30° brace angle, by 1.414 for a 45° brace angle and by 1.156 for a 60° brace angle.

THE DESIGN PROFESSIONAL RESPONSIBLE FOR EACH PROJECT ON WHICH THESE BRACES ARE USED MUST APPROVE THE BRACING LAYOUT, THE CAPABILITY OF THE STRUCTURAL ELEMENTS TO WHICH THE BRACES ARE ATTACHED TO WITHSTAND THE APPLIED LOADS AND THE USE OF THE BRACES THEMSELVES WITH THEIR FASTENERS.

MODEL "A" WITH STRAIGHT STAKE EYE CABLE END

FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE PARALLEL TO BEAM.

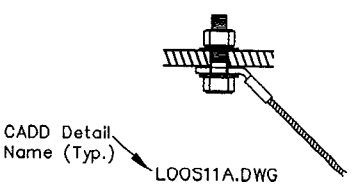
MODEL "B" or "C" WITH 45° STAKE EYE CABLE END

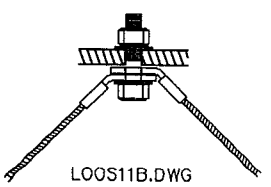
FASTENER INSTALLED IN BOTTOM OF DECK OR BEAM.

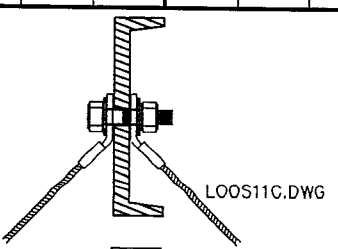
MODEL "B" or "C" WITH 45° STAKE EYE CABLE END

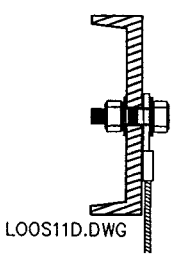
FASTENER INSTALLED PERPENDICULAR TO BEAM WITH BRACE ANGLED AWAY.

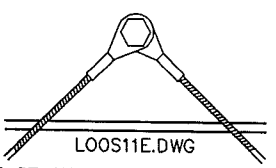
BRACE SIZE	BRACE MODEL NO.	FASTENER CODE	STEEL FASTENER TO STRUCTURE	STEEL THICKNESS	RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD BRACE ANGLE 30°	45°	60°	RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD BRACE ANGLE 30°	45°	60°	RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD BRACE ANGLE 30°	45°	60°
12	A, B or C	27	1/4 X 1 1/2 HEX HD CP SCR	0 – 3/8	300	424	519	300	424	519	300	424	519
18	A, B or C	27	1/4 X 1 1/2 HEX HD CP SCR	0 – 3/8	325	458	565	400	500	600	300	500	650
18	A, B or C	28	3/8 X 1 1/2 HEX HD CP SCR	0 – 3/8	550	778	952	550	778	952	550	778	952
36	A, B or C	28	3/8 X 1 1/2 HEX HD CP SCR	0 – 3/8	735	1035	1278	900	1200	1400	800	1200	1550
36	A, B or C	29	1/2 X 1 1/2 HEX HD CP SCR	0 – 3/8	1300	1830	2260	1333	1886	2307	1333	1886	2307
12	A, B or C	30	1/4 X 2 1/2 BOLT	1/2 – 1	300	424	519	300	424	519	300	424	519
18	A, B or C	30	1/4 X 2 1/2 BOLT	1/2 – 1	325	458	565	400	500	600	300	500	650
18	A, B or C	31	3/8 X 2 1/2 BOLT	1/2 – 1	550	778	952	550	778	952	550	778	952
36	A, B or C	31	3/8 X 2 1/2 BOLT	1/2 – 1	735	1035	1278	900	1200	1400	800	1200	1550
36	A, B or C	32	1/2 X 2 1/2 BOLT	1/2 – 1	1300	1886	2307	1333	1886	2307	1333	1886	2307

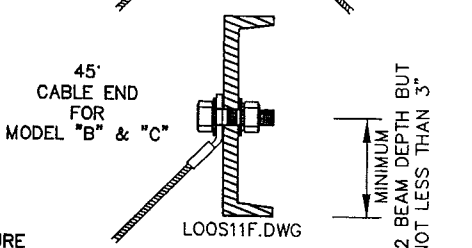








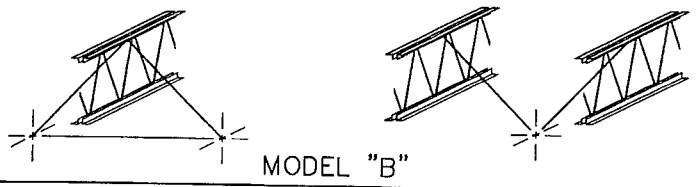




EXAMPLES OF ANCHORAGE TO STEEL STRUCTURE
STAKE EYE AND CABLE ASSEMBLIES (SHOWN), URC & CABLE ASSEMBLIES SIMILAR & EQUAL STRENGTH.

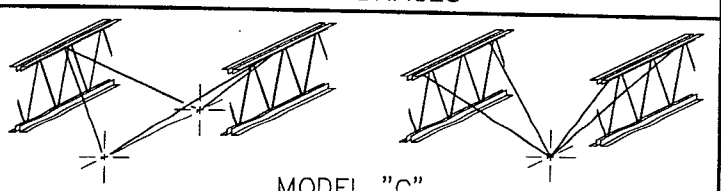
LOOS & CO. U.S.A.
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : (941) 643-4558

Bolted Anchorage to STEEL BAR JOISTS



MODEL "B"

2-WAY BRACES

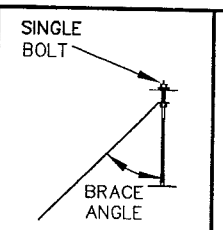


MODEL "C"

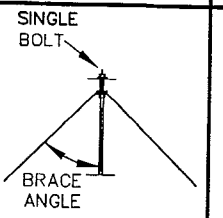
4-WAY BRACES

NOTE : The RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOADS listed in this table are based on the lower allowable load of either the fastener to the structural element to which the brace is attached or the brace itself. Allowable loads used for the fasteners are based on NFPA-13 according to the brace angle and the method of attachment. Allowable loads for the braces are based on their "UL LOAD RATINGS" (ultimate break strength with a safety factor of 1.5 for earthquake loading). This allowable load is then adjusted to show the maximum allowable horizontal load when applied to the brace at the angles indicated. The maximum load then allowed to be applied to the brace and its fasteners is equal to the recommended maximum allowable horizontal load multiplied by 2.0 for a 30° brace angle, by 1.414 for a 45° brace angle and by 1.156 for a 60° brace angle.

THE DESIGN PROFESSIONAL RESPONSIBLE FOR EACH PROJECT ON WHICH THESE BRACES ARE USED MUST APPROVE THE BRACING LAYOUT, THE CAPABILITY OF THE STRUCTURAL ELEMENTS TO WHICH THE BRACES ARE ATTACHED TO WITHSTAND THE APPLIED LOADS AND THE USE OF THE BRACES THEMSELVES WITH THEIR FASTENERS.



SINGLE BRACE CONNECTION



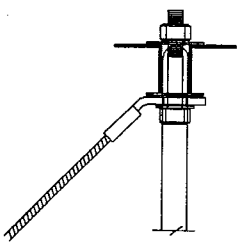
DOUBLE BRACE CONNECTION

MODEL "B" or "C" WITH 45° STAKE EYE CABLE END

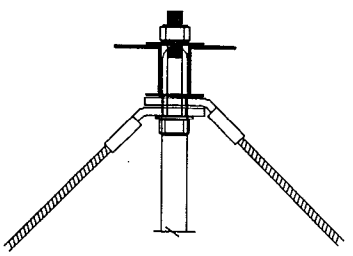
FASTENER INSTALLED IN TOP CHORD OF BAR JOIST

RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD

BRACE SIZE	BRACE MODEL NO.	FASTENER CODE	STEEL BAR JOISTS	BRACE ANGLE		
			FASTENER TO STRUCTURE	30°	45°	60°
12	B or C	33	1/4 X 2 1/2 BOLT	300	424	519
18	B or C	33	1/4 X 2 1/2 BOLT	400	500	600
18	B or C	34	3/8 X 2 1/2 BOLT	550	778	952
36	B or C	34	3/8 X 2 1/2 BOLT	900	1200	1400



CADD Detail Name (Typ.) → LOOS12A.DWG

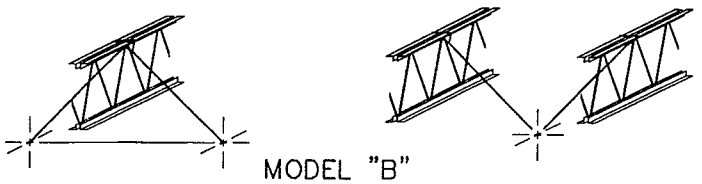


LOOS12B.DWG

EXAMPLES OF BOLTED ANCHORAGE TO STEEL BAR JOISTS
STAKE EYE AND CABLE ASSEMBLIES (SHOWN), URC & CABLE ASSEMBLIES SIMILAR & EQUAL STRENGTH.

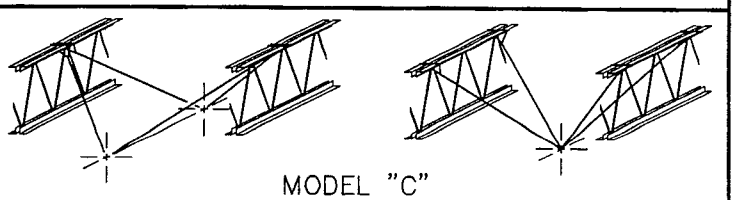
LOOS & CO. INC.
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : (941) 643-4558

Looped Connection Anchorage to STEEL BAR JOISTS



MODEL "B"

2-WAY BRACES

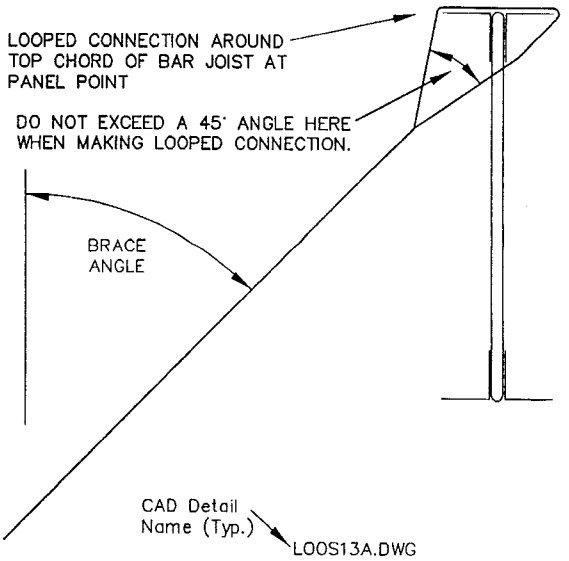


MODEL "C"

4-WAY BRACES

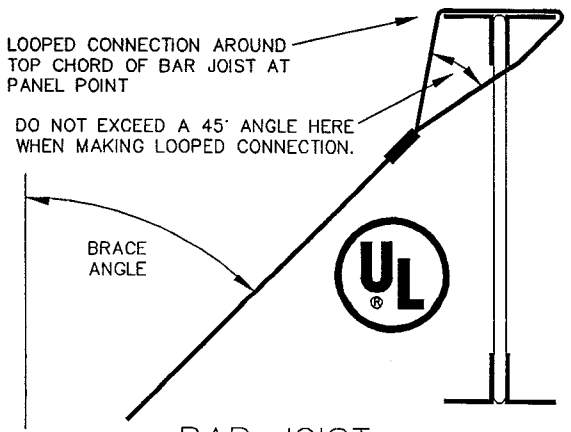
NOTE : The RECOMMENDED MAXIMUM ALLOWABLE HORIZONTAL LOADS listed in this table are based on the lower allowable load of either the fastener to the structural element to which the brace is attached or the brace itself. Allowable loads used for the fasteners are based on NFPA-13 according to the brace angle and the method of attachment. Allowable loads for the braces are based on their "UL LOAD RATINGS" (ultimate break strength with a safety factor of 1.5 for earthquake loading). This allowable load is then adjusted to show the maximum allowable horizontal load when applied to the brace at the angles indicated. The maximum load then allowed to be applied to the brace and its fasteners is equal to the recommended maximum allowable horizontal load multiplied by 2.0 for a 30° brace angle, by 1.414 for a 45° brace angle and by 1.156 for a 60° brace angle.

THE DESIGN PROFESSIONAL RESPONSIBLE FOR EACH PROJECT ON WHICH THESE BRACES ARE USED MUST APPROVE THE BRACING LAYOUT, THE CAPABILITY OF THE STRUCTURAL ELEMENTS TO WHICH THE BRACES ARE ATTACHED TO WITHSTAND THE APPLIED LOADS AND THE USE OF THE BRACES THEMSELVES WITH THEIR FASTENERS.



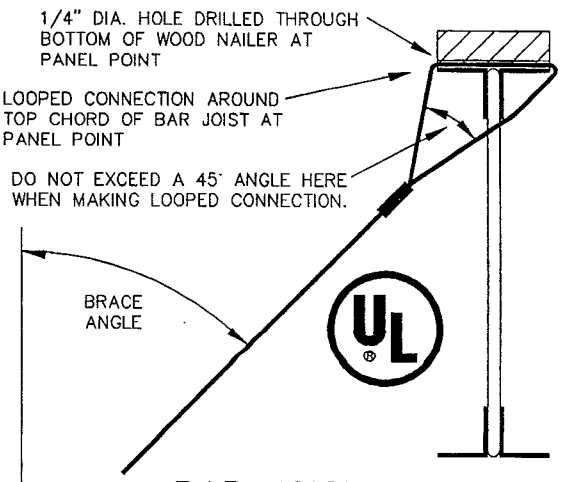
LOOPED CONNECTION AROUND TOP CHORD OF BAR JOIST AT PANEL POINT

BRACE SIZE	BRACE MODEL NO.	FASTENER CODE	STEEL BAR JOISTS FASTENER TO STRUCTURE	RECOMMENDED LBS. MAXIMUM ALLOWABLE HORIZONTAL LOAD BRACE ANGLE 30°	45°	60°
12	B OR C	00	LOOP AROUND JOIST TOP CHORD	300	424	519
18	B OR C	00	LOOP AROUND JOIST TOP CHORD	550	778	952
36	B OR C	00	LOOP AROUND JOIST TOP CHORD	1333	1886	2307



BAR JOIST

CAD Detail Name (Typ.) LOOS13A.DWG



BAR JOIST W/ WOOD NAILER

CAD Detail Name (Typ.) LOOS13B.DWG

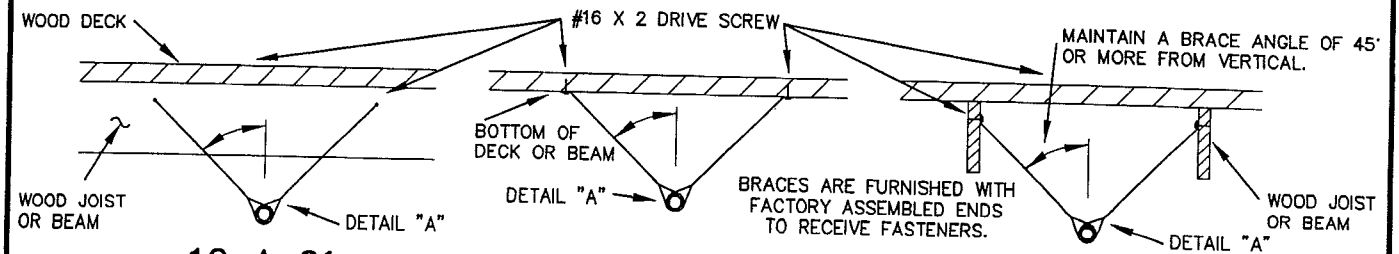
LOOS & CO. INC.
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : (941) 643-4558

#12 440 lb.± SPLAYED SEISMIC WIRE ROPE/CABLE™ BRACING

LOOS & CO., INC. #12 440 lb. SEISMIC WIRE ROPE/CABLE™ BRACING is also designed to satisfy the requirements of NFPA–13 for earthquake restraint on 2" and smaller branch line piping. NFPA–13 requires such restraints at the end sprinkler on branch lines and at 30 ft. intervals on branch lines, when upward or lateral movement would result in IMPACT with the building structure, equipment or finish materials.

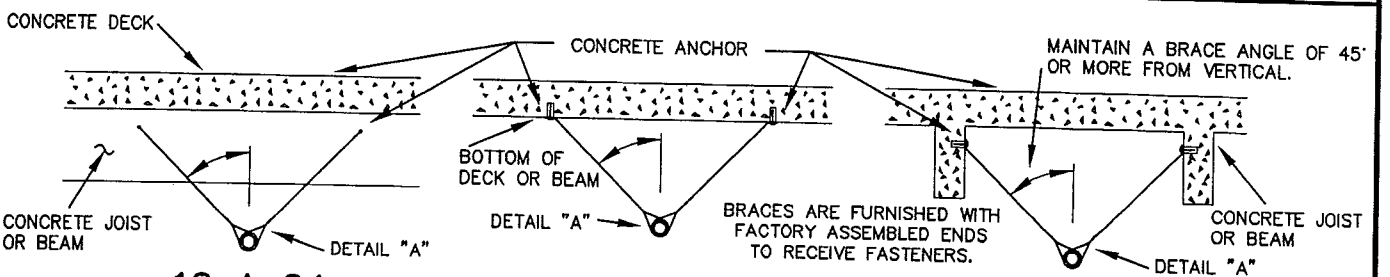
When NFPA–13 requires a hanger that resists upward movement, use either a wrap around "U" hook or cut the hanger rod so that it extends to the top of the pipe.

MADE IN U.S.A.



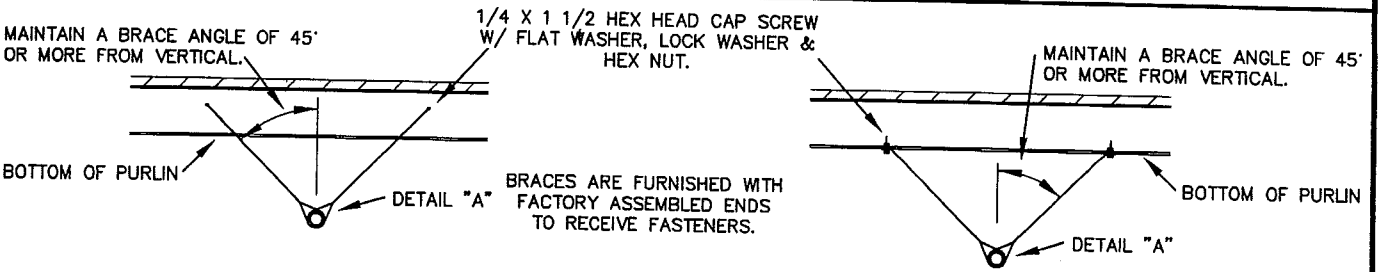
12 A 01 12 B 01 12 B 01

Bracing Attached to WOOD Structure



12 A 24 12 B 24 12 B 24

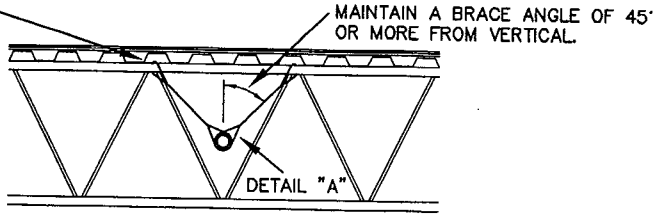
Bracing Attached to CONCRETE Structure



12 A 27 12 B 27

Bracing Attached to STEEL PURLINS

FIELD CONNECTION OF THE BRACE TO THE BAR JOIST IS TO BE MADE WITH A SINGLE LOOP AROUND THE TOP OR BOTTOM CHORD OF THE BAR JOIST AT A PANEL POINT AND SECURED WITH AN OVAL SLEEVE.
(FOLLOW DETAIL "A" FOR CRIMPING OF OVAL SLEEVE AND RESTRICTING FLARE OF BRACING AT OVAL SLEEVE TO LESS THAN 45°.)



12 B 00

Bracing Attached to STEEL BAR JOISTS

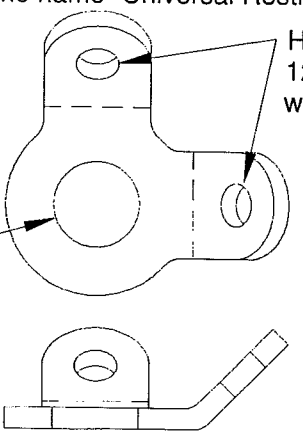
NOTE : All of the braces shown on this page can be found on the preceding pages under the type of building construction indicated. They are all lateral 2–way braces and DO NOT require pipe clamps.

LOOS & CO. U.S.A.
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1–800–321–5667
FAX : (941) 643–4558

UNIVERSAL RESTRAINT CLIP (URC)

Patent Number 6,026,545

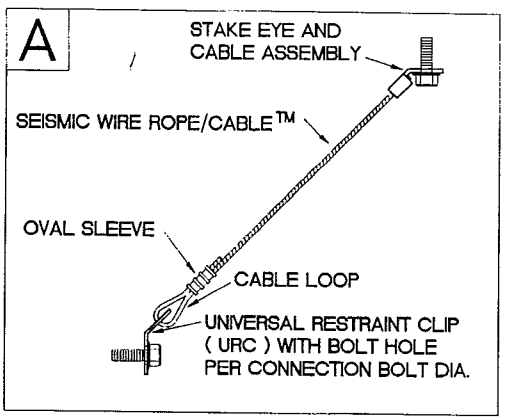
- URC's are available in an assortment of bolt hole sizes and are ordered according to the bolt hole dia.
- Each URC size has holes in the ears to accommodate size 12, 18 and 36 Seismic Wire Rope/Cable™.
- URC's maintain the break strength of the cable and do not require a thimble.
- URC's may be used to make anchorage to structure and or equipment connections.
- URC's may be used for equipment connections with stake eye & cable assemblies.
- URC's may be used at both ends of cables to make field cut cable assemblies.
- Two URC's may be stacked on a hanger rod to make a 4-way brace connection.
- A URC may be used at each end of a clevis hanger cross bolt to make 2-way or 4-way brace connections.
- A URC may be used at each end of trapeze supports to make 2-way or 4-way brace connections.
- Stake eye w/ cable and URC w/ cable assemblies are equal in strength and performance.
- The myriad of uses for this devices make the name "Universal Restraint Clip" obvious.

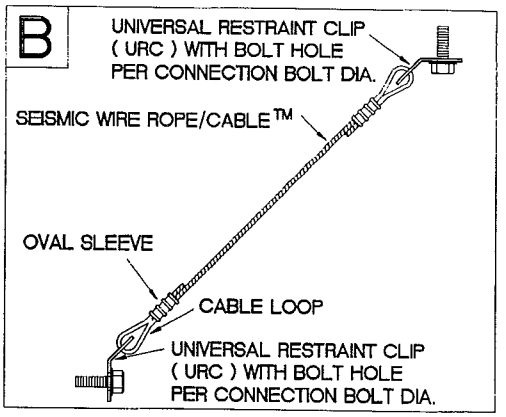


Hole dia. sized to accommodate sizes 12, 18 & 36 Seismic Wire Rope/Cable™ without the need for a thimble.

URC's are sized according to the bolt hole size and are available in: 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1" and 1¼" bolt sizes.

UL LISTED





TYPICAL URC CABLE ASSEMBLIES

These are two of the methods for making Seismic Wire Rope/Cable™ Assemblies. Type "A" uses a pre-cut cable with a factory installed Stake Eye at one end of the cable and a field installed URC at the other. Pre-cut Stake Eye and Cable Assemblies are available in 3 ft. increments and are ideal when brace lengths can be reasonably predicted to be within this 3 ft. brace length tolerance.

Type "B" uses a field installed URC at both ends of the cable, which is usually field cut from spools of Seismic Wire Rope/Cable™. This method can be used when field fabrication of the cable assembly is preferred by the user.

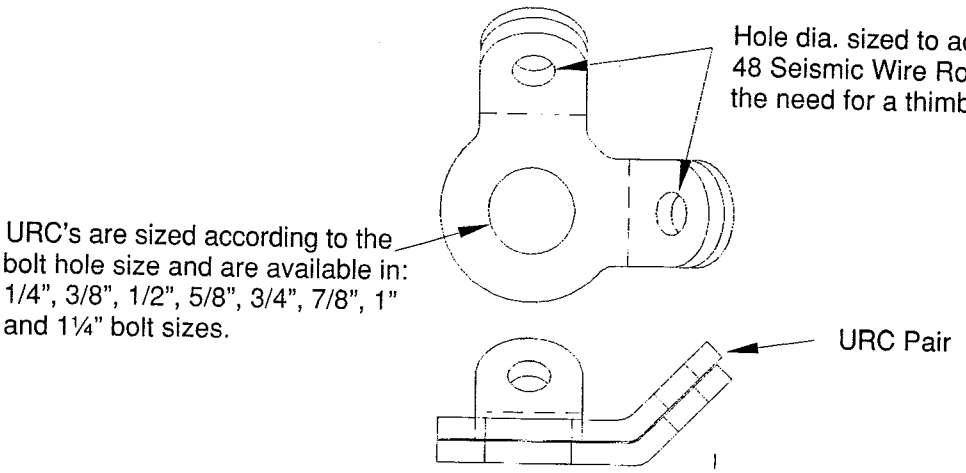
Both methods a comparable in cost. Type "A" requires slightly less filed labor. Type "B" has a slightly lower material cost. Both methods maintain the break strength of the cable. Therefore, they are equal in strength and performance.

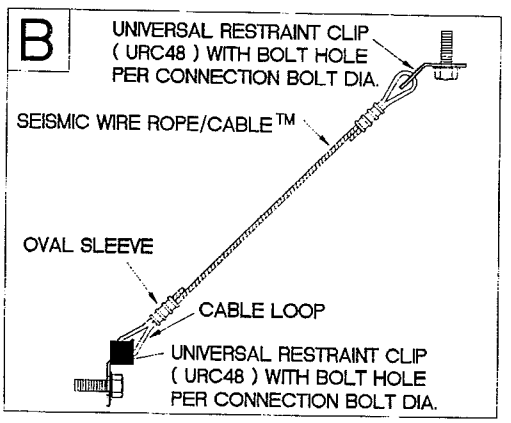
LOOS & CO. INC.
CABLEWARE® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

UNIVERSAL RESTRAINT CLIP (URC48)

Patent Number 6,026,545

- The URC48 is available in an assortment of bolt hole sizes and are ordered according to the bolt hole dia.
- Its Double URC design has holes in the ears to accommodate Size 48 Seismic Wire Rope/Cable™.
- The URC48 maintains the break strength of the cable and do not require a thimble.
- The URC48 may be used to make anchorage to structure and or equipment connections.
- The URC48 may be used at both ends of cables to make field cut cable assemblies.
- Two URC48's may be stacked on a hanger rod to make a 4-way brace connection.
- A URC48 may be used at each end of clevis hanger cross bolts to make 2-way or 4-way brace connections.
- A URC48 may be used at each end of trapeze supports to make 2-way or 4-way brace connections.
- Since the URC48 consists of two stacked URC's with holes in the two ears that accommodate Size 48 Seismic Wire Rope/Cable™, these pairs of URC's are shipped tied together.





TYPICAL URC48 CABLE ASSEMBLIES

Since Stake Eyes are not made for ¼ " cable, Size 48 Seismic Wire Rope/Cable™ Assemblies can on be made in the Type "B" configuration as shown above.

The Type "B" configuration uses a field installed URC48 at both ends of the cable, which is field cut from spools of Size 48 (Yellow) Seismic Wire Rope/Cable™.

This method of making the cable assembly will maintain the break strength of the cable.

LOOS & CO. INC.
CABLEWARE ® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

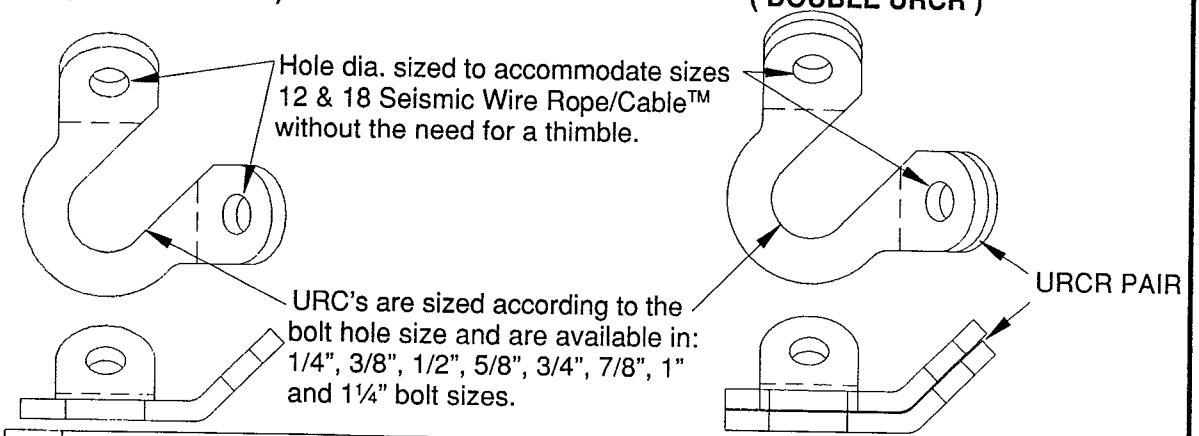
UNIVERSAL RESTRAINT CLIP RETROFIT (URCR)

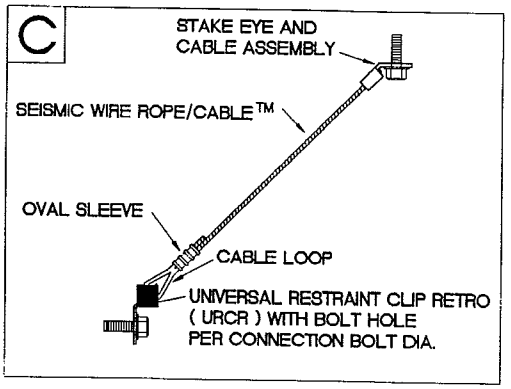
Patent Number 6,026,545

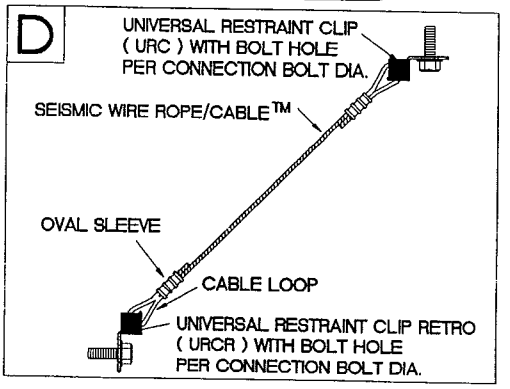
- URCR's are available in an assortment of bolt hole sizes and are ordered according to the bolt hole dia.
- URCR's are configured to accommodate size 12 (RED) or size 18 (WHITE) Seismic Wire Rope/Cable™.
- URCR's maintain the break strength of the cable and do not require a thimble.
- URCR's are intended for use in making cable connections to existing braced components.
- URCR's may be used for equipment connections with stake eye & cable assemblies.
- DOUBLE URCR's are required to maintain the break strength of size 18 (WHITE) cable.
- URCR's may be stacked on a hanger rod to make a 4-way brace connection.
- A URCR may be used at each end of a clevis hanger cross bolt to make 2-way or 4-way brace connections.
- A URCR may be used at each end of trapeze supports to make 2-way or 4-way brace connections.
- Stake eye w/ cable and URCR w/ cable assemblies are equal in strength and performance.

SIZE 12 (RED)
(SINGLE URCR)

SIZE 18 (WHITE)
(DOUBLE URCR)







TYPICAL URCR (RETROFIT) CABLE ASSEMBLIES

These are two of the methods for making Seismic Wire Rope/Cable™ Assemblies. Type "C" uses a pre-cut cable with a factory installed Stake Eye at one end of the cable and a field installed URCR at the other. Pre-cut Stake Eye and Cable Assemblies are available in 3 ft. increments and are ideal when brace lengths can be reasonably predicted to be within this 3 ft. brace length tolerance.

Type "D" uses a field installed URC at one end of the cable and a URCR at the other end of the cable, which is usually field cut from spools of Seismic Wire Rope/Cable™. This method can be used when field fabrication of the cable assembly is preferred by the user.

Both methods a comparable in cost. Type "C" requires slightly less filed labor. Type "D" has a slightly lower material cost. Both methods maintain the break strength of the cable. Therefore, they are equal in strength and performance.

LOOS & CO. INC.
CABLEWARE® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

EXAMPLES OF USES FOR
UNIVERSAL RESTRAINT CLIP (URC)

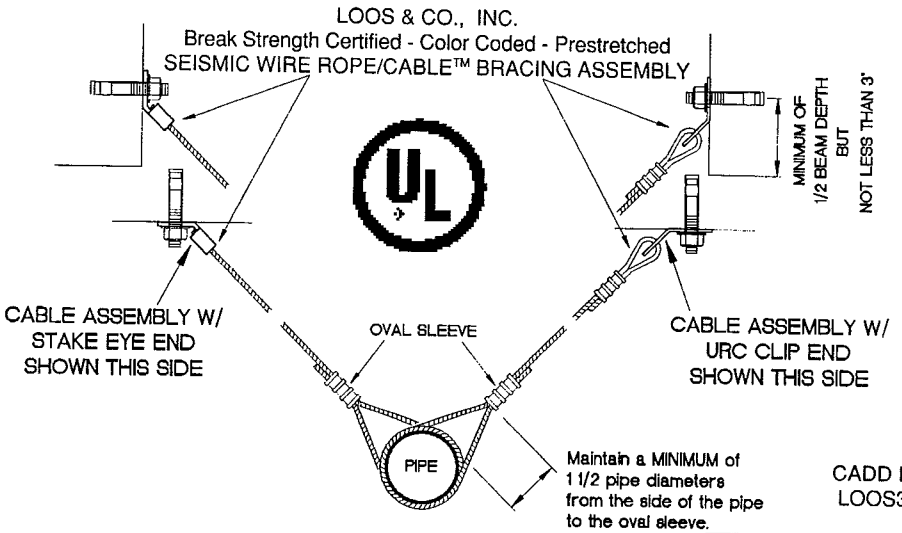
Patent Number 6,026,545

ON

CITY OF LOS ANGELES TESTED AND APPROVED FOR ALL MECHANICAL, PLUMBING & ELECTRICAL PIPING, CONDUIT, EQUIPMENT AND SYSTEMS - INCLUDING FIRE

UL LISTED

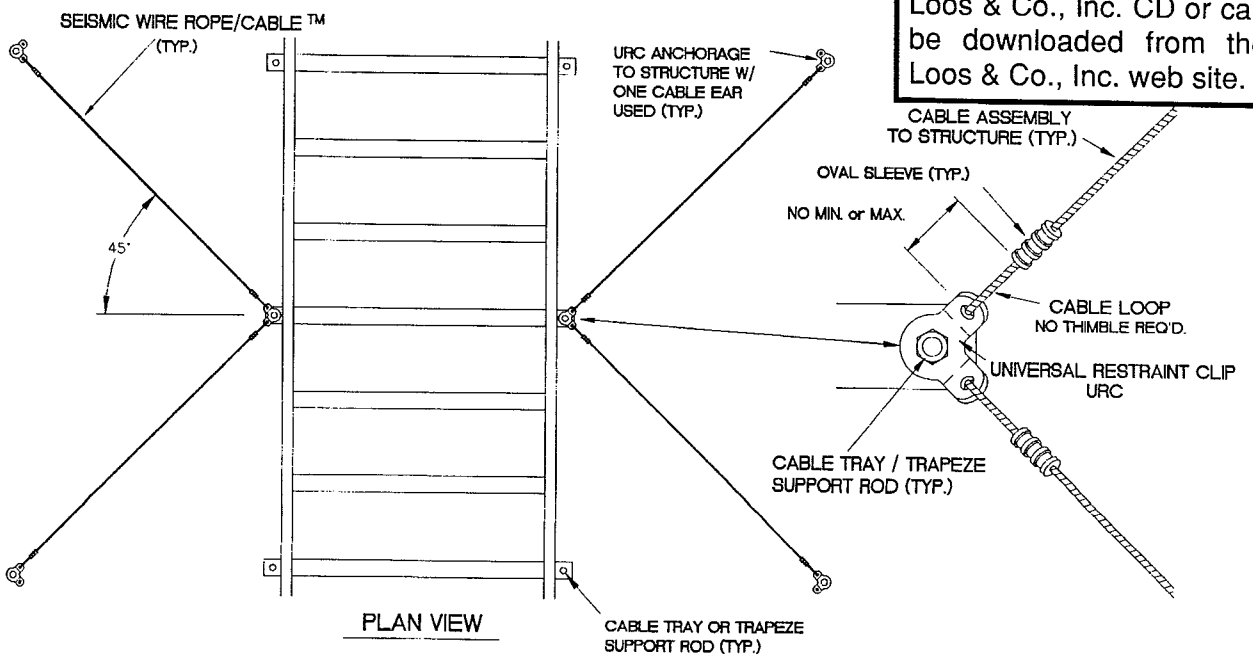
Break Strength Certified - Color Coded - Prestretched
SEISMIC WIRE ROPE/CABLE™ BRACING



CADD DETAIL NAME: LOOS321A.DWG

SEISMIC WIRE ROPE/CABLE™ BRACING
Transverse (Lateral) Bracing

NOTE: CADD Details in this Manual and many others are found on the Loos & Co., Inc. CD or can be downloaded from the Loos & Co., Inc. web site.

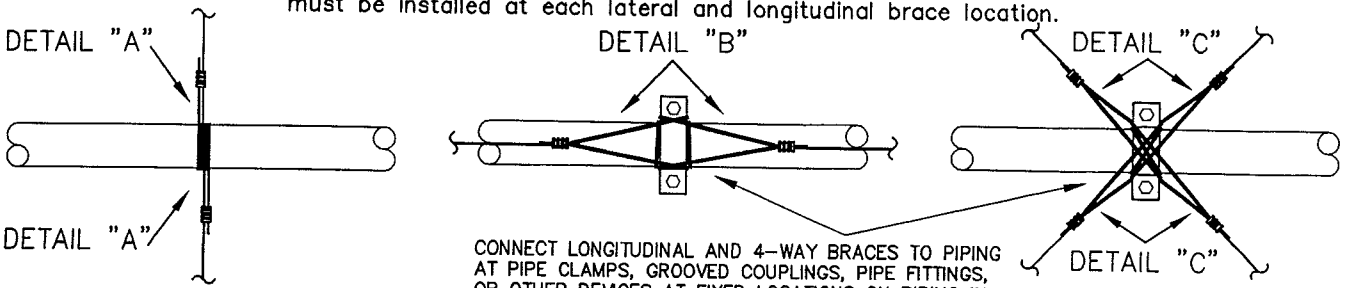


LOOS & CO. INC.
CABLEWARE ® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

Ⓤ Connections to Braced Components

TYPICAL FIELD CONNECTIONS TO PIPING

NOTE : two tension only brace components opposing each other must be installed at each lateral and longitudinal brace location.

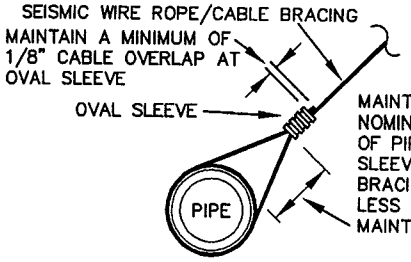


CONNECT LONGITUDINAL AND 4–WAY BRACES TO PIPING AT PIPE CLAMPS, GROOVED COUPLINGS, PIPE FITTINGS, OR OTHER DEVICES AT FIXED LOCATIONS ON PIPING IN A MANNER THAT WILL MAINTAIN THE LOCATION OF THE CONNECTION IN TENSION UNDER LOAD CONDITIONS.

2–WAY LATERAL PIPING BRACE
PLAN VIEW

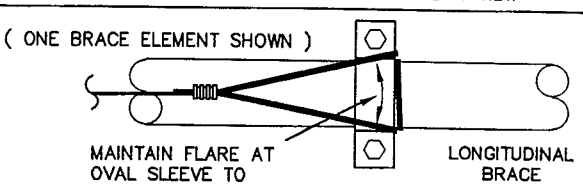
2–WAY LONGITUDINAL PIPING BRACE
PLAN VIEW

4–WAY PIPING BRACE
PLAN VIEW



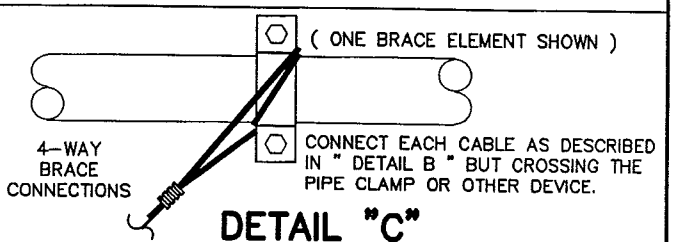
1. SLIDE OVAL SLEEVE ONTO CABLE.
2. WRAP CABLE TWICE AROUND THE PIPE.
   NOTE : ON THE SECOND TIME AROUND THE PIPE, PASS THE END OF THE CABLE THROUGH THE LOOP AROUND THE PIPE MADE BY THE FIRST WRAP BEFORE THE CABLE IS PULLED TIGHT AROUND THE PIPE. THIS WILL KEEP THE CABLE FROM MOVING WHILE THE OVAL SLEEVE IS CRIMPED.
3. PASS CABLE THROUGH OVAL SLEEVE AND PULL CABLE TAUT.
4. CRIMP OVAL SLEEVE ACCORDING TO CRIMPING INSTRUCTIONS.

DETAIL "A"



CONNECT BOTH CABLES TO THE PIPE AS DESCRIBED IN " DETAIL A " EXCEPT, CONNECT EACH CABLE TO THE PIPE ON THE FAR SIDE OF THE PIPE CLAMP OR OTHER DEVICE AT A FIXED LOCATION ON THE PIPE.

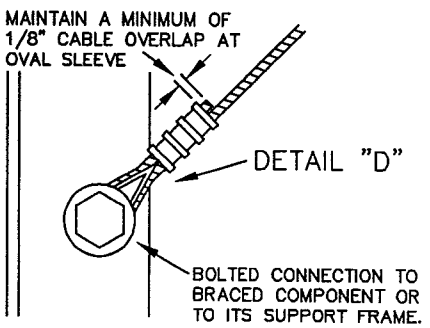
DETAIL "B"

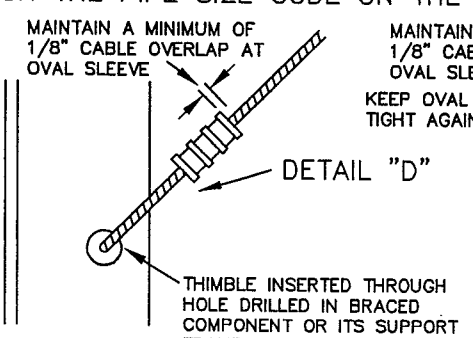


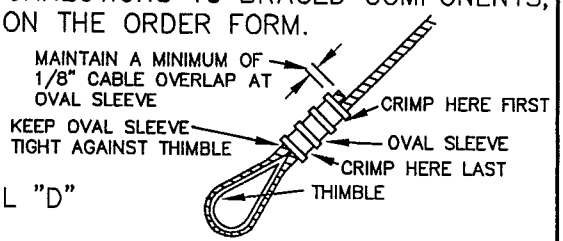
DETAIL "C"

TYPICAL FIELD CONNECTION TO OTHER BRACED COMPONENTS

TO ORDER THIMBLES WITH THE BRACES TO MAKE THESE CONNECTIONS TO BRACED COMPONENTS, ENTER " 00 " FOR THE PIPE SIZE CODE ON THE ORDER FORM.







1. SLIDE OVAL SLEEVE ONTO CABLE.
2. WRAP CABLE AROUND THIMBLE.
3. PASS CABLE THROUGH OVAL SLEEVE AND PULL THE CABLE TAUT.
4. CRIMP OVAL SLEEVE ACCORDING TO CRIMPING INSTRUCTIONS.

DETAIL "D"

FIELD CONNECTION FOR EXTENDING BRACE LENGTH

TO MAINTAIN BRACE STRENGTH WHEN CHANGING BRACE LENGTH FOR JOB CONDITIONS

1. SLIDE TWO OVAL SLEEVES ONTO OVERLAPPING CABLES.
2. CRIMP OVAL SLEEVES ACCORDING TO CRIMPING INSTRUCTIONS.

SEE ORDERING INSTRUCTIONS FOR EXTRA MATERIAL THAT CAN BE ORDERED WITH THE BRACES. THIS WILL INSURE THAT ADJUSTMENTS CAN BE MADE IN BRACE LENGTHS FOR FIELD CHANGES WHEN THE BRACE LENGTHS ORDERED WOULD BE TOO SHORT.

CRIMPING INSTRUCTIONS

1. Crimp ALL size 12 and 18 Oval Sleeves 2 times.
2. Crimp ALL size 36 and 48 Oval Sleeves 3 times.

Use Locoloc® Hand Swager to crimp oval sleeves in order to maintain brace strengths. Maintain a minimum of 1/64" wide ridge between crimps.

LOOS & CO. INC.
CABLEWARE® DIVISION
901 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1–800–321–5667
FAX : (941) 643–4558

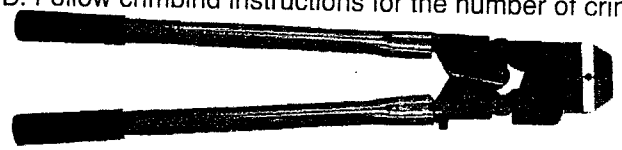
TOOLS and ACCESSORIES

REPLACEMENTS PARTS FOR THESE TOOLS ARE AVAILABLE FROM STOCK

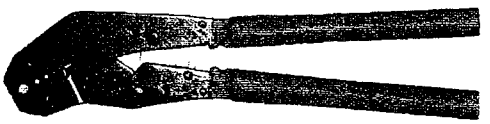
CRIMPING OF THE OVAL SLEEVES FOR THESE BRACES REQUIRES THE USE OF THE CORRECT TOOL IN ORDER TO MAINTAIN BRACE STRENGTHS AND TO SPEED INSTALLATION.

THE **Locoloc® Hand Swagers** ARE THE CORRECT TOOLS FOR THE JOB. THE No. 1-SBHS CAN CRIMP ALL THREE SIZES OF OVAL SLEEVES FOR THE BRACES IN THIS MANUAL AND IT IS ALSO CAPABLE OF CUTTING THEM. THE No. 1-3 SBHS CAN CRIMP ONLY SIZE 12 OVAL SLEEVES. THESE TOOLS ARE CALIBRATED IN THE FACTORY AND THE ARE FURNISHED INSTRUCTIONS AND GAUGES TO INSURE PROPER CRIMPING OF OVAL SLEEVES.

(For ease of installation, we recommend holding this tool with one handle in one hand and the other handle under the armpit of the same arm. This leaves the other hand free to position the oval sleeve on the cable in the die head of the tool. When the oval sleeve is in position, apply enough pressure to the handles to grip the oval sleeve with the die head. Then use the free hand to pull the cable taut and, while doing so, apply enough pressure to the handles of the tool to partially crimp the oval sleeve. This will secure the cable and oval sleeve. Now use both hands on the handles of the tool to complete the crimp. When the handles snap together, the crimp is complete. This procedure takes only seconds and it can make brace installation A FAST ONE MAN JOB. Follow crimping instructions for the number of crimps per oval sleeve.)

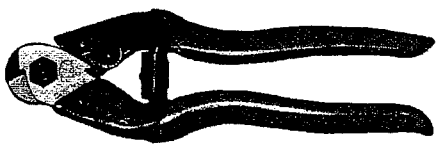


Locoloc® No. 1-SBHS for size 12, 18 & 36 cable.
Locoloc® No. 0-1/4" for size 48 cable.
26" long & weighs 6.5 lbs.

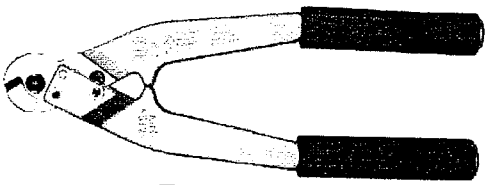


Locoloc® No. 1-3 SBHS for size 12 cable only.
9" long & weighs 15 oz.

While the 1-SBHS hand swager is capable of cutting all three cable sires, the Felco Type C-7 and Type C-9 Precision Cable Cutters are ideal for trimming excess cable. The C-7 cutter is 8" long, weighs 10 oz. and is used to cut size 12 and 18 cable with one hand. The Type C-9 cutter is 13" long and weighs 1.5 lbs, It is a two handed tool that cuts all four cable sizes with ease.



Type C-7



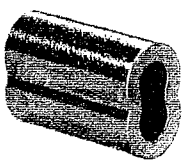
Type C-9

EARTHQUAKE BRACING SURVIVAL KIT

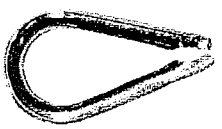
It is always a good idea to have extra material available on the job site in order to conveniently make field modifications necessitated by job changes or errors. Braces should be ordered longer than required so that most of these field changes can be easily accommodated, however, some field changes may require extension of the brace length. While the strength of Seismic Wire Rope/Cable™ Bracing will not be affected by this additional length (as would be the case with pipe, angle iron & strut type bracing), such changes would require additional cable and oval sleeves. See "Field Connection for Extending Brace Length" on page 1-19 for instructions.

As extra material, we recommend ordering a small 250 ft. spool of Seismic Wire Rope/Cable™ and a box of oval sleeves in each of the sizes used on the project. This is a very inexpensive way to continue to hold installation costs down. The preprinted Order Forms found in the back of this Manual serves as a convenient reminder of the needed materials.

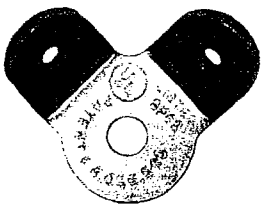
SPOOL of CABLE



OVAL SLEEVE



THIMBLE

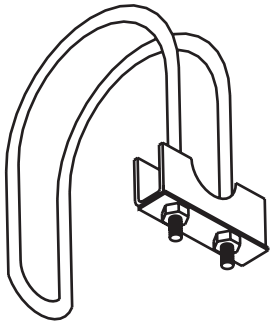


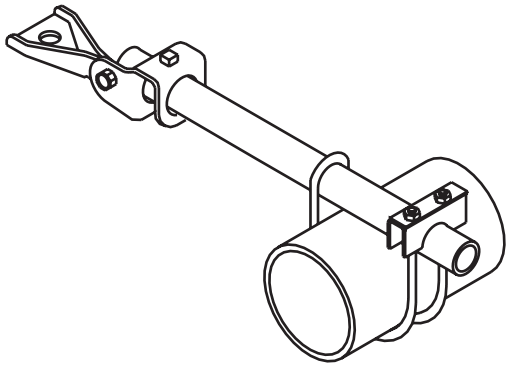
Universal Restraint Clip (URC)

LOOS & CO. INC.
CABLEWARE® DIVISION
901 INDUSTRIAL BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : 1-941-643-4558

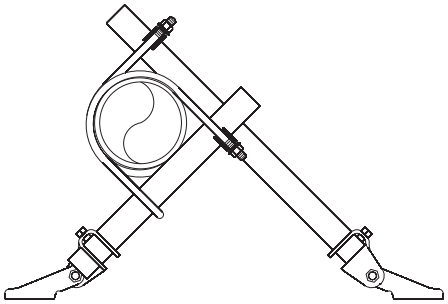
001/020

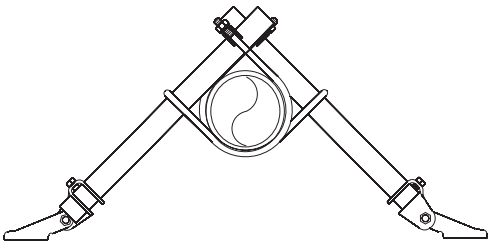
SWAY BRACE
FITTING - MODEL E





SIZE - Pipe to be braced: 1" thru 8" Steel SCH 7 thru 40 IPS.
Pipe used for bracing: 1" and 1 1/4" SCH 40 IPS.
MATERIAL - Carbon Steel.
FINISH - Plain, Electro-Galvanized, H.D.G. and Stainless Steel.
LISTINGS
c UL us **EX 2625**
Listed only for use with other *AFCON* bracing products.
OSHPD pending.
PATENT - No. 3,570,794
FUNCTION - Pipe attachment component of a lateral sway brace assembly, consisting additionally of ***AFCON*** 70 series attachment end, ***AFCON*** 80 series adapter as required and brace pipe element forming a complete sway brace assembly. Install two adjacent opposing lateral sway brace assemblies to form a 4-way sway brace.
INSTALLATION - Per NFPA-13. Place Model E over pipe to be braced. Insert brace pipe through MODEL "E" under channel bracket, leaving 1" minimum extension beyond. Tighten both hex nuts until gage spring lays flat or torque to 65 in.-lb.
FEATURES
* UL Horizontal Load Ratings: 2015# Sch. 10 thru 40, All Sizes
655# Sch. 7 - 1" thru 4"
1500# Sch. 7 - 6"
* Visual inspection, proper installation when gage spring lays flat.
ORDERING - Part #, pipe size to be braced, brace pipe size and finish.



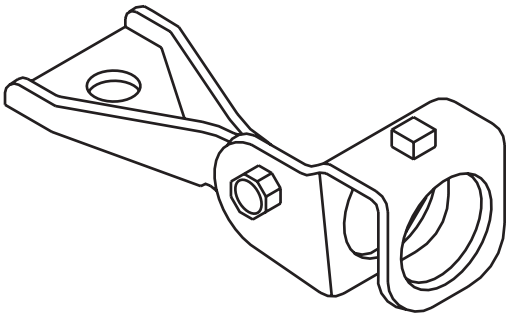


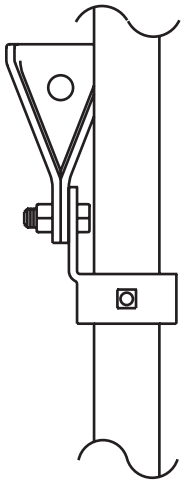
CAD

P.O. Box 3365 South El Monte, CA 91733 626.444.0541 Fax 626.444.3887 www. Afcon.org

077

ATTACHMENT FITTING
LOCKING





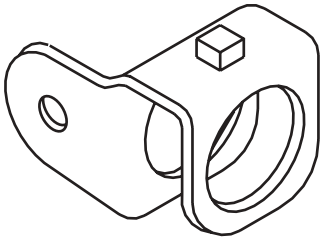
*Detail shows usage as wall hanger- Reassemble opposite, to use in lieu of strut accessories.

SIZE - 1 and 1 1/4 inch bracing pipe.
Use in combination with 1 thru 8 inch ***AFCON*** sway brace assemblies.
MATERIAL - Carbon Steel.
FINISH - Plain, Electro-Galvanized and H.D.G.
LISTINGS -
c UL us **Ex2625**
Listed only for use with other *AFCON* bracing products.
OSHPD pending.
FUNCTION - Plain end pipe building attachment component of a sway brace assembly, consisting additionally of ***AFCON*** 001 thru 40 series sway brace, ***AFCON*** 80 series adapter as required and brace pipe element forming a complete sway brace assembly.
INSTALLATION - Per NFPA-13 . **Listed for use with NFPA fastener tables.** Insert brace pipe into fitting against the pivot bolt. Tighten set bolt until head contacts bracket.
FEATURES
* UL Horizontal Load Rating: 2015#, All Sizes
* Swivel design allows attachment at any angle.
* Visual inspection, proper installation when set bolt head contacts bracket.
* 17/32” Fastener hole, larger hole available.- Consult factory.
ORDERING - Part #, pipe size and finish.

CAD

078

ATTACHMENT FITTING
LOCKING STRAIGHT

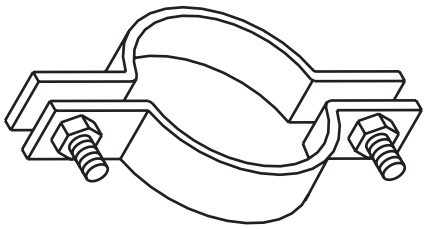


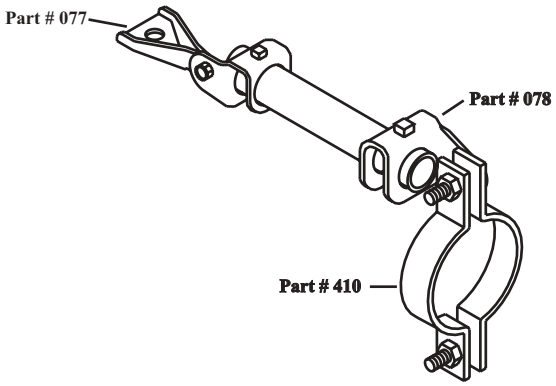
SIZE - 1 and 1 1/4 inch bracing pipe.
Use in combination with 1 thru 8 inch ***AFCON*** sway brace assemblies.
MATERIAL - Carbon Steel.
FINISH - Plain, Electro-Galvanized and H.D.G.
LISTINGS -
c UL us **EX 2625**
Listed only for use with other *AFCON* bracing products.
OSHPD pending.
FUNCTION - Plain end building attachment component of a sway brace assembly, consisting additionally of ***AFCON*** 001 thru 40 series sway brace, ***AFCON*** 80 series adapter as required and brace pipe element forming a complete sway brace assembly.
Commonly used as the brace pipe attachment component of a #410 longitudinal sway brace assembly- **see drawing**
INSTALLATION - Per NFPA-13. **Listed for use with NFPA fastener tables.**
Insert brace pipe into fitting against the pivot bolt . Tighten set bolt until head contacts bracket. *Installation restricted to NFPA, G-H-I orientation* ***ONLY***.
DO NOT BEND - IF ANGLE REQUIRED USE PART #070, #076 or #077
FEATURES
* UL Horizontal Load Rating: 2015#, All Sizes.
* Visual inspection, proper installation when set bolt head contacts bracket.
* ½" Bolt hole fits #410 sway brace.
ORDERING - Part #, pipe size and finish.

CAD

410

SWAY BRACE





SIZE - 1 thru 8 inch pipe.
MATERIAL - Carbon Steel.
FINISH - Plain, Electro-Galvanized, H.D.G. and Stainless Steel.
LISTINGS -
c UL us **EX 2625, EX 2551**
Listed only for use with other *AFCON* bracing products.
OSHPD pending.
FUNCTION - Pipe attachment component of a longitudinal or 4-way sway brace, consisting additionally of ***AFCON*** 70 series attachment end, ***AFCON*** 80 series adapter as required and brace pipe element forming a complete sway brace assembly.
INSTALLATION - Per NFPA-13. Assemble **410** over pipe to be braced, install **70** series attachment end on outside of clamp ears and tighten bolts to minimum required torque of 40 ft.lbs.
078 *is the preferred assembly component for use with the* ***410*** - **see drawing.**
FEATURES
* UL Horizontal Load Rating: 1-3 pipe size = 500#
4-8 pipe size = 2015#
* Made with 1/2" bolts to conform with sway brace fittings.
ORDERING - Part #, pipe size and finish.

CAD