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Sprinkler

Corporation

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FOR

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PUYALLUP, WA 98372

EMERGENCY INFORMATION

IN THE CASE OF FIRE AND\OR FLOODING DIAL **911** IMMEDIATELY

MAINTENANCE AND INSPECTION

OFFICE: (253) 853-7780

AFTER HOURS: (253) 606-4581

2709 Jahn Ave. NW #H-2

Gig Harbor, WA 98335

Phone 253.853.7780

Fax 253.853.5890

www.SprinxFire.com

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- **HYDRAULIC CALCULATIONS (3) REMOTE AREAS**

- **HEADS**

1. **VIKING VK301 QR BRASS UPRIGHT SPRINKLER K=5.6 155 DEG. F.**
2. **FPPI SPARE HEAD BOX**

- **DEVICES**

3. **AGF ULTIMATE RISER MANIFOLD WITH CHECK VALVE, BUTTERFLY VALVE, & PRESSURE RELIEF VALVE KIT**
4. **FPPI 300 PSI SPRINKLER GAUGE**
5. **POTTER VSR-S WATER ALARM FLOW SWITCH**
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- **PIPE, FITTINGS & HANGERS**

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12. **FIRELOCK 1½" GROOVED COUPLING**
13. **ANVIL STAR D.I. FITTINGS**
14. **HANGERS AND SUPPORT DEVICES: All Thread Rod, Hanger Rings, Sammy ATR attachments, Tolco Seismic Bracing, Erico Line Restraints.**

- **SOLVENTS & CEMENT MSDS**

15. **FPPI THREAD SEALING TAPE**

SUPPLIER INFORMATION

VIKING SUPPLYNET, KENT, WA PH# (253) 872-8444

TECHNICAL DATA

MICROFAST® QUICK RESPONSE FUSIBLE ELEMENT UPRIGHT SPRINKLER VK301 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. DESCRIPTION

The Viking Microfast® Quick Response Upright Fusible Element Sprinkler VK301 is a small, thermosensitive, solder link spray sprinkler available in several different finishes and temperature ratings to meet design requirements. The special Polyester and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, the ENT coating has been investigated for installation in corrosive environments and is listed/approved as indicated in the approval charts.

2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

FM Approved: Classes 2002 and 2020

China Approval: Approved according to China GB standard

NOTE: Other International approval certificates are available upon request. Refer to Approval Charts and Design Criteria for listing and approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)*
Maximum Working Pressure: 175 psi (12 bar) wwp.
Factory tested hydrostatically to 500 psi (34.5 bar)
Testing: U.S.A. Patent No. 4,831,870
Thread size: 1/2” NPT, 15 mm BSPT
Nominal K-factor: 5.6 U.S. (80.6 metric**)
Overall Length: 2-1/4” (58 mm)

*cULus Listing, FM Approval, and NFPA 13 installs require a minimum of 7 psi (0.5 bar). The minimum operating pressure for LPCB and CE Approvals ONLY is 5 psi (0.35 bar).

Material Standards:

Frame Casting: QM Brass
Deflector: Brass UNS-C23000 or Copper UNS-C19500
Fusible Element Assembly: Nickel Alloy
Trigger and Support: Stainless Steel UNS-S31600
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape
Seat and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400
Screw: Brass UNS-C36000
For Polyester Coated Sprinklers: Belleville Spring-Exposed
For ENT Coated Sprinklers: Belleville Spring-Exposed, Screw and Pip Cap-ENT Coated

Ordering Information: (Also refer to the current Viking price list.)

Order Viking Microfast® Quick Response Fusible Element Upright Sprinkler VK301 by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.
Finish Suffix: Brass = A, Chrome = F, White Polyester = M-/W, Black Polyester = M-/B, and ENT = JN
Temperature Suffix: 165 °F (74 °C) = C, 205 °F (96 °C) = E, and 280 °F (138 °C) = G
For example, sprinkler VK301 with a 1/2” NPT thread, Brass finish and a 165 °F (74 °C) temperature rating = Part No. 17535AC

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the Viking website.)

Sprinkler Wrench: Standard Wrench: Part No. 21475M/B (available since 2017)

Sprinkler Cabinets:
A. Six-head capacity: Part No. 01724A (available since 1971)
B. Twelve-head capacity: Part No. 01725A (available since 1971)

VIKING®

TECHNICAL DATA

MICROFAST® QUICK RESPONSE FUSIBLE ELEMENT UPRIGHT SPRINKLER VK301 (K5.6)

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4. INSTALLATION
Refer to appropriate NFPA Installation Standards.

5. OPERATION
During fire conditions, the heat-sensitive fusible element assembly disengages, releasing the seat and spring assemblies to open the waterway. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY
The Viking Microfast® Quick Response Upright Fusible Element Sprinkler VK301 is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE
For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating[1]	Maximum Ambient Ceiling Temperature[2]	Frame Paint Color
Ordinary	165 °F (74 °C)	100 °F (38 °C)	None
Intermediate	205 °F (96 °C)	150 °F (65 °C)	White
High	280 °F (138 °C)	225 °F (107 °C)	Blue

Sprinkler Finishes: Brass, Chrome, White Polyester[5], Black Polyester[5], and ENT[3,4]
Corrosion Resistant Sprinkler Coatings: ENT[3,4]

Footnotes

[1] The sprinkler temperature rating is stamped on the deflector.
[2] Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
[3] The corrosion resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart(s). These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. Note that the spring is exposed on sprinklers with ENT coatings. For ENT coated automatic sprinklers, the waterway is coated.
[4] cULus Listed as corrosion resistant.
[5] For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only.

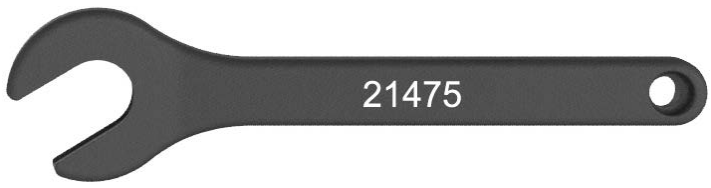

Figure 1:
Standard Sprinkler Wrench 21475M/B

TECHNICAL DATA

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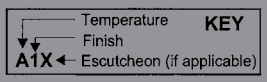
Approval Chart 1 (UL)
Microfast® Quick Response Fusible Element
Upright Sprinkler VK301
Maximum 175 PSI (12 bar) WWP



Base Part Number[1]	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals[3]				
		NPT	BSPT	U.S.	metric[2]	Inches	mm	cULus	VdS	LPCB	CE	China Approval
17535	VK301	1/2”	15 mm	5.6	80.6	2-1/4	58	A1	--	--	--	--
25295	VK301	--	15 mm	5.6	80.6	2-1/4	58	A3	--	--	--	A3
***NOTICE** - Product Below - Limited Availability (Contact Local Viking Office)*												
12279	VK301	1/2”	15 mm	5.6	80.6	2-1/4	58	A2	--	--	--	B3
21363[7]	VK301	--	15 mm	5.6	80.6	2-1/4	58	B3	--	--	--	B3

Approved Temperature Ratings

A - 165 °F (74 °C), 205 °F (96 °C), 280 °F (138 °C)
B - 165 °F (74 °C), 205 °F (96 °C)

Approved Finishes

1 - Brass, Chrome, White Polyester[5], Black Polyester[5], and ENT[6]
2 - Brass, Chrome, White Polyester[5], and Black Polyester[5]
3 - Brass

Footnotes

[1] Base part number is shown. For complete part number, refer to Viking’s current price schedule.
[2] Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
[3] This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
[4] Listed by Underwriters Laboratories Inc. for us in the U.S. and Canada
[5] Other colors are available on request with the same Listings and Approvals as the standard colors.
[6] cULus Listed as corrosion resistant.
[7] Approved according the China GB standard.

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1 above.)

cULus Listing Requirements:

Quick Response Fusible Element Upright Sprinkler VK301 is cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13. Maximum spacing allowed is 15 ft. (4.6 m).
- Minimum spacing allowed is 6 ft. (1.8 m) unless baffles are installed in accordance with NFPA 13.
- Minimum distance from walls is 4 in. (102 mm).
- Maximum distance from walls shall be no more than one-half of the allowable distance between sprinklers. The distance shall be measured perpendicular to the wall.
- The sprinkler installation rules contained in NFPA 13 for standard spray upright sprinklers must be followed.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Bulletin Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

VIKING®

TECHNICAL DATA

MICROFAST® QUICK RESPONSE FUSIBLE ELEMENT UPRIGHT SPRINKLER VK301 (K5.6)

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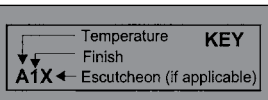
Approval Chart 2 (FM)

Microfast® Quick Response Fusible Element
Upright Sprinkler VK301
Maximum 175 PSI (12 bar) WWP



Base Part Number[1]	SIN	Thread Size		Nominal K-Factor		Overall Length		FM Approvals[3] (Refer also to Design Criteria below.)
		NPT	BSPT	U.S.	metric[2]	Inches	mm	
17535	VK301	1/2”	15 mm	5.6	80.6	2-1/4	58	A1
25295	VK301	--	15 mm	5.6	80.6	2-1/4	58	A3
***NOTICE** - Product Below - Limited Availability (Contact Local Viking Office)*								
12279	VK301	1/2”	15 mm	5.6	80.6	2-1/4	58	A2
21363[5]	VK301	--	15 mm	5.6	80.6	2-1/4	58	B3

Approved Temperature Ratings

A - 165 °F (74 °C), 205 °F (96 °C), 280 °F (138 °C)
B - 165 °F (74 °C), 205 °F (96 °C)

Approved Finishes

1 - Brass, Chrome, and ENT
2 - Brass, Chrome, White Polyester[4], and Black Polyester[4]
3 - Brass

Footnotes

[1] Base part number is shown. For complete part number, refer to Viking’s current price schedule.

[2] Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

[3] This table shows the FM Approvals available at the time of printing. Check with the manufacturer for any additional approvals.

[4] Other colors are available on request with the same Approvals as the standard colors.

[5] Approved according to China GB Standard.

DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:

The Microfast® Quick Response Fusible Element Upright Sprinkler VK301 is FM Approved as a quick response Non-Storage upright sprinkler as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Bulletin Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

BULLETIN

CARE AND HANDLING OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

SPRINKLERS ARE FRAGILE - HANDLE WITH CARE!

General Handling and Storage:

- Store sprinklers in a cool, dry place.
- Protect sprinklers during storage, transport, handling, and after installation.
- Use the original shipping containers. DO NOT place sprinklers loose in boxes, bins, or buckets.
- Keep sprinklers separated at all times. DO NOT allow metal parts to contact sprinkler operating elements.

For Pre-Assembled Drops:

- Protect sprinklers during handling and after installation.
- For recessed assemblies, use the protective sprinkler cap (Viking Part Number 10364).

Sprinklers with Protective Shields or Caps:

- DO NOT remove shields or caps until after sprinkler installation and there no longer is potential for mechanical damage to the sprinkler operating elements.
- **Sprinkler shields or caps MUST be removed BEFORE placing the system in service!**
- Remove the sprinkler shield by carefully pulling it apart where it is snapped together.
- Remove the cap by turning it slightly and pulling it off the sprinkler.

Sprinkler Installation:

- DO NOT use the sprinkler deflector or operating element to start or thread the sprinkler into a fitting.
- **Use only the designated sprinkler head wrench!** Refer to the current sprinkler technical data page to determine the correct wrench for the model of sprinkler used.
- DO NOT install sprinklers onto piping at the floor level.
- Install sprinklers after the piping is in place to prevent mechanical damage.
- DO NOT allow impacts such as hammer blows directly to sprinklers or to fittings, pipe, or couplings in close proximity to sprinklers. Sprinklers can be damaged from direct or indirect impacts.
- DO NOT attempt to remove drywall, paint, etc., from sprinklers.
- **Take care not to over-tighten the sprinkler and/or damage its operating parts!**

  Maximum Torque:

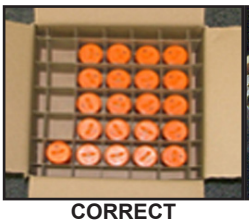
  1/2" NPT: 14 ft-lbs. (19.0 N-m)

  3/4" NPT: 20 ft-lbs. (27.1 N-m)

  1" NPT: 30 ft-lbs. (40.7 N-m)

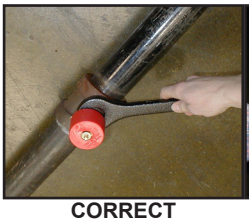
CORRECT
(Original container used)

INCORRECT
(Placed loose in box)



CORRECT
(Protected with caps)

INCORRECT
(Protective caps not used)



CORRECT
(Piping is in place at the ceiling)

INCORRECT
(Sprinkler at floor level)

CORRECT
(Special installation wrenches)

INCORRECT
(Designated wrench not used)

WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

⚠ WARNING

Any sprinkler with a loss of liquid from the glass bulb or damage to the fusible element should be destroyed. Never install sprinklers that have been dropped, damaged, or exposed to temperatures exceeding the maximum ambient temperature allowed. Sprinklers that have been painted in the field must be replaced per NFPA 13. Protect sprinklers from paint and paint overspray in accordance with the installation standards. Do not clean sprinklers with soap and water, ammonia, or any other cleaning fluid. Do not use adhesives or solvents on sprinklers or their operating elements.

Refer to the appropriate technical data page and NFPA standards for complete care, handling, installation, and maintenance instructions. For additional product and system information Viking data pages and installation instructions are available on the Viking Web site at www.vikinggroupinc.com.

VIKING | BULLETIN | CARE AND HANDLING OF SPRINKLERS

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PROTECTIVE SPRINKLER SHIELDS AND CAPS

General Handling and Storage:

Many Viking sprinklers are available with a plastic protective cap or shield temporarily covering the operating elements. The snap-on shields and caps are factory installed and are intended to help protect the operating elements from mechanical damage during shipping, storage, and installation. NOTE: It is still necessary to follow the care and handling instructions on the appropriate sprinkler technical data sheets* when installing sprinklers with bulb shields or caps.

WHEN TO REMOVE THE SHIELDS AND CAPS:

NOTE: SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

Remove the shield or cap from the sprinkler only after checking all of the following:

- The sprinkler has been installed*.
- The wall or ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements.

SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

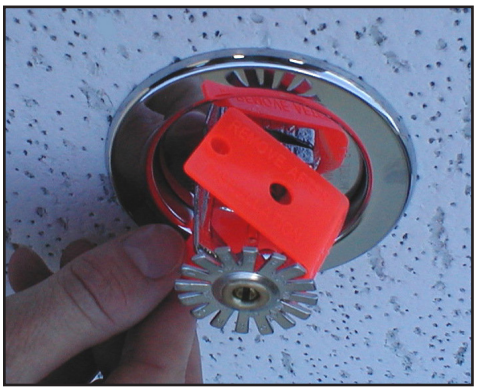

Figure 1: Sprinkler shield being removed from a pendent sprinkler.

Figure 2: Sprinkler cap being removed from a pendent sprinkler.

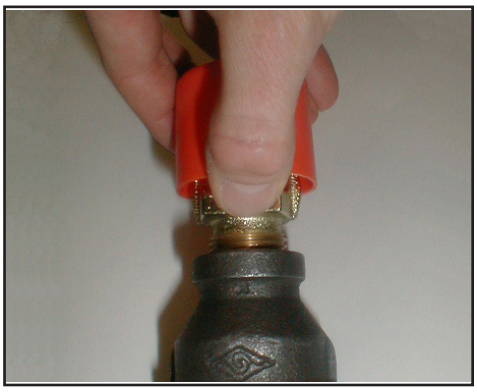

Figure 3: Sprinkler cap being removed from and upright sprinkler.

HOW TO REMOVE SHIELDS AND CAPS:

No tools are necessary to remove the shields or caps from sprinklers. DO NOT use any sharp objects to remove them! **Take care not to cause mechanical damage to sprinklers when removing the shields or caps.** When removing caps from fusible element sprinklers, use care to prevent dislodging ejector springs or damaging fusible elements. NOTE: Squeezing the sprinkler cap excessively could damage sprinkler fusible elements.

- To remove the shield, simply pull the ends of the shield apart where it is snapped together. Refer to Figure 1.
- To remove the cap, turn it slightly and pull it off the sprinkler. Refer to Figures 2 and 3.

NOTICE Refer to the current sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used.

⚠WARNING Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

*** Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.**

BULLETIN

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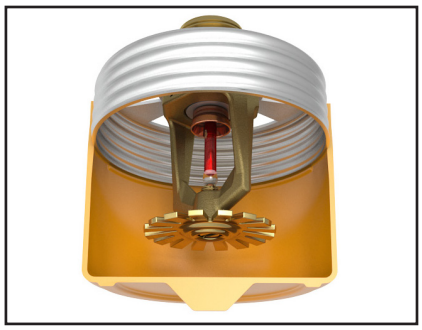
⚠CAUTION CONCEALED COVER ASSEMBLIES ARE FRAGILE!
TO ASSURE SATISFACTORY PERFORMANCE OF THE PRODUCT, HANDLE WITH CARE.



Concealed Sprinkler and Adapter Assembly with Protective Cap

Concealed Sprinkler and Adapter Assembly (Protective Cap Removed)

Cover Plate Assembly (Pendent Cover 12381 shown)

GENERAL HANDLING AND STORAGE INSTRUCTIONS:

- Do not store in temperatures exceeding 100 °F (38 °C). Avoid direct sunlight and confined areas subject to heat.
- Protect sprinklers and cover assemblies during storage, transport, handling, and after installation.
  -- Use original shipping containers.
  -- Do not place sprinklers or cover assemblies loose in boxes, bins, or buckets.
- Keep the sprinkler bodies covered with the protective sprinkler cap any time the sprinklers are shipped or handled, during testing of the system, and while ceiling finish work is being completed.
- Use only the designated Viking recessed sprinkler wrench (refer to the appropriate sprinkler data page) to install these sprinklers. **NOTE:** The protective cap is temporarily removed during installation and then placed back on the sprinkler for protection until finish work is completed.
- Do not over-tighten the sprinklers into fittings during installation.
- Do not use the sprinkler deflector to start or thread the sprinklers into fittings during installation.
- Do not attempt to remove drywall, paint, etc., from the sprinklers.
- Remove the plastic protective cap from the sprinkler before attaching the cover plate assembly. **PROTECTIVE CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!**

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.

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BULLETIN

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USE THE FOLLOWING PRECAUTIONS WHEN HANDLING WAX-COATED SPRINKLERS

Many of Viking's sprinklers are available with factory-applied wax coating for corrosion resistance. These sprinklers MUST receive appropriate care and handling to avoid damaging the wax coating and to assure satisfactory performance of the product.

General Handling and Storage of Wax-Coated Sprinklers:

- Store the sprinklers in a cool, dry place (in temperatures below the maximum ambient temperature allowed for the sprinkler temperature rating. Refer to Table 1 below.)
- Store containers of wax-coated sprinklers separate from other sprinklers.
- Protect the sprinklers during storage, transport, handling, and after installation.
- Use original shipping containers.
- Do not place sprinklers in loose boxes, bins, or buckets.

Installation of Wax-Coated Sprinklers:

Use only the special sprinkler head wrench designed for installing wax-coated Viking sprinklers (any other wrench may damage the unit).

- Take care not to crack the wax coating on the units.
- For touching up the wax coating after installation, wax is available from Viking in bar form. Refer to Table 1 below. The coating MUST be repaired after sprinkler installation to protect the corrosion-resistant properties of the sprinkler.
- Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they would be exposed to temperatures exceeding the maximum recommended ambient temperature for the temperature rating used.
- Inspect the coated sprinklers frequently soon after installation to verify the integrity of the corrosion resistant coating. Thereafter, inspect representative samples of the coated sprinklers in accordance with NFPA 25. Close up visual inspections are necessary to determine whether the sprinklers are being affected by corrosive conditions.

TABLE 1

Sprinkler Temperature Rating (Fusing Point)	Wax Part Number	Wax Melting Point	Maximum Ambient Ceiling Temperature[1]	Wax Color
155 °F (68 °C) / 165 °F (74 °C)	02568A	148 °F (64 °C)	100 °F (38 °C)	Light Brown
175 °F (79 °C)	04146A	161 °F (71 °C)	150 °F (65 °C)	Brown
200 °F (93 °C)	04146A	161 °F (71 °C)	150 °F (65 °C)	Brown
220 °F (104 °C)	02569A	170 °F (76 °C)	150 °F (65 °C)	Dark Brown
286 °F (141 °C)	02569A	170 °F (76 °C)	150 °F (65 °C)	Dark Brown

[1] Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

⚠WARNING Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.

VIKING®

BULLETIN

REGULATORY AND HEALTH WARNINGS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. DESCRIPTION

Regulatory and Health Warnings applying to materials used in the manufacture and construction of fire protection products are provided herin as they relate to legally mandated jurisdictional regions.

⚠ WARNING

STATE OF CALIFORNIA, USA

Installing or servicing fire protection products such as sprinklers, valves, piping etc. can expose you to chemicals including, but not limited to, lead, nickel, butadiene, titaninum dioxide, chromium, carbon black, and acrylonitrile which are known to the State of California to cause cancer or birth defects or other reproductive harm.

For more information, go to **www.P65Warnings.ca.gov**

2. WARRANTY TERMS AND CONDITIONS

For details of warranty, refer to Viking's current list price schedule at **www.vikinggroupinc.com** or contact Viking directly.

Sprinkler Cabinets
3, 6, & 12 Sprinklers, 1/2 or 3/4 Inch NPT
6 ESFR Sprinklers, 3/4 or 1 Inch NPT

General Description

TYCO Sprinkler Cabinets are constructed of metal enclosures with hinged covers designed to provide on-site storage of an emergency supply of sprinklers and a sprinkler wrench.

NFPA 13 requires a representative number of each type of sprinkler used in a sprinkler system to be stored in a cabinet on-site to allow for immediate removal and replacement of sprinklers that may have operated or become damaged.

Sprinkler Cabinets are manufactured of heavy gauge steel with knock-outs to accommodate NPT threaded sprinklers and are painted an attractive red enamel.

NOTICE

The Sprinkler Cabinets described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the performance of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

Technical Data

Material
Carbon Steel

Weights
3 Sprinkler Cabinet . . . . . 1.5 Lbs. (0,68 kg)
6 Sprinkler Cabinet . . . . . .2.3 Lbs. (1,04 kg)
12 Sprinkler Cabinet . . . . . .4.0 Lbs. (1,81 kg)
6 ESFR Sprinkler Cabinet . . . . .3.3 Lbs. (1,36 kg)

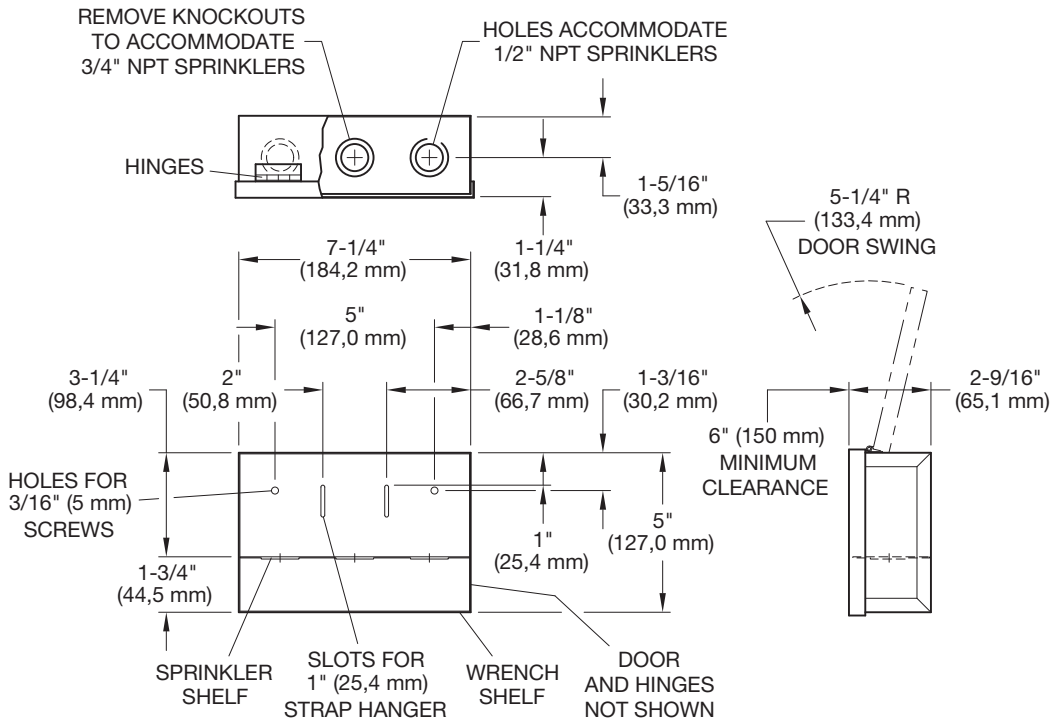


FIGURE 1
3 SPRINKLER CABINET

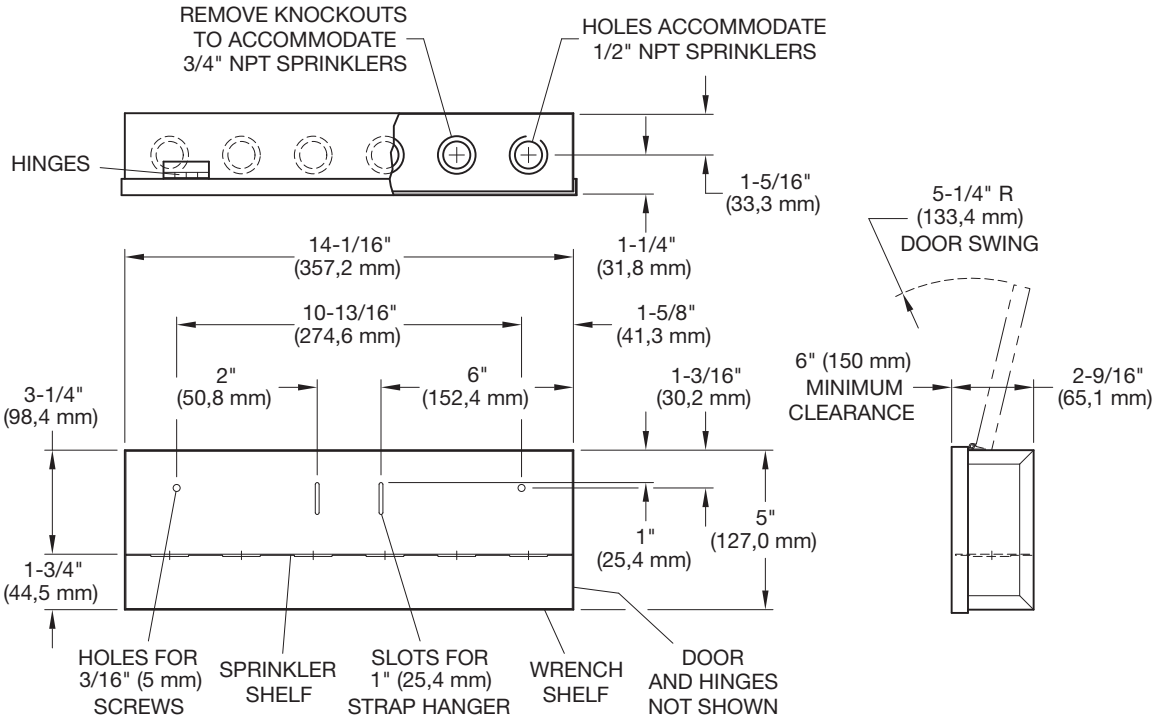


FIGURE 2
6 SPRINKLER CABINET

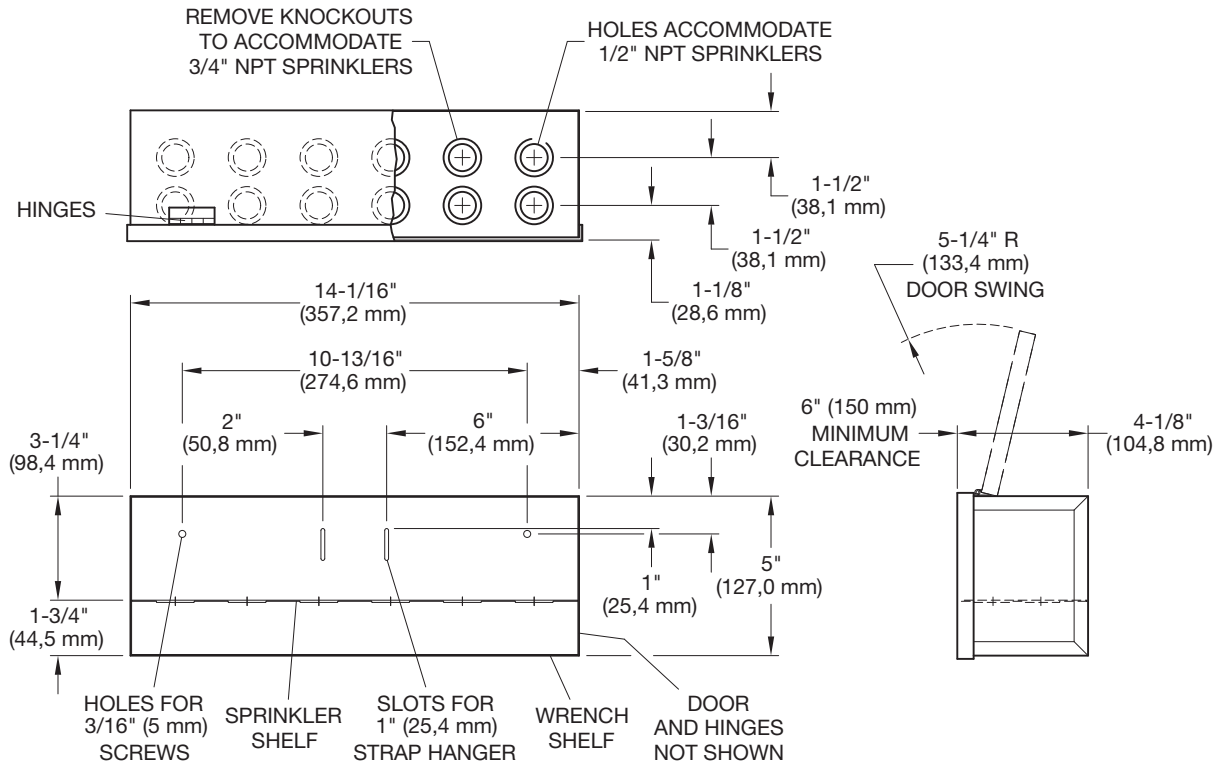


FIGURE 3
12 SPRINKLER CABINET

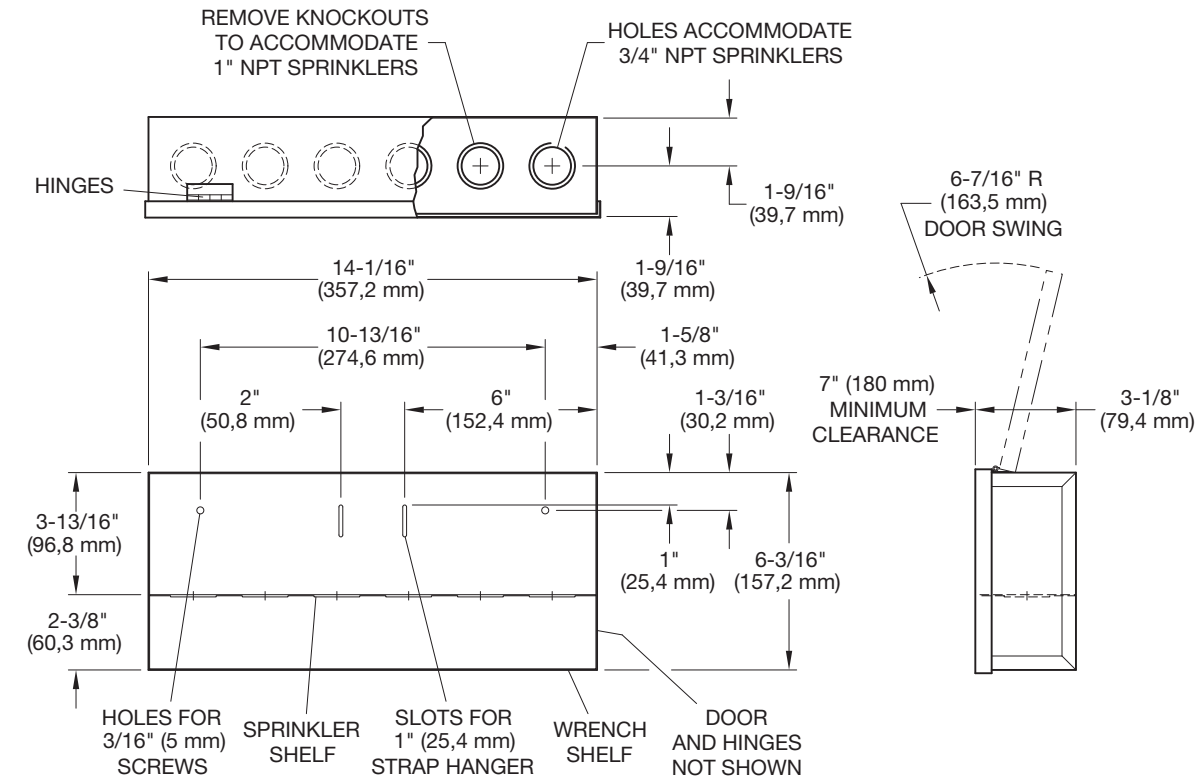


FIGURE 4
6 ESFR SPRINKLER CABINET

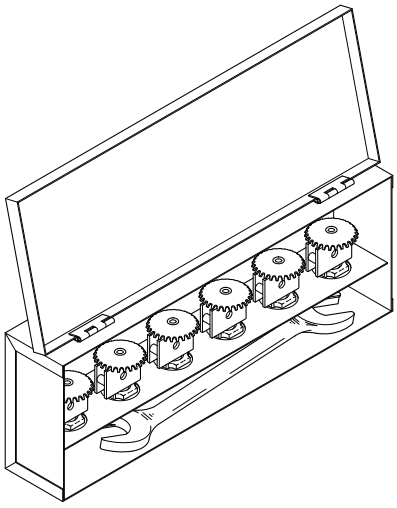


FIGURE 5
SPRINKLER CABINET
TYPICAL APPLICATION
(Sprinklers and Tools
Not Included)

Installation

Sprinkler Cabinets are designed with two 3/16 Inch (4,7 mm) diameter holes for wall mounting or direct attachment to the system riser with a strap-type hanger. The Sprinkler Cabinet should be installed at or near the system control valve and must be stocked with an adequate supply of spare sprinklers and a sprinkler wrench.

The stock of spare sprinklers should include sprinklers of each type and temperature rating as are installed in the sprinkler system, in the following quantities:

The 3, 6, and 12 Sprinkler Cabinets are designed to accept both 1/2 & 3/4 Inch NPT threaded sprinklers, whereas the 6 ESFR Sprinkler Cabinets are designed to accept both 3/4 & 1 Inch NPT threaded sprinklers. As necessary, insert a screwdriver blade from the front top of the shelf and under the near bottom part of the knockout annular ring. Press the screwdriver handle down to remove the knockout ring.

Sprinklers In System	Spare Sprinklers Required
Under 300	6
300 - 1000	12
Over 1000	24

Care and Maintenance

The Sprinkler Cabinet, wrench, and stock of spare sprinklers should be inspected at least quarterly. The following items should be checked:

- The Sprinkler Cabinet should be readily accessible, and not exposed to a corrosive atmosphere or temperatures in excess of 100°F (38°C).
- The stock of spare sprinklers should include an adequate number of each type and temperature rating.
- The stock of sprinklers must be in good condition.
- A sprinkler wrench of the appropriate type must be included in the Sprinkler Cabinet.

Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name and part number (P/N).

Sprinkler Cabinet
Specify: (Description), P/N (specify):

3 Sprinkler Cabinet 1177
6 Sprinkler Cabinet 1119
12 Sprinkler Cabinet 1124
6 ESFR Sprinkler Cabinet 1111

tyco Fire Protection Products

Nominal Pipe Size		Nominal Dimensions Inch (mm)							Cover Bolt Torque Lbs.-ft. (Nm)	Approx. Weight Lbs. (kg)
Valve Size Inch (DN)	Pipe O.D. Inch (mm)	A	B	C	D	E	F	J		
2 (50)	2.37 (60,3)	6.75 (171,5)	1.96 (49,8)	1.96 (49,8)	2.57 (65,3)	3.25 (82,3)	4.75 (120,7)	1.62 (41,5)	18 (25)	9.0 (4,5)
2-1/2 (65)	2.88 (73,0)	8.00 (203,2)	5.38 (136,7)	2.63 (66,7)	3.09 (78,5)	3.87 (98,3)	5.87 (149,1)	1.63 (41,7)	39 (54)	10.0 (4,5)
76,1 mm (65)	3.00 (76,1)	8.00 (203,2)	5.38 (136,7)	2.63 (66,7)	3.09 (78,5)	3.87 (98,3)	5.87 (149,1)	1.63 (41,7)	39 (54)	10.0 (4,5)
3 (80)	3.50 (88,9)	8.37 (212,6)	5.72 (145,3)	2.81 (71,4)	3.31 (84,1)	3.87 (98,3)	5.87 (149,1)	1.63 (41,7)	39 (54)	11.0 (5,0)
4 (100)	4.50 (114,3)	9.63 (244,6)	6.68 (169,7)	3.80 (96,5)	3.63 (92,2)	4.53 (115,4)	7.13 (181,1)	1.84 (46,7)	50 (69)	25.0 (11,3)
139,7 mm (125)	5.50 (139,7)	10.50 (266,7)	7.40 (188,0)	4.46 (113,3)	4.13 (104,9)	4.90 (124,5)	7.50 (190,5)	1.75 (44,5)	39 (54)	29.0 (13,2)
5 (125)	5.56 (141,3)	10.50 (266,7)	7.40 (188,0)	4.46 (113,3)	4.13 (104,9)	4.90 (124,5)	7.50 (190,5)	1.75 (44,5)	39 (54)	29.0 (13,2)
165,1 mm (150)	6.50 (165,1)	11.50 (292,1)	8.00 (203,2)	4.62 (117,3)	4.50 (114,3)	5.00 (127,0)	7.60 (193,0)	1.85 (47,0)	60 (82)	47.0 (21,3)
6 (150)	6.63 (168,3)	11.50 (292,1)	8.00 (203,2)	4.62 (117,3)	4.50 (114,3)	5.00 (127,0)	7.60 (193,0)	1.85 (47,0)	60 (82)	47.0 (21,3)
8 (200)	8.63 (219,1)	14.00 (355,6)	10.14 (257,8)	6.67 (169,4)	5.52 (140,2)	5.46 (138,7)	8.46 (214,9)	2.13 (54,1)	120 (164)	66.0 (29,9)
10 (250)	10.75 (273,1)	18.00 (457,2)	12.38 (314,5)	8.62 (218,9)	6.41 (162,8)	7.50 (190,5)	10.50 (266,7)	3.00 (76,2)	130 (178)	109.7 (49,4)
12 (300)	12.75 (323,9)	21.00 (533,4)	14.28 (362,7)	9.93 (252,2)	7.27 (184,7)	7.62 (193,5)	10.62 (269,7)	2.75 (69,9)	130 (178)	151.0 (68,0)

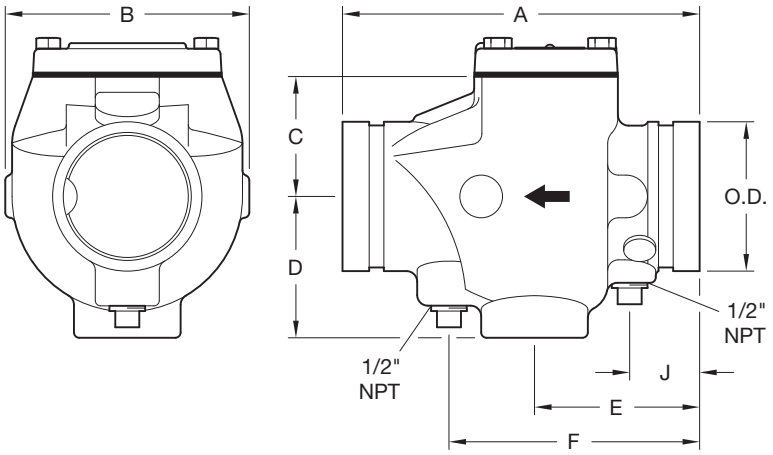


FIGURE 1
MODEL CV-1F GROOVED END SWING CHECK VALVES
NOMINAL DIMENSIONS

Care and Maintenance

The TYCO Model CV-1F Grooved End Swing Check Valves must be maintained and serviced in accordance with this section.

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, obtain permission to shut down the affected fire protection system from the proper authorities and notify all personnel who may be affected by this decision.

After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. Contact the installing contractor or product manufacturer with any questions. Any impairments must be immediately corrected.

Automatic sprinkler systems are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

No.	Part	Material	Qty.
1	Body	Ductile Iron	1
2	Cover	Ductile Iron	1
3	Cover Gasket	Nitrile Rubber	1
4	Hex Cap Screw	Steel, Zinc Plated	AR
5	Clapper, 2"-8" (DN50-200)	Stainless Steel	1
	Clapper, 10"-12" (DN250-300)	Ductile Iron	

No.	Part	Material	Qty.
6	Clapper Facing	EPDM Grade "E"	1
7	Spring	Stainless Steel	1
8	Hinge Shaft	Stainless Steel	1
9	Retaining Ring	Stainless Steel	AR
11	Retention Bolt	Stainless Steel	1
13	Retaining Disc	Stainless Steel	1

No.	Part	Material	Qty.
14	Locknut	Stainless Steel	1
15	Plug 1/2" NPT	Cast Iron	2
16	Adhesive	Thread Sealer	AR
17	Nameplate	Aluminum	1
18	Rivet	Steel	2
19	Spacer	Stainless Steel	1

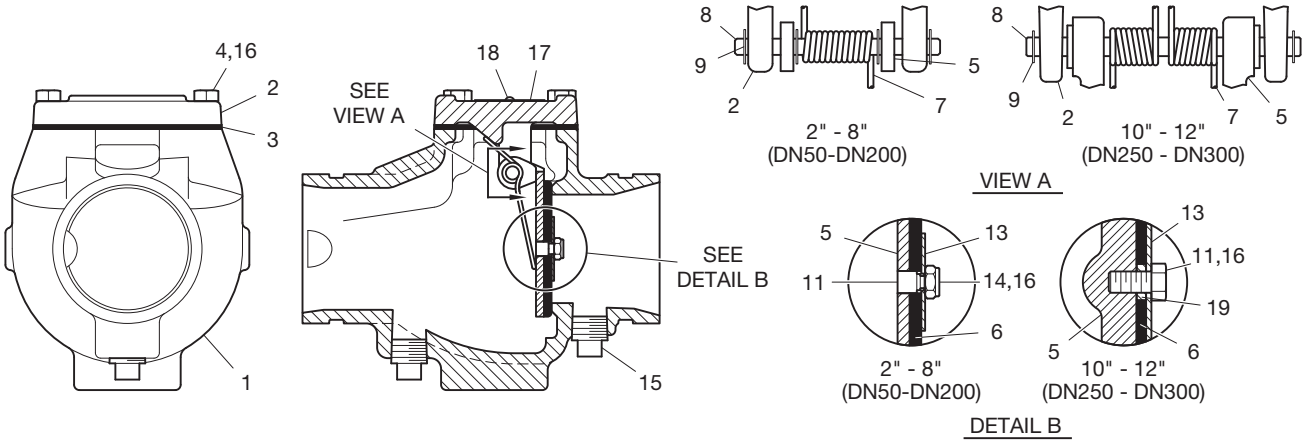
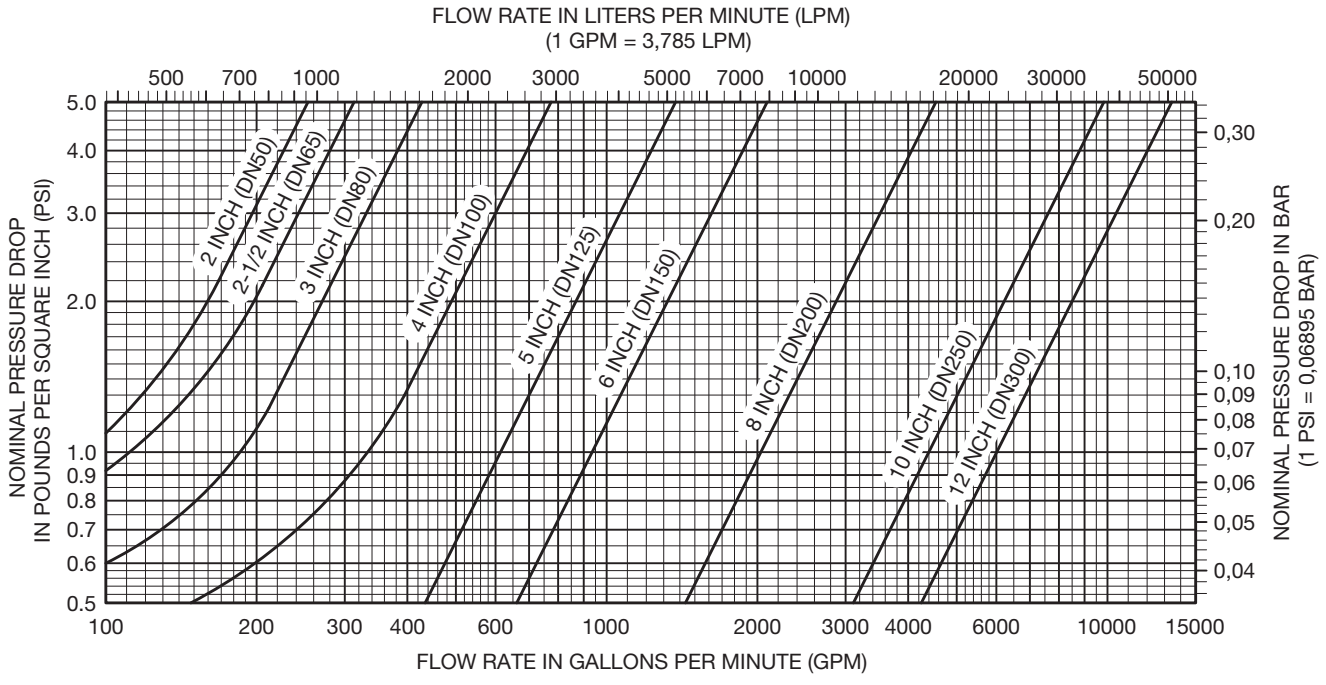


FIGURE 2
MODEL CV-1F GROOVED END SWING CHECK VALVES
ASSEMBLY



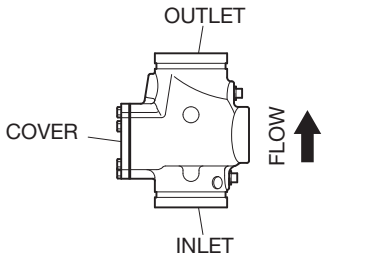
GRAPH A
MODEL CV-1F GROOVED END SWING CHECK VALVES
NOMINAL PRESSURE LOSS VS. FLOW

Valve Size Inch (DN)	Pipe O.D. Inch (mm)	Part Number
2 (50)	2.37 (60,3)	59-590-0-020
2-1/2 (65)	2.88 (73,0)	59-590-0-025
76,1 mm (65)	3.00 (76,1)	59-590-0-076
3 (80)	3.50 (88,9)	59-590-0-030
4 (100)	4.50 (114,3)	59-590-0-040
139,7 mm (125)	5.50 (139,7)	59-590-0-139
5 (125)	5.56 (141,3)	59-590-0-050
165,1 mm (150)	6.50 (165,1)	59-590-0-165
6 (150)	6.63 (168,3)	59-590-0-060
8 (200)	8.63 (219,1)	59-590-0-080
10 (250)	10.75 (273,1)	59-590-0-100
12 (300)	12.75 (323,9)	59-590-0-120

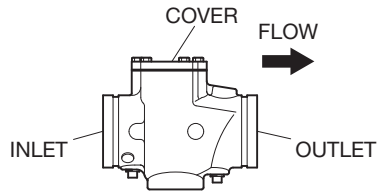
TABLE A
MODEL CV-1F GROOVED END SWING CHECK VALVES
PART NUMBER SELECTION

Valve Size Inch (DN)	Pipe O.D. Inch (mm)	Cover Gasket Part Number		Clapper Facing Part Number		Clapper Assembly Part Number	
		Americas Only	EMEA/APAC	Americas Only	EMEA/APAC	Americas Only	EMEA/APAC
2 (50)	2.37 (60,3)	595907020	97670501	59020EPDM	59020EPDM	97670201A	97670201
2-1/2 (65)	2.88 (73,0)	595907030	97561801	59025EPDME	59025EPDM	97562801A	97562065
76,1 mm (65)	3.00 (76,1)	595907030	97561801	59025EPDME	59025EPDM	—	97562801
3 (80)	3.50 (88,9)	595907030	97561801	59030EPDME	59030EPDM	97562201A	97562201
4 (100)	4.50 (114,3)	595907040	97512001	59040EPDME	59040EPDM	97549001A	97549001
139,7 mm (125)	5.50 (139,7)	595907040	97512001	59050EPDME	59050EPDM	—	97565501
5 (125)	5.56 (141,3)	595907040	97512001	59050EPDME	59050EPDM	97565501A	97562125
165,1 mm (150)	6.50 (165,1)	595907060	97521801	59060EPDME	59060EPDM	—	97524101
6 (150)	6.63 (168,3)	595907060	97521801	59060EPDME	59060EPDM	97524101A	97562150
8 (200)	8.63 (219,1)	595907080	97547901	59080EPDME	59080EPDM	97592201A	97592201
10 (250)	10.75 (273,1)	595907100	97600001	59100EPDM	59100EPDM	97598001A	97598001
12 (300)	12.75 (323,9)	595907120	97600002	59120EPDM	59120EPDM	97647701A	97647701

TABLE B
MODEL CV-1F GROOVED END SWING CHECK VALVES REPLACEMENT VALVE PARTS
PART NUMBER SELECTION



VERTICAL ORIENTATION



HORIZONTAL ORIENTATION

FIGURE 3
MODEL CV-1F GROOVED END SWING CHECK VALVES PROPER ORIENTATION

Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name and Part Number (P/N).

Model CV-1F Check Valve

Specify: Model CV-1F Grooved End Swing Check Valve, size (specify), P/N (specify per Table A)

Replacement Valve Parts

Refer to Figure 2 to identify Parts.

Cover Gasket

Specify: Model CV-1F Grooved End Swing Check Valve, Cover Gasket, size (specify), P/N (specify per Table B)

Clapper Facing

Specify: Model CV-1F Grooved End Swing Check Valve, Clapper Seal Facing, EPDM Grade “E”, size (specify), P/N (specify per Table B)

Clapper Assembly

Includes items 2, 3, 5-14, and 17-19.

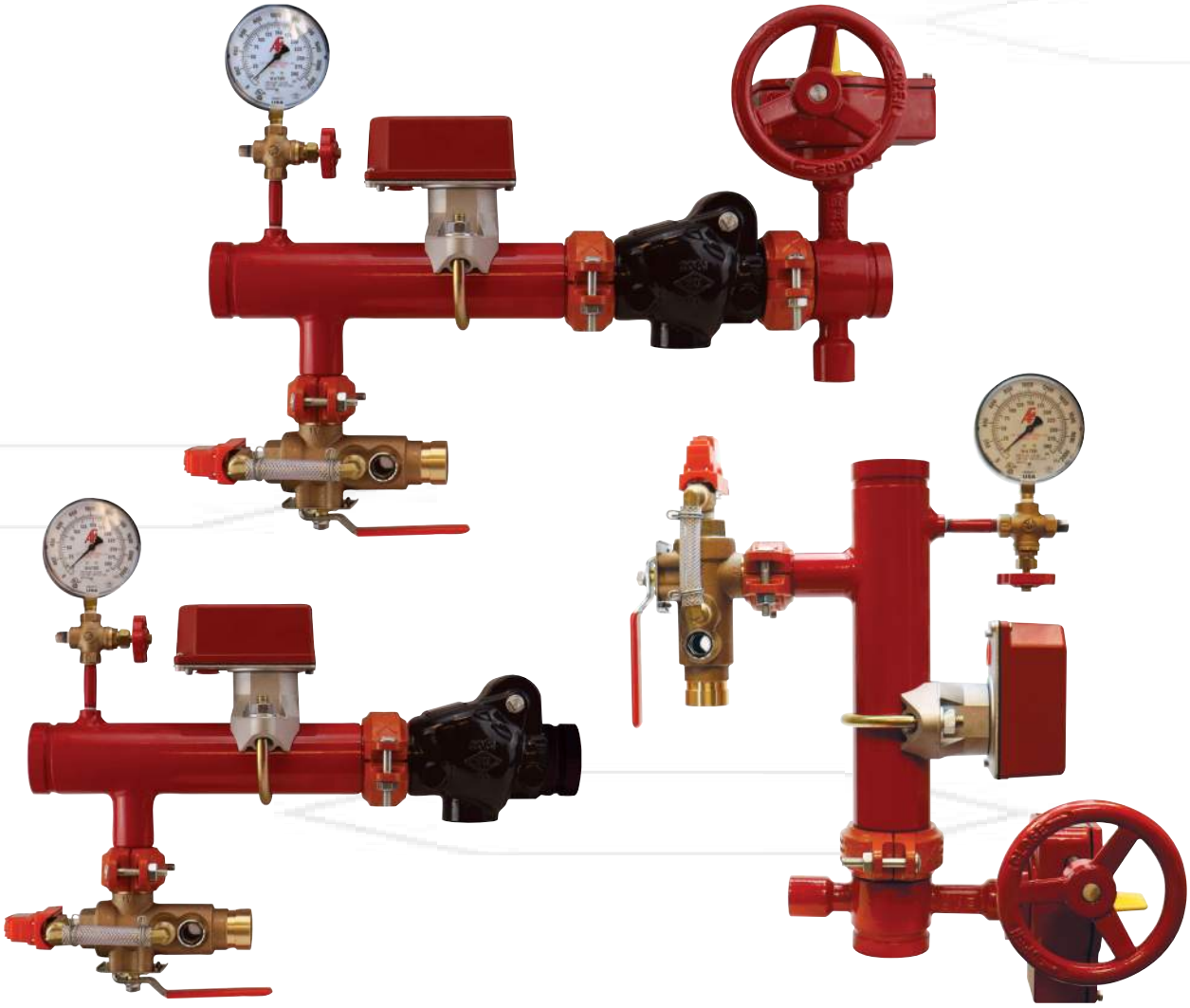
Specify: Model CV-1F Grooved End Swing Check Valve, Clapper Assembly, size (specify), P/N (specify per Table B)

tyco Fire Protection Products

AGF Manufacturing

RiserPACK®

ULTIMATE KITS



Butterfly Valve and Check Valve Kits

BR-RiserPACK-UltimateKits · 3/22

Ultimate RiserPACK Kits

AGF Ultimate Kits are floor control add-ons for RiserPACK models 8000, 8011, and 8611 (commercial steel risers only). Ultimate Kits give you the option of adding a butterfly valve, check valve, or butterfly valve and check valve upgrade to your RiserPACK. When you order a RiserPACK and one of the three Ultimate Kits the kit will come fully assembled on your 2"—4" model (6" and 8" Ultimate Kits are packaged separately and require assembly). Ultimate Kits fit both schedule 10 and schedule 40 manifolds and make you riser installation easier and more compact. All Ultimate RiserPACK models are UL Listed and FM Approved.

UL LISTED

FM APPROVED

Step 1: Choose a RiserPACK

AGF RiserPACK models 8000, 8011 and 8611 are compact, fully-assembled risers designed for NFPA 13 wet pipe fire sprinkler systems. All AGF risers feature an appropriately sized TESTanDRAIN model 2500 or 2511 for system testing and draining. NFPA 13 standards require the addition of a pressure relief valve on all wet pipe systems, and all 8011 and 8611 RiserPACK models include an AGF Model 7000L pressure relief valve. The model 7000L has a lock-out feature that closes access to it's outlet, which means *it does not have to be removed from the system prior the hydrostatic testing*. This helps save valuable time while testing. With the addition of an Ultimate Kit, the Ultimate RiserPACK is a complete floor control assembly that saves time and money on system installations.

8000

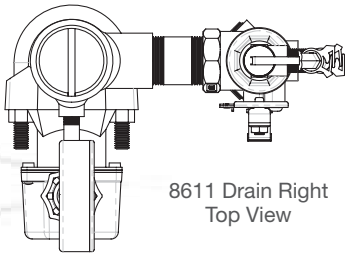
8011

7000L

Includes a lock-out feature so it does not have to be removed from the system during hydrostatic testing.

8611 Drain Right

8611 Drain Left



8611 Drain Right Top View

See Back Cover to Generate an Ultimate RiserPACK Part Number

Step 2: Choose an Ultimate Kit

AGF will ship the Ultimate Kit fully assembled on your choice of 2"—4" RiserPACK; 6" and 8" kits require assembly. All kit components are field adjustable and can be rotated to accommodate operation requirements or installation restrictions, and all Ultimate RiserPACK models can be oriented vertically or horizontally. All kit components can be easily replaced by off-the-shelf parts and are easily retrofitted back onto the system. **See back cover to generate a part number.**

BFV Kit

Kit Includes: Butterfly Valve and Grooved Coupling

Butterfly Valve Kit	
2"	BFV-20
2½"	BFV-25
3"	BFV-30
4"	BFV-40
6"	BFV-60
8"	BFV-80

CKV Kit

Kit Includes: Check Valve and Grooved Coupling

Check Valve Kit	
2"	CKV-20
2½"	CKV-25
3"	CKV-30
4"	CKV-40
6"	CKV-60
8"	CKV-80

BFVCKV Kit

Kit Includes: Butterfly Valve, Check Valve, and Two Grooved Couplings

Butterfly & Check Valve Kit	
2"	BFVCKV-20
2½"	BFVCKV-25
3"	BFVCKV-30
4"	BFVCKV-40
6"	BFVCKV-60
8"	BFVCKV-80

Ultimate RiserPACK Vertical and Horizontal Orientation

All components can be rotated to accommodate operation requirements or installation restrictions.

BFV Kit

CKV Kit

BFVCKV Kit

Generating a Part Number

To generate a part number for a RiserPACK with an Ultimate Kit use the chart below.

Example:

The part number for a 4" Model 8011 with a 5.6K orifice and a Butterfly Valve Kit (BFV) is demonstrated below. First, take the part number for the RiserPACK and add the part number for the desired Ultimate Kit.

Step 1		Step 2		Part Number
RiserPACK		**Ultimate Kit**		**Ultimate RiserPACK**
8482A	+	BFV-40	=	8482A-BFV-40

		RiserPACK Part Numbers						
		Orifice Size		2”	2½”	3”	4”	6”	8"
		K-Factor	Fractional						
Step 1	Model 8000	2.8	3/8”	8355A	8360A	8370A	8380A	8390A	8398A-28
		4.2	7/16”	8356A	8361A	8371A	8381A	8391A	8398A-42
		5.6	**1/2”**	**8357A**	**8362A**	**8372A**	**8382A**	**8392A**	8398A-56
		8.0	17/32”	8358A	8363A	8373A	8383A	8393A	8398A-80
		11.2 (ELO)	5/8”	8359A	8364A	8374A	8384A	8394A	8398A-112
		14.0 (ESFR)	3/4"	N/A	8365A	8375A	8385A	8395A	8398A-140
		25.2	-	N/A	N/A	N/A	8386A	8396A	8398A-252
	Model 8011	2.8	3/8”	8455A	8460A	8470A	8480A	8490A	8498A-28
		4.2	7/16”	8456A	8461A	8471A	8481A	8491A	8498A-42
		5.6	**1/2”**	**8457A**	**8462A**	**8472A**	**8482A**	**8492A**	8498A-56
		8.0	17/32”	8458A	8463A	8473A	8483A	8493A	8498A-80
		11.2 (ELO)	5/8”	8459A	8464A	8474A	8484A	8494A	8498A-112
		14.0 (ESFR)	3/4"	N/A	8465A	8475A	8485A	8495A	8498A-140
		25.2	-	N/A	N/A	N/A	8486A	8496A	8498A-252
	Model 8611 (Right)	2.8	3/8”	8655A	8660A	8670A	8680A	8690A	N/A
		4.2	7/16”	8656A	8661A	8671A	8681A	8691A	N/A
		5.6	**1/2”**	**8657A**	**8662A**	**8672A**	**8682A**	**8692A**	N/A
		8.0	17/32”	8658A	8663A	8673A	8683A	8693A	N/A
		11.2 (ELO)	5/8”	8659A	8664A	8674A	8684A	8694A	N/A
		14.0 (ESFR)	3/4"	N/A	8665A	8675A	8685A	8695A	N/A
		25.2	-	N/A	N/A	N/A	8686A	8696A	N/A
	Model 8611 (Left)	2.8	3/8”	8655LDG	8660LDG	8670LDG	8680LDG	8690LDG	N/A
		4.2	7/16”	8656LDG	8661LDG	8671LDG	8681LDG	8691LDG	N/A
		5.6	**1/2”**	**8657LDG**	**8662LDG**	**8672LDG**	**8682LDG**	**8692LDG**	N/A
		8.0	17/32”	8658LDG	8663LDG	8673LDG	8683LDG	8693LDG	N/A
		11.2 (ELO)	5/8”	8659LDG	8664LDG	8674LDG	8684LDG	8694LDG	N/A
		14.0 (ESFR)	3/4"	N/A	8665LDG	8675LDG	8685LDG	8695LDG	N/A
		25.2	-	N/A	N/A	N/A	8686LDG	8696LDG	N/A
Step 2	Ultimate Kit Part Numbers								
	BFV Kit			BFV-20	BFV-25	BFV-30	BFV-40	BFV-60	BFV-80
	CKV Kit			CKV-20	CKV-25	CKV-30	CKV-40	CKV-60	CKV-80
	BFVCKV Kit			BFVCKV-20	BFVCKV-25	BFVCKV-30	BFVCKV-40	BFVCKV-60	BFVCKV-80

AGF Manufacturing
100 Quaker Lane • Malvern, PA 19355
Phone: 610-240-4900
Fax: 610-240-4906
www.agfmfg.com

POTTER
The Symbol of Protection

BELLS

PAC-AC & PDC-DC

Features

- Listed for indoor and outdoor use
- Outdoor use requires BBK-1 or HC-BB weatherproof back box
- Indoor use mounts directly to standard 4” box
- Low current draw
- High dB output
- AC and DC models
- DC models are motor driven, polarized, and have built in transient protection for supervised alarm circuits
- Available in 6”, 8” and 10” sizes

* ULC on PDC-DC Only

Description

These vibrating type bells are designed for use as fire 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 or HC-BB weatherproof backbox for outdoor applications. Weatherproof backbox model BBK-1 or HC-BB, Stock No. 1500001.

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.
3. ULC only applies to PDC-DC bells.

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	PDC-6-12	1750500	200mA	96	76
8 (200)	12VDC	PDC-8-12	1750502	.200mA	96	77
10 (250)	12VDC	PDC-10-12	1750504	.200mA	96	78
6 (150)	24VDC	PDC-6-24	1750501	.20mA	95	77
8 (200)	24VDC	PDC-8-24	1750503	20mA	83	79
10 (250)	24VDC	PDC-10-24	1750505	20mA	85	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	PAC1206	1826120	.05A	98	83
8 (200)	120VAC	PAC1208	1828120	.05A	98	84
10 (250)	120VAC	PAC12010	1821120	.05A	98	86

All DC bells are polarized and have built-in transient protection. * Does not have ULC listing.

Technical Specifications

Dimensions	6” (150mm), 8” (200mm) and 10” (250mm)
Enclosure	Cover: Steel Finish: Red Powder Coat Base: non-corrosive composite material All parts have corrosion resistant finishes Model BBK-1 or HC-BB weatherproof backbox (optional)
Voltages Available	24VAC 120VAC 12VDC (10.2 to 15.6) Polarized 24VDC (20.4 to 31.2) Polarized
Environmental Limitations	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 - 18 AWG stranded wire
Service Use	NFPA 13, 72, local AHJ

*Specifications subject to change without notice.

⚠ 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.

⚠ WARNING

In outdoor or wet installations, bell must be mounted with weatherproof backbox, BBK-1 or HC-BB. Standard electrical boxes will not provide a weatherproof enclosure. If the bell and/or assembly is exposed to moisture, it may fail or create an electrical hazard.

Installation

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.

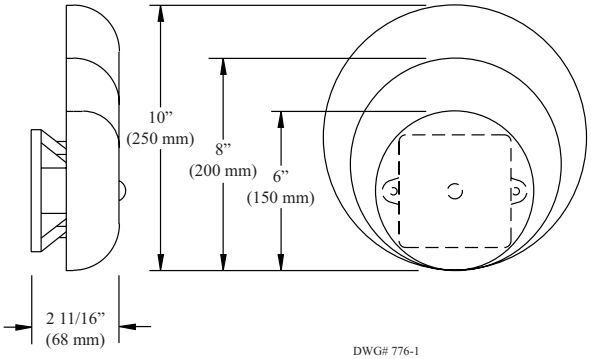
1. Remove the gong.
2. Connect wiring (see Fig. 3).
3. Mount bell mechanism to backbox (bell mechanism must be mounted with the striker pointing down).
4. Reinstall the gong (be sure that the gong positioning pin, in the mechanism housing, is in the hole in the gong).
5. Test all bells for proper operation and observe that they can be heard where required (bells must be heard in all areas as designated by the authority having jurisdiction).

⚠ WARNING

Failure to install striker down will prevent bell from ringing.

Bell Dimension Inches (mm)

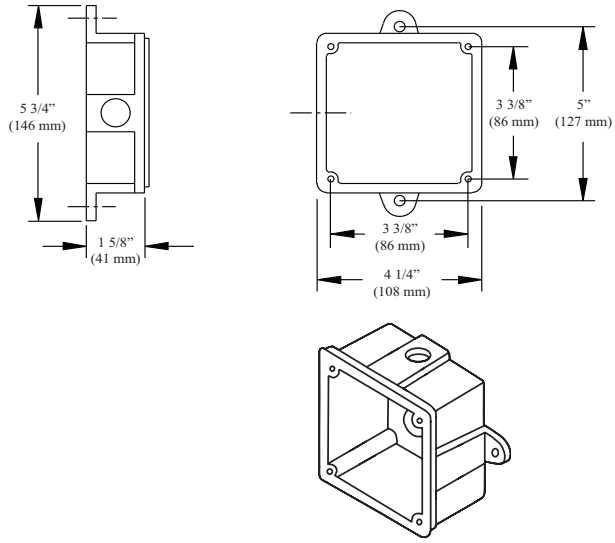
Fig 1



Weatherproof Backbox Dimensions Inches (mm)

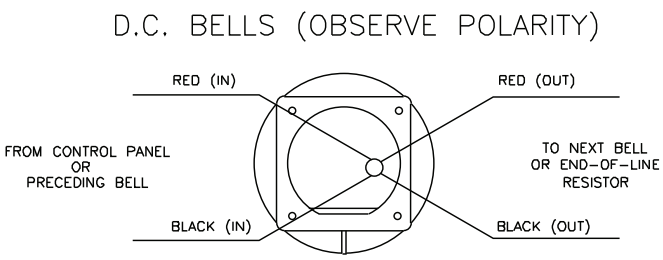
MODEL BBK-1 OR HC-BB

Fig 2



Wiring Rear View

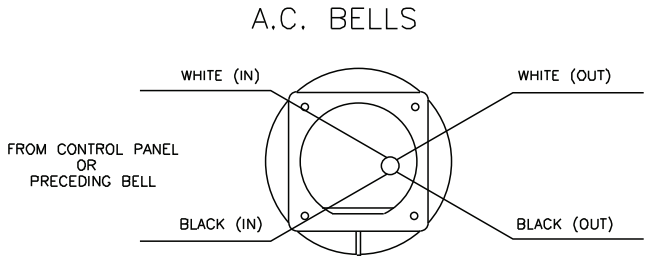
Fig 3



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

NOTES:

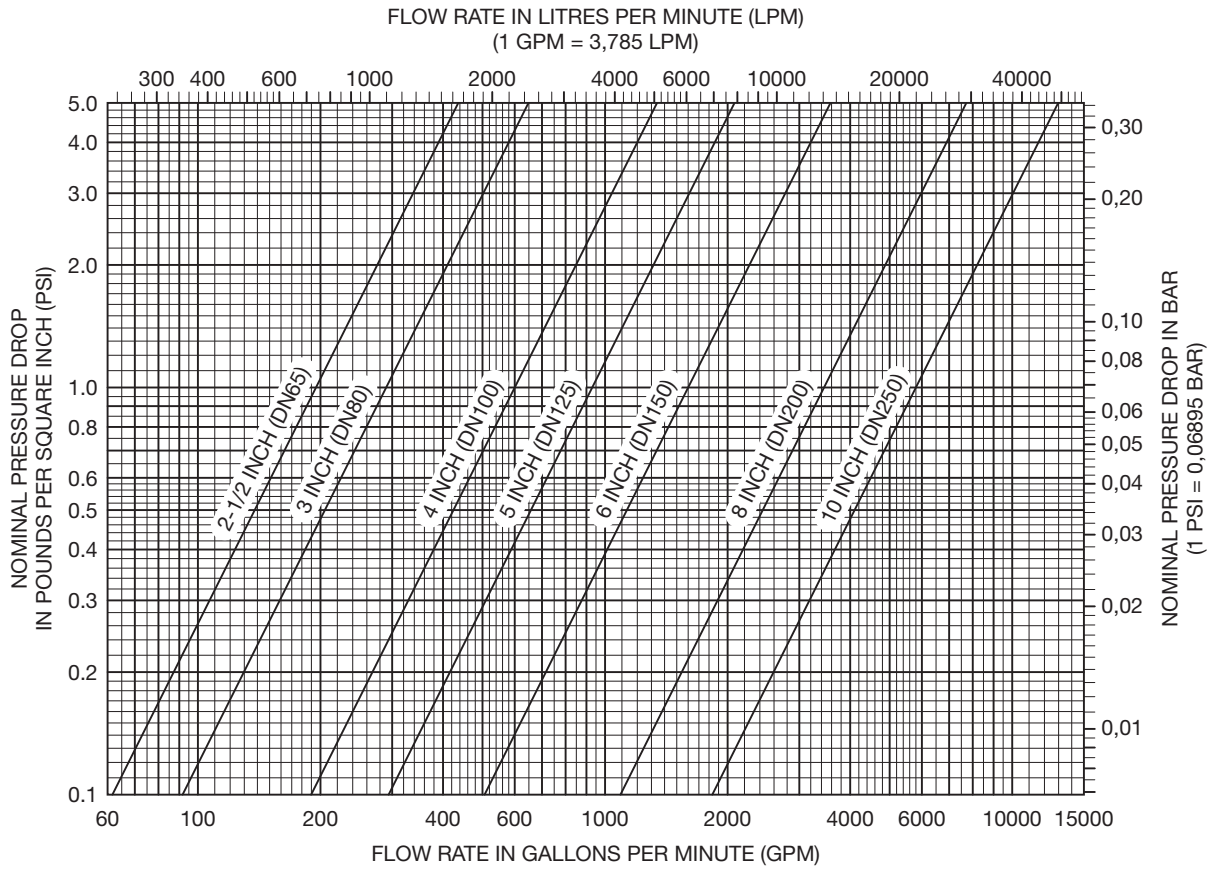
1. OBSERVE POLARITY TO RING D.C. BELLS.
2. RED WIRES POSITIVE (+).
3. BLACK WIRES NEGATIVE (-).
4. EOL RESISTOR IS SUPPLIED BY FIRE ALARM CONTROL PANEL.



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

NOTES:

1. WHEN USING A.C. BELLS, TERMINATE EACH EXTRA WIRE SEPERATELY AFTER LAST BELL.



GRAPH A
DN65 THROUGH DN250 MODEL BFV-N BUTTERFLY VALVE
NOMINAL PRESSURE DROP VERSUS FLOW

Installation

The Model BFV-N Grooved End Butterfly Valves may be installed with flow in either direction and can be positioned either horizontally or vertically.

The grooved end pipe couplings used with the Model BFV-N must be listed or approved for fire protection service and installed in accordance with the manufacturers instructions.

The Model BFV-N Butterfly Valve may be installed with any schedule of pressure class of pipe or tubing that is listed or approved for fire protection.

As applicable, refer to Figure 2 for the internal switch wiring diagram.

Conduit and electrical connections are to be made in accordance with the authority having jurisdiction and/or the National Electrical Code. With reference to Figure 2, the supervisory switch is intended for connection to the supervisory circuit of a fire alarm control panel in accordance with NFPA 72. The auxiliary switch is intended for the unsupervised connection to auxiliary equipment in accordance with NFPA 70, National Electric Code.

NOTE: *For outdoor applications with internal supervisory switches, it is recommended that wiring connections be made at a temperature above 15°F (-9°C), in order to insure sufficient flexibility of the wire lead insulation.*

Stop Adjustment Procedure

The gear operator's OPEN and SHUT position have been factory set. The following procedure should be used if slight adjustments are needed. Refer to Figure 3.

Step 1. Turn the Handwheel until the valve is fully closed.

Step 2. Remove two lockscrews (A) from the gear operator body.

Step 3. Turn the Shut Stop Screw (B) clockwise until snug.

Step 4. Turn the Handwheel until the valve is fully open.

Step 5. Turn the Open Stop Screw (C) clockwise until snug.

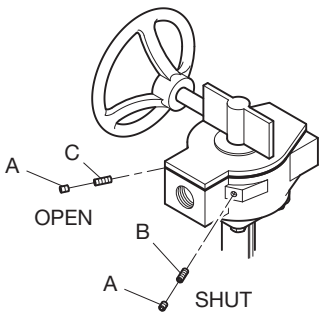


FIGURE 3
MODEL BFV-N GROOVED END BUTTERFLY VALVE OPERATOR ADJUSTMENT

Step 6. Close the valve by turning the Handwheel until the valve is fully in the closed position. Ensure the disc has returned to the fully closed position and the disc is centered in the seat area. Readjust the Shut Stop Screw if necessary.

Step 7. Replace two lockscrews (A) into the gear Operator body locking the stops into position.

Care and Maintenance

Before closing a fire protection system control valve for maintenance or inspection work on either the valve or fire protection system which it controls, permission to shut down the affected fire protection systems must be obtained from the proper authorities and all personnel who may be affected by this decision must be notified.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in accordance with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. Contact the installing contractor or product manufacturer with any questions. Any impairment must be immediately corrected.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified inspection service.

Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure

Grooved End Butterfly Valves
Specify: (specify inch size) Model BFV-N Grooved End Butterfly Valve with internal supervisory switches, P/N (specify):

2-1/2 inch (DN65) 59-300-F-025N
76,1mm (DN65)* 59-300-F-076N
3 inch (DN80) 59-300-F-030N
4 inch (DN100) 59-300-F-040N
5 inch (DN125) 59-300-F-050N
165,1mm (DN150)* 59-300-F-165N
6 inch (DN150) 59-300-F-060N
8 inch (DN200) 59-300-F-080N
10 inch (DN250) 59-300-F-100N

*Available for EMEA and APAC markets only

tyco Fire Protection Products

EDDYTHREAD 40

Always ready to protect your most valuable assets.

As the leading supplier of steel sprinkler pipe, we understand that there are no second chances in fire suppression. You need products of enduring quality and exceptional strength–plus reliable service. You need Bull Moose.

Bull Moose Fire Sprinkler Pipe Product Information

Nominal Pipe Size (Inches)		1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	8"
EDDYTHREAD 40	O.D. (in)	1.295	1.650	1.900	2.375					
	I.D. (in)	1.083	1.418	1.654	2.123					
	Empty Weight (lb/ft)	1.461	2.070	2.547	3.308					
	Water Filled Weight (lb/ft)	1.860	2.754	3.468	4.842					
	C.R.R.	1.00	1.00	1.00	1.00					
	Pieces per Lift	70	51	44	30					
	Lift Weight (lbs) 21' lengths	2,148	2,217	2,353	2,084					
	Lift Weight (lbs) 24' lengths	2,454	2,534	2,690	2,382					
	Lift Weight (lbs) 25' lengths	2,557	2,639	2,802	2,481					

EDDYTHREAD 40 ADVANTAGES:

- UL listed (US & Canada) and FM approved
- ASTM A135 and A795 Type E, Grade A Certified
- Complies with NFPA-13, 13R and 14
- Industry-leading hydraulic characteristics
- CRR of 1.0 and greater
- All pipe NDT weld tested

OTHER BENEFITS/SERVICES:

- We have the most stocking locations in the industry, for best delivery and availability
- Plain end or roll groove
- Eddy Guard II™ bacterial-resistant internal coating
- Custom length options
- Hot dipped galvanization
- Reddi-Pipe® red or black pipe eliminates field painting
- Compatible for use in wet, dry, preaction and deluge sprinkler systems
- The only maker with EPDs (to help earn LEED points).

Exclusive maker of Reddi-Pipe®
RED OR BLACK PAINTED PIPE.

CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

c UL us LISTED

FM APPROVED

NFPA

AFSA American Fire Sprinkler Association

NFSA The Voice of the Fire Sprinkler Industry

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EDDY FLOW

Always ready to protect your most valuable assets.

As the leading supplier of steel sprinkler pipe, we understand that there are no second chances in fire suppression. You need products of enduring quality and exceptional strength–plus reliable service. You need Bull Moose.

Bull Moose Fire Sprinkler Pipe Product Information

	Nominal Pipe Size (Inches)	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	8"
EDDY FLOW	O.D. (in)		1.660	1.900	2.375	2.875	3.500	4.500		
	I.D. (in)		1.530	1.728	2.203	2.705	3.334	4.310		
	Empty Weight (lb/ft)		1.222	1.844	2.330	2.809	3.361	4.968		
	Water Filled Weight (lb/ft)		2.019	2.860	3.982	5.299	7.144	11.290		
	C.R.R.		1.98	3.44	2.78	1.66	1.00	1.00		
	Pieces per Lift		61	61	37	30	19	19		
	Lift Weight (lbs) 21' lengths		1,565	2,362	1,810	1,770	1,341	1,982		
	Lift Weight (lbs) 24' lengths		1,789	2,700	2,069	2,022	1,533	2,265		
	Lift Weight (lbs) 25' lengths		1,864	2,812	2,155	2,107	1,596	2,360		

EDDY FLOW ADVANTAGES:

- UL listed (US & Canada) and FM approved
- ASTM A135 and A795 Type E, Grade A Certified
- Complies with NFPA-13, 13R and 14
- Industry-leading hydraulic characteristics
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- Reddi-Pipe® red or black pipe eliminates field painting
- Compatible for use in wet, dry, preaction and deluge sprinkler systems
- The only maker with EPDs (to help earn LEED points).

Exclusive maker of Reddi-Pipe®
RED OR BLACK PAINTED PIPE.

CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

c UL us LISTED

FM APPROVED

NFPA

AFSA American Fire Sprinkler Association

NFSA The Voice of the Fire Sprinkler Industry

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MATERIAL SAFETY DATA SHEET

MSDS No. 001 Leaded Red Brass Pipe Fittings

PRODUCT IDENTITY: Brass Pipe Fittings Leaded Red Brass No. C83600 **MSDS No:** 001

SECTION 1 - Product and Company Identification

DISTRIBUTOR: Merit Brass Company MANUFACTURER: Various

EMERGENCY TELEPHONE NUMBER: 1-216-261-9800 or 1-800-726-9800

ADDRESS: One Merit Drive - P.O. Box 43127, Cleveland, Ohio 44143

TELEPHONE NUMBER FOR INFORMATION: 1-216-261-9800 or 1-800-726-9800

CHEMICAL NAME AND SYNONYMS: Brass Alloy Fittings ASTM B584-08a; CDA 836, SAE 40

COMPANY CONTACT: Thomas J. Golenski, Production Manager

SECTION 2 - Hazardous Ingredients

ELEMENT	CAS NO.	% RANGE	OSHA PEL (mg/M3)	ACGIH TLV (mg/M3)
Aluminum	7429-90-5	.005 Max	5 respirable dust, 15 total dust	1
Antimony	7440-36-0	.25	0.5	0.5
Copper	7440-50-8	84 to 86	0.1 fume, 1 dust	0.2 fume, 1 dust
Iron (as oxide)	7439-89-6	0.30	10 fume	5
Lead	7439-92-1	4 to 6	0.05	0.05
Nickel	7440-02-0	1 Max	1	1.5
Phosphorus (yellow)	12185-10-3	.05 Max	0.1	0.1
Silicon	7440-21-3	.005 Max	5 respirable dust, 15 total dust	10
Sulfur (as dust)	7704-34-9	.08 Max	5 respirable dust, 15 total dust	3 respirable dust, 10 total dust
Tin	7440-31-5	4 to 6	2	2
Zinc (as oxide)	7440-66-6	4 to 6	5 respirable dust, 15 total dust	2 fume, 10 total dust

SECTION 3 - Physical Data

MELTING POINT: 1500 to 2100° F

SPECIFIC GRAVITY: 7.5 to 9.0 g/cc

BOILING POINT: Not Applicable

VAPOR PRESSURE: Not Applicable

Brass is a shiny yellow-golden colored metallic solid, it has no odor, and is not soluable in water.

SECTION 3 - Fire & Explosion Data

FLASH POINT: Not Applicable

EXTINGUISHING MEDIA: Water spray or ABC dry chemical

AUTO-IGNITION TEMPERTURE: Not Applicable

NATIONAL FIRE PROTECTION ASSOCIATION DATA:

FLAMMABLE LIMITS: **LEL** N/A **UEL** N/A

Health - 1 Flammability - 0
Reactivity - 1 Special - None

SPECIAL FIRE FIGHTING PROCEDURES: None when solid.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Do not use water on molten metal.

SECTION 5 - Health Hazard Data

THRESHHOLD LIMIT VALUE: See SECTION 2 - HAZARDOUS INGREDIENTS

EFFECTS OF OVEREXPOSURE: No adverse health effects when handling intact parts; wash hands before eating to prevent ingestion of minute amounts of toxic metal that may accumulate in the body. Exposure to brass grinding dust and brazing fumes may cause the cold-like symptoms of metal fume fever; metallic taste in mouth, chills, fever, dry mouth and throat, headache. Copper fumes may cause the discoloration of skin and hair.

EMERGENCY AND FIRST AID PROCEDURES: In all cases seek medical assistance.

INHALATION - Remove person with symptoms to fresh air, thoroughly shower, and change cloths.

INGESTION - Seek medical assistance.

EYE - Flush with clean water for thirty minutes.

SKIN - Wash thoroughly with soap and water.

SECTION 6 - Reactivity Data

STABILITY: Brass metal is stable at room temperture.

INCOMPATABILITY: (Materials to avoid) Strong acids and bases.

HAZARDOUS DECOMPOSITION PRODUCTS: Flammable or toxic gases may evolve when brass is exposed to acids or bases.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Do not use brass pipe and fittings to transport corrosive liquids.

SECTION 7 - Spill or Leak Procedures

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Brass parts spills should constitute only a trip and fall hazard.

WASTE DISPOSAL METHOD: Brass metal is valuable and may be recycled by foundries and secondary metal smelters. Avoid melting brass chips covered with metal cutting oil since this will cause fugative emmissions of dense smoke into the air.

SECTION 8 - Special Protection Information

RESPIRATORY PROTECTION: Use a NIOSH approved HEPA respirator when melting, brazing, or grinding brass metal. *(Specify type in accordance with the concentration of toxic particles in the air and work conditions.)*

VENTILATION: Local exhaust ventilation is recommended when melting, brazing, or grinding brass metal.

EYE PROTECTION: Wear appropriate eye protection when melting, brazing, soldering, cutting, or grinding brass metal.

PROTECTIVE GLOVES: Use cotton work glove to prevent transfer of metal to skin. Use cut resistant gloves when handling metal chips. Use heat resistant gloves or tongs to handle hot parts.

OTHER PROTECTIVE EQUIPMENT: Wear clothing appropriate to the fabrication operation attempted with this product.

SECTION 9 - Special Precautions

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Protect brass parts from moisture to avoid dicoloration and corrosion.

OTHER PRECAUTIONS: Never place wet brass parts into a melting furnace - explosion hazard.

MSDS prepared by: S.R. Pressman, Industrial Hygienist , Aniline Environmental (02/2012)

Vic-Flange® Adapter
Style 341

23.04

3 – 12" Sizes

14 – 24" Sizes

1.0 PRODUCT DESCRIPTION

Available Sizes

- 3 – 24"/DN80 – DN600

Maximum Working Pressure

- Up to 250 psi/1725 kpa

Application

- Designed for directly incorporating flanged components with ANSI B16.1 (CL. 125) bolt hole patters into grooved piping systems.

Pipe Material

- Ductile iron, cast iron

2.0 CERTIFICATION/LISTINGS

NOTE

- Refer to Victaulic submittal publication 10.01 for details.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

3.0 SPECIFICATIONS – MATERIAL

Housing:

Ductile iron conforming to ASTM A536, Grade 65-45-12. Ductile iron conforming to ASTM A395, Grade 65-45-15, is available upon special request.

Flange Coating: (specify choice)

- ☐ Standard: Alkyd-phenolic primer.
- ☐ Optional: Orange enamel.
- ☐ Optional: Coal tar epoxy coating (3 mils).
- ☐ Optional: Organic zinc primer (3 mils).
- ☐ Optional: Bituminous coating.

NOTE

- Others available, contact Victaulic.

Gasket: (specify choice[1])

☐ **Grade "M" Halogenated Butyl**
Halogenated Butyl (Brown color code). Temperature range –20°F to + 200°F/–29°C to +93°C. Specifically compounded to conform to ductile pipe surfaces. Recommended for 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 potable water service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

☐ **Grade "S" Nitrile**
Nitrile (Red color code). Temperature range –20°F to +180°F/–29°C to +82°C. Specially compounded to conform to ductile pipe surfaces. 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.

[1] Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service guidelines and for a listing of services which are not compatible.

Bolts/Nuts: (specify choice)

☐ **Standard:** Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449. Carbon steel heavy hex nuts meeting the mechanical property requirements of ASTM A563 Grade B. Track bolts and heavy hex nuts are zinc electroplated per ASTM B633 ZN/FE5, finish Type III (imperial) or Type II (metric).

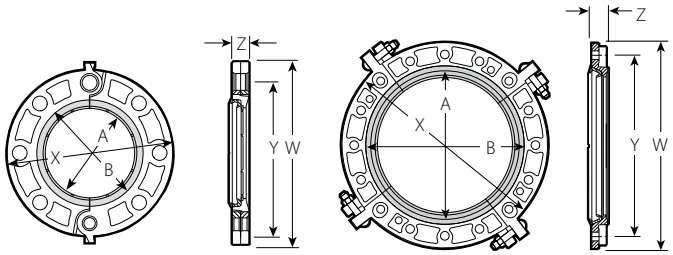
☐ **Optional:** Bolts – Stainless steel, meeting the mechanical property requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Nuts – Stainless Steel meeting the mechanical property requirements of ASTM F594, Group 2 (316 stainless steel), condition CW, with galling reducing coating.[2]

[2] Optional bolts/nuts are available in imperial size only.

4.0 DIMENSIONS

Style 341

Note: Gray area of mating face must be free from gouges, undulations or deformities of any type for effective sealing.



3 – 12" Sizes 14 – 24" Sizes

Size		Assembly Bolts[3]		Draw Bolts[4]		Dimensions				Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches	Qty.	Size inches	W inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
3 80	3.96 100.6	4	⅝ x 3	–	–	8.44 214	7.50 191	6.00 152	0.94 24	5.4 2.4
4 100	4.80 121.9	8	⅝ x 3	–	–	9.94 252	9.00 229	7.50 191	0.94 24	8.2 3.7
6 150	6.90 175.3	8	¾ x 3 ½	–	–	12.00 305	11.00 279	9.50 241	1.00 25	12.0 5.4
8 200	9.05 229.9	8	¾ x 3 ½	–	–	14.63 372	13.50 343	11.75 298	1.13 29	17.4 7.9
10 250	11.10 281.9	12	⅞ x 4	–	–	17.13 435	16.00 406	14.25 362	1.19 30	24.6 11.2
12 300	13.20 335.5	12	⅞ x 4	–	–	20.13 511	19.00 483	17.00 432	1.25 32	34.4 15.6
14 350	15.30 388.6	12	1 x 4 ¼	4	⅝ x 3 ½	24.63 626	21.00 533	18.75 476	1.50 38	55.0 25.0
16 400	17.40 442.0	16	1 x 4 ¾	4	⅝ x 3 ½	27.25 693	23.50 597	21.25 540	1.88 48	80.0 36.3
18 450	19.50 495.3	16	1 ⅛ x 5 ½	4	¾ x 4 ¼	29.13 740	25.00 635	22.75 578	2.25 57	95.0 43.1
20 500	21.60 548.6	20	1 ⅛ x 5 ¾	4	¾ x 4 ¼	31.63 803	27.50 699	25.00 635	2.38 61	115.0 52.2
24 600	25.80 655.3	20	1 ¼ x 6¼	4	¾ x 5	36.13 918	32.00 813	29.50 749	2.50 64	150.0 68.0

[3] Total bolts required are to be supplied by the installer. Bolt sizes are for conventional flange-to-flange connections. Longer bolts are required when Vic-Flange Adapters are used with wafer-type valves.

[4] Supplied with Vic-Flange Adapter.

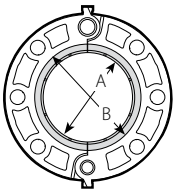
NOTE

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

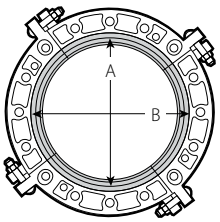
4.1 DIMENSIONS

Style 341
Required Sealing Surface

Note: Gray area of mating face must be free from gouges, undulations or deformities of any type for effective sealing.



3 – 12" Sizes



14 – 24" Sizes

Sealing Surface			
Flange Size		A Maximum inches mm	B Minimum inches mm
Nominal Diameter inches DN	Actual Outside Diameter inches mm		
3 80	3.96 100.6	3.96 101	4.94 125
4 100	4.80 121.9	4.80 122	5.88 149
6 150	6.90 175.3	6.90 175	8.00 203
8 200	9.05 229.9	9.05 230	10.13 257
10 250	11.10 281.9	11.10 282	12.50 318
12 300	13.20 335.5	13.20 335	14.75 375
14 350	15.30 388.6	15.30 389	16.38 416
16 400	17.40 442.0	17.40 442	18.38 467
18 450	19.50 495.3	19.50 495	20.00 508
20 500	21.60 548.6	21.60 549	22.50 572
24 600	25.80 655.3	25.80 655	27.75 705

NOTE

- Vic-Flange gasket requires sufficient flat face area on the mating flange for proper gasket sealing. See chart for dimensions.

5.0 PERFORMANCE

Style 341

Size		Maximum Working Pressure[5]	Maximum End Load[5]
Nominal inches DN	Actual Outside Diameter inches mm	psi kPa	lb N
3 80	3.96 100.6	250 1725	3100 13795
4 100	4.80 121.9	250 1725	4500 20025
6 150	6.90 175.3	250 1725	9300 41385
8 200	9.05 229.9	250 1725	16000 71200
10 250	11.10 281.9	250 1725	23700 105465
12 300	13.20 335.5	250 1725	34000 151300
14 350	15.30 388.6	200 1375	36700 163315
16 400	17.40 442.0	150 1035	35600 158420
18 450	19.50 495.3	150 1035	44700 198915
20 500	21.60 548.6	150 1035	54900 244305
24 600	25.80 655.3	150 1035	78400 348880

[5] Working Pressure and End Load are total, from all internal and external loads, based on AWWA class 53 ductile iron pipe radius cut grooved in accordance with ANSI/AWWA C-606 and Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

6.0 NOTIFICATIONS

Important Installation Considerations

- The gasket seating surfaces on the pipe and on the face of the mating flange must be free from gouges, indentations and deformities of any type for proper sealing. Refer to the installation instructions for complete information.
- Vic-Flange Adapters must be assembled so there is no interference with mating components.
- When wafer or lug-type valves are used adjoining a Victaulic fitting, check disc dimensions to ensure proper clearance.
- Vic-Flange Adapters must not be used as anchor points for tie rods across non-restrained joints.
- Mating Vic-Flange Adapters to rubber faced flanges, valves, etc. requires the use of a Vic-Flange Washer. Refer to the "Vic-Flange Washer Notes" section below.
- The lettering on the outside of the gasket must face the gasket pocket of the Vic-Flange Adapter. When installed correctly, the lettering on the gasket will not be visible.
- When mating two Vic-Flange Adapters, the hinge points/ draw bolt locations must be staggered, and a flange washer (3" – 12") or transition ring (14" – 24") must be used between the two Vic-Flange Adapters.

6.0 NOTIFICATIONS (Continued)

Vic-Flange Adapters require a smooth, hard surface at the mating flange face for proper sealing. Some applications, for which the Vic-Flange Adapter is otherwise well suited, do not provide an adequate mating surface. In such cases, a metal Vic-Flange Washer is recommended for insertion between the Vic-Flange Adapter and the mating flange to provide the necessary sealing surface. To ensure the proper Vic-Flange Washer is supplied, always specify the product style and size when ordering.

A. When mating to a serrated flange – a flange gasket should be used against the serrated flange. The Vic-Flange Washer should then be inserted between the Vic-Flange Adapter and the flange gasket.

B. When mating to a wafer-type valve that is rubber lined and partially rubber-faced (smooth or not) – the Vic-Flange Washer should be placed between the valve and the Vic-Flange Adapter.

C. When mating to a rubber-faced flange, valve, etc. – the Vic-Flange Washer must be placed between the Vic-Flange Adapter and the rubber-faced flange.

D. When mating to components (valves, strainers, etc.) where the component flange face has an insert – follow the same arrangement as if the Vic-Flange Adapter was being mated to a serrated flange. Refer to application "A" above.

E. When mating AWWA cast flanges to IPS flanges – the Vic-Flange Transition Ring is placed between the two Vic- Flange Adapters with the draw bolt locations staggered. If one flange is not a Vic-Flange Adapter (i.e. flanged valve), a flange gasket must be placed against that flange. The Vic-Flange Washer must then be inserted between the flange gasket and the Vic-Flange gasket. NOTE: Transition rings, rather than Vic-Flange Washers, must be used when mating Style 741 Vic-Flange Adapters to Style 341 Vic-Flange Adapters in sizes 14 – 24" (DN350 – DN600).

Torque Requirements

Vic-Flange adapters should be installed using the bolt torque listed below:

- 14 – 16" Sizes: 250 – 300 ft. lbs. (339 – 407 N•m)
- 18 – 20" Sizes: 300 – 350 ft. lbs. (407 – 475 N•m)
- 24" Size: 350 - 400 ft. lbs. (475 – 542 N•m)

Exceeding these values may create leakage. Additional levels of torque will not enhance gasket sealing.

7.0 REFERENCE MATERIALS

10.01: Regulatory Approval Reference Guide
23.01: AWWA Ductile Iron Pipe - Grooved System
23.05: AWWA (Cast) Fittings
29.01: Terms and Conditions/Warranty
I-300: Field Installation Handbook

FireLock® Rigid Coupling

§ LPC and VdS Approved, see notes on page 4

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

STYLE 005

WITH VIC-PLUS™ GASKET SYSTEM (NORTH AMERICA ONLY)

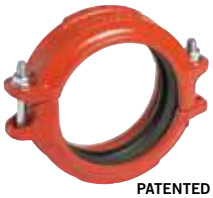
FireLock Style 005 rigid coupling has a unique, patented angle-pad design which allows the housings to offset while clamping the grooves. By permitting the housings to slide on the angled bolt pads, rigidity is obtained.

Support and hanging requirements correspond to NFPA 13 Sprinkler Systems. Angle-pad design permits assembly by removing one nut/bolt and swinging the housing over the gasket. This reduces components to handle during assembly.

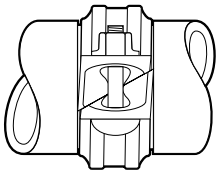
Style 005 FireLock coupling are designed and recommended for use ONLY on fire protection systems.

Vic-Plus™ Gasket System:

In North America, Victaulic offers a gasket system which requires no field lubrication on wet pipe systems that are hydrostatically tested. The Vic-Plus System (patented) is dry, clean, and non-toxic. It reduces assembly time substantially and eliminates the mess and chance of over-lubrication. Please refer to the latest copy of the Victaulic Field Installation Handbook (I-100) for supplemental lubrication requirements and dry pipe fire protection system notes.



PATENTED



Exaggerated for clarity

LISTING/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.

Related Working Pressure – psi					Related Working Pressure – psi					Related Working Pressure – psi				
Pipe Sch.	Size Inches	UL	ULC	FM	Pipe Sch.	Size Inches	UL	ULC	FM	Pipe Sch.	Size Inches	UL	ULC	FM
5	1 ¼ – 3	175	175	175	EL	1 ¼ – 2	300	N/A	N/A	MT	1 ¼ – 2	300	N/A	N/A
10, 40	1 ¼ – 4	350	350	350	ET	1 ¼ – 2	300	N/A	N/A	STF	1 ¼ – 4	N/A	N/A	300
	5 – 8	300	300	300	EZ	4 – 6	300#	N/A	300	Steady Thd.	1 ¼ – 2	N/A	N/A	300
BLT	1 ¼ – 2	300	300	N/A	FF	1 ¼ – 4	N/A	N/A	300	TF	3 – 8	N/A	N/A	300
DF	1 ¼ – 4	300	300	300	GAL - 7	1 ¼ – 2	300	N/A	N/A	WLS	1 ¼ – 2	300	300	N/A
DT	1 ¼ – 2	300	300	N/A	MLT	1 ¼ – 2	300	N/A	N/A	XL	1 ¼ – 3	300	300	300
EF	1 ½ – 4	175@	N/A	175	MF	1 ¼ – 4	300	N/A	300*					

* FM approved for service in 1 ½ – 4" pipe.

UL Listed for service up to 4" pipe only.

@ UL Listed for service up to 3" only.

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

Approved _____

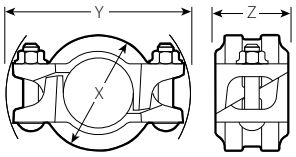
Date _____

FireLock® Rigid Coupling

STYLE 005

WITH VIC-PLUS™ GASKET SYSTEM (NORTH AMERICA ONLY)

DIMENSIONS



Rated for wet and dry sprinkler systems at 350 psi/2413 kPa for 1 ¼ – 4"/32 – 100 mm sizes and 300 psi /2068 kPa for 4 ¼ – 8"/108 – 200 mm sizes; Schedule 10 roll grooved or Schedule 40 cut or roll grooved steel pipe. Style 005 is rigid and does not accommodate expansion, contraction or angular deflection.

Size		Max. Work Pressure § *	Max. End Load *	Allow. Pipe End Sep. †	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	Inches mm	X	Y	Z	Lbs. kg
1 ¼ 32	1.660 42.4	350 2413	755 3370	0.05 1.2	2 – ⅜ x 2 ¼	2.75 70	4.50 114	1.88 48	1.2 0.5
1 ½ 40	1.900 48.3	350 2413	990 4415	0.05 1.2	2 – ⅜ x 2 ¼	3.00 76	4.75 121	1.88 48	1.2 0.5
2 50	2.375 60.3	350 2413	1550 6900	0.07 1.7	2 – ⅜ x 2 ½	3.50 89	5.25 133	1.88 48	1.6 0.7
2 ½ 65	2.875 73.0	350 2413	2270 10110	0.07 1.7	2 – ⅜ x 2 ½	4.00 102	5.75 146	1.88 48	1.9 .09
76.1 mm	3.000 76.1	350 2413	2475 11010	0.07 1.7	2 – ⅜ x 2 ½	4.13 105	5.75 146	1.88 48	1.9 0.9
3 80	3.500 88.9	350 2413	3365 14985	0.07 1.7	2 – ⅜ x 2 ½	4.63 118	6.13 156	1.88 48	2.1 1.0
4 100	4.500 114.3	350 2413	5565 24770	0.16 4.1	2 – ⅜ x 2 ½	5.75 146	7.25 184	2.13 54	3.1 1.4
108.0 mm	4.250 108.0	300 2068	4255 18940	0.16 4.1	2 – ⅜ x 2 ½	5.63 143	7.25 184	2.13 54	3.1 1.4
5 125	5.563 141.3	300 2068	7290 32445	0.16 4.1	2 – ½ x 3	6.88 175	9.00 229	2.13 54	4.5 2.0
133.0 mm	5.250 133.0	300 2068	6495 28900	0.16 4.1	2 – ½ x 2 ¾	6.63 168	9.00 229	2.13 54	4.5 2.0
139.7 mm	5.500 139.7	300 2068	7125 31715	0.16 4.1	2 – ½ x 2 ¾	6.88 175	9.00 229	2.13 54	4.8 2.2
6 150	6.625 168.3	300 2068	10340 46020	0.16 4.1	2 – ½ x 3	8.00 203	10.00 254	2.13 53	5.0 2.3
159.0 mm	6.250 159.0	300 2068	9200 40955	0.16 4.1	2 – ½ x 2 ¾	7.63 194	10.00 254	2.13 54	5.5 2.5
165.1 mm	6.500 165.1	300 2068	9955 44295	0.16 4.1	2 – ½ x 3	8.15 207	10.00 254	2.13 54	5.5 2.5
8 200	8.625 219.1	300 2068	17525 78000	0.19 4.8	2 – ⅝ x 4 ¼	10.50 267	13.14 334	2.63 67	11.3 5.1

* 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.

† The allowable pipe separation dimension shown is for system layout purposes only. Style 005 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. Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.

§ Style 005 couplings are VdS and LPC Approved to 12 Bar/175 psi.

FireLock® Rigid Coupling

STYLE 005

WITH VIC-PLUS™ GASKET SYSTEM (NORTH AMERICA ONLY)

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:** Hot dipped galvanized

Gasket:

- **Grade "E" EPDM – Type A Vic-Plus™ Gasket System Δ**
  (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 Vic-Plus™ Gasket System, requiring no field lubrication for most installation conditions.

- **Grade "L" Silicone**
  Recommended for dry heat, air without hydrocarbons to +350°F and certain chemical services.

For dry services, Victaulic continues to recommend the use of Grade "E" Type A FlushSeal® Gasket. 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.

Δ Standard gasket and FlushSeal gasket approved for dry pipe systems to –40°F/–40°C. Based on "typical" pipe surface conditions, supplemental lubricant is recommended for services installed below 0°F/–18°C and for all dry pipe systems or systems to be subjected to air tests prior to being filled with water. Supplemental lubrication may also be required on pipe with raised or undercut weld seams or pipe that has voids and/or cracks at the weld seams. Victaulic continues to recommend the use of FlushSeal gaskets for dry services.

FireLock® Rigid Coupling

STYLE 005

WITH VIC-PLUS™ GASKET SYSTEM (NORTH AMERICA ONLY)

GENERAL NOTES

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

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.

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 feature CAD-developed, hydrodynamic design, affording 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 Victaulic IPS-sized couplings that have been Listed or Approved for Fire Protection Services. 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 EZ® Style 009N/Style 009H couplings.

MATERIAL SPECIFICATIONS

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

Fitting Coating:

- Orange enamel.
- Red Enamel in EMEA-I.
- **Optional:** Hot dipped galvanized.

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

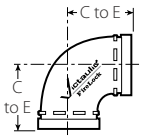
Spec Sect _____ Para _____

Approved _____

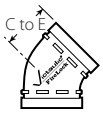
Date _____

FireLock® Fittings

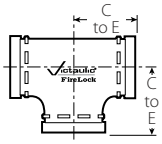
DIMENSIONS



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 ½ 40	1.900 48.3	— —	— —	— —	— —
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 009N/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 009/009V/009H 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.

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, LPCB and FM Approved for branch connections and VdS Approved for direct sprinkler connection only 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.* 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.

Housing Coating:

- Orange enamel (North America, Latin America, Asia Pacific)
- Red enamel (Europe)

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

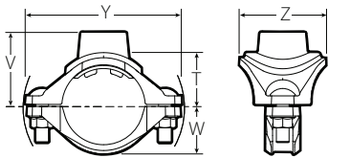
Approved _____

Date _____

FireLock® Outlet-T

STYLE 922

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
2 ½ 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

STYLE 922

PERFORMANCE

Run Size x Outlet Size			Equivalent Length of 1 inch Schedule 40 Steel Pipe (per UL 213, Section 16) (C=120)*, FT
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

* Hazen-Williams coefficient of friction is 120

FireLock® Outlet-T

STYLE 922

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.

45° ELBOW

SPF/ANVIL

ANVILStar
Fire Products Division of Anvil International

Ductile Iron

MATERIAL SPECIFICATIONS

Ductile iron threaded fittings are UL & ULC Listed & Factory Mutual Approved for 500 psi service.

Ductile iron per ASTM A536 Class 65-45-12.

Dimensions conform to ASME B16.14

Threads are NPT per ANSI/ASME B1.20.1.

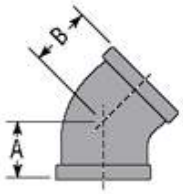
NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened three turns beyond hand tight, but no more than four turns.

UL FM ULC
APPROVED

For Listing/Approval Details and Limitations visit our Web Site *www.anvilintl.com* or contact an Anvil®/AnvilStar™ Sales Representative.

45° ELBOW

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions		Approx. Wt. Each
				A	B	
In. (mm)			PSI (kPa)	In. (mm)	In. (mm)	Lbs. (kg)
1 25	840002133	DB45033	500 3450	1.12 28.44	1.12 28.44	0.46 0.21
1¼ 32	840002141	DB45044	500 3450	1.29 32.76	1.29 32.76	0.73 0.33
1½ 40	840002158	DB45055	500 3450	1.43 36.32	1.43 36.32	0.92 0.42
2 50	840002166	DB45066	500 3450	1.68 42.67	1.68 42.67	1.50 0.68



* UL, ULC & FM Pressure Ratings

For additional listings and approvals, see the technical data section.

90° ELBOW

ANVILSTAR™
Fire Products Division of Anvil International

SPF/ANVIL®

Ductile Iron

MATERIAL SPECIFICATIONS

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Ductile iron per ASTM A536 Class 65-45-12.

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APPROVED

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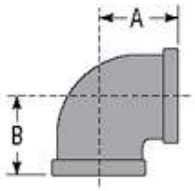


90° ELBOW

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions		Approx. Wt. Each
				A	B	
In. (mm)			PSI (kPa)	In. (mm)	In. (mm)	Lbs. (kg)
1 *20*	840000004	0B90033	500 *3450*	1.50 *38.10*	1.50 *38.10*	0.62 *0.28*
1¼ *32*	840000012	0B90044	500 *3450*	1.75 *44.45*	1.75 *44.45*	0.90 *0.41*
1½ *40*	840000020	0B90055	500 *3450*	1.94 *49.276*	1.94 *49.276*	1.20 *0.54*
2 *50*	840000038	0B90066	500 *3450*	2.25 *57.15*	2.25 *57.15*	1.85 *0.84*

* UL, ULC & FM Pressure Ratings

For additional listings and approvals, see the technical data section.

BULL HEAD TEE

SPF/ANVIL

ANVILSTAR
Fire Products Division of Anvil International

Ductile Iron

MATERIAL SPECIFICATIONS

Ductile iron threaded fittings are UL & ULC Listed & Factory Mutual Approved for 500 psi service.

Ductile iron per ASTM A536 Class 65-45-12.

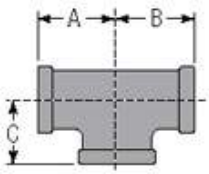
Dimensions conform to ASME B16.14

Threads are NPT per ANSI/ASME B1.20.1.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened three turns beyond hand tight, but no more than four turns.

UL FM ULC
APPROVED

For Listing/Approval Details and Limitations visit our Web Site *www.anvilintl.com* or contact an Anvil®/AnvilStar™ Sales Representative.



BULL HEAD TEE

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions			Approx. Wt. Each
				A	B	C	
In. (mm)			PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1 x 1 x 1¼ 25 x 25 x 32	840004238	DT334	500 3450	1.67 42.41	1.67 42.41	1.58 40.13	0.98 0.44
1 x 1 x 1½ 25 x 25 x 40	840004246	DT335	500 3450	1.80 45.72	1.80 45.72	1.65 41.91	1.16 0.53
1¼ x 1 x 1½ 32 x 25 x 40	840004295	DT435	500 3450	1.88 47.75	1.80 45.72	1.82 46.22	1.42 0.64
1¼ x 1¼ x 1½ 32 x 32 x 40	840004337	DT445	500 3450	1.88 47.75	1.88 47.75	1.82 46.22	1.45 0.66
1¼ x 1¼ x 2 32 x 32 x 50	840004345	DT446	500 3450	2.10 53.34	2.10 53.34	1.90 48.26	1.75 0.79
1½ x 1¼ x 2 40 x 32 x 50	840004436	DT546	500 3450	2.16 54.86	2.10 53.34	2.02 51.30	1.90 0.86
1½ x 1½ x 2 40 x 40 x 50	840004485	DT556	500 3450	2.16 54.86	2.16 54.86	2.02 51.30	1.98 0.90

* UL, ULC & FM Pressure Ratings

For additional listings and approvals, see the technical data section.

BUSHINGS

SPF/ANVIL

ANVILStar™
Fire Products Division of Anvil International

Ductile Iron

MATERIAL SPECIFICATIONS

Ductile iron threaded fittings are UL & ULC Listed & Factory Mutual Approved for 500 psi service.

Ductile iron per ASTM A536 Class 65-45-12.

Dimensions conform to ASME B16.14

Threads are NPT per ANSI/ASME B1.20.1.

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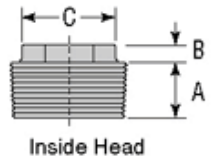
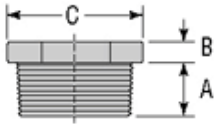
UL FM ULC
APPROVED

For Listing/Approval Details and Limitations visit our Web Site *www.anvilintl.com* or contact an Anvil®/AnvilStar™ Sales Representative.

BUSHINGS							
Nominal Size	Anvil Item Number	Universal Number	Dimensions			Style	Approx. Wt. Each
			A	B	C		
In. (mm)			*In. (mm)*	*In. (mm)*	*In. (mm)*		*Lbs. (kg)*
1 x ⅜ *25 x 15*	840600001	DBUSH31	0.75 *19.05*	0.25 *6.35*	1.42 *36.06*	Outside	0.22 *0.10*
1 x ¾ *25 x 20*	840600019	DBUSH32	0.75 *19.05*	0.25 *6.35*	1.42 *36.06*	Outside	0.17 *0.08*
1¼ x 1 *32 x 25*	840600027	DBUSH43	0.80 *20.32*	0.28 *7.11*	1.76 *44.70*	Outside	0.28 *0.13*
1½ x 1 *40 x 25*	840600035	DBUSH53	0.83 *21.08*	0.31 *7.874*	2.00 *50.80*	Outside	0.45 *0.20*
1½ x 1¼ *40 x 32*	840600043	DBUSH54	0.83 *21.08*	0.31 *7.874*	2.00 *50.80*	Outside	0.30 *0.14*
2 x 1 *50 x 25*	840600050	DBUSH63	0.88 *22.35*	0.41 *10.414*	1.95 *49.53*	Inside	0.67 *0.30*
2 x 1¼ *50 x 32*	840600068	DBUSH64	0.88 *22.35*	0.34 *8.636*	2.48 *62.99*	Outside	0.73 *0.33*
2 x 1½ *50 x 40*	840600076	DBUSH65	0.88 *22.35*	0.34 *8.636*	2.48 *62.99*	Outside	0.61 *0.28*



Inside Head



Outside Head

CAP

SPF/ANVIL

ANVILStar
Fire Products Division of Anvil International

Ductile Iron

MATERIAL SPECIFICATIONS

Ductile iron threaded fittings are UL & ULC Listed & Factory Mutual Approved for 500 psi service.

Ductile iron per ASTM A536 Class 65-45-12.

Dimensions conform to ASME B16.14

Threads are NPT per ANSI/ASME B1.20.1.

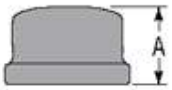
NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened three turns beyond hand tight, but no more than four turns.

APPROVED

For Listing/Approval Details and Limitations visit our Web Site *www.anvilintl.com* or contact an Anvil®/AnvilStar™ Sales Representative.

CAP

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions A	Approx. Wt. Each
In. (mm)			*PSI (kPa)*	*In. (mm)*	*Lbs. (kg)*
1 *25*	840005615	DCP003	500 *3450*	1.16 *29.46*	0.32 *0.15*
1¼ *32*	840005623	DCP004	500 *3450*	1.28 *32.51*	0.43 *0.20*
1½ *40*	840005631	DCP005	500 *3450*	1.33 *33.78*	0.60 *0.27*
2 *50*	840005649	DCP006	500 *3450*	1.45 *36.83*	0.91 *0.41*



* UL, ULC & FM Pressure Ratings

For additional listings and approvals, see the technical data section.

COUPLING

SPF/ANVIL

AnvilStar™
Fire Products Division of Anvil International

Ductile Iron

MATERIAL SPECIFICATIONS

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Threads are NPT per ANSI/ASME B1.20.1.

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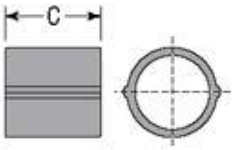
UL FM ULC
APPROVED

For Listing/Approval Details and Limitations visit our Web Site *www.anvilintl.com* or contact an Anvil®/AnvilStar™ Sales Representative.

COUPLING				
Nominal Size	Anvil Item Number	Universal Number	Dimensions A	Approx. Wt. Each
In. (mm)			In. (mm)	Lbs. (kg)
1 25	840008692	DQ033	1.67 42.42	0.40 0.18
1¼ 32	840008700	DQ044	1.93 49.02	0.57 0.26
1½ 40	840008718	DQ055	2.15 54.61	0.75 0.34
2 50	840008726	DQ066	2.53 64.26	1.15 0.52

For additional listings and approvals, see the technical data section.



CROSS

SPF/ANVIL

ANVILStar
Fire Products Division of Anvil International

Ductile Iron

MATERIAL SPECIFICATIONS

Ductile iron threaded fittings are UL & ULC Listed & Factory Mutual Approved for 500 psi service.

Ductile iron per ASTM A536 Class 65-45-12.

Dimensions conform to ASME B16.14

Threads are NPT per ANSI/ASME B1.20.1.

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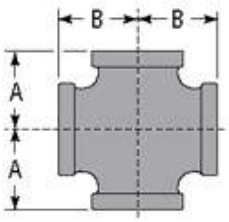
UL FM ULC
APPROVED

For Listing/Approval Details and Limitations visit our Web Site *www.anvilintl.com* or contact an Anvil®/AnvilStar™ Sales Representative.



CROSS						
Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions		Approx. Wt. Each
				A	B	
In. (mm)			PSI (kPa)	In. (mm)	In. (mm)	Lbs. (kg)
1 25	840006647	DX033	500 3450	1.50 38.10	1.50 38.10	0.98 0.44
1¼ 32	840006654	DX044	500 3450	1.75 44.45	1.75 44.45	1.50 0.68
1½ 40	840006662	DX055	500 3450	1.94 49.27	1.94 49.27	1.90 0.86
2 50	840006670	DX066	500 3450	2.25 57.15	2.25 57.15	2.95 1.34
1¼ x 1 32 x 25	840007678	DX043	500 3450	1.58 40.13	1.67 42.41	1.27 0.58
1½ x 1 40 x 25	840007686	DX053	500 3450	1.65 41.91	1.80 45.72	1.48 0.67
2 x 1 50 x 25	840007694	DX063	500 3450	1.73 43.94	2.02 51.30	2.10 0.95

* UL, ULC & FM Pressure Ratings

For additional listings and approvals, see the technical data section.

REDUCING 90° ELBOW

ANVILSTAR™
Fire Products Division of Anvil International

SPF/ANVIL®

Ductile Iron

MATERIAL SPECIFICATIONS

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UL FM ULC
APPROVED

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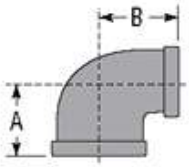


REDUCING 90° ELBOW

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions		Approx. Wt. Each
				A	B	
In. (mm)			*PSI (kPa)*	*In. (mm)*	*In. (mm)*	*Lbs. (kg)*
1 x ⅜ *25 x 15*	840001036	DB90031	500 *3450*	1.26 *32.00*	1.36 *34.54*	0.44 *0.20*
1 x ¾ *25 x 20*	840001044	DB90032	500 *3450*	1.37 *34.79*	1.45 *36.83*	0.52 *0.24*
1¼ x ½ *32 x 15*	840001051	DB90041	500 *3450*	1.34 *34.03*	1.53 *38.86*	0.64 *0.29*
1¼ x ¾ *32 x 20*	840001069	DB90042	500 *3450*	1.45 *36.83*	1.62 *41.14*	0.72 *0.33*
1¼ x 1 *32 x 25*	840001077	DB90043	500 *3450*	1.58 *40.13*	1.67 *42.41*	0.75 *0.34*
1½ x 1 *40 x 25*	840001085	DB90053	500 *3450*	1.65 *41.91*	1.80 *45.72*	0.92 *0.42*
1½ x 1¼ *40 x 32*	840001093	DB90054	500 *3450*	1.82 *46.22*	1.88 *47.75*	1.08 *0.49*
2 x ½ *50 x 15*	840001101	DB90061	500 *3450*	1.49 *37.84*	1.88 *47.75*	1.08 *0.49*
2 x ¾ *50 x 20*	840001119	DB90062	500 *3450*	1.60 *40.64*	1.97 *50.03*	1.24 *0.56*
2 x 1 *50 x 25*	840001127	DB90063	500 *3450*	1.73 *43.94*	2.02 *51.30*	1.40 *0.64*
2 x 1¼ *50 x 32*	840001135	DB90064	500 *3450*	1.90 *48.26*	2.10 *53.34*	1.52 *0.70*
2 x 1½ *50 x 40*	840001143	DB90065	500 *3450*	2.02 *51.30*	2.16 *54.86*	1.65 *0.75*

* UL, ULC & FM Pressure Ratings

For additional listings and approvals, see the technical data section.

REDUCING COUPLING

SPF/ANVIL

ANVILSTAR
Fire Products Division of Anvil International

Ductile Iron

MATERIAL SPECIFICATIONS

Ductile iron threaded fittings are UL & ULC Listed & Factory Mutual Approved for 500 psi service.

Ductile iron per ASTM A536 Class 65-45-12.

Dimensions conform to ASME B16.14

Threads are NPT per ANSI/ASME B1.20.1.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened three turns beyond hand tight, but no more than four turns.

UL FM ULC
APPROVED

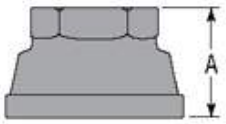
For Listing/Approval Details and Limitations visit our Web Site *www.anvilintl.com* or contact an Anvil®/AnvilStar™ Sales Representative.

REDUCING COUPLING

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions A	Approx. Wt. Each
In. (mm)			*PSI (kPa)*	*In. (mm)*	*Lbs. (kg)*
1 x ⅜ *25 x 15*	840010755	DRC031	500 *3450*	1.69 *42.92*	0.39 *0.18*
1 x ¼ *25 x 20*	840010763	DRC032	500 *3450*	1.69 *42.92*	0.53 *0.24*

* UL, ULC & FM Pressure Ratings

For additional listings and approvals, see the technical data section.

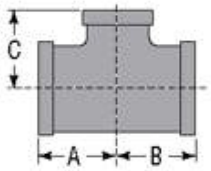


REDUCING TEE

ANVILSTAR™
Fire Products Division of Anvil International

SPF/ANVIL®

Ductile Iron



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APPROVED

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For additional listings and approvals, see the technical data section.

REDUCING TEE

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions			Approx. Wt. Each
				A	B	C	
In. (mm)			PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1 x ½ x 1 25 x 15 x 25	840004196	DT313	500 3450	1.50 38.10	1.36 34.54	1.50 38.10	0.64 0.29
1 x ¾ x 1 25 x 20 x 25	840004204	DT323	500 3450	1.50 38.10	1.45 36.83	1.50 38.10	0.73 0.33
1 x 1 x ½ 25 x 25 x 15	840004212	DT331	500 3450	1.26 32.00	1.26 32.00	1.36 34.54	0.71 0.32
1 x 1 x ¾ 25 x 25 x 20	840004220	DT332	500 3450	1.37 34.80	1.37 34.80	1.45 36.83	0.76 0.34
1 x 1 x 1¼ 25 x 25 x 32	840004238	DT334	500 3450	1.67 42.41	1.67 42.41	1.58 40.13	0.98 0.44
1 x 1 x 1½ 25 x 25 x 40	840004246	DT335	500 3450	1.80 45.72	1.80 45.72	1.65 41.91	1.16 0.53
1¼ x 1 x ½ 32 x 25 x 15	840004253	DT431	500 3450	1.34 34.04	1.26 32.00	1.53 38.86	0.82 0.37
1¼ x 1 x ¾ 32 x 25 x 20	840004261	DT432	500 3450	1.45 36.83	1.37 34.80	1.62 41.15	0.90 0.41
1¼ x 1 x 1 32 x 25 x 25	840004279	DT433	500 3450	1.58 40.13	1.50 38.10	1.67 42.42	1.00 0.45
1¼ x 1 x 1¼ 32 x 25 x 32	840004287	DT434	500 3450	1.75 44.45	1.67 42.42	1.75 44.45	1.08 0.49
1¼ x 1 x 1½ 32 x 25 x 40	840004295	DT435	500 3450	1.88 47.75	1.80 45.72	1.82 46.22	1.42 0.64
1¼ x 1¼ x ½ 32 x 32 x 15	840004303	DT441	500 3450	1.34 34.04	1.34 34.04	1.53 38.86	0.86 0.39
1¼ x 1¼ x ¾ 32 x 32 x 20	840004311	DT442	500 3450	1.45 36.83	1.45 36.83	1.62 41.15	0.92 0.42
1¼ x 1¼ x 1 32 x 32 x 25	840004329	DT443	500 3450	1.58 40.13	1.58 40.13	1.67 42.42	0.95 0.43
1¼ x 1¼ x 1½ 32 x 32 x 40	840004337	DT445	500 3450	1.88 47.75	1.88 47.75	1.82 46.22	1.45 0.66
1¼ x 1¼ x 2 32 x 32 x 50	840004345	DT446	500 3450	2.10 53.34	2.10 53.34	1.90 48.26	1.75 0.79
1½ x 1 x ½ 40 x 25 x 15	840004352	DT531	500 3450	1.41 35.81	1.34 34.04	1.66 42.16	0.95 0.43
1½ x 1 x ¾ 40 x 25 x 20	840004360	DT532	500 3450	1.52 38.61	1.37 34.80	1.75 44.45	1.14 0.52
1½ x 1 x 1 40 x 25 x 25	840004378	DT533	500 3450	1.65 41.91	1.50 38.10	1.80 45.72	1.17 0.53
1½ x 1 x 1¼ 40 x 25 x 32	840004386	DT534	500 3450	1.82 46.23	1.67 42.42	1.88 47.75	1.34 0.61
1½ x 1 x 1½ 40 x 25 x 40	840004394	DT535	500 3450	1.94 49.28	1.80 45.72	1.94 49.28	1.45 0.66
1½ x 1¼ x ½ 40 x 32 x 15	840004402	DT541	500 3450	1.41 35.81	1.34 34.04	1.66 42.16	1.05 0.48
1½ x 1¼ x ¾ 40 x 32 x 20	840004410	DT542	500 3450	1.52 38.61	1.45 36.83	1.75 44.45	1.15 0.5
1½ x 1¼ x 1 40 x 32 x 25	840004428	DT543	500 3450	1.65 41.91	1.58 40.13	1.80 45.72	1.25 0.57

REDUCING TEE

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions			Approx. Wt. Each
				A	B	C	
In. (mm)			PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1½ x 1¼ x 2 40 x 32 x 50	840004436	DT546	500 3450	2.16 54.86	2.10 53.34	2.02 51.30	1.90 0.86
1½ x 1½ x ½ 40 x 40 x 15	840004444	DT551	500 3450	1.41 35.81	1.41 35.81	1.16 29.46	1.15 0.52
1½ x 1½ x ¾ 40 x 40 x 20	840004451	DT552	500 3450	1.52 38.61	1.52 38.61	1.75 44.45	1.24 0.56
1½ x 1½ x 1 40 x 40 x 25	840004469	DT553	500 3450	1.65 41.91	1.65 41.91	1.80 45.72	1.30 0.59
1½ x 1½ x 1¼ 40 x 40 x 32	840004477	DT554	500 3450	1.82 46.23	1.82 46.23	1.88 47.75	1.48 0.67
1½ x 1½ x 2 40 x 40 x 50	840004485	DT556	500 3450	2.16 54.86	2.16 54.86	2.02 51.30	1.98 0.90
2 x 1 x 2 50 x 25 x 50	840004493	DT636	500 3450	2.25 57.15	2.02 51.31	2.25 57.15	2.15 0.98
2 x 1¼ x 2 50 x 32 x 50	840004501	DT646	500 3450	2.25 57.15	2.10 53.34	2.25 57.15	2.30 1.04
2 x 1½ x ½ 50 x 40 x 15	840004519	DT651	500 3450	1.49 37.85	1.41 35.81	1.88 47.75	1.50 0.68
2 x 1½ x ¾ 50 x 40 x 20	840004527	DT652	500 3450	1.60 40.64	1.52 38.61	1.97 50.04	1.62 0.73
2 x 1½ x 1 50 x 40 x 25	840004535	DT653	500 3450	1.73 43.94	1.65 41.91	2.02 51.31	1.64 0.74
2 x 1½ x 1¼ 50 x 40 x 32	840004543	DT654	500 3450	1.90 48.26	1.82 46.23	2.10 53.34	1.80 0.82
2 x 1½ x 1½ 50 x 40 x 40	840004550	DT655	500 3450	2.02 51.31	1.94 49.28	2.16 54.86	2.00 0.91
2 x 1½ x 2 50 x 40 x 50	840004568	DT656	500 3450	2.25 57.15	2.16 54.86	2.25 57.15	2.35 1.07
2 x 2 x ½ 50 x 50 x 15	840004576	DT661	500 3450	1.49 37.85	1.49 37.85	1.88 47.75	1.60 0.73
2 x 2 x ¾ 50 x 50 x 20	840004584	DT662	500 3450	1.60 40.64	1.60 40.64	1.97 50.04	1.68 0.76
2 x 2 x 1 50 x 50 x 25	840004592	DT663	500 3450	1.73 43.94	1.73 43.94	2.02 51.31	1.85 0.84
2 x 2 x 1¼ 50 x 50 x 32	840004600	DT664	500 3450	1.90 48.45	1.90 42.47	2.10 44.45	2.04 0.93
2 x 2 x 1½ 50 x 50 x 40	840004618	DT665	500 3450	2.02 44.45	2.02 47.47	2.16 44.45	2.18 0.99
2 x 2 x 2½ 50 x 50 x 65	-	DT667	500 3450	2.60 44.45	2.60 42.47	2.39 44.45	3.61 1.64
2½ x 2 x ¾ 65 x 50 x 20	-	DT762	500 3450	1.74 44.45	1.60 42.47	2.32 44.45	2.28 1.03

STRAIGHT TEE

SPF/ANVIL

ANVILStar
Fire Products Division of Anvil International

Ductile Iron

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UL FM ULC
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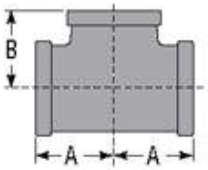
STRAIGHT TEE

Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure*	Dimensions		Approx. Wt. Each
				A	B	
In. (mm)			*PSI (kPa)*	*In. (mm)*	*In. (mm)*	*Lbs. (kg)*
1 *25*	840003164	DT333	500 *3450*	1.50 *38.10*	1.50 *38.10*	0.85 *0.39*
1¼ *32*	840003172	DT444	500 *3450*	1.75 *44.45*	1.75 *44.45*	1.22 *0.55*
1½ *40*	840003180	DT555	500 *3450*	1.94 *49.27*	1.94 *49.27*	1.55 *0.70*
2 *50*	840003198	DT666	500 *3450*	2.25 *57.15*	2.25 *57.15*	2.45 *1.11*



* UL, ULC & FM Pressure Ratings

For additional listings and approvals, see the technical data section.

Fig. 98 - Rod Stiffener
Fig. 98B - Rod Stiffener w/Break-off Bolt Head

Component of State of California OSHPD Approved Seismic Restraints System

Size Range — Secures 3/8" thru 7/8" hanger rod

Material — Carbon Steel

Function — Secures channel to hanger rod for vertical seismic bracing.

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

Finish — Electro Galvanized

Note — Available in HDG finish or Stainless Steel materials.

Order By — Figure number

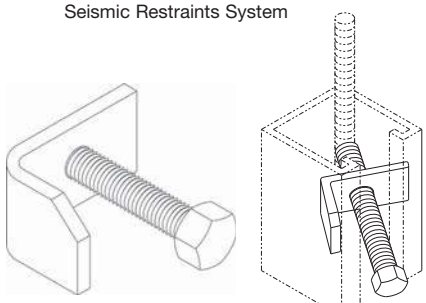


FIG. 98

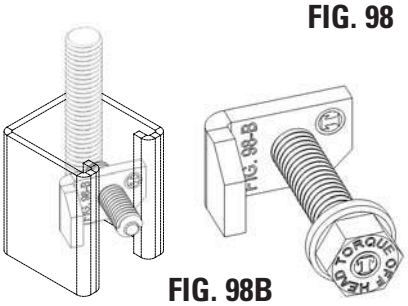


FIG. 98B

Fig. 99 - All Thread Rod Cut to Length

Size Range — Secures 3/8" thru 7/8" rod in 1" increments

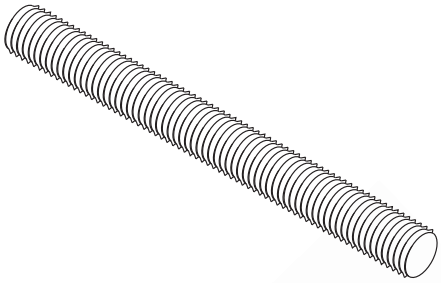
Material — Carbon Steel

Maximum Temperature — 750°F

Finish — Plain

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

Order By — Figure number, rod diameter, rod length and finish



Dimensions	
Rod Size	**Max. Rec. Load Lbs. For Service Temp 650°F**
3/8	730
1/2	1350
5/8	2160
3/4	3230
7/8	4480

Fig. 100 - All Thread Rod Full Length

Size Range — Secures 3/8" thru 1½" rod in 10' lengths

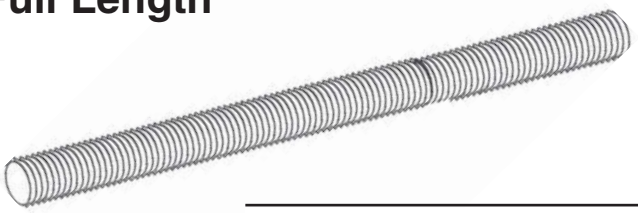
Material — Carbon Steel

Maximum Temperature — 750°F

Finish — Plain

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

Order By — Figure number, rod diameter and finish



Dimensions • Weights		
Rod Size	**Max Rec. Load Lbs. For Service Temps 650°F**	**Approx. Wt./100**
1/4	240	12
3/8	730	29
1/2	1350	53
5/8	2160	84
3/4	3230	123
7/8	4480	169
1	5900	222
1¼	9500	360
1½	13800	510

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Fig. 200 - "Trimline" Adjustable Band Hanger
Fig. 200R (Import) - "Trimline" Adjustable Band Hanger w/Retainer Ring

c UL US LISTED
FM APPROVED

Size Range — 1/2" thru 8" pipe

Material — Carbon Steel, Mil. Galvanized to G90 specifications

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

Features —

- (1/2" thru 2") Flared edges ease installation for all pipe types and protect CPVC plastic pipe from abrasion. Captured design keeps adjusting nut from separating with hanger. Hanger is easily installed around pipe.
- (2½" thru 8") Spring tension on nut holds it securely in hanger before installation. Adjusting nut is easily removed.

Approvals — Underwriters' Laboratories listed (1/2" thru 8") in the USA **(UL)** and Canada **(cUL)** for steel and CPVC plastic pipe and Factory Mutual Engineering Approved (3/4" thru 8"). Conforms to Federal Specifications WW-H-171E, Type 10 and Manufacturers Standardization Society SP-69, Type 10.

Maximum Temperature — 650°F

Finish — Mil. Galvanized. Stainless Steel materials will be supplied with (2) hex nuts in place of a knurl nub.

Order By — Figure number and pipe size

Note — Figure 200R (import) with retainer ring and non-captured knurl nut.

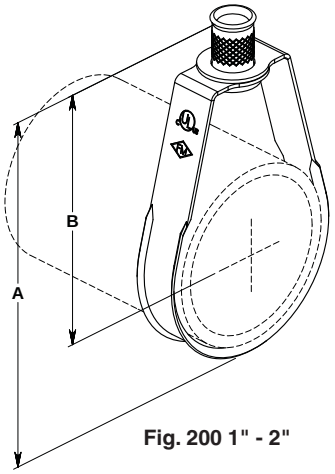


Fig. 200 1" - 2"

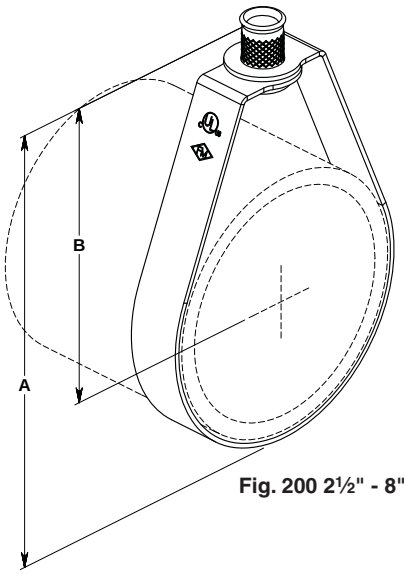


Fig. 200 2½" - 8"

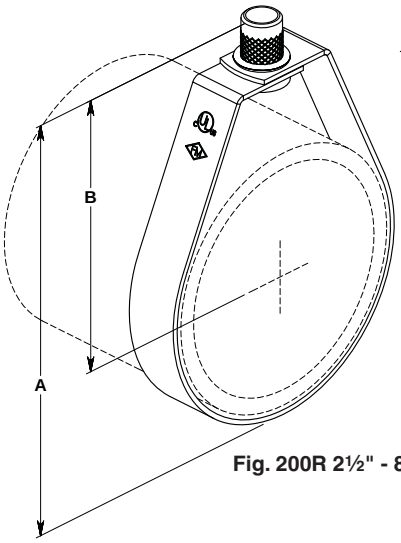


Fig. 200R 2½" - 8"

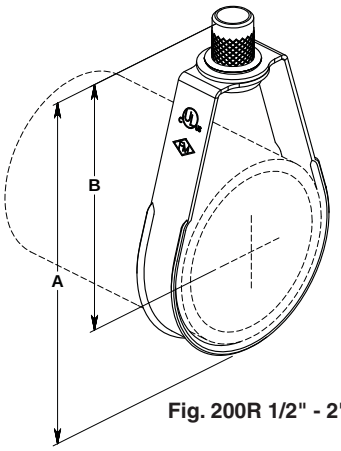


Fig. 200R 1/2" - 2"

Dimensions • Weights

Pipe Size	Rod Size Inch	Rod Size Metric	A	B	Max. Rec. Load Lbs.	Approx. Wt./100
1/2	3/8	8mm or 10mm	3⅛	2⅝	400	11
3/4	3/8	8mm or 10mm	3⅛	2½	400	11
1	3/8	8mm or 10mm	3⅜	2⅝	400	12
1¼	3/8	8mm or 10mm	3¾	2⅞	400	13
1½	3/8	8mm or 10mm	3⅞	2⅞	400	14
2	3/8	8mm or 10mm	4½	3	400	15
2½	3/8	10mm	5⅝	4⅛	600	27
3	3/8	10mm	5⅞	4	600	29
3½	3/8	10mm	7⅜	5¼	600	34
4	3/8	10mm	7⅜	5	1000	35
5	1/2	12mm	9⅛	6¼	1250	66
6	1/2	12mm	10⅛	6¾	1250	73
8	1/2	12mm	13⅛	8¾	1250	136

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

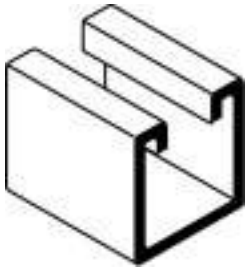
Sheet Steel Gauges

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"

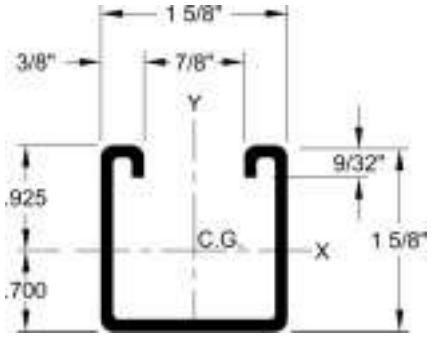
*SWG 25-380 Maximum pipe size in composite wood joist allowed by UL is 3-1/2"
*SWG 25-380 Maximum pipe size in wood timber or joist allowed by UL is 4"
**SWG 20 Maximum pipe size in composite wood joist allowed by UL is 2-1/2"
**SWG 20 Maximum pipe size in wood timber or joist allowed by UL is 3"

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.

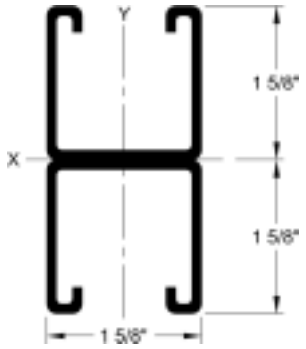
A-12 CHANNEL



Metal thickness is 12 Ga. (.105")



A-12



A-12A

Elements of Section

Channel Catalog Number	Weight lbs./ft.	Area of Section Sq. In.	AXIS X-X			AXIS Y-Y		
			I(in.^{4})	S(in.^{3})	R(in.)	I(in.^{4})	S(in.^{3})	R(in)
A-12	1.89	.583	.188	.203	.581	.257	.316	.680
A-12A	3.78	1.166	.920	.566	.910	.514	.632	.680

I = Moment of inertia S = Section modulus R = Radius of gyration

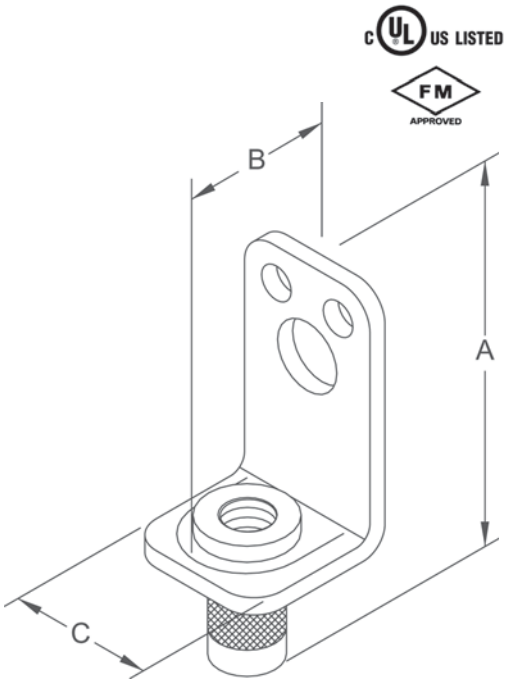
Beam and Column Loads Data

Channel Catalog Number	Beam Span or Unbraced Column Height	Uniform Load at Stress of 25,000 PSI (lbs.)	Deflection at Stress of 25,000 PSI (in.)	Uniform Load (lbs.) When Maximum Deflection = $\frac{SPAN}{240}$	Maximum Allowable Load of Column (lbs.)
A-12	18"	2213	.031	2213	11300
	24"	1680	.055	1680	9700
	30"	1340	.086	1340	8850
	36"	1125	.125	1125	8600
	42"	950	.168	950	7550
	48"	855	.225	757	6720
	60"	690	.356	484	5800
	72"	555	.594	336	4970
	84"	490	.693	247	4250
	96"	433	.915	189	3500
	120"	335	1.382	121	2100
A-12A	18"	6530	.018	6530	24340
	24"	4895	.033	4895	21800
	30"	3800	.050	3800	21500
	36"	3100	.070	3100	21000
	42"	2700	.097	2700	20600
	48"	2300	.124	2300	19900
	60"	1930	.203	1930	17950
	72"	1560	.284	1560	15940
	84"	1360	.393	1210	14750
	96"	1200	.438	926	12650
	120"	953	.680	593	8000

Beam loads: Loads listed are uniformly distributed, for loads concentrated at center of span multiply uniform load at table by .5 and multiply the deflection by .8. When deflection is not a factor use stress of 25,000 PSI. When deflection is a factor use deflection of $\frac{SPAN}{240}$.

Column loads: Loads listed are for unbraced heights as listed. Modulus of elasticity = 29,000,000 PSI. Slotted or punched channel reduce load rating 10%.

Fig. 58 - Threaded Side Beam Bracket



Size Range — 3/8" rod, pipe sizes 1/2" thru 4"

Material — Carbon Steel

Function — Practical and economical bracket used to support piping from wood, concrete or steel beams.

Features — Unique design allows rod to be easily threaded into bracket. Offset design permits unlimited rod adjustment. Center mounting hole will accept 3/8" and 1/2" fastener bolts. Per NFPA 13: 1/2" thru 2" pipe requires 3/8" fastener, 2½" thru 4" pipe requires 1/2" fastener.*

Approvals — Underwriters' Laboratories Listed in the USA **(UL)** and Canada **(cUL)**, and Factory Mutual Engineering approved thru 4" pipe.

***Note** — Additionally **UL** has listed the Fig. 58 with fasteners as shown in table below.

Finish — Plain

Note — Available in Electro-Galvanized finish.

Order By — Figure number and finish

UL Listed Fastener Table

Pipe Size	Qty.	Fastener Type	Material
2	2	#16 x 2 Drive Screws	Wood
2	1	3/8 Lag Bolt	Wood
2½ - 4	1	1/2 Lag Bolt	Wood
3½	2	1/4 x 1½ Lag Bolt	Wood
4	2	1/4 x 2 Lag Bolts*	Wood
4	2	1/4 x 1 tek screws	14 gauge
4	2	1/4 x 1 tek screws	16 gauge

* No pre-drilling required

Dimensions • Weights

Pipe Size	Rod Size	A	B	C	Max. Rec. Load Lbs.*	Approx. Wt./100
1/2 thru 4	3/8	2¾	1½	1⅛	300	14

* With safety factor of 5.

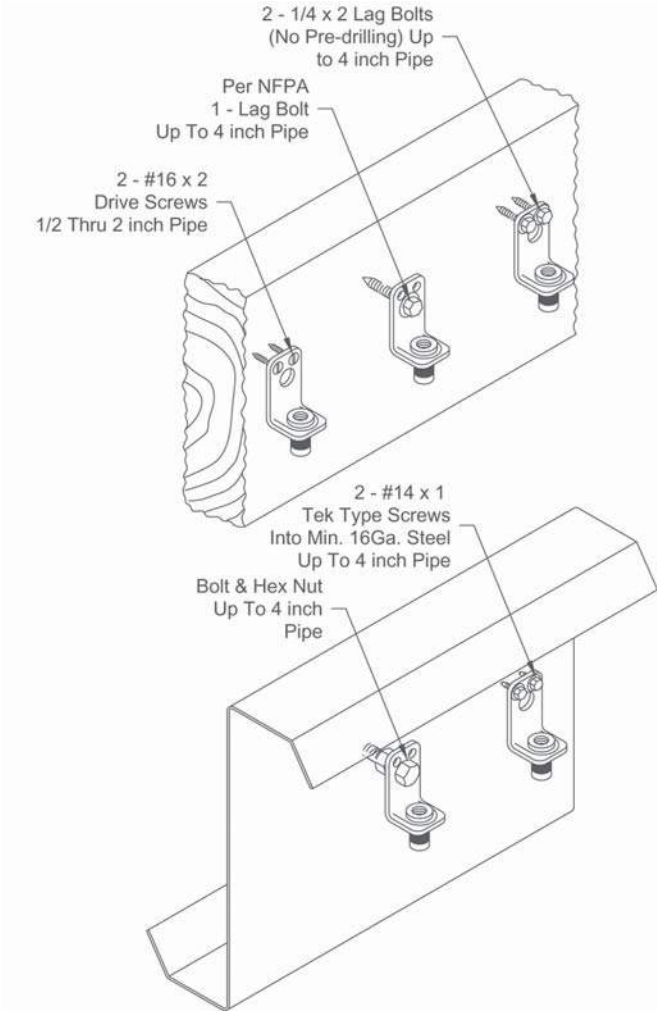


Fig. 906 - Sway Brace Multi-Fastener Adapter

Component of State of California OSHPD Approved Seismic Restraints System

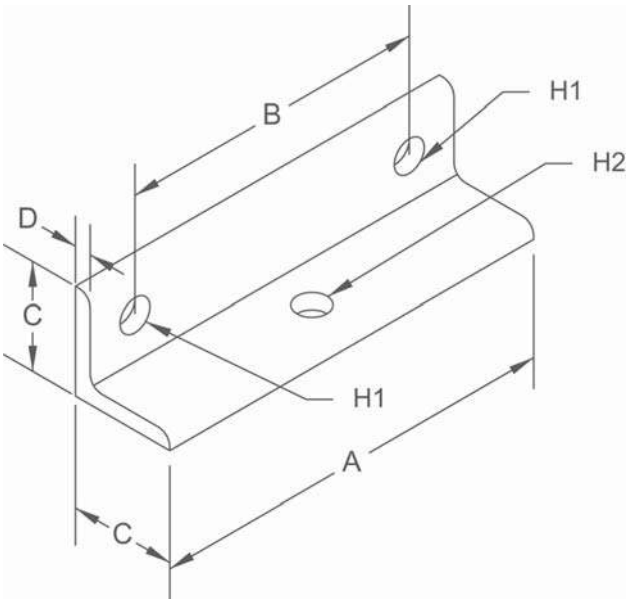
c UL US LISTED

Size Range — Use with 1" and 1¼" TOLCO UL listed Fig. 900 Series Earthquake Brace Attachments.

Material — Carbon Steel

Application — Allows sway brace fittings to develop greater load carrying ability by providing multiple fastener attachments. The National Fire Protection (NFPA) provides information on fastener loads to various structures. Refer to NFPA 13 (2010) 9.3.5.9.1.

Approvals — Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** only when used with TOLCO 900 Series Earthquake Brace Attachments. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.



Installation Instructions — The Fig. 906 is a multiple fastener structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

T**o Install** — Attach the Fig. 906 to the structural surface as per fastener design guidelines. Attach other TOLCO transitional attachment fitting Fig. 909, 910, 980 or 986. Transitional fitting attachment can pivot for adjustment to proper brace angle.

Finish — Plain

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

Order By — Figure number and specify dimensions H1 and H2.

Dimensions • Weights

A	B	C	D	H1	H2	Approx. Wt./100
12	9	2	1/4	Specify	Specify	Varies

Fig. 980 - Universal Swivel Sway Brace Attachment

c UL US LISTED
FM APPROVED

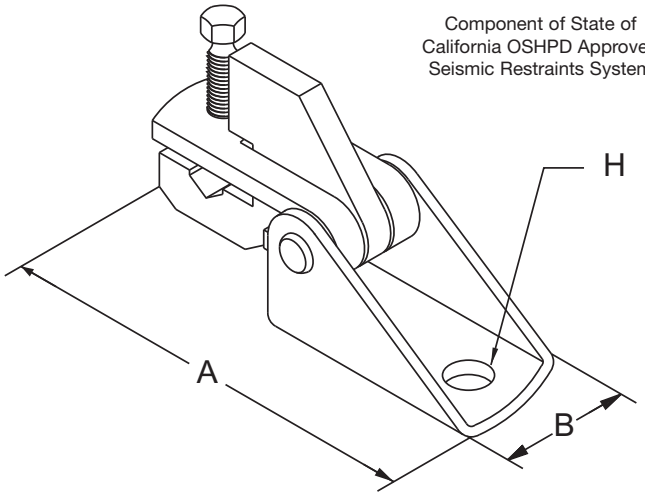
Component of State of California OSHPD Approved Seismic Restraints System

Size Range — One size fits bracing pipe 1" thru 2", TOLCO 12 gauge channel, and all structural steel up to 1/4" thick.

Material — Carbon Steel

Function — Multi-functional attachment to structure or braced pipe fitting.

Features — This product's design incorporates a **concentric** attachment opening which is critical to the performance of structural seismic connections. NFPA 13 (2010) 9.3.5.8.4 indicates clearly that fastener table load values are based only on concentric loading. Mounts to any surface angle. Break off bolt head assures verification of proper installation.



Installation — The Fig.980 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO "braced pipe" attachment, Fig. 1000, 1001, 2002, 4L, 4A or 4B to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

To Install — Place the Fig. 980 onto the "bracing pipe". Tighten the set bolt until set bolt head breaks off. Attachment can pivot for adjustment to proper brace angle.

Approvals — Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. Approved by Factory Mutual Engineering **(FM)**. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

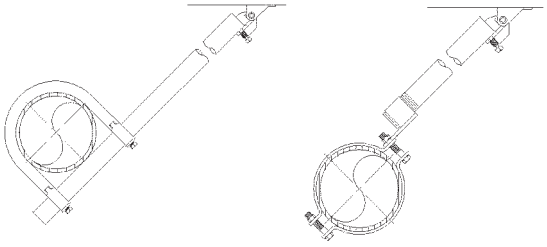
Note — The Fig. 980 Swivel Attachment and the Fig. 1001, Fig. 1000 , Fig. 2001 or Fig. 4A Pipe Clamp make up a sway brace system of **UL** Listed attachments and bracing materials which satisfies the requirements of Underwriters' Laboratories and the National Fire Protection Association **(NFPA)**

Finish — Plain

Note — Available in Electro-Galvanized finish.

Order By — Figure number and finish.

Pat. #6,273,372, Pat. #6,517,030, Pat. #6,953,174, Pat. #6,708,930, Pat. #7,191,987, Pat. #7,441,730, Pat. #7,669,806



Lateral Brace

Dimensions • Weights

A	B	H*	Max. Design Load Lbs. (cULus)	**Max. Design Load Lbs. (FM)	Approx. Wt./100
5¼	1⅞	17/32	2765	2800	132

* Available with hole sizes to accommodate up to 3/4" fastener. Consult factory.

** Load shown is allowable with brace installed, between 30° - 90°. No reduction of load based on brace angle is required.

TOLCO® brand bracing components are desgined to be compatible **ONLY** with other TOLCO® brand bracing components, resulting in a Listed seismic bracing assembly. **DISCLAIMER** — NIBCO does **NOT** warrant against the failure of TOLCO® brand bracing components, in the instance that such TOLCO® brand bracing components are used in combination with products, parts or systems which are not manufactured or sold under the TOLCO® brand. NIBCO shall **NOT** be liable under any circumstance for any direct or indirect, incidental or consequential damages of any kind, including but not limited to loss of business or profit, where non-TOLCO brand bracing components have been, or are used.

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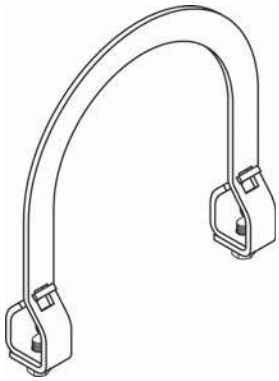
Fig. 1001 - Sway Brace Attachment

Component of State of California OSHPD Approved Seismic Restraints System

c UL US LISTED

FM APPROVED



Size Range — Pipe size to be braced: 2½" thru 8" IPS.* Pipe size used for bracing: 1" and 1¼" Schedule 40 IPS.

Material — Carbon Steel

Function — For bracing pipe against sway and seismic disturbance. The pipe attachment component of a sway brace system: The Fig. 1001 is used in conjunction with a TOLCO 900 Series fitting and joined together with bracing pipe per NFPA 13, forming a complete sway brace assembly.

Features — Can be used to brace schedules 7 through 40 IPS. Field adjustable, making critical pre-engineering of bracing pipe length unnecessary. Unique design requires no threading of bracing pipe. Can be used as a component of a four-way riser brace. Comes assembled and ready for installation. Fig. 1001 has built-in visual verification of correct installation. See installation note below.

Installation Note — Position Fig. 1001 over the pipe to be braced and tighten two hex head cone point set bolts until heads bottom out. A minimum of 1" pipe extension is recommended. Brace pipe can be installed on top or bottom of pipe to be braced.

Approvals — Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. Approved by Factory Mutual Engineering **(FM)**. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Maximum Design Load
Sch. 7 - 1600 lbs.
Sch. 10 & 40 w/1" Brace Pipe - 2015 lbs.
Sch. 10 & 40 w/1¼" Brace Pipe - 2765 lbs.

FM Approved Design Loads*
2½" - 2400 lbs.
3" - 4" - 2500 lbs.
5" - 8" - 1500 lbs.

Finish — Plain

Note — Available in Electro-Galvanized and HDG finish.

Order By — Indicate pipe size to be braced followed by pipe size used for bracing, figure number and finish.

Important Note — The Fig. 1001 is precision manufactured to perform its function as a critical component of a complete bracing assembly. **To ensure performance, the UL Listing requires that the Fig. 1001 must be used only with other TOLCO bracing products. The Fig 1001 is not intended for use with the Fig. 907 4-Way Longitudinal Brace Attachment.**

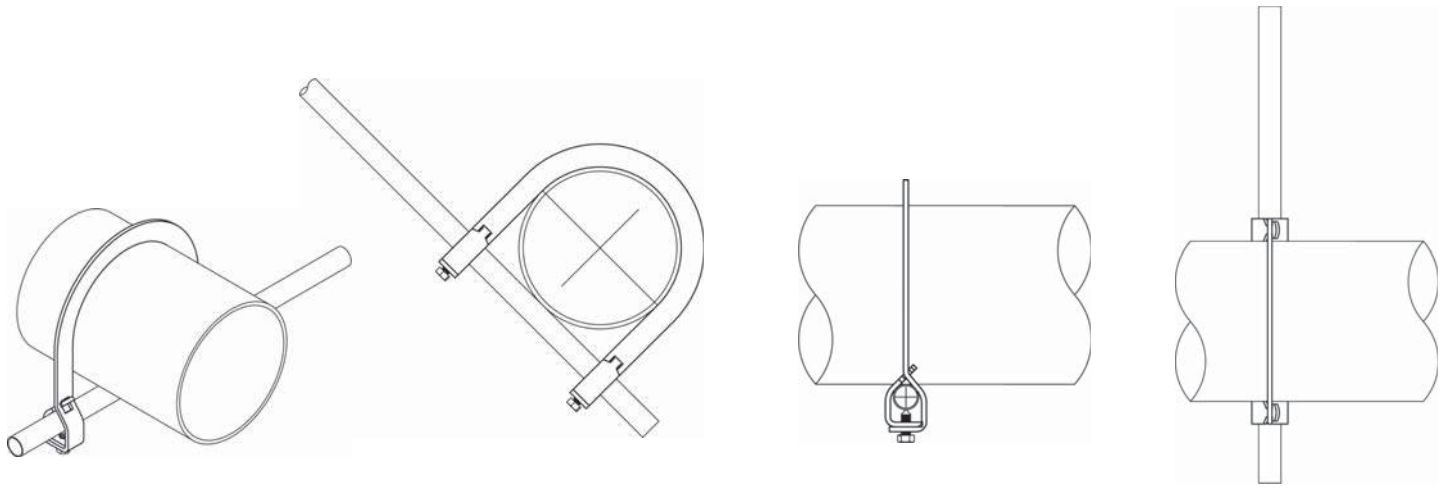


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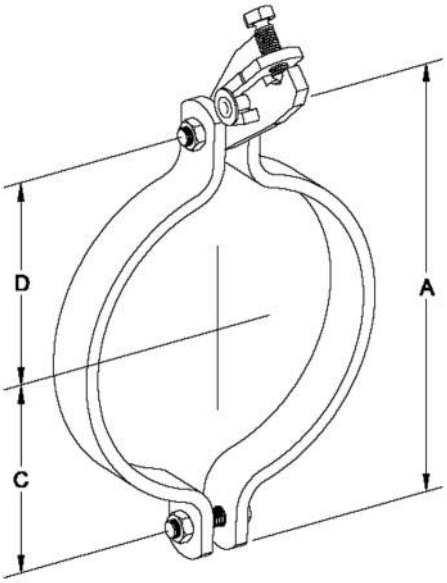
Fig. 4L
Longitudinal "In-Line" Sway Brace Attachment

c UL US LISTED
FM APPROVED



Size Range — 2½" through 8" IPS.

Material — Carbon Steel

Function — For bracing pipe against sway and seismic disturbance.

Approvals — Underwriter's Laboratories Listed in the USA **(UL)** and Canada **(cUL)** 2½" - 8". Approved by Factory Mutual Engineering **(FM)**, 2½" - 8" pipe.

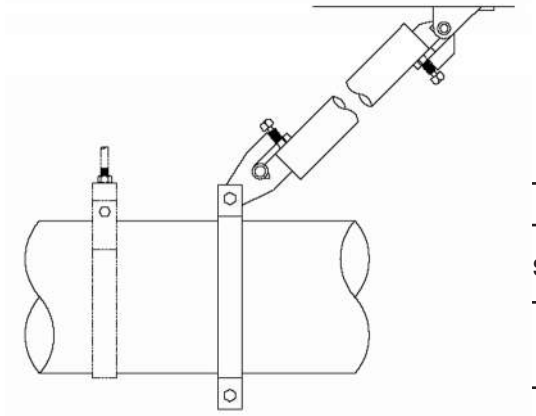
Installation Instructions — The Fig. 4L is the "braced pipe" attachment component of a longitudinal sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO structural attachment component to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

To Install — Place the Fig. 4L over the pipe to be braced and tighten bolts. Then engage "bracing pipe" into jaw opening and tighten set bolt until hex head snaps off. Jaw attachment can pivot for adjustment to proper brace angle.

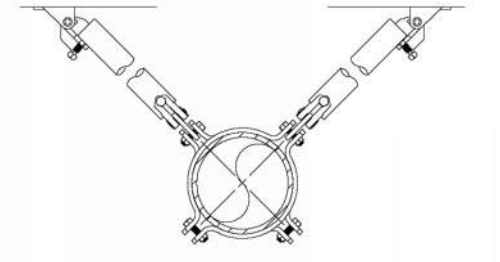
Finish — Plain

Note — Available in Electro-Galvanized and HDG finish.

Order By — Figure number, pipe size and finish.



Longitudinal Brace



4-Way Riser Brace
(Plan view)

Dimensions • Weights

Sizes	A	C	D	Bolt Size	Max. Rec. Load Lbs. (cULus)	*Max Design Load Lbs. (FM)	Approx. Wt./100
2½	6 7/16	2½	2¾	1/2	2015	3000	253
3	7	2¾	3 1/16	1/2	2015	1550	268
4	8½	3⅜	3 11/16	1/2	2015	1550	348
5	9¾	3⅞	4⅜	1/2	2015	1450	380
6	11½	5	5⅛	1/2	2015	1450	640
8	13¼	5⅝	5⅝	1/2	2015	1450	728

* The loads listed are axial loads on the brace. The horizontal load capacity, H, of the brace is: H = F x sin θ, where θ the installation angle measured from the vertical. FM approved when used with 1", 1¼", 1½" or 2" Sch. 40 brace pipe.

TOLCO® brand bracing components are designed to be compatible **ONLY** with other TOLCO® brand bracing components, resulting in a Listed seismic bracing assembly. **DISCLAIMER** — NIBCO does **NOT** warrant against the failure of TOLCO® brand bracing components, in the instance that such TOLCO® brand bracing components are used in combination with products, parts or systems which are not manufactured or sold under the TOLCO® brand. NIBCO shall **NOT** be liable under any circumstance for any direct or indirect, incidental or consequential damages of any kind, including but not limited to loss of business or profit, where non-TOLCO brand bracing components have been, or are used.

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Fig. 906 - Sway Brace Multi-Fastener Adapter

Component of State of California OSHPD Approved Seismic Restraints System

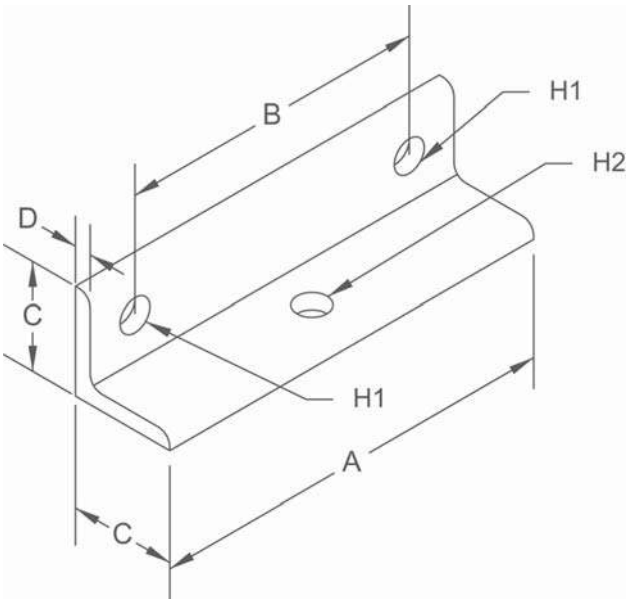
c UL US LISTED

Size Range — Use with 1" and 1¼" TOLCO UL listed Fig. 900 Series Earthquake Brace Attachments.

Material — Carbon Steel

Application — Allows sway brace fittings to develop greater load carrying ability by providing multiple fastener attachments. The National Fire Protection (NFPA) provides information on fastener loads to various structures. Refer to NFPA 13 (2010) 9.3.5.9.1.

Approvals — Underwriters Laboratories Listed in the USA **(UL)** and Canada **(cUL)** only when used with TOLCO 900 Series Earthquake Brace Attachments. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development **(OSHPD)**. For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.



Installation Instructions — The Fig. 906 is a multiple fastener structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

T**o Install** — Attach the Fig. 906 to the structural surface as per fastener design guidelines. Attach other TOLCO transitional attachment fitting Fig. 909, 910, 980 or 986. Transitional fitting attachment can pivot for adjustment to proper brace angle.

Finish — Plain

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

Order By — Figure number and specify dimensions H1 and H2.

Dimensions • Weights

A	B	C	D	H1	H2	Approx. Wt./100
12	9	2	1/4	Specify	Specify	Varies

Traditional methods for installing branch line restraints in fire sprinkler systems are cumbersome and time-consuming. Contractors often cut (and re-cut) threaded rod to precise measurements to restrain the sprinkler pipe with a loop hanger and surge restraint. Traditional methods also commonly require five or more parts per restraint.

To avoid these labor-intensive methods, ERICO has streamlined the process and developed the Branch Line Restraint System, part of the CADDY® line of hanging & bracing solutions for the fire protection market. Ideal for restraining 1" (25 mm) through 2" (50 mm) branch lines, this innovative system is significantly faster and easier to install than current methods. It attaches directly to steel bar joists, I-beams or purlins, as well as concrete and wood structures. The hardware is installed with only one tool, a 5/16" (8 mm) socket drill driver, which provides significant labor savings and convenience. It features a simple, two-step installation process, allowing a time savings up to 80% compared to other methods.

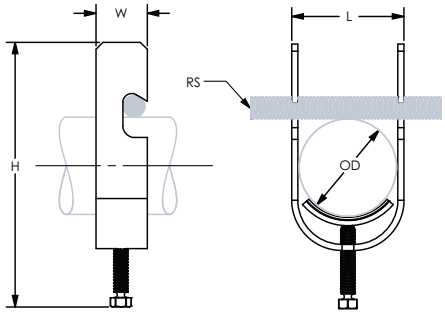
Unlike most solutions that only accept 3/8" threaded rod, the versatile Branch Line Restraint System features a swivel attachment that can be rotated to accept 3/8" (M10) or 1/2" (M12) threaded rod. This allows greater restraint distances from the pipe to structure with 1/2" (M12) threaded rod.

The system meets the requirements of NFPA® 13, making it ideal for new construction applications. The total system is cULus Listed and FM® Approved, and has been pre-approved by the state of California (OSHPD OPA-2629-10).

Features

- Complete restraint system is quick and easy to install
- Offers up to 80% time savings per branch line restraint
- Eliminates need to cut threaded rod to exact dimensions
- Works with 3/8" and 1/2" (M10 and M12) rod
- Restraint distances up to 40" (960 mm) from pipe to structure with 1/2" (M12) threaded rod
- All components install with a 5/16" (8 mm) socket drill driver
- Meets requirements of NFPA® 13 section 9.3.6
- Electro-zinc plated finish

Branch Line Restraint Pipe Attachment

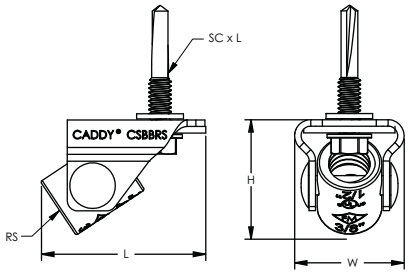


cULus Listed, FM Approved, and OSHPD pre-approved for light walled (SCH 7), SCH 10, and SCH 40 service pipes.

- Accepts 3/8" (M10) or 1/2" (M12) threaded rod on either side of the service pipe
- Quick grip clamp simplifies measuring and cutting of threaded rod
- Works with rough-cut threaded rod and eliminates pipe-side deburring
- Shear-off head helps ensure correct torque and simplifies inspection

Part Number	Article Number	Nominal Pipe Size " (mm)	OD " (mm)	RS " (mm)	H " (mm)	W " (mm)	L " (mm)
CSBBRP0100EG	404477	1 (25)	1.32 (33.4)	3/8, 1/2 (M10, M12)	6.67 (169.4)	0.88 (22.2)	2.86 (72.6)
CSBBRP0125EG	404478	1-1/4 (32)	1.66 (42.2)	3/8, 1/2 (M10, M12)	7.56 (192.0)	0.88 (22.2)	3.31 (84.1)
CSBBRP0150EG	404479	1-1/2 (40)	1.90 (48.3)	3/8, 1/2 (M10, M12)	8.20 (208.4)	0.88 (22.2)	3.63 (92.2)
CSBBRP0200EG	404480	2 (50)	2.38 (60.3)	3/8, 1/2 (M10, M12)	9.45 (240.0)	0.88 (22.2)	4.25 (108.0)

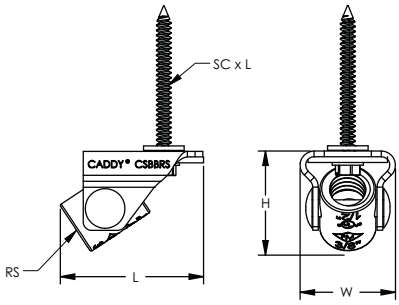
Branch Line Restraint Structure Attachment to Steel



- Swivel connector accepts 3/8" (M10) or 1/2" (M12) threaded rod
- Attaches to steel members with thickness from 0.105" (12 GA) to 0.5" (2.7 - 12.7 mm) with self-drilling/tapping screw

Part Number	Article Number	RS " (mm)	SC x L " (mm)	H " (mm)	W " (mm)	L " (mm)
CSBBRS1EG	N/A	3/8, 1/2	12-24 x 1-1/4 (12-24 x 32)	1.11 (28.2)	1.06 (26.9)	1.59 (40.4)
CSBBRS1MEG	402239	(M10, M12)	12-24 x 1-1/4 (12-24 x 32)	1.11 (28.2)	1.06 (26.9)	1.59 (40.4)

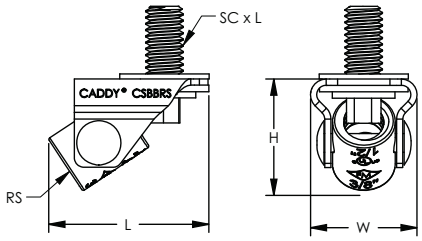
Branch Line Restraint Structure Attachment to Wood/Concrete



- Swivel connector accepts 3/8" (M10) or 1/2" (M12) threaded rod
- Attaches to wood/concrete structure.
  Pre-drill concrete with 3/16" (4.8 mm) drill bit (not included)

Part Number	Article Number	RS " (mm)	SC x L " (mm)	H " (mm)	W " (mm)	L " (mm)
CSBBRS2EG	N/A	3/8, 1/2	1/4 x 1-3/4 (6.4 x 44.5)	1.11 (28.2)	1.06 (26.9)	1.59 (40.4)
CSBBRS2MEG	402240	(M10, M12)	1/4 x 1-3/4 (6.4 x 44.5)	1.11 (28.2)	1.06 (26.9)	1.59 (40.4)

Branch Line Restraint Structure Attachment to Threaded Insert



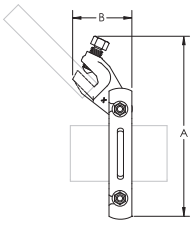
- Swivel connector accepts 3/8" (M10) or 1/2" (M12) threaded rod
- Attaches to concrete anchors or structural attachments with female threads
- Also for use with Snake+® anchor (not included); part number 6401SD

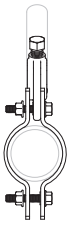
Part Number	Article Number	RS " (mm)	SC x L " (mm)	H " (mm)	W " (mm)	L " (mm)
CSBBRS3EG	N/A	3/8, 1/2	3/8-16 x 3/4 (M10 x 19)	1.11 (28.2)	1.06 (26.9)	1.59 (40.4)
CSBBRS3MEG	402241	(M10, M12)	3/8-16 x 3/4 (M10 x 19)	1.11 (28.2)	1.06 (26.9)	1.59 (40.4)

Note: Branch line structural attachments are for restraint only and not for the hanging of fire sprinkler piping.

Easy Universal Sway Brace – CSBEZU0300EG

- Use for both lateral and longitudinal sway brace applications
- Unique slotted holes provide for easy slip-on installation eliminating loose hardware
- Snap-off bolt head helps enable easy installation and inspection of seismic sway braces
- Works with 1" through 2" brace pipes and 1/4" angle iron braces to reduce inventory
- Meets NFPA®-13 requirements for seismic sway bracing





Part Number	CSBEZU0300EG
Material	Steel
Finish	Electrogalvanized
Pipe Size	3"
A	9 3/8"
B	1 3/16"
Brace Pipe Size	1" – 2"
Certifications	cULus FM OSHPD
Standard Packaging Quantity	10 pc
UPC	78285663427
EAN-13	8711893057805

UL Loads (Listed for Restraints)			
Part Number	Dyna-Flow® Service Pipe	Sch 10 Service Pipe	Sch 40 Service Pipe
CSBEZU0100EG	N/A	655 lb	655 lb
CSBEZU0125EG	655 lb	655 lb	655 lb
CSBEZU0150EG	655 lb	655 lb	655 lb

UL Loads (Listed for Sway Braces)								
Part Number	Lateral				Longitudinal			
	Dyna-Flow® Service Pipe	EZ FLOW™ Service Pipe	Sch 10 Service Pipe	Sch 40 Service Pipe	Dyna-Flow® Service Pipe	Mega-Flow Service Pipe	Sch 10 Service Pipe	Sch 40 Service Pipe
CSBEZU0200EG	3,000 lb	N/A	3,000 lb	3,000 lb	N/A	N/A	N/A	N/A
CSBEZU0250EG	3,000 lb	N/A	3,000 lb	3,000 lb	1,265 lb	N/A	1,265 lb	1,265 lb
CSBEZU0300EG	3,000 lb	N/A	3,000 lb	3,000 lb	1,265 lb	N/A	1,265 lb	1,265 lb
CSBEZU0400EG	3,000 lb	3,000 lb	3,000 lb	3,000 lb	1,265 lb	N/A	1,265 lb	1,265 lb
CSBEZU0500EG	N/A	3,000 lb	3,000 lb	3,000 lb	N/A	1,600 lb	1,600 lb	1,600 lb
CSBEZU0600EG	N/A	3,000 lb	3,000 lb	3,000 lb	N/A	1,600 lb	1,600 lb	1,600 lb

FM Loads (Lightwall, Sch 10 and Sch 40 Service Pipes)								
Part Number	Horizontal Capacity per Installation Angle from Vertical							
	Lateral				Longitudinal			
	30° - 44°	45° - 59°	60° - 74°	75° - 90°	30° - 44°	45° - 59°	60° - 74°	75° - 90°
CSBEZU0100EG	860 lb	1,220 lb	1,500 lb	1,670 lb	390 lb	550 lb	670 lb	750 lb
CSBEZU0125EG	860 lb	1,220 lb	1,500 lb	1,670 lb	390 lb	550 lb	670 lb	750 lb
CSBEZU0150EG	860 lb	1,220 lb	1,500 lb	1,670 lb	390 lb	550 lb	670 lb	750 lb
CSBEZU0200EG	1,530 lb	2,160 lb	2,650 lb	2,960 lb	520 lb	690 lb	830 lb	930 lb
CSBEZU0250EG	1,530 lb	2,160 lb	2,650 lb	2,960 lb	520 lb	690 lb	830 lb	930 lb
CSBEZU0300EG	1,530 lb	2,160 lb	2,650 lb	2,960 lb	520 lb	690 lb	830 lb	930 lb
CSBEZU0400EG	1,570 lb	2,220 lb	2,720 lb	3,030 lb	630 lb	900 lb	1,100 lb	1,230 lb
CSBEZU0500EG	1,570 lb	2,220 lb	2,720 lb	3,030 lb	630 lb	900 lb	1,100 lb	1,230 lb
CSBEZU0600EG	1,980 lb	2,810 lb	3,440 lb	3,840 lb	730 lb	1,000 lb	1,230 lb	1,370 lb

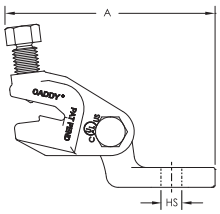
PENTAIR

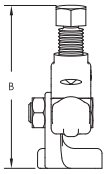
Universal Structural Attachment

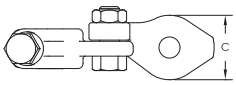




- Universal design allows one product to attach directly to concrete, wood, bar joist or I-beam adaptors
- Snap-off bolt head helps enable easy installation and inspection of seismic sway braces
- Use for both lateral and longitudinal sway brace applications
- Works with 1" through 2" brace pipes and 1/4" angle iron braces to reduce inventory
- Center bolt does not require tightening
- Meets NFPA®-13 requirements for seismic sway bracing







Material: Steel
Finish: Electrogalvanized

Part Number	Hole Size HS	A	B	C
CSBUNIV050EG	9/16"	5 1/4"	4"	1 5/8"
CSBUNIV075EG	13/16"	5 1/4"	4"	1 5/8"

UL Loads		
Brace Type	Service Pipe Size	Rating
Pipe	1" - 10"	3,000 lb
1/4" Thick Angle	1" - 8"	2,015 lb

FM Loads					
Brace Type	Service Pipe Size	Horizontal Capacity per Installation Angle from Vertical			
		30° - 44°	45° - 59°	60° - 74°	75° - 90°
Pipe	N/A	1,620 lb	2,300 lb	2,820 lb	3,140 lb

WARNING
Pentair products shall be installed and used only as indicated in Pentair's product instruction sheets and training materials. Instruction sheets are available at erico.pentair.com and from your Pentair customer service representative. Improper installation, misuse, misapplication or other failure to completely follow Pentair's instructions and warnings may cause product malfunction, property damage, serious bodily injury and death and/or void your warranty.

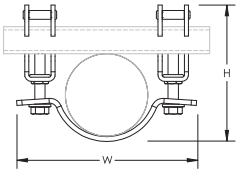
Quick Grip Lateral Sway Brace – CSBQG0400EG

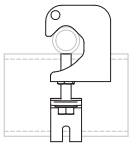




The Quick Grip Lateral Brace, part of the CADDY line of fire sprinkler bracing systems from Pentair, is designed to help simplify installations when bracing service pipe for seismic or other catastrophic events. It features an innovative design for quick attachment of brace pipe to service pipe saving time and money.

- Easy two-step installation elminates extra trips between structure and service pipe
- Works with 1" and 1 1/4" (25 mm and 32 mm) brace pipes to reduce inventory
- Yellow tips provide a visual indicator that the bolts have been properly torqued
- Easy installation with an impact wrench from the bottom side of the clamp
- Meets NFPA®-13 requirements for seismic sway bracing





Part Number	CSBQG0400EG
Material	Steel
Finish	Electrogalvanized
Pipe Size	4"
Height (H)	7 1/8" – 7 1/2"
Width (W)	8 3/4"
Certifications	cULus FM OSHPD
Standard Packaging Quantity	10 pc
UPC	78285671080
EAN-13	8711893138757

UL Loads			
Part Number	Service Pipe Schedule	Lateral	
		1" Brace Pipe	1 1/4" Brace Pipe
CSBQG0250EG	Dyna-Flow®	2,015 lb	2,015 lb
	10	2,015 lb	2,015 lb
	40	2,015 lb	2,015 lb
CSBQG0300EG	Dyna-Flow®	2,015 lb	2,015 lb
	10	2,015 lb	2,015 lb
	40	2,015 lb	2,015 lb
CSBQG0400EG	Dyna-Flow®	2,015 lb	2,015 lb
	10	2,015 lb	2,015 lb
	40	2,015 lb	2,015 lb
CSBQG0600EG	Mega-Flow	2,015 lb	2,015 lb
	10	2,015 lb	2,015 lb
	40	2,015 lb	2,015 lb
CSBQG0800EG	10	2,015 lb	2,015 lb
	40	2,015 lb	2,015 lb

FM Loads					
Part Number	Service Pipe Schedule	Lateral			
		Horizontal Capacity per Installation Angle from Vertical			
		30° - 44°	45° - 59°	60° - 74°	75° - 90°
CSBQG0250EG	Lightwall	1,410 lb	2,000 lb	2,450 lb	2,740 lb
	10	1,410 lb	2,000 lb	2,450 lb	2,740 lb
	40	1,410 lb	2,000 lb	2,450 lb	2,740 lb
CSBQG0300EG	Lightwall	1,190 lb	1,680 lb	2,060 lb	2,300 lb
	10	1,190 lb	1,680 lb	2,060 lb	2,300 lb
	40	1,190 lb	1,680 lb	2,060 lb	2,300 lb
CSBQG0400EG	Lightwall	1,190 lb	1,680 lb	2,060 lb	2,300 lb
	10	1,190 lb	1,680 lb	2,060 lb	2,300 lb
	40	1,190 lb	1,680 lb	2,060 lb	2,300 lb
CSBQG0600EG	Lightwall	870 lb	1,230 lb	1,510 lb	1,690 lb
	10	870 lb	1,230 lb	1,510 lb	1,690 lb
	40	970 lb	1,370 lb	1,680 lb	1,870 lb
CSBQG0800EG	0.188" (Wall Thickness)	790 lb	1,110 lb	1,360 lb	1,520 lb
	40	790 lb	1,110 lb	1,360 lb	1,520 lb

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