



11901 East 14th Ave.
Aurora, CO 80010
303-366-4905 Fax 303-366-4966

Aurora Building Division
15151 E Alameda Parkway
Aurora, CO 80012



City of Aurora Building Division
Counter Permit intake by: **WHP**

Date: **Jan 05, 2018**

RSN: **1260110**

Permit: **2018-1402372-CT**

2015 INTERNATIONAL CODES & 2014 NEC Scope of permit to be field verified.

Subject: Scope of Work Letter

Per the requirements of Aurora Building Division, *Arapahoe Fire Protection* is submitting the following scope of work letter for "Elevator Machine Rm & Pit @ MCA" located in Aurora in order to receive a fire sprinkler permit. The scope of work is as follows:

Project Name: Elevator Machine Rm Demo @ MCA

Project Address: 1411 S. Potomac St. Aurora, CO 80012

Project Scope: Two fire sprinkler lines were previously removed from elevator machine room. Scope of work is to go back and install one sprinkler line into the machine room to provide two high temp quick response upright heads. Additionally, a high temp quick response HSW sprinkler will be installed in each of the two elevator pits with appropriate control valves with tamper switches.

All work will be performed in accordance with NFPA 13 2013 and we will contact you for a rough and final inspection. I understand that I must pay for an issued permit before I call for this inspection. If you have any questions regarding this project please feel free to contact me at 303-366-4905 Ext 420.

Sincerely,

A handwritten signature in black ink, appearing to read "Jake Ost".

Jake Ost
TI Designer
Arapahoe Fire Protection

Prepared Under Supervision Of:
Ronald Lumsden
NICET Level IV
Registration # 118272

JAN 03 2018

Signature: _____

A handwritten signature in black ink, appearing to be a stylized "R" followed by a flourish.

MATERIAL SUBMITTAL



FOR
ELEVATOR MACHINE RM & PIT
1411 S. POTOMAC ST
AURORA, CO 80012

JOB 7603

JAKE OST



TECHNICAL DATA

MICROFAST® QUICK RESPONSE UPRIGHT SPRINKLER VK300 (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

1. DESCRIPTION

The Viking Microfast® Quick Response Upright Sprinkler VK300 is a small, thermosensitive, glass-bulb 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, these coatings have been investigated for installation in corrosive atmospheres and are listed/approved as corrosion resistant as indicated in the Approval Charts. (Note: **FM global approves the ENT coating as corrosion resistant.** FM Global has no approval classification Polyester coatings as corrosion resistant.)



2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV

FM Approved: Classes 2002 and 2020

Refer to Approval Chart 1 and Design Criteria on for cULus Listing requirements and refer to Approval Chart 2 and Design Criteria FM 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 BSP
Nominal K-Factor: 5.6 U.S. (80.6 metric**)
Glass-bulb fluid temperature rated to -65 °F (-55 °C)
Overall Length: 2-3/16" (56 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: Brass UNS-C84400 or QM Brass
Deflector: Brass UNS-C23000 or Copper UNS-C19500
Bulb: Glass, nominal 3 mm diameter
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape
Screw: Brass UNS-C36000
Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

For Polyester Coated Sprinklers: Belleville Spring-Exposed

For ENT Coated Sprinklers: Belleville Spring-Exposed, Screw and Pipcap - ENT plated

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

Order Viking Microfast® Quick Response Upright Sprinkler VK300 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 (°F/°C): 135°/57° = A, 155°/68° = B, 175°/79° = D, 200°/93° = E, and 286°/141° = G

For example, sprinkler VK300 with a 1/2" NPT thread, Brass finish and a 155 °F/68 °C temperature rating = Part No. 12978AB

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

Sprinkler Wrench: Standard Wrench: Part No. 10896W/B (available since 2000)

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 may be found on
The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
The Web site may include a more recent
edition of this Technical Data Page.

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

	TECHNICAL DATA	MICROFAST® QUICK RESPONSE UPRIGHT SPRINKLER VK300 (K5.6)
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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

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. 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 Sprinkler VK300 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	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

Sprinkler Finishes: Brass, Chrome, White Polyester, Black Polyester, and ENT

Corrosion-Resistant Coatings³: White Polyester, Black Polyester, and Black PTFE. ENT in all temperature ratings except 135 °F (57 °C)

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 Charts. 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. For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester, ENT, and PTFE coatings. For ENT coated automatic sprinklers, the waterway is coated.

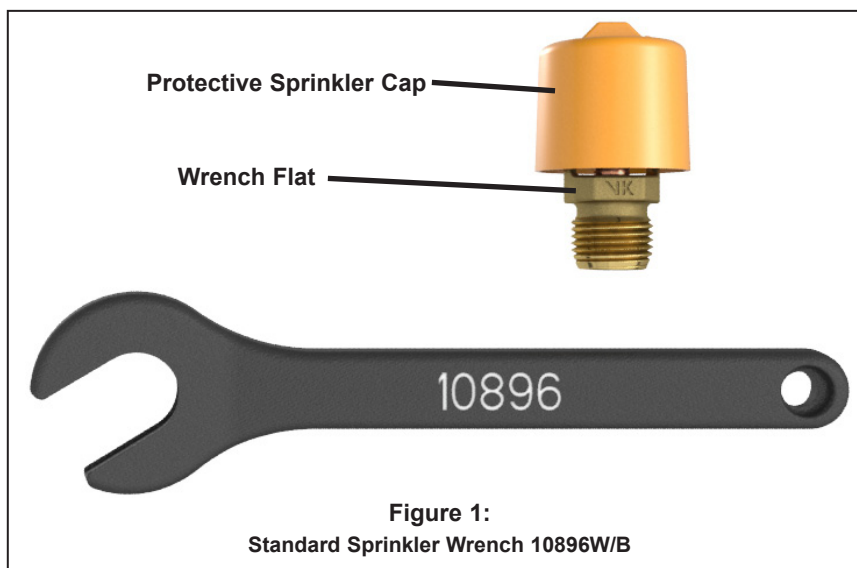


Figure 1:

Standard Sprinkler Wrench 10896W/B

	TECHNICAL DATA	MICROFAST® QUICK RESPONSE UPRIGHT SPRINKLER VK300 (K5.6)
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Approval Chart 1 (UL) Microfast® Quick Response Upright Sprinkler VK300 Maximum 175 PSI (12 bar) WWP											
<div><div>Temperature</div><div>Finish</div><div>A1X ← Escutcheon (if applicable)</div></div> <div>KEY</div>											
Base Part Number ¹	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³			
		NPT	BSP	U.S.	metric ²	Inches	mm	cULus	VdS	LPCB	CE
12978	VK300	1/2"	15 mm	5.6	80.6	2-3/16	56	A1, B2	--	--	--
<div>Approved Temperature Ratings</div> <div>A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)</div> <div>B - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)</div>							<div>Approved Finishes</div> <div>1 - Brass, Chrome, White Polyester^{5,6}, and Black Polyester^{5,6}</div> <div>2 - ENT⁶</div>				
<div>Footnotes</div> <div><div>¹Base part number is shown. For complete part number, refer to Viking's current price schedule.</div><div>²Metric 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.</div><div>³This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.</div><div>⁴Listed by Underwriters Laboratories Inc. for us in the U.S. and Canada</div><div>⁵Other colors are available on request with the same Listings and Approvals as the standard colors.</div><div>⁶cULus Listed as corrosion resistant.</div></div>											

DESIGN CRITERIA - UL (Also refer to Approval Chart 1 above.)
cULus Listing Requirements: The Viking Microfast® Quick Response Upright Sprinkler VK300 is cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers. <ul style="list-style-type: none"> Designed for use in Light and Ordinary Hazard occupancies. 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 page QR1-3 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.

	TECHNICAL DATA	MICROFAST® QUICK RESPONSE UPRIGHT SPRINKLER VK300 (K5.6)
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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

Approval Chart 2 (FM)								<div><div><div>Temperature</div><div>Finish</div><div>A1X ← Escutcheon (if applicable)</div></div><div>KEY</div></div>
Microfast® Quick Response								
Upright Sprinkler VK300								
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	BSP	U.S.	metric ²	Inches	mm	
12978	VK300	1/2"	15 mm	5.6	80.6	2-3/16	56	A1
<div>Approved Temperature Ratings</div> <div>A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)</div> <div>B - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)</div>							<div>Approved Finishes</div> <div>1 - Brass, Chrome, White Polyester⁵, and Black Polyester⁵</div> <div>2 - ENT⁶</div>	
<div>Footnotes</div> <div><div>¹ Base part number is shown. For complete part number, refer to Viking's current price schedule.</div><div>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.</div><div>³ This table shows the FM Approvals available at the time of printing. Check with the manufacturer for any additional approvals.</div><div>⁵ Other colors are available on request with the same Approvals as the standard colors.</div><div>⁶ FM approved as corrosion resistant.</div></div>								

DESIGN CRITERIA - FM (Also refer to Approval Chart 2 above.)
FM Approval Requirements: The Microfast® Quick Response Upright Sprinkler VK300 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 page QR1-3 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.

March 19, 2010

Sprinkler 43a



TECHNICAL DATA

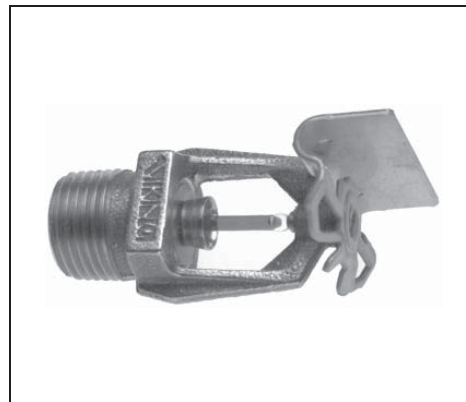
MICROFAST® AND MICRO-FASTHP® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLERS (VK305 & VK319)

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

1. DESCRIPTION

Viking Microfast® and MicrofastHP® Quick Response Horizontal Sidewall Sprinklers are small thermosensitive glass bulb spray sprinklers available with various finishes and temperature ratings to meet design requirements. The special Polyester and Teflon® coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive atmospheres and are cULus listed as corrosion resistant as indicated in the Approval Chart. (Note: FM Global has no approval classification for Teflon® and Polyester coatings as corrosion resistant.)



2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

FM Approved: Class 2020

NYC Approved: MEA 89-92-E, Volume 16

Refer to Approval Chart 1 and Design Criteria on page 43d for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 43f for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 2003.

Minimum Operating Pressure: 7 psi (0.5 bar)

Maximum Working Pressure: Sprinkler VK319 is rated for use with water working pressures ranging from the minimum 7 psi (0.5 bar) up to 250 psi (17 bar) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating "250" stamped on the deflector. Sprinkler VK305 is rated to a maximum 175 psi (12 bar) wwp.

Factory tested hydrostatically to 500 psi (34.5 bar)

Testing: U.S.A. Patent No. 4,831,870

Nominal K-Factor: 5.6 U.S. (80.6 metric*)

*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.

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Overall Length: 2-11/16" (68 mm)

Viking Technical Data may be found on
The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
The Web site may include a more recent
edition of this Technical Data Page.

Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Copper UNS-C19500

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape

Screw: Brass UNS-C36000

Pip Cap: Copper UNS-C11000 and Stainless Steel UNS-S30400

Pip Cap Attachment (for Sprinkler VK319): Brass UNS-C36000

For Teflon® Coated Sprinklers: Belleville Spring-Exposed, Screw-Nickel Plated, Pip Cap-Teflon® Coated

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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

Order Quick Response Horizontal Sidewall Sprinklers 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-Enloy® = F, White Polyester = M-/W, Black Polyester = M-/B, and Black Teflon® = N

Temperature Suffix (°F/°C): 135°/68° = A, 155°/68° = B, 175°/79° = D, 200°/93° = E, and 286°/141° = G

For example, sprinkler VK305 with a Brass finish and a 155 °F/68 °C temperature rating = Part No. 12121AB



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

Available Finishes And Temperature Ratings:

Refer to Table 1

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

Sprinkler Wrenches:

A. Standard Wrench: Part No. 10896W/B (available since 2000).

B. Wrench for recessed sprinklers with protective shields: Part No. 13655W/B** (available since 2003)

**A ½" ratchet is required (not available from Viking).

Sprinkler Cabinets:

A. Six-head capacity: Part No. 01724A (available since 1971)

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

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. 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

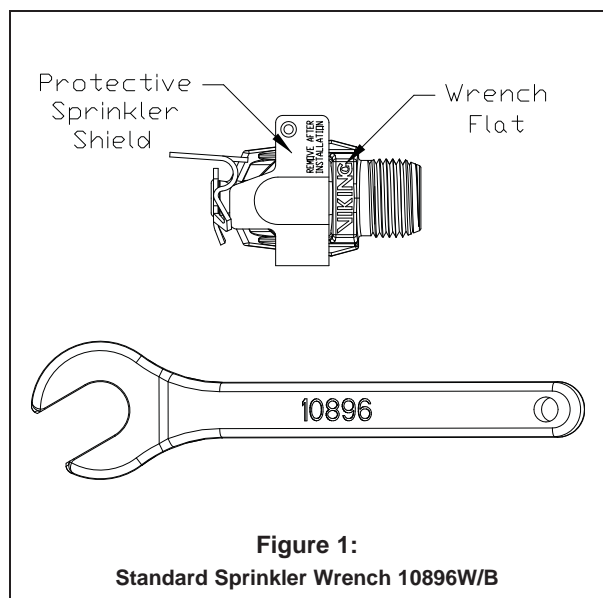
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking Quick Response Horizontal Sidewall Sprinklers are 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.



March 19, 2010

Sprinkler 43c

	TECHNICAL DATA	MICROFAST® AND MICRO-FASTHP® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLERS (VK305 & VK319)
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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

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

Sprinkler Finishes: Brass, Chrome-Enloy®, White Polyester, Black Polyester, and Black Teflon®

Corrosion-Resistant Coatings³: White Polyester, Black Polyester, and Black Teflon®

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. 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. For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and Teflon® coatings.

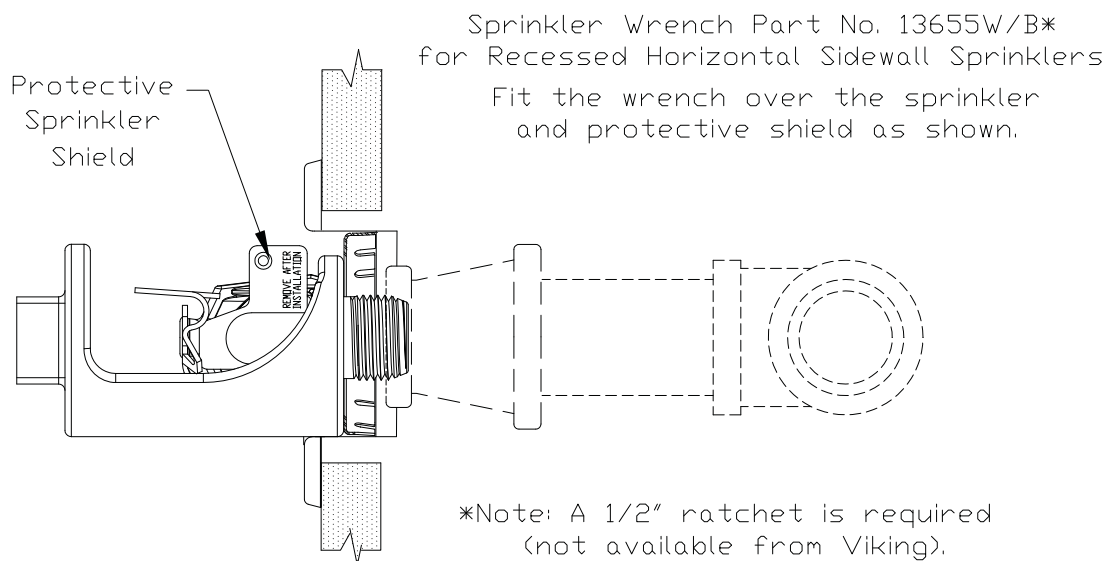


Figure 2: Wrench 13655W/B for Recessed Horizontal Sidewall Sprinklers

	TECHNICAL DATA	MICROFAST® AND MICRO-FASTHP® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLERS (VK305 & VK319)
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 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Approval Chart 1 (UL)												<div><div>Temperature</div><div>Finish</div><div>A1X ← Escutcheon (if applicable)</div></div> <div>KEY</div>		
Microfast® and MicrofastHP® Quick Response Horizontal Sidewall Sprinklers														
Base Part Number ¹	SIN	Maximum Pressure	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to Design Criteria below.)					
			NPT	BSP	U.S.	metric ²	Inches	mm	cULus ⁴	NYC ⁵	LPCB	CE	CSA	
Maximum 175 PSI (12 Bar) WWP For Light or Ordinary Hazard Occupancies. Deflector must be located 4" to 12" (102 mm to 305 mm) below the ceiling.														
12121	VK305	175 psi	1/2"	15 mm	5.6	80.6	2-11/16	68	A1Y, B1X	A1Y	--	--	--	
Maximum 175 PSI WWP For Light Hazard Occupancies Only. Deflector must be located 4" to 6" (102 mm to 152 mm) below the ceiling.														
12121	VK305	175 psi	1/2"	15 mm	5.6	80.6	2-11/16	68	cULus	NYC	LPCB	CE	CSA	
									A1Y, B1X	See Footnote 6.	--	--	--	
Maximum 250 PSI WWP For Light or Ordinary Hazard Occupancies. Deflector must be located 4" to 12" (102 mm to 305 mm) below the ceiling.														
12285	VK319	250 psi	1/2"	15 mm	5.6	80.6	2-11/16	68	cULus ⁴	NYC ⁵	LPCB	CE	CSA	
									A1Y, B1X	A1Y	--	--	--	
Approved Temperature Ratings			Approved Finishes				Approved Escutcheons							
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C) B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)			1 - Brass, Chrome-Enloy®, White Polyester ⁷ , Black Polyester ⁷ , and Black Teflon ^{®7}				X - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon®, or recessed with the Viking Micromatic® Model E-1, E-2 or G-1 Recessed Escutcheon Y - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon®							
Footnotes														
¹ Base part number 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. Other approvals may be in process.														
⁴ Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada.														
⁵ Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol. 16.														
⁶ Meets New York City requirements, effective July 1, 2008.														
⁷ cULus Listed as corrosion-resistant. Other colors are available on request with the same Listings and Approvals as the standard colors.														

DESIGN CRITERIA - UL (Also refer to Approval Chart 1 above.)
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cULus Listing Requirements:

Quick Response Horizontal Sprinklers VK305 and VK319 are cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for sidewall standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies.
- Locate the deflector 4" to 12" (102 mm to 305 mm) below the ceiling.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13.
- Minimum spacing allowed is 6 ft. (1.8 m).
- Align the top of the deflector parallel with the ceiling.
- Locate no less than 4" (102 mm) from end walls.
- Maximum distance from end 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 and obstruction rules contained in NFPA 13 for sidewall standard spray sprinklers must be followed.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page QR1-3 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, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

March 19, 2010

Sprinkler 43e

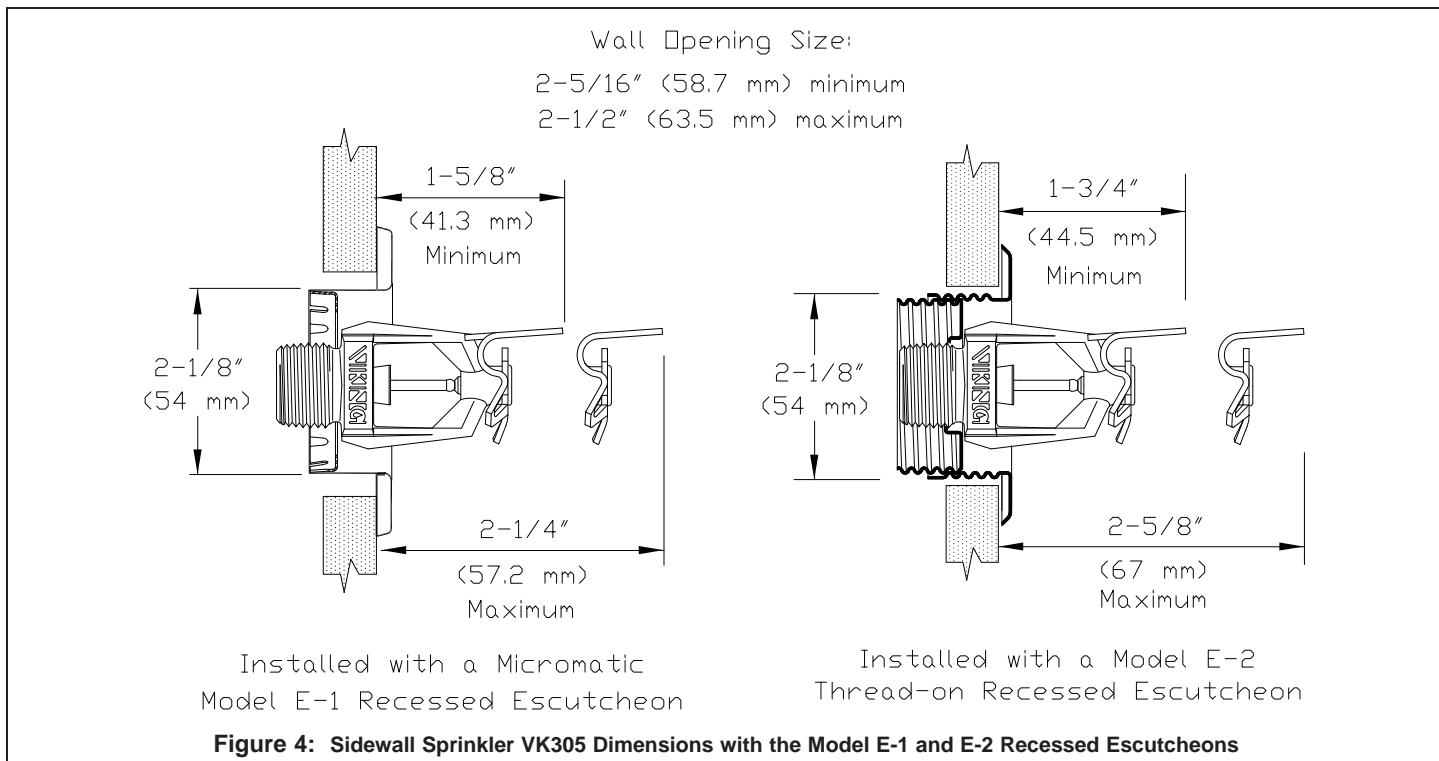
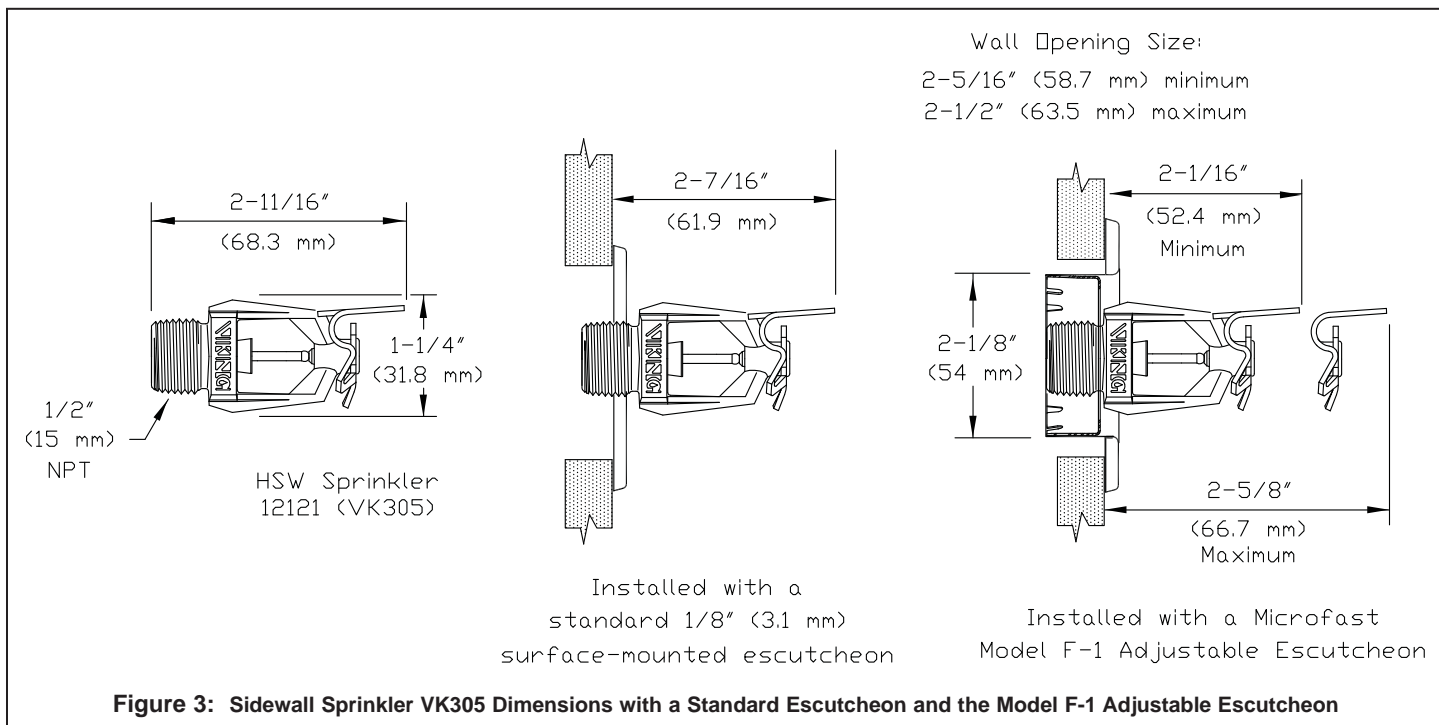


TECHNICAL DATA

MICROFAST® AND MICRO-FASTHP® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLERS (VK305 & VK319)

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	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">MICROFAST® AND MICRO-FASTHP® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLERS (VK305 & VK319)</h3>
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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

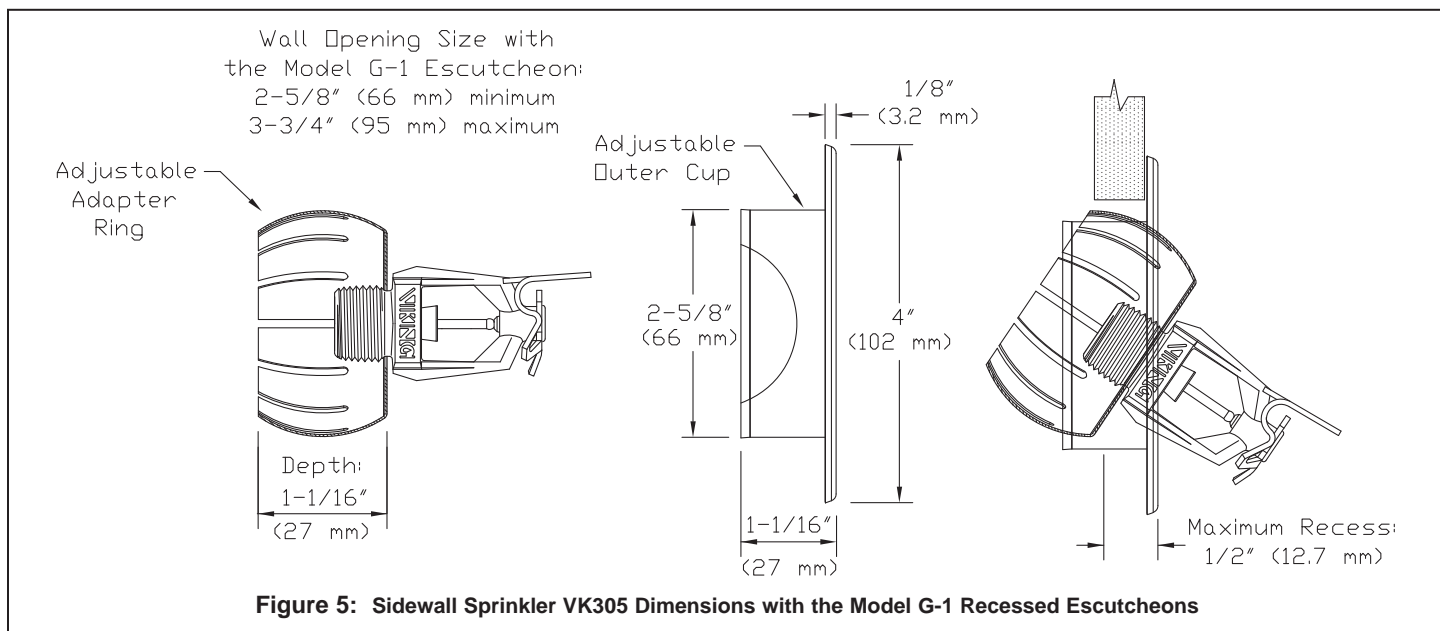
Approval Chart 2 (FM)										<div><div><div>Temperature</div><div>Finish</div><div>A1X ← Escutcheon (if applicable)</div></div><div>KEY</div></div>
Microfast® Quick Response Horizontal Sidewall Sprinklers										
Maximum 175 PSI WWP										
Base Part Number ¹	SIN	Maximum Pressure	Thread Size		Nominal K-Factor		Overall Length		FM Approvals ³ (Refer also to Design Criteria below.)	
			NPT	BSP	U.S.	metric ²	Inches	mm		
12121	VK305	175 psi	1/2"	15 mm	5.6	80.6	2-11/16	68	A1Y, B1X	
Approved Temperature Ratings				Approved Finish 1 - Brass			Approved Escutcheons			
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C) B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)							X - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Viking Micromatic® Model E-1, E-2 or G-1 Recessed Escutcheon Y - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon			
Footnotes										
¹ Base part number 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. Other approvals may be in process.										

DESIGN CRITERIA - FM
 (Also refer to Approval Chart 2 above.)

FM Approval Requirements:
 Horizontal Sidewall Sprinkler VK305 is FM Approved as a quick response **Non-Storage** sidewall 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.

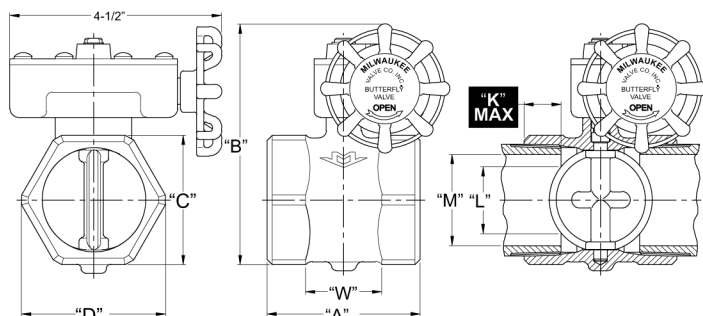
NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page QR1-3 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.

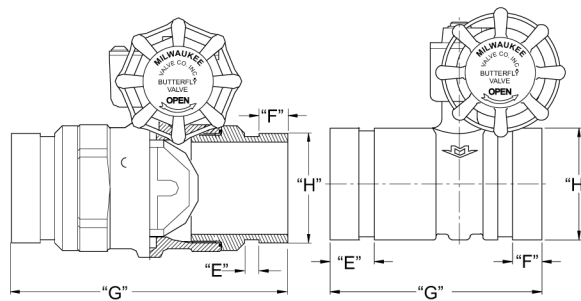


INDOOR/OUTDOOR butterball® BUTTERFLY VALVES

VALVES LESS SUPERVISORY TAMPER SWITCH ASSEMBLY



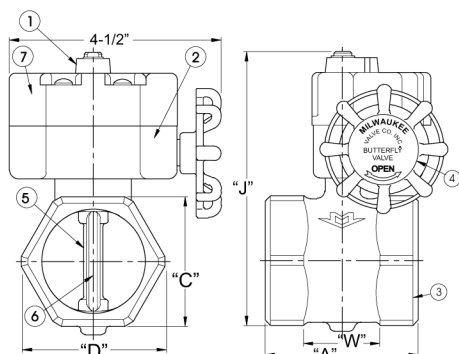
BB-SC100 (Threaded Ends)
Sizes 1", 1-1/4", 1-1/2", 2", 2-1/2"



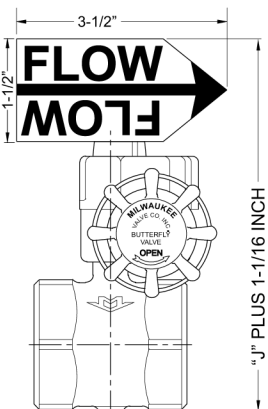
BBVSC100
3 piece with
Grooved Ends
Size 2"

BBVSC100
Uni-body with
Grooved Ends
Size 2-1/2"

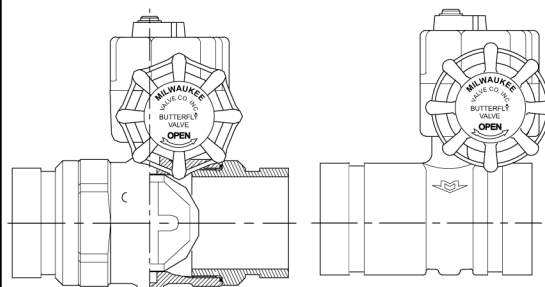
VALVES WITH SUPERVISORY TAMPER SWITCH ASSEMBLY



THREADED ENDS
BB-SCS02



NYC INDICATOR
(Available on both switched
and non-switched models.)



BBVSCS02
3 piece with
Grooved Ends
Size 2"

BBVSCS02
Uni-body with
Grooved Ends
Size 2-1/2"

ALL DIMENSIONS-INCHES

Threaded					Grooved		
SIZE	1"	1-1/4"	1-1/2"	2"	SIZE	2"	2-1/2"
A	2-1/8	2-5/8	2-7/8	3-1/4	A	-	4-1/8
B	3-15/16	4-9/32	4-1/2	5	B	5	5-13/32
C	1-9/16	1-15/16	2-3/16	2-3/4	C	2-3/4	3-3/16
D	1-23/32	2-7/64	2-3/8	3-1/16	D	3-1/16	3-1/2
J	4-15/16	5-1/8	5-19/32	6-1/8	E	5/8	15/16
K	.66	.73	.73	.79	F	5/16	5/8
L	.83	.90	.99	1.41	G	6	4-1/2
M-40	1.05	1.38	1.61	2.07	H	2-3/8	2-7/8
M-80	.96	1.28	1.50	1.94	J	6-1/8	6-1/4
N-40	2.25	2	2.5	2.25	K	.79	1.18
W	1-1/8	1-1/4	1-13/32	1-11/16	L	1.41	1.29
					M-40	2.07	2.47
					M-80	1.94	2.32
					N-40	2.25	10
					W	-	1-3/4

M-40 ARE DIMENSIONS USING SCHEDULE 40 PIPE

M-80 ARE DIMENSIONS USING SCHEDULE 80 PIPE

N-40 IS FLOW RESISTANCE EXPRESSED IN EQUIVALENT LENGTH OF SCHEDULE 40 PIPE

W IS THE WRENCH MAKE-UP LENGTH

MATERIAL LIST

NO.	PART	MATERIAL	SPECIFICATION
1	Indicator	Sintered Iron	F0008P
2	Housing	Bronze	ASTM 584
3	Body	Bronze	ASTM 584
4	Handle	Brass	
5	Disc	Stainless Steel	Type 304
6	Disc Seal	EPDM Elastomer	
7	Switch Housing	Die Cast Aluminum	

Eddythread 40

A Lightweight Schedule 40 Replacement Pipe That Has a Corrosion Resistance Ratio of 1.0

Bull Moose Tube Company has been making pipe for a long time and is recognized as a producer of quality pipe products. Eddythread 40 is designed with the same thoroughness as our other fine pipe products and now our customers have an option to buy a carefully designed replacement for Schedule 40 that:

- Has a Corrosion Resistance Ratio of 1.0
- Has a Pressure Rating of 300 psi
- Is Lighter Weight Than Schedule 40
- Is Approved by Factory Mutual and Listed by Underwriters Laboratories
- Is Produced in Accordance to ASTM A-135 and A-795
- Can be Used With Standard Schedule 40 Threaded Fittings, Couplings and Valves
- Is Produced From Steel With Excellent Properties of Strength and Threadability
- Can be Used in Wet, Dry, Preaction, and Deluge Type Sprinkler Systems*
- Offers Lower Freight Costs

EDDYTHREAD 40 SPECIFICATIONS

NOMINAL PIPE SIZE (in)	WEIGHT (lbs/ft)	I.D. (in)	BUNDLE SIZE
1	1.461	1.083	70
1 1/4	2.070	1.418	51
1 1/2	2.547	1.654	44
2	3.308	2.123	30

CORROSION RESISTANCE RATIOS

NOMINAL PIPE SIZE (in)	SCHEDULE 40	EDDYTHREAD 40
1	1.00	1.00
1 1/4	1.00	1.00
1 1/2	1.00	1.00
2	1.00	1.00

* Eddythread 40 can be hot dipped galvanized to meet FM's requirement for dry systems



BULL MOOSE TUBE COMPANY

A  company

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Chesterfield, MO 63017
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www.bullmoosetube.com
e-mail: sales@bullmoosetube.com

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



Eddy Flow

The Cost Effective Replacement for Schedule 10

Realizing the growing need of fire protection systems in commercial and residential construction, Bull Moose Tube has added Eddy Flow to its comprehensive line of sprinkler pipe products.

Eddy Flow is a specially engineered replacement for schedule 10, offering better flow characteristics while providing design flexibility. This product is FM approved, as well as UL listed (for U.S. and Canada) for roll grooving and welding for use in fire protection

systems with a working pressure of 300 psi or less. Please check with appropriate sources for up-to-date listings and approval information.

As an added benefit, it is more economical to use than schedule 10 due to reduced delivery costs and ease of handling. Furthermore, Eddy Flow's larger ID provides an opportunity for downsizing and further cost savings.

COMPARISON

Nominal Pipe Size (in)	O.D. (in)	INSIDE DIAMETER			C.R.R.*	
		Eddy Flow (in)	Schedule 10 (in)	Schedule 40 (in)	Eddy Flow	Schedule 40
1 1/4	1.660	1.530	1.442	1.380	1.98	1.00
1 1/2	1.900	1.728	1.682	1.610	3.44	1.00
2	2.375	2.203	2.157	2.067	2.78	1.00
2 1/2	2.875	2.705	2.635	2.469	1.66	1.00
3	3.500	3.334	3.260	3.068	1.00	1.00
4	4.500	4.310	4.260	4.026	1.00	1.00

* Corrosion Resistance Ratio

BENEFITS

- **Dual Certified to ASTM A135 and A795.**
- **FM Approved for roll grooved, and welded, and plain-end application in wet systems.**
- **UL Listed (for U.S. and Canada) for joining by welding or by listed rubber gasketed fittings for use in wet, dry, preaction, and deluge type sprinkler systems.**
- **UL Listed (for US and Canada) and FM Approved for use with Victaulic® FIT® Fittings in plain end applications.**
- **Lightweight - saves shipping costs, and offers easier handling.**
- **Can be used with roll grooved couplings or welded outlets for pressures up to 300 psi.**
- **Floor stock available in various lengths produced in Casa Grande (AZ), Gerald (MO), and Masury (OH). Also can be ordered in custom lengths..**
- **Can be used for wet and dry* systems.**

* Eddy Flow can be hot dipped galvanized to meet FM's requirement for dry systems.

PIPE PREPARATION

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



BULL MOOSE TUBE COMPANY

A CAPARO company

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www.bullmoosetube.com

e-mail: sales@bullmoosetube.com

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





D.I. THREADED FITTINGS



LISTED

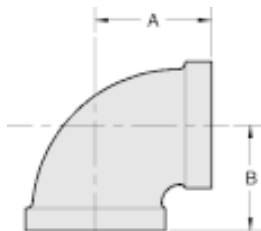


LISTED



APPROVED

For fire protection services request submittal GRS 1.3



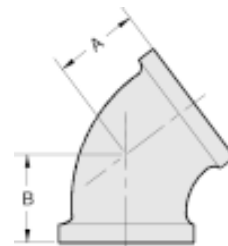
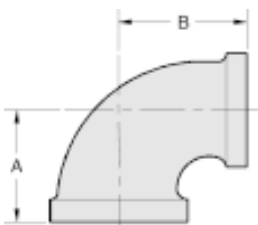
DUCTILE IRON THREADED FITTINGS ARE UL, ULC LISTED AND FACTORY MUTUAL APPROVED FOR 500 PSI SERVICE. DUCTILE IRON PER ASTM A 536 GRADE 65-45-12. DIMENSIONS CONFORM TO ANSI B16.3 CLASS 150. THREADS ARE NPT PER ANSI/ASME B1.20.1

NOTICE: DUCTILE IRON FITTINGS HAVE HIGHER TENSILE STRENGTH THEN 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.

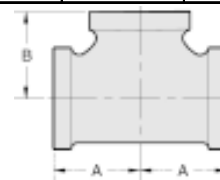
DUCTILE IRON 90 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS		WEIGHT EACH PIECE
			A	B	
1	DB90033	500	1.50	1.50	0.62
1 1/4	DB90044	500	1.75	1.75	0.90
1 1/2	DB90055	500	1.94	1.94	1.20
2	DB90066	500	2.25	2.25	1.85



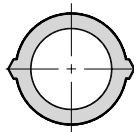
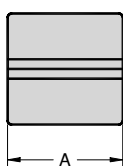
DUCTILE IRON 45 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS		WEIGHT EACH PIECE
			A	B	
1	DB45033	500	1.12	1.12	0.46
1 1/4	DB45044	500	1.29	1.29	0.73
1 1/2	DB45055	500	1.43	1.43	0.92
2	DB45066	500	1.68	1.68	1.50



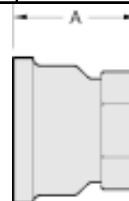
DUCTILE IRON RED.90 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS		WEIGHT EACH PIECE
			A	B	
1X1/2	DB90031	500	1.26	1.36	0.44
1X3/4	DB90032	500	1.37	1.45	0.52
1 1/4X1/2	DB90041	500	1.34	1.53	0.64
1 1/4X3/4	DB90042	500	1.45	1.62	0.72
1 1/4X1	DB90043	500	1.58	1.67	0.75
1 1/2X1	DB90053	500	1.65	1.80	0.92
1 1/2X1 1/4	DB90054	500	1.82	1.88	1.08
2X1/2	DB90061	500	1.49	1.88	1.08
2X3/4	DB90062	500	1.60	1.97	1.24
2X1	DB90063	500	1.73	2.02	1.40
2X1 1/4	DB90064	500	1.90	2.10	1.52
2X1 1/2	DB90065	500	2.02	2.16	1.65



DUCTILE IRON STRAIGHT TEE

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS		WEIGHT EACH PIECE
			A	B	
1	DT333	500	1.50	1.50	0.85
1 1/4	DT444	500	1.75	1.75	1.22
1 1/2	DT555	500	1.94	1.94	1.55
2	DT666	500	2.25	2.25	2.45

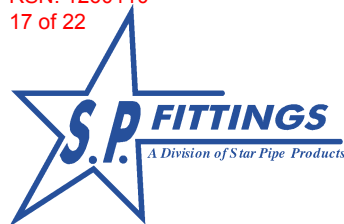


DUCTILE IRON COUPLING

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION	WEIGHT EACH PIECE
			A	
1	DCL033	500	1.67	0.40
1 1/4	DCL044	500	1.93	0.57
1 1/2	DCL055	500	2.15	0.75
2	DCL066	500	2.53	1.15

DUCTILE IRON RED. COUPLING

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION	WEIGHT EACH PIECE
			A	
1X1/2	DRC031	500	1.69	0.39
1X3/4	DRC032	500	1.69	0.53



D.I. THREADED FITTINGS



LISTED

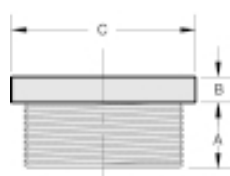
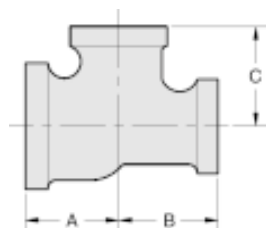


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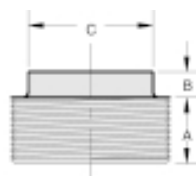


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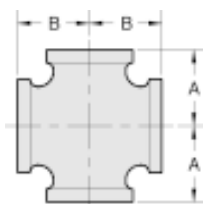
OUTSIDE HEAD



INSIDE HEAD

DUCTILE IRON BUSHINGS

NOMINAL SIZE (INCH)	ITEM CODE #	DIMENSIONS			STYLE	WT. EACH
		A	B	C		
1x1/2	DBUSH31	0.75	0.25	1.42	OUT	0.22
1x3/4	DBUSH32	0.75	0.25	1.42	OUT	0.17
1 1/4x1	DBUSH43	0.80	0.28	1.76	OUT	0.28
1 1/2x1	DBUSH53	0.83	0.31	2.00	OUT	0.44
1 1/2x1 1/4	DBUSH54	0.83	0.31	2.00	OUT	0.30
2x1	DBUSH63	0.88	0.41	1.95	IN	0.66
2x1 1/4	DBUSH64	0.88	0.34	2.48	OUT	0.72
2x1 1/2	DBUSH65	0.88	0.34	2.48	OUT	0.61



DUCTILE IRON CROSS

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I	DIMENSIONS		WEIGHT EACH PIECE
			A	B	
1	DX033	500	1.50	1.50	0.98
1 1/4	DX044	500	1.75	1.75	1.50
1 1/2	DX055	500	1.94	1.94	1.90
2	DX066	500	2.25	2.25	2.95
1 1/4x1	DX043	500	1.58	1.67	1.27
1 1/2x1	DX053	500	1.65	1.80	1.48
2x1	DX063	500	1.73	2.02	2.10

DUCTILE IRON REDUCING TEE

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS			WEIGHT EACH PIECE
			A	B	C	
1X1X1/2	DT331	500	1.26	1.26	1.36	0.64
1X1X3/4	DT332	500	1.37	1.37	1.45	0.73
1X1/2X1	DT313	500	1.50	1.36	1.50	0.71
1X3/4X1	DT323	500	1.50	1.45	1.50	0.76
1X1X1 1/4	DT334	500	1.67	1.67	1.58	0.98
1X1X1 1/2	DT335	500	1.80	1.80	1.65	1.16
1 1/4X1X1/2	DT431	500	1.34	1.26	1.53	0.82
1 1/4X1X3/4	DT432	500	1.45	1.37	1.62	0.90
1 1/4X1X1	DT433	500	1.58	1.50	1.67	1.00
1 1/4X1X1 1/4	DT434	500	1.75	1.67	1.75	1.08
1 1/4X1X1 1/2	DT435	500	1.88	1.80	1.82	1.42
1 1/4X1 1/4X1/2	DT441	500	1.34	1.34	1.53	0.86
1 1/4X1 1/4X3/4	DT442	500	1.45	1.45	1.62	0.92
1 1/4X1 1/4X1	DT443	500	1.58	1.58	1.67	0.95
1 1/4X1 1/4X1 1/2	DT445	500	1.88	1.88	1.82	1.45
1 1/4X1 1/4X2	DT446	500	2.10	2.10	1.90	1.75
1 1/2X1X1/2	DT531	500	1.41	1.34	1.66	0.95
1 1/2X1X3/4	DT532	500	1.52	1.37	1.75	1.14
1 1/2X1X1	DT533	500	1.65	1.50	1.80	1.17
1 1/2X1X1 1/4	DT534	500	1.82	1.67	1.88	1.34
1 1/2X1X1 1/2	DT535	500	1.94	1.80	1.94	1.45
1 1/2X1 1/4X1/2	DT541	500	1.41	1.34	1.66	1.05
1 1/2X1 1/4X3/4	DT542	500	1.52	1.45	1.75	1.15
1 1/2X1 1/4X1	DT543	500	1.65	1.58	1.80	1.25
1 1/2X1 1/4X2	DT546	500	2.16	2.10	2.02	1.90
1 1/2X1 1/2X1/2	DT551	500	1.41	1.41	1.16	1.15
1 1/2X1 1/2X3/4	DT552	500	1.52	1.52	1.75	1.24
1 1/2X1 1/2X1	DT553	500	1.65	1.65	1.80	1.30
1 1/2X1 1/2X1 1/4	DT554	500	1.82	1.82	1.88	1.48
1 1/2X1 1/2X2	DT556	500	2.16	2.16	2.02	1.98
2X1X2	DT636	500	2.25	2.02	2.25	2.15
2X1 1/4X2	DT646	500	2.25	2.10	2.25	2.30
2X1 1/2X1/2	DT651	500	1.49	1.41	1.88	1.50
2X1 1/2X3/4	DT652	500	1.60	1.52	1.97	1.62
2X1 1/2X1	DT653	500	1.73	1.65	2.02	1.64
2X1 1/2X1 1/4	DT654	500	1.90	1.82	2.10	1.80
2X1 1/2X1 1/2	DT655	500	2.02	1.94	2.16	2.00
2X1 1/2X2	DT656	500	2.25	2.16	2.25	2.35
2X2X1/2	DT661	500	1.49	1.49	1.88	1.60
2X2X3/4	DT662	500	1.60	1.60	1.97	1.68
2X2X1	DT663	500	1.73	1.73	2.02	1.85
2X2X1 1/4	DT664	500	1.90	1.90	2.10	2.04
2X2X1 1/2	DT665	500	2.02	2.02	2.16	2.18
2X2X2 1/2	DT667	500	2.60	2.60	2.39	3.61
2 1/2X2X3/4	DT762	500	1.74	1.60	2.32	2.28



DUCTILE IRON CAP

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION	WEIGHT EACH PIECE
			A	
1	DCP003	500	1.16	0.32
1 1/4	DCP004	500	1.28	0.43
1 1/2	DCP005	500	1.33	0.60
2	DCP006	500	1.45	0.91

FIG. MT-30 Threaded Mechanical Branch Tee



Submittal Sheet

Model MT-30 mechanical tee serves the same function as MT-1 & MT-8 but uses a steel electro-plated U-Bolt to save space and for easier installation in tight places. It is ideal for direct connections with sprinkler heads and drop nipples.



APPROVED
For Listing / Approval
details contact your
AnvilStar™ Representative.



WARNING
For dry pipe systems and freezer applications
lubrication of the gasket is required, Gruvlok®
Xtreme™ Lubricant is recommended.

MATERIAL SPECIFICATIONS

HOUSING:

Ductile Iron conforming to ASTM A-536, Grade 65-45-12.

U-BOLT & NUTS:

U-bolt is carbon steel SAE Grade 2, Zinc Plated with plated hex nuts carbon steel ASTM A-194, Zinc Plated.

THREADS:

MT-30 NPT per ANSI/ASME B1.20.1

COATINGS:

- ☐ Zinc Electroplated
☐ Other (Specify): _____ Example: RAL3000 or RAL9000 Series
For other Coating requirements contact an AnvilStar Representative.

GASKETS: Materials

Properties as designated in accordance with ASTM D-2000.

- ☐ Grade "E" EPDM (Green color code)
-40°F to 230°F (Service Temperature Range) (-40°C to 110°C)
Recommended for water service, diluted acids, alkalis solutions, salts, oil-free air and many chemical services not involving hydrocarbons, oils or gases.
NOT FOR USE WITH HYDROCARBONS.
☐ Other _____

PROJECT INFORMATION:

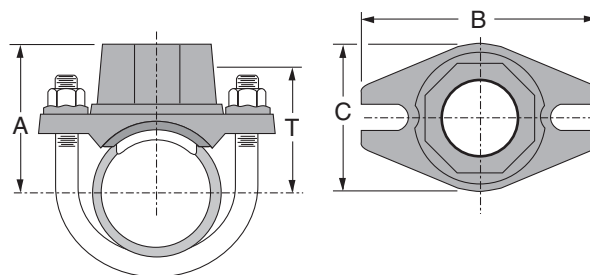
Project:	
Date:	Phone:
Architect / Engineer:	
Contractor:	
Address:	
Notes 1:	
Notes 2:	

APPROVAL STAMP:

FIG. MT-30

Threaded Mechanical Branch Tee

Submittal Sheet



MT-30 MECHANICAL TEES

Nominal Size	O.D.	Hole Diameter		Max. Wk. Pressure	Dimensions				Approx. Wt. Ea.
		Min. Diameter	Max. Diameter		A	B	C	T Take-Out	
In./DN(mm)	In./mm	In./mm	In./mm	PSI/bar	In./mm	In./mm	In./mm	In./mm	Lbs./kg
1¼ x ½	1.660 x 0.840	1⅜	1⅝	300	2⅞	3½	2¼	1⅝	0.8
32 x 12	42.4 x 21.3	30	33	20.7	54	89	57.2	42	0.4
1¼ x ¾	1.660 x 1.050	1⅜	1⅝	300	2⅞	3½	2¼	1⅝	0.8
32 x 19	42.4 x 26.7	30	33	20.7	54	89	57.2	42	0.4
1¼ x 1	1.660 x 1.315	1⅜	1⅝	300	2¼	3½	2¼	1⅝	1.1
32 x 25	42.4 x 33.7	30	33	20.7	58	89	57.2	41	0.5
1½ x ½	1.900 x 0.840	1⅜	1⅝	300	2¼	3½	2¼	1¾	0.8
40 x 12	48.3 x 21.3	30	33	20.7	57	89	57.2	48	0.4
1½ x ¾	1.900 x 1.050	1⅜	1⅝	300	2¼	3½	2¼	1¾	0.9
40 x 19	48.3 x 26.7	30	33	20.7	57	89	57.2	48	0.4
1½ x 1	1.900 x 1.315	1⅜	1⅝	300	2⅜	3½	2¼	1¾	1.1
40 x 25	48.3 x 33.7	30	33	20.7	61	89	57.2	44	0.5
2 x ½	2.375 x 0.840	1⅜	1⅝	300	2½	3¾	2¼	2	0.9
50 x 12	60.3 x 21.3	30	33	20.7	64	95	57.2	51	0.4
2 x ¾	2.375 x 1.050	1⅜	1⅝	300	2½	3¾	2¼	2	0.9
50 x 19	60.3 x 26.7	30	33	20.7	64	95	57.2	51	0.4
2 x 1	2.375 x 1.315	1⅜	1⅝	300	2⅝	3¾	2¼	2	1.1
50 x 25	60.3 x 33.7	30	33	20.7	67	95	57.2	50	0.5
2½ x ½	2.875 x 0.840	1⅜	1⅝	300	2¾	4¼	2¼	2¼	0.9
65 x 12	73.0 x 21.3	30	33	20.7	70	108	57.2	57	0.4
2½ x ¾	2.875 x 1.050	1⅜	1⅝	300	2¾	4¼	2¼	2¼	0.9
65 x 19	73.0 x 26.7	30	33	20.7	70	108	57.2	57	0.4
2½ x 1	2.875 x 1.315	1⅜	1⅝	300	2⅞	4¼	2¼	2¼	1.1
65 x 25	73.0 x 33.7	30	33	20.7	73	108	57.2	56	0.5

BSP equivalent is available as a MT-90.

NOTE: Tighten nuts alternatively to a recommended torque of 18 -22 ft-lbs (25 - 30 N-m) on pipe wall less than schedule 10 or 23 -27 ft-lbs (31 - 37 N-m) on pipe walls schedule 10 and above.



Fig. 200 - "Trimline" Adjustable Band Hanger

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 —

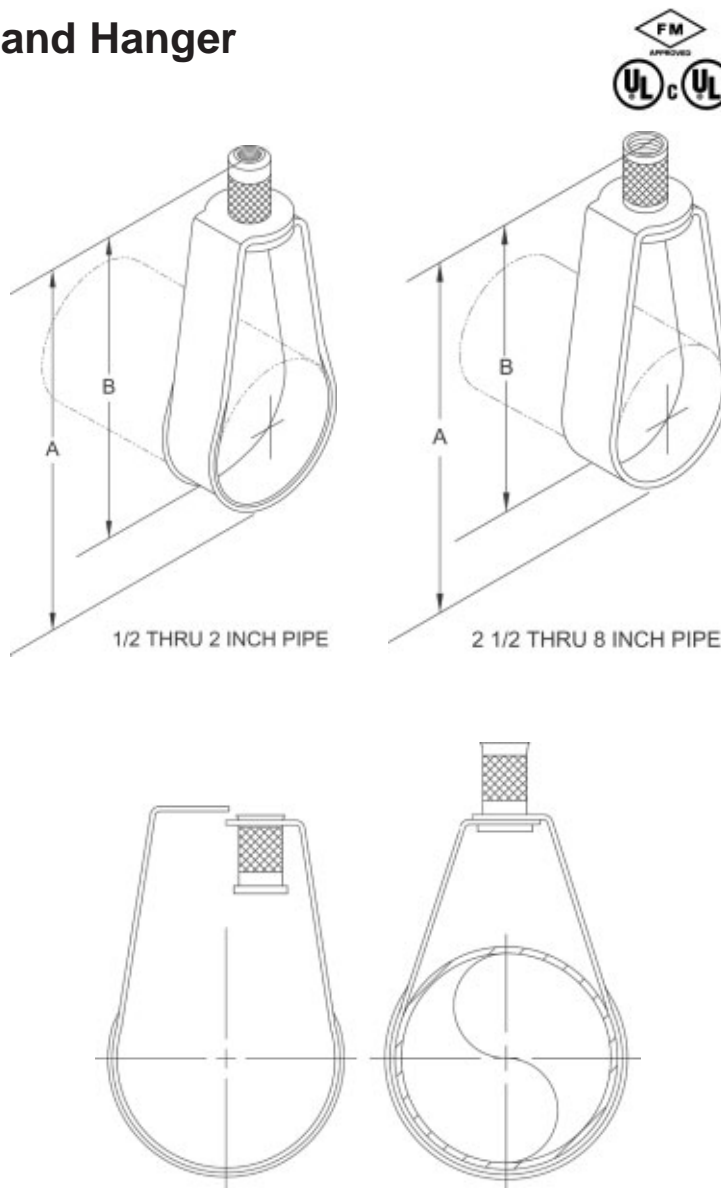
- (1/2" thru 2") Flared edges ease installation for all pipe types and protect CPVC plastic pipe from abrasion. Captured design keeps adjusting nut from separating with hanger. Hanger is easily installed around pipe.
- (2 1/2" thru 8" Spring tension on nut holds it securely in hanger before installation. 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. For Stainless Steel materials, order TOLCO™ Fig. 200WON.

Order By — Figure number and pipe size



Dimensions • Weights

Pipe Size	Rod Size		A	B	Max. Rec. Load Lbs.	Approx. Length
	Inch	Metric				
1/2	3/8	8mm or 10mm	3 1/8	2 5/8	400	11
3/4	3/8	8mm or 10mm	3 1/8	2 1/2	400	11
1	3/8	8mm or 10mm	3 3/8	2 5/8	400	12
1 1/4	3/8	8mm or 10mm	3 3/4	2 7/8	400	13
1 1/2	3/8	8mm or 10mm	3 7/8	2 7/8	400	14
2	3/8	8mm or 10mm	4 1/2	3	400	15
2 1/2	3/8	10mm	5 5/8	4 1/8	600	27
3	3/8	10mm	5 7/8	4	600	29
3 1/2	3/8	10mm	7 3/8	5 1/4	600	34
4	3/8	10mm	7 3/8	5	1000	35
5	1/2	12mm	9 1/8	6 1/4	1250	66
6	1/2	12mm	10 1/8	6 3/4	1250	73
8	1/2	12mm	13 1/8	8 3/4	1250	136



Fig. 65 and Fig. 66 Reversible C-Type Beam Clamps 3/4" and 1 1/4" Throat Openings

Size Range — (Fig. 65 and Fig. 66) 3/8", 1/2" and 5/8" rod

Material — Carbon Steel with hardened cup point set screw and jam nut

Function — Recommended for hanging from steel beam where flange thickness does not exceed 3/4" (Fig. 65) or 1 1/4" (Fig. 66).

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

Approvals — Underwriters' Laboratories Listed in the USA (UL) and Canada (cUL). Factory Mutual Engineering approved. Conforms to Federal Specification WW-H-171E, Type 23 and Manufacturers Standardization Society SP-69, Type 19. Exceeds requirements of the National Fire Protection Association (NFPA), Pamphlet 13, 3/8" rod will support 1/2" thru 4" pipe, 1/2" rod will support 1/2" thru 8" pipe. 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 relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Finish — Plain

Note — Available in Electro-Galvanized and HDG finish.

Order By — Figure number, rod size and finish

Fig. 65 Patent #4,570,885

Component of State of
 California OSHPD Approved
 Seismic Restraints System

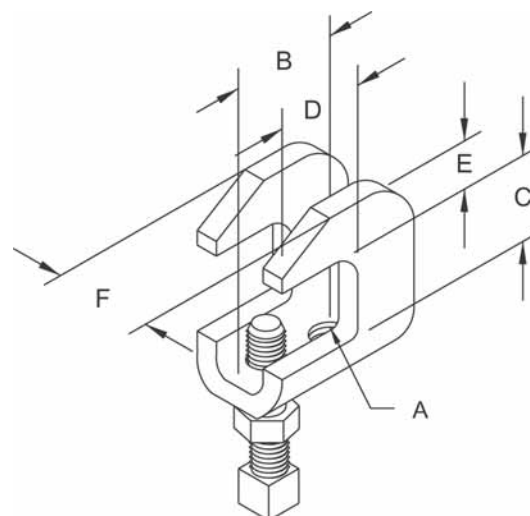


Fig. 65

Dimensions • Weights

Rod Size A	B	C	D	E	F	Max. Rec. Load Lbs.*	Approx. Wt./100
3/8	1 3/16	3/4	1	7/16	1	610	28
1/2	1 1/2	3/4	1	9/16	1 1/4	1130	55
5/8	1 1/2	3/4	1	9/16	1 1/4	1130	55

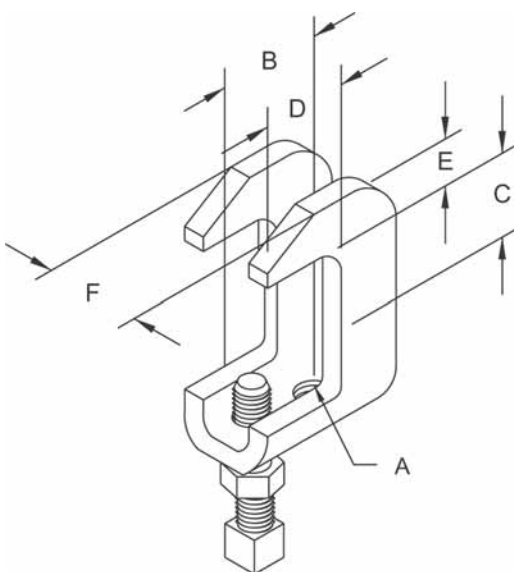
* Max. loads for clamp with set screw in up or down position.

Fig. 66

Dimensions • Weights

Rod Size A	B	C	D	E	F	Max. Rec. Load Lbs.*	Approx. Wt./100
3/8	1 3/16	1 1/4	1	7/16	1	610	28
1/2	1 1/2	1 1/4	1	9/16	1 1/4	1130	55
5/8	1 1/2	1 1/4	1	9/16	1 1/4	1130	55

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



SAMMY X

ITW Buildex PRESS®

XP 200 for 1/4" and
XP 20 & XP 35 for 3/8" Rod

Expands to provide direct
vertical attachment in:

- Metal Deck (22-16 gauge)
- Purlin (18-16 gauge)

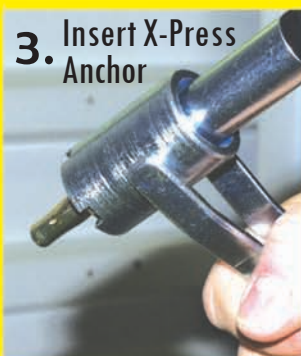
U.S. Patent No.
6,935,821



1.
Pre-Drill



2.
Attach
Sleeve



3. Insert X-Press
Anchor




4.
Install

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

Ask your supplier or call us
at 800-BUILDEX.

SSS05

- Installs in seconds, saves time & installation costs.
- Use in applications where easy access to the back of the installed fastener is prohibited.
- No retaining nut required.

	Approvals	Min Steel Ga.	Part #	Model	Screw Description	Rod Size	Pipe Size	Test Load
Pipe Hanger		12 ga	8150922	XP 20	Sammy X-Press 20	3/8 - 16"	3/4 - 4"	1475 Lbs.
		12 ga	8153922	XP 35	Sammy X-Press 35	3/8 - 16"	3/4 - 4"	1475 Lbs.
	UL 9R21	22 ga	8150922	XP 20	Sammy X-Press 20	3/8 - 16"	3/4 - 2"	750 Lbs.
		18 ga	8153922	XP 35	Sammy X-Press 35	3/8 - 16"	3/4 - 3-1/2"	1250 Lbs.
	Approvals	Min Steel Ga.	Part #	Model	Screw Description	Rod Size	Load Rating	
Luminaire Fitting	UL 25ES	22 ga	8150922	XP 20	Sammy X-Press 20	3/8 - 16"	185 Lbs.	
			8153922	XP 35	Sammy X-Press 35	3/8 - 16"	185 Lbs.	
			8181922	XP 200	Sammy X-Press 200	1/4 - 20"	185 Lbs.	
		16 ga	8150922	XP 20	Sammy X-Press 20	3/8 - 16"	250 Lbs.	
			8153922	XP 35	Sammy X-Press 35	3/8 - 16"	250 Lbs.	
			8181922	XP 200	Sammy X-Press 200	1/4 - 20"	250 Lbs.	
			8151910	XPIT	Sammy X-Press It® Installation Tool			
			8152910	XPDB	25/64" Drill Bit			