



Model F1FR Series Quick Response Glass Bulb Sprinklers

Model F1FR56 Sprinkler Types

- Standard Spray Upright
- Standard Spray Pendent
- Conventional Upright/Pendent
- Vertical Sidewall
- Horizontal Sidewall

Model F1FR56 Recessed Sprinkler Types

- Standard Spray Pendent
- Horizontal Sidewall

Model F1FR56 Concealed Sprinkler Types

- Standard Spray Pendent

Model F1FR42, F1FRXLH & F1FR28 Sprinkler Types

- Standard Spray Upright
- Standard Spray Pendent

Model F1FR40 Sprinkler Types

- Standard Spray Pendent

Model F1FR42, F1FR40, F1FRXLH & F1FR28 Recessed Sprinkler Types

- Standard Spray Pendent

Model F1FR56LL & F1FR42LL Low Lead Sprinkler Types

- Standard Spray Pendent with less than 0.25% Lead Content

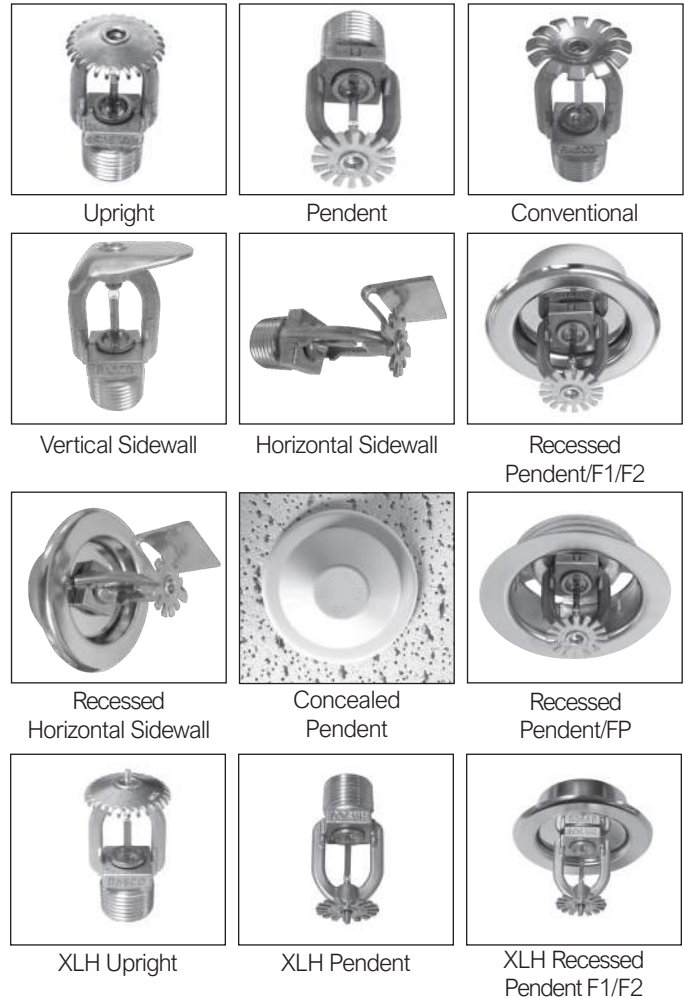
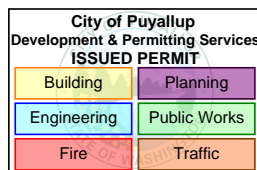
Listing & Approvals

The following organizations provide Listings or Approvals for various Model F1FR series sprinklers. See the Design and Installation table in this Bulletin for information on specific listings and approvals applicable to each sprinkler.

- Underwriters Laboratories Inc. and Certified for Canada (cULus) in accordance with ANSI/UL199.
- FM Approvals (FM)
- Loss Prevention Certification Board (LPCB)
- VdS Schadenverhütung GmbH (VdS)
- Underwriters Laboratories Inc. and Underwriters Laboratories of Canada Certified for Health Effects to NSF/ANSI Standard 61 Annex G (ULH)
- EC Certificate: 0786-CPD-40239 (RA1414), 0786-CPD-40251 (RA1425), 0786-CPD-40252 (RA1475) (EC)
- WaterMark certified. Certificate Number 23347. (WM)

UL Listing Category

- Sprinklers, Automatic & Open (VNIV)
- Quick Response Sprinkler



Product Description

Reliable Model F1FR series sprinklers are quick-response automatic sprinklers with a glass bulb thermal element. Model F1FR series sprinklers are Standard Spray sprinklers, with the exception of the Model F1FR56 Conventional sprinkler which is an Old-style/Conventional sprinkler.

The Model F1FR Series automatic sprinklers utilize a 3.0 mm frangible glass bulb. These sprinklers have demonstrated response times in laboratory tests which are five to ten times faster than standard response sprinklers. This quick response enables the Model F1FR Series sprinklers to apply water to a fire faster than standard-response sprinklers of the same temperature rating.

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



XLH Recessed Pendent FP

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

Model F1FR Series sprinklers provide a wide range of options where quick-response, glass bulb sprinklers are used:

- Pendent, recessed pendent, upright, horizontal sidewall, and vertical sidewall deflectors
- K-factors of 2.8 (40 metric), 4.0 (57 metric), 4.2 (60 metric), and 5.6 (80 metric)
- Flush, recessed, and concealed installations

See the Design and Installation Information table in this Bulletin for information on the approvals and availability of specific Model F1FR series sprinkler configurations.

Model F1FR Recessed Pendent and Recessed Horizontal Sidewall sprinklers are required to be used with Reliable Model F1, F2, or FP recessed escutcheons. See the Recessed Escutcheon Data table in this Bulletin for listing and approval information with each specific Model F1FR series sprinkler. Model F1 and F2 recessed escutcheons, shown in Fig. 1 and 3, are a friction fit assembly allowing for 3/4-inch (19mm) and 1/2-inch (12.7mm) of adjustment, respectively. Model FP recessed escutcheons, shown in Fig. 2, provide a 1/2-inch (12.7mm) threaded adjustment.

Model F1FR56 Concealed Pendent and Model F1FR56LL Concealed Pendent sprinklers are required to be used with Model CCP cover plates. A standard profile Model CCP cover plate is available that provides up to 1/2-inch (12.7mm) of cover plate adjustment. In addition, a low profile Model CCP cover plate is also available that provides up to 5/16-inch (8.0mm) of cover plate adjustment. See the Design and Installation Information and Listed and Approved Temperature Ratings tables in this Bulletin for further information on approved cover plate options.

Application

Model F1FR Series sprinklers are intended for use in accordance with NFPA 13, FM Property Loss Prevention Data Sheets, and the requirements of the Authority Having Jurisdiction. Care must be exercised that the k-factor, temperature rating, deflector style, and sprinkler type are in accordance with the requirements of the applicable design and installation standards. In addition, Model F1FR Series sprinklers must be used in accordance with their listings and approvals, as well as the information provided in this Bulletin.

Installation

Glass bulb sprinklers have orange bulb protectors or protective caps to minimize bulb damage during shipping, handling and installation. Reliable sprinkler installation wrenches are designed to install sprinklers with bulb protectors in place. Remove the bulb protector at the time when the sprinkler system is placed in service for fire protection. Removal of the bulb protector before this time may leave the bulb vulnerable to damage. Remove bulb protectors by undoing the clasp by hand. Do not use tools to remove bulb protectors.

Model F1FR Series sprinklers must be installed with the Reliable sprinkler installation wrench identified in the Design and Installation Information table in this Bulletin. Any other wrench may damage the sprinkler. A leak tight sprinkler joint can be obtained with a torque of 8 to 18 lb-ft (11 to 24 N-m). Do not tighten sprinklers over the maximum recommended installation torque. Exceeding the maximum recommended installation torque may cause leakage or impairment of the sprinkler.

Recessed Sprinklers

Model F1FR Series Recessed sprinklers are to be installed as shown in Fig. 1, Fig. 2, or Fig. 3, as applicable to the specific model being installed. The Recessed Escutcheon Data table in the Bulletin identifies the only recessed escutcheons that are permitted to be used with each Model F1FR Series Recessed sprinkler. The use of any other recessed escutcheon will void all approvals and negate all warranties.

Concealed Sprinklers

Model F1FR Series Concealed Pendent sprinklers are to be installed as shown in Fig. 4 or Fig. 5, as applicable to the selected cover plate. Model F1FR56 Concealed Pendent and Model F1FR56LL Concealed Pendent sprinklers have a factory-installed Model CCP cup. A protective cap is installed at the factory that should remain on the sprinkler until the sprinkler is installed and should then be reinstalled on the sprinkler until the cover plate is installed. The concealed sprinkler assemblies are completed by the installation of a Model CCP push-on/thread-off cover plate assembly. The cover plate and sprinkler cup assemblies are joined using a cover plate skirt with flexible tabs for threaded engagement. A choice of two Model CCP cover plate assemblies provides either 1/2-inch (13mm) or 5/8-inch (8mm) of cover adjustment. Do not install Model F1FR Series Concealed Pendent sprinklers in ceilings which have positive pressure in the space above.

Model F1FR Series Concealed Pendent sprinklers require a 2-5/8-inch (67mm) diameter hole to be cut in the ceiling. The Model W4 wrench is used to engage the sprinkler wrenching surfaces and to install the sprinkler in the fitting. Remove the protective cap to install the sprinkler, then reinstall the protective cap until the cover plate is installed. When inserting or removing the wrench from the sprinkler/cup assembly, care should be taken to prevent damage to the sprinkler. Do not wrench any other part of the sprinkler/cup assembly. Installation is completed by removing the protective cap from the sprinkler and pushing the cover plate onto the cup. Final adjustment is made by hand turning the cover plate until the skirt flange makes full contact with the ceiling. Cover plate removal requires turning the cover plate in the counter clockwise direction. After installation, inspect all sprinklers to ensure that there is a gap between the cover plate and ceiling and that the four cup slots are open and free from any air flow impediment to the space above.

Concealed cover plate/cup assemblies are listed only for use with specific sprinklers. The use of any concealed cover plate/cup assembly other than the Reliable Model CCP with Model F1FR56 Concealed Pendent and Model F1FR56LL Concealed Pendent sprinklers or the use of the Model CCP Concealed cover plate assembly on any sprinkler with which it is not specifically listed may prevent good fire protection and will void all guarantees, warranties, listings and approvals.

Technical Data:

Sensitivity: Quick-response

Thread Size: 1/2-inch NPT standard; ISO 7-R1/2 optional

Maximum Working Pressure: 175 psi (12 bar) - 100% Factory tested hydrostatically to 500 psi (34.5 bar)

SIN RA1425, RA1414 & RA1435 cULus listed for 250 psi (17 bar)

Design and Installation Information											
Model	Nominal K-factor		Nominal Orifice Diameter		Deflector/ Orientation	Nominal Sprinkler Height		Installation Wrench	SIN	Listings and Approvals	Approval Notes
	US	Metric	inches	mm		inches	mm				
F1FR28	2.8	40	3/8	10	Pendent	2.25	57	W2	RA1411	cULus	2
					Recessed Pendent	2.25	57	W4	RA1411	cULus	2
					Upright	2.25	57	W2	RA1421	cULus	1,2
F1FR40	4.0	57	3/8	10	Pendent	2.25	57	W2	RA1418	VdS	
					Recessed Pendent	2.25	57	W4	RA1418	VdS	
F1FR42	4.2	60	7/16	10	Pendent	2.25	57	W2	RA1413	cULus	2
					Recessed Pendent	2.25	57	W4	RA1413	cULus	2
					Upright	2.25	57	W2	RA1423	cULus	1,2
F1FR42LL	4.2	60	7/16	10	Pendent	2.25	57	W2	RA1410	cULus, ULH	
					Recessed Pendent	2.25	57	W4	RA1410	cULus, ULH	
F1FRXLH (F1FR42 with Pintle)	4.2	60	7/16	10	Pendent	2.25	57	W2	RA1413	cULus	2
					Recessed Pendent	2.25	57	W4	RA1413	cULus	2
					Upright	2.25	57	W2	RA1423	cULus	1,2
F1FR56	5.6	80	1/2	15	Pendent	2.25	57	W2	RA1414	cULus, FM, LPCB, VdS, EC, WM	1,2,3,4
					Recessed Pendent	2.25	57	W4	RA1414	cULus, FM, LPCB, VdS, EC, WM	1,2,3,4
					Concealed Pendent	2.25	57	W4	RA1414	cULus, VdS, EC, WM	5,6
					Upright	2.25	57	W2	RA1425	cULus, FM, LPCB, VdS, EC, WM	1,2,3,4
					"Conventional (Pendent or Upright)"	2.25	57	W2	RA1475	LPCB, VdS, EC, WM	4
F1FR56LL	5.6	80	1/2	15	Pendent	2.25	57	W2	RA1415	cULus, ULH	1
					Recessed Pendent	2.25	57	W4	RA1415	cULus, ULH	
					Concealed Pendent	2.25	57	W4	RA1415	cULus, ULH	6
F1FR56	5.6	80	1/2	15	Horizontal Sidewall	2.63	67	W2	RA1435	cULus, FM	1,2,3,7
					Recessed Horizontal Sidewall	2.63	67	W4	RA1435	cULus, FM	8
F1FR56	5.6	80	1/2	15	Vertical Sidewall (Pendent or Upright)	2.25	57	W2	RA1485	cULus, FM, LPCB	1,2,3,9

⁽¹⁾ cULus Listed Corrosion Resistant sprinkler when ordered with available Polyester coating.

⁽²⁾ cULus Listed Corrosion Resistant sprinkler when ordered with available Electroless Nickel PTFE plating.

⁽³⁾ Available with FM approved Polyester coating in black or white.

⁽⁴⁾ Available with LPCB and VdS approved Polyester coating.

⁽⁵⁾ VdS and EC approvals of the F1FR56 Concealed Pendent sprinkler are for 155°F (68°C) temperature rated sprinklers only. VdS approved sprinklers must use Norbulb brand glass bulbs with the 1/2-inch (12.7mm) adjustment Model CCP cover plate only.

⁽⁶⁾ Model F1FR56 Concealed Pendent and Model F1FR56LL Concealed Pendent sprinklers must be used with Reliable Model CCP cover plates, available as either standard depth with 1/2-inch (12.7mm) of adjustment or low profile with 5/16-inch (8.0 mm) of adjustment.

⁽⁷⁾ cULus Listing of the F1FR56 Horizontal Sidewall sprinkler is for Light and Ordinary Hazard occupancies only. Minimum to maximum deflector to ceiling distance shall be 4 inches to 12 inches (102mm to 305mm). FM Approval of the F1FR56 Horizontal Sidewall sprinkler is for Light Hazard occupancies only.

⁽⁸⁾ cULus Listing and FM Approval of the F1FR56 Recessed Horizontal Sidewall sprinkler is for Light Hazard occupancies only.

⁽⁹⁾ The F1FR56 Vertical Sidewall sprinkler is listed and approved for use only in Light Hazard occupancies. LPCB approval of the F1FR56 Vertical Sidewall sprinkler is for installation in the Pendent position only.

Listed and Approved Temperature Ratings

Model	Deflector/ Orientation	Ordinary Temp. Classification 100°F (38°C) Max. Ambient Temp.		Intermediate Temp. Classification 150°F (65°C) Max. Ambient Temp.		High Temp. Classification 225°F (107°C) Max. Ambient Temp.	
		135°F (57°C) Temp. Rating	155°F (68°C) Temp. Rating	175°F (79°C) Temp. Rating	200°F (93°C) Temp. Rating	286°F (141°C) Temp. Rating	
		Orange Bulb	Red Bulb	Yellow Bulb	Green Bulb	Blue Bulb	
F1FR28	Pendent	cULus					
	Recessed Pendent	cULus					
	Upright	cULus					
F1FR40	Pendent	VdS					
	Recessed Pendent	VdS					
F1FR42	Pendent	cULus					
	Recessed Pendent	cULus					
	Upright	cULus					
F1FR42LL	Pendent				cULus, ULH		
	Recessed Pendent				cULus, ULH		
F1FRXLH	Pendent	cULus					
	Recessed Pendent	cULus					
	Upright	cULus					
F1FR56	Pendent	cULus, FM, LPCB, VdS, EC, WM					
	Recessed Pendent	cULus, FM, LPCB, VdS, EC, WM					
	Concealed Pendent*	cULus, WM	cULus, VdS, EC, WM	cULus, WM			
	Upright	cULus, FM, LPCB, VdS, EC, WM					
	“Conventional (Pendent or Upright)”	LPCB, VdS, EC, WM					
F1FR56LL	Pendent				cULus, ULH		
	Recessed Pendent				cULus, ULH		
	Concealed Pendent*				cULus, ULH		
F1FR56	Horizontal Sidewall	cULus, FM					
	Recessed Horizontal Sidewall	cULus, FM					
F1FR56	Vertical Sidewall (Pen- dent or Upright)	cULus, FM, LPCB					

* Model F1FR56 Concealed Pendent and F1FR56LL Concealed Pendent sprinklers must be used with Reliable Model CCP cover plates. For Ordinary Temperature Classification sprinklers use a 135°F (57°C) temperature rated cover plate. For Intermediate Temperature Classification sprinklers use a 165°F (74°C) temperature rated cover plate.

Recessed Escutcheon Data

Model	Deflector/ Orientation	Listed and Approved Recessed Escutcheons			SIN
		Model F1 (Fig. 1 & 3) 3/4-inch (19mm) adjustment	Model F2 (Fig. 1 & 3) 1/2-inch (12.7mm) adjustment	Model FP (Fig. 2) 1/2-inch (12.7mm) adjustment	
F1FR28	Recessed Pendent	cULus	cULus	cULus	RA1411
F1FR40	Recessed Pendent	VdS	VdS	VdS	RA1418
F1FR42	Recessed Pendent	cULus	cULus	cULus	RA1413
F1FR42LL	Recessed Pendent	cULus, ULH	cULus, ULH	cULus, ULH	RA1410
F1FR42XLH	Recessed Pendent	cULus	cULus	cULus	RA1413
F1FR56	Recessed Pendent	cULus, LPCB, VdS, EC, WM	cULus, FM, LPCB, VdS, EC, WM	cULus, VdS, EC, WM	RA1414
F1FR56LL	Recessed Pendent	cULus, ULH	cULus, ULH	cULus, ULH	RA1415
F1FR56	Recessed Horizontal Sidewall	cULus	cULus, FM	cULus	RA1435

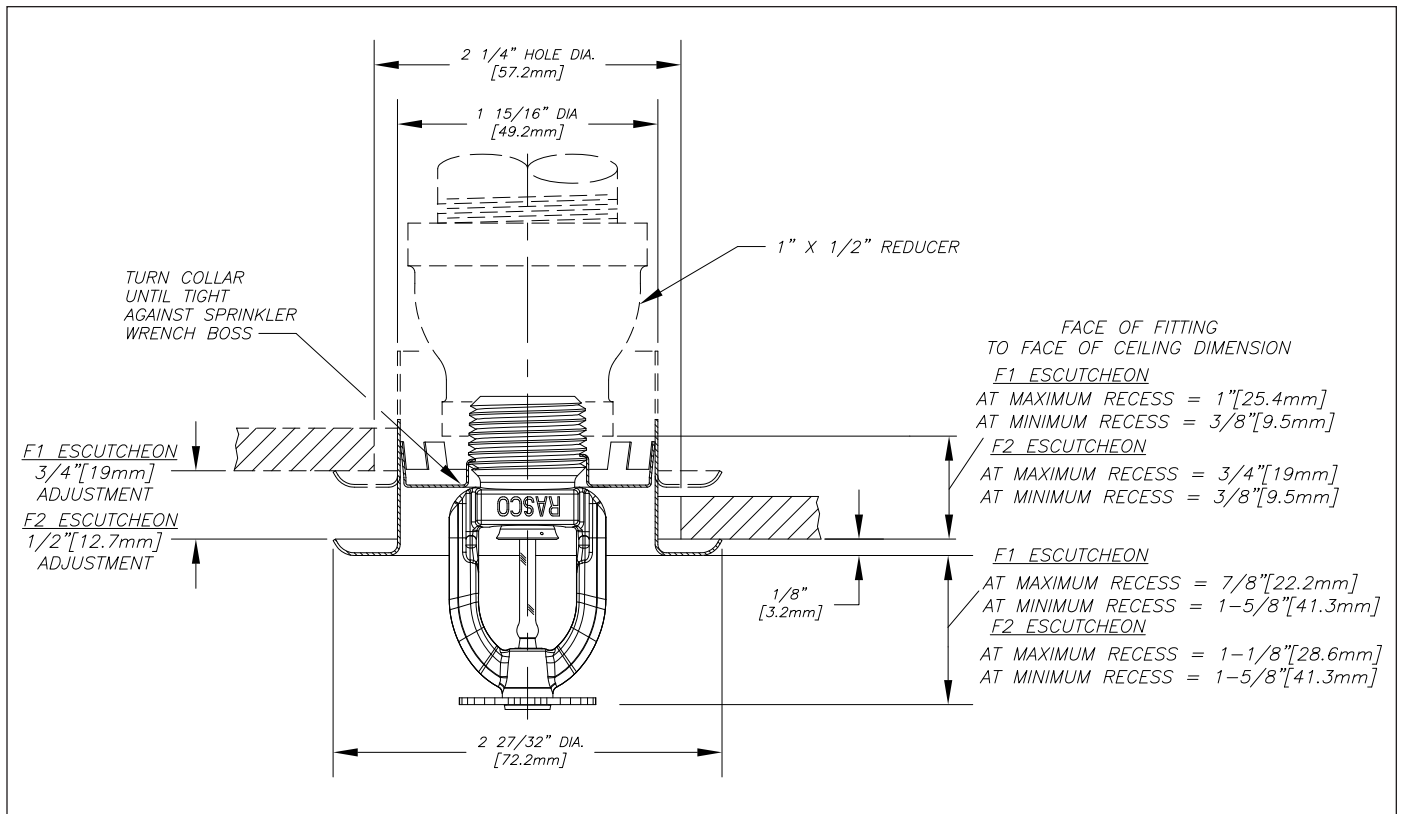


Fig. 1
Model F1FR56, F1FR56LL, F1FR42, F1FR40, F1FR42LL, F1FRXLH & F1FR28
Recessed Pendent sprinkler with Model F1 or F2 escutcheon

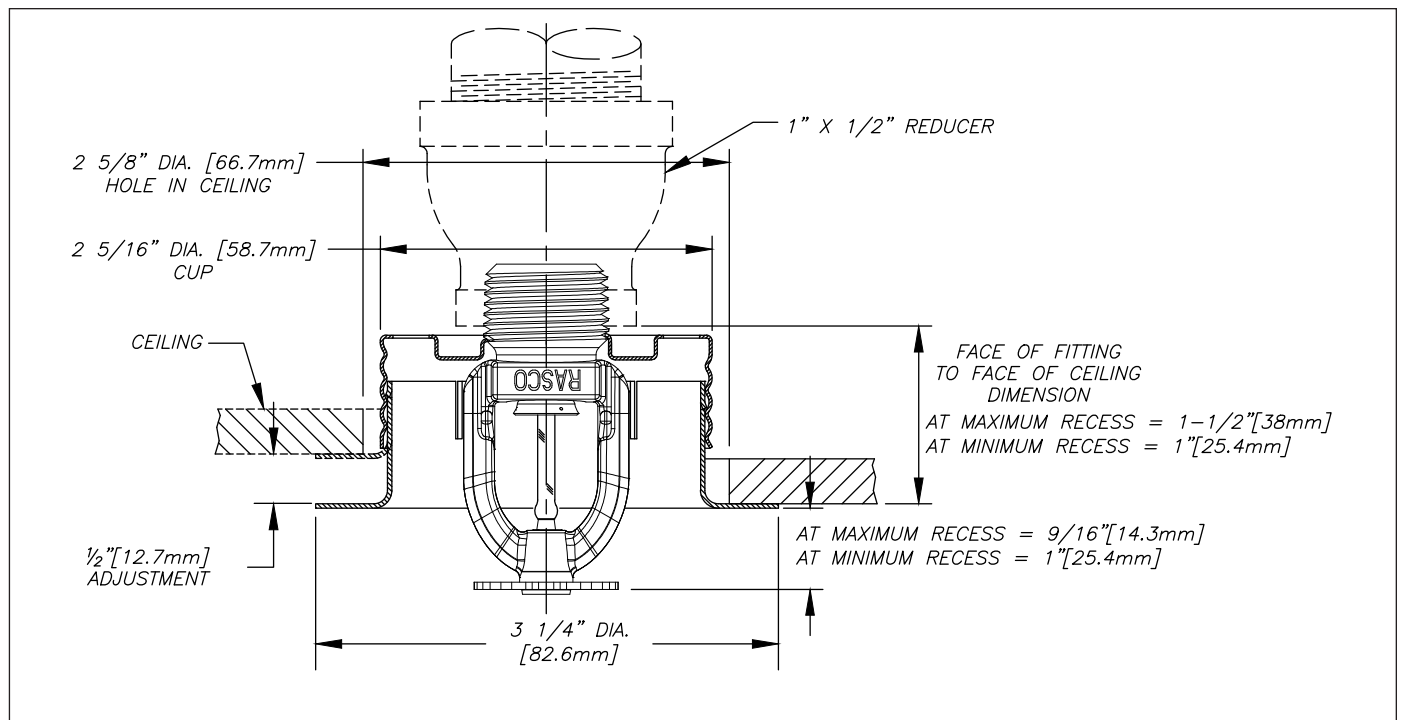


Fig. 2
Model F1FR56, F1FR56LL, F1FR42, F1FR40, F1FR42LL, F1FRXLH & F1FR28
Recessed Pendent sprinkler with Model FP escutcheon

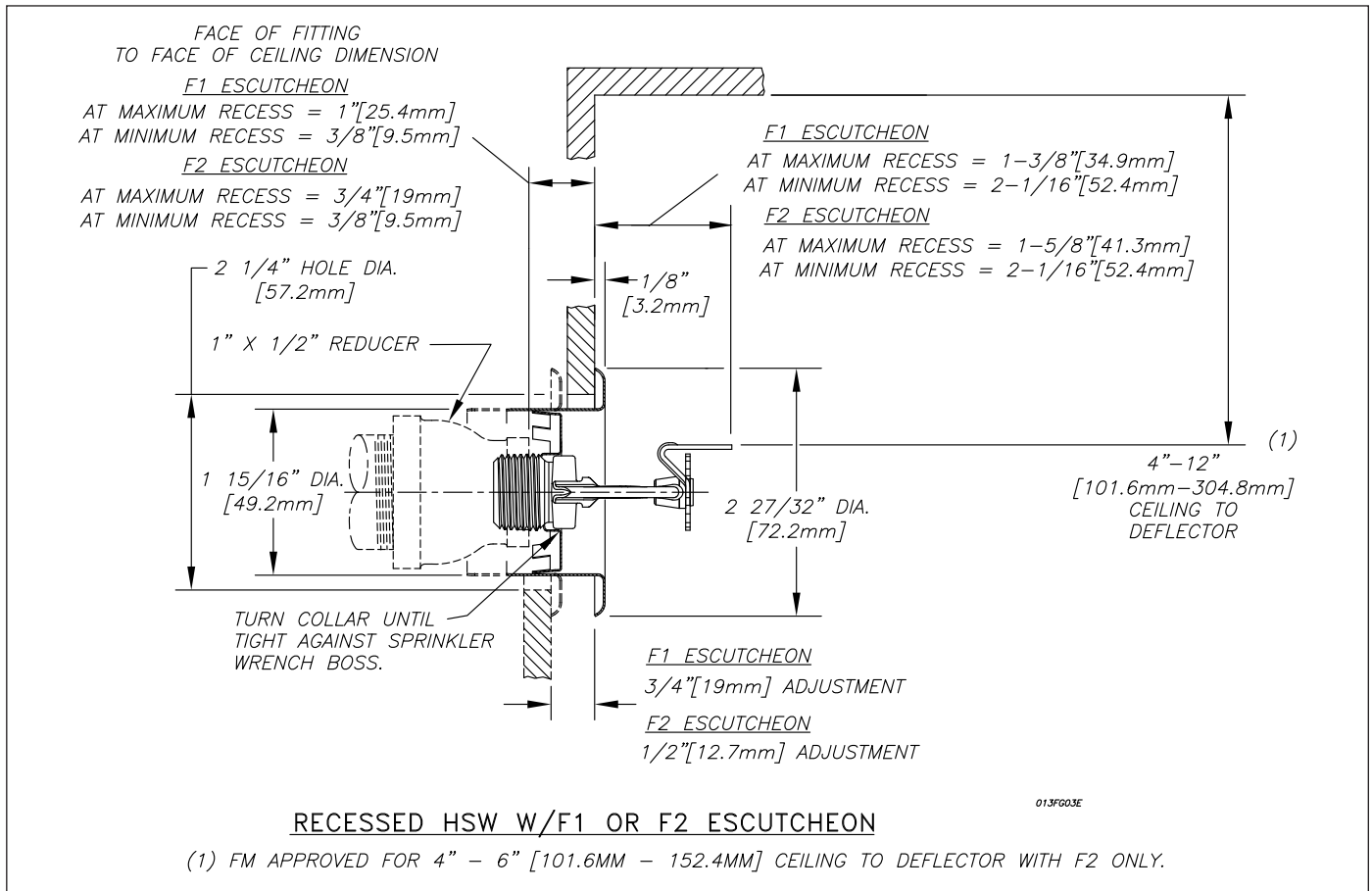


Fig. 3

Model F1FR56 Recessed Horizontal Sidewall sprinkler with Model F1 or F2 escutcheon

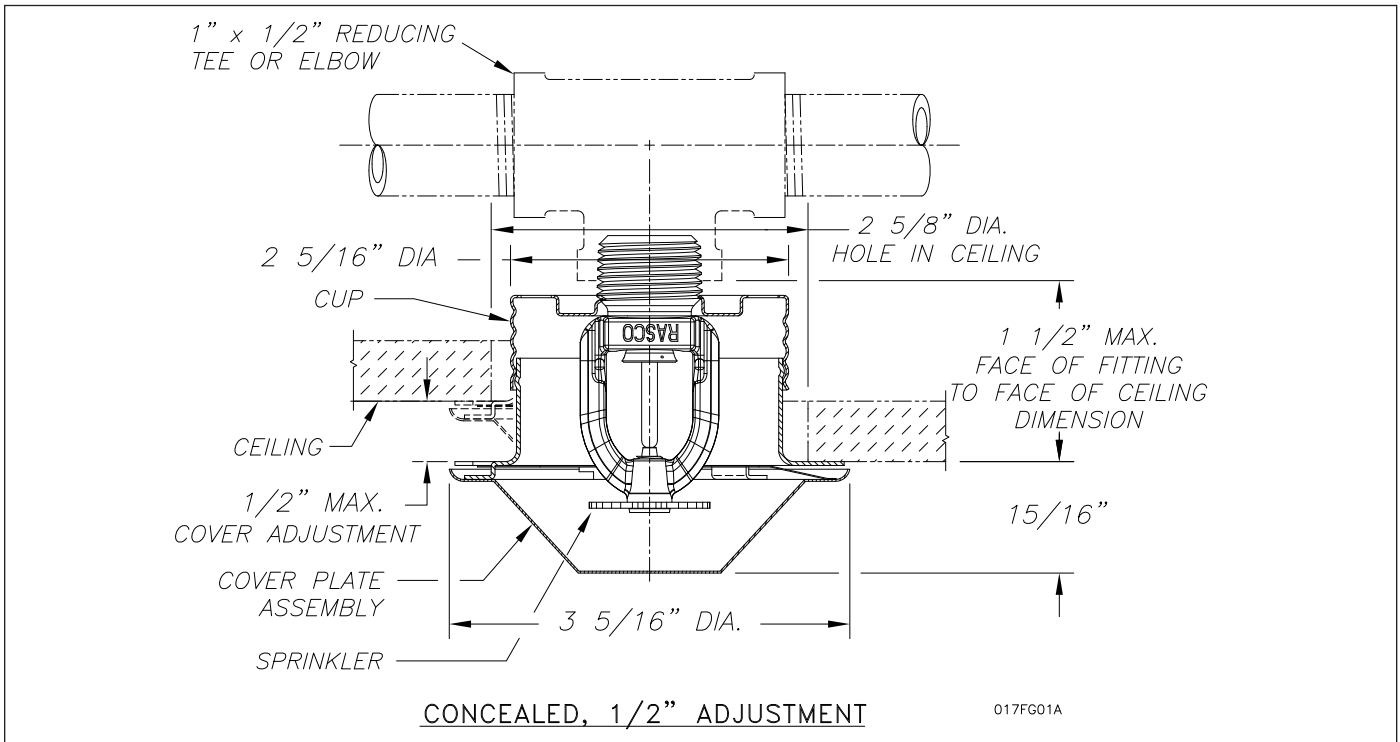


Fig. 4

Model F1FR56/F1FR56LL Concealed Pendent sprinkler with standard depth 1/2-inch (12.7mm) adjustment - Model CCP cover plate

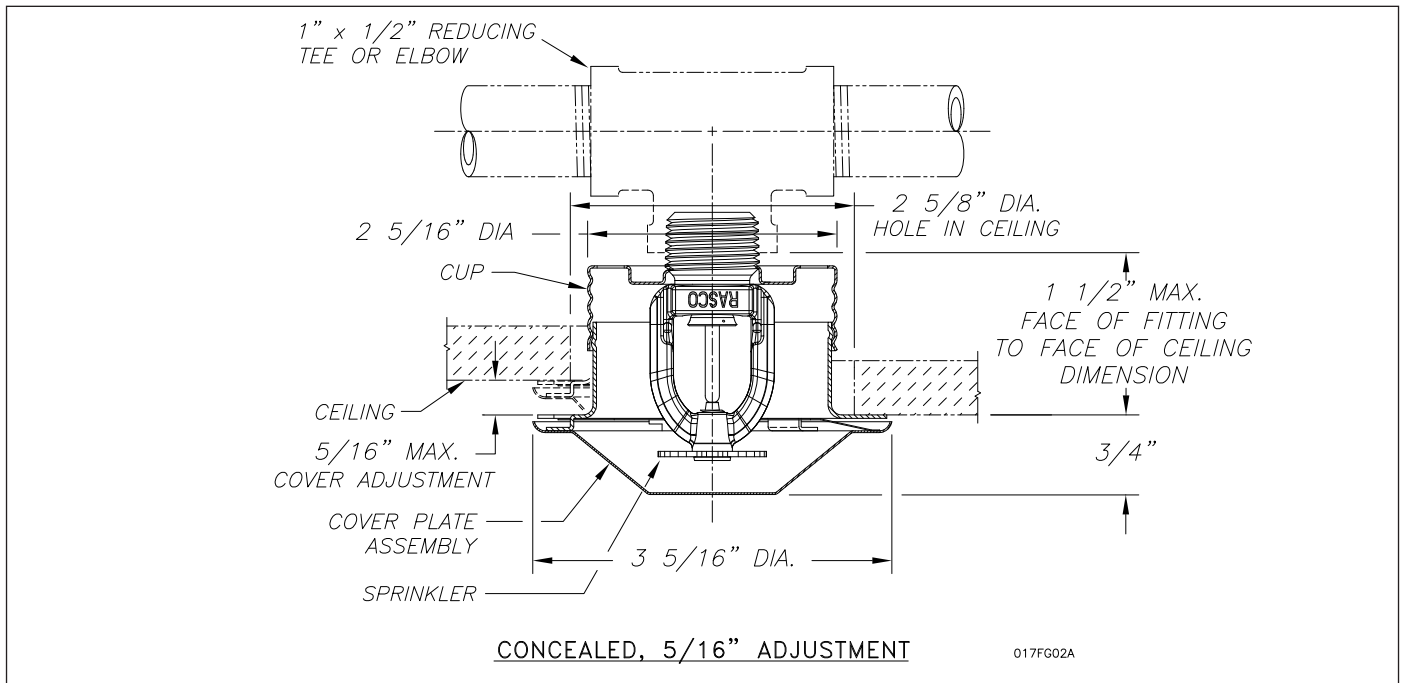


Fig. 5 - Model F1FR56/F1FR56LL Concealed Pendent sprinkler with low profile 5/16-inch (8.0mm) adjustment - Model CCP cover plate

Maintenance

The Model F1FR Series sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gentle vacuuming. Replace any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers.

Finishes ⁽¹⁾

Standard Finishes		
Sprinkler	Escutcheon	Cover plate ⁽¹⁾
Bronze	Brass	Chrome
Chrome Plated	Chrome Plated	White
Polyester Coated ⁽⁴⁾⁽⁵⁾⁽⁶⁾	White Painted	
Special Application Finishes		
Sprinkler	Escutcheon	Cover plate ⁽¹⁾
Electroless Nickel PTFE ⁽⁷⁾	Electroless Nickel PTFE	Bright Brass
Bright Brass ⁽³⁾	Bright Brass	Black Plating
Black Plated	Black Plated	Black Paint
Black Paint ⁽²⁾⁽⁶⁾	Black Paint	Off White
Off White ⁽²⁾⁽⁶⁾	Off White	Satin Chrome
Chrome Dull	Chrome Dull	

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

⁽²⁾ cULus Listed only.

⁽³⁾ 200°F (93°C) maximum.

⁽⁴⁾ cULus listed "corrosion resistance" applies to SIN Numbers RA1435 (HSW), RA1485(VSW), RA1425 (Upright), RA1414 (Pendent) and RA1415 (Pendent) in standard black or white. Corrosion resistance in other polyester colors is available upon request.

⁽⁵⁾ FM Approvals finish as "Polyester coated" applies to SIN Number RA1414, RA1435 and RA1425 in standard black or white.

⁽⁶⁾ LPCB and VdS Approved finish applies only to RA1425, RA1414, RA1418 (VdS) and RA1475.

⁽⁷⁾ cULus listed Corrosion Resistant

Material Data	
Frame:	DZR Brass, QM Brass, or Low Lead Brass
Deflector:	CDA Alloy 220, 260, or 510
Load Screw/Pintle:	CDA Alloy 360 or 544
Cup:	CDA Alloy 651 or 693
Washer:	Nickel Alloy 440 or 360, coated with PTFE Adhesive Tape
Bulb:	Glass

Ordering Information

Specify:

- Sprinkler Model: [F1FR28][F1FR40][F1FR42][F1FR42LL][F1FRXLH][F1FR56][F1FR56LL]
- Sprinkler Deflector/Orientation: [Pendent][Recessed Pendent][Upright][Conventional][Horizontal Sidewall][Recessed Horizontal Sidewall][Vertical Sidewall]
- Sprinkler threads: [1/2-inch NPT][ISO 7-R1/2]
- Sprinkler Temperature Rating: [135°F (57°C)][155°F (68°C)][175°F (79°C)][200°F (93°C)][286°F (141°C)]
- Sprinkler Finish
- Escutcheon Model: [F1][F2][FP]
- Escutcheon Finish (where applicable)
- Cover plate Model: [standard profile CCP 1/2-inch (12.7mm) adjustment][low profile CCP 5/16-inch (8.0mm) adjustment]
- Cover plate Temperature Rating: [135°F (57°C) for use with Ordinary Temperature sprinklers][165°F (74°C) for use with Intermediate Temperature sprinklers]
- Cover plate Finish

Note: When Model F1FR Series Recessed sprinklers are ordered, the sprinklers and escutcheons are packaged separately.

Reliable...For Complete Protection

Reliable offers a wide selection of sprinkler components. Following are some of the many precision-made Reliable products that guard life and property from fire around the clock.

- Automatic sprinklers
- Flush automatic sprinklers
- Recessed automatic sprinklers
- Concealed automatic sprinklers
- Adjustable automatic sprinklers
- Dry automatic sprinklers
- Intermediate level sprinklers
- Open sprinklers
- Spray nozzles
- Alarm valves
- Retarding chambers
- Dry pipe valves
- Accelerators for dry pipe valves
- Mechanical sprinkler alarms
- Electrical sprinkler alarm switches
- Water flow detectors
- Deluge valves
- Detector check valves
- Check valves
- Electrical system
- Sprinkler emergency cabinets
- Sprinkler wrenches
- Sprinkler escutcheons and guards
- Inspectors test connections
- Sight drains
- Ball drips and drum drips
- Control valve seals
- Air maintenance devices
- Air compressors
- Pressure gauges
- Identification signs
- Fire department connection

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Products manufactured and distributed by Reliable have been protecting life and property for over 100 years.

Manufactured by

Reliable[®]

Reliable Automatic Sprinkler Co., Inc.

(800) 431-1588

(800) 848-6051

(914) 829-2042

www.reliablesprinkler.com

Sales Offices

Sales Fax

Corporate Offices

Internet Address



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Paper

Revision lines indicate updated or new data.

EG. Printed in U.S.A. 08/21 P/N 9999970300

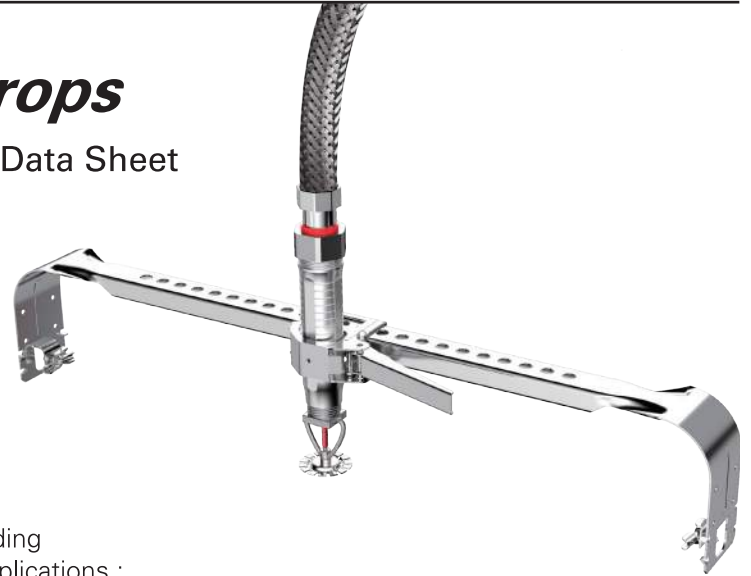


Flexible Sprinkler Drops

Braided Flexible Sprinkler Connection Data Sheet (High Performance)

EASYFLEX Flexible Sprinkler Drops are designed to significantly reduce labor and installation costs. By eliminating the need for pipe cutting and midline connections, you save valuable time and money.

Easyflex flexible sprinkler connections offer braided and unbraided flexible hoses in 2',3',4',5' and 6' with top loading or front loading brackets for variety of ceiling and wall applications : T-Bars, metal studs, hat channels, wood beams, concrete sidewalls and more. The system is qualified to be installed at commercial, hotel, retail, restaurants, cultural, entertainment, educational, government, healthcare and religious buildings.



EASYFLEX Flexible Sprinkler Drops Appliance Standards

National Fire Protection Association (NFPA) :

- NFPA 13: Standard for the Installation of Sprinkler Systems
- NFPA 13D: Standard for the Installation of Sprinkler Systems in One and Two-Family Dwellings and Manufactured Homes
- NFPA 13R: Standard for Installation of Sprinkler Systems in residential Occupancies up to and including four stories in height
- NFPA 13 Section 9.2.1.3.3.3: No hangers are required for flexible connections as long as the length does not exceed 6ft.

American Society for Testing and Methods (ASTM) :

- ASTM C635: Standard specifications for the manufacture, performance, and testing of metal suspension systems for acoustical tile and lay-in panel ceilings
- ASTM C636: Standard practice for installation of metal ceiling suspension systems for acoustical tile and lay-in panels

Factory Mutual (FM), FM Class No, 1637 :

- Approved standard for flexible sprinkler hose with threaded end fittings

International Building Code (IBC) Section 1621 / American Society of Civil Engineers (ASCE) 7 9.6.2.6.2 & 9.6.2.6.2.2 :

- Flexible Sprinkler Connections are the alternative Solution to install without Seismic Escutcheons(Oops Ring)

Job Name :

Engineer / Architect :

Job Location :

Wholesaler :

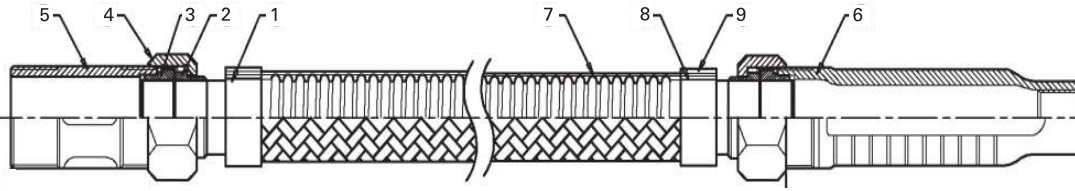
Submittal Date :

Contractor :



BRAIDED FLEXIBLE HOSE (High Performance)

1. TUBE
2. ISOLATION RING
3. SEALING GASKET
4. NUT
5. NIPPLE (1")
6. REDUCER
7. BRAID
8. PRESS RING (INNER)
9. PRESS RING (OUTER)



SPECIFICATIONS

Lengths Available	24", 36", 48", 60" and 72"
Outlet	1/2" or 3/4"
Hose Type	Braided
Max. Ambient Temperature Rating	225°F
Max. Working Pressure Rating	175 psig

Hose	Stainless Steel 304	
Nut & Nipple	Zinc-Plated Steel	
Sealing Gasket / Isolation Ring	EPDM/ NYLON	
Minimum Bend Radius	8" (FM) * DO NOT bend within 2.52 inches from connection nuts	
Connection	Inlet	1"NPT
	Outlet	1/2" or 3/4"NPT

- * No hangers and seismic escutcheons required
- * Required torque to assemble reducer and nipple with the flexible hose : 50 ft-lb

FRICITION LOSS DATA EFB HP Series Braided Hose OGSB, TBS Bracket Systems.



Length (in.)	Outlet Connection	K-Factor	Max. Number of 90° Bends	Equivalent Length of 1 in. Schedule 40 Pipe, ft.
24"	1/2"	5.6	1	17.8
	3/4"	8.0	1	8.3
	3/4"	14.0	1	8.3
36"	1/2"	5.6	2	23.0
	3/4"	8.0	2	13.9
	3/4"	14.0	2	13.7
48"	1/2"	5.6	3	30.2
	3/4"	8.0	3	21.7
	3/4"	14.0	3	21.6
60"	1/2"	5.6	4	37.4
	3/4"	8.0	4	29.5
	3/4"	14.0	4	29.5
72"	1/2"	5.6	4	43.3
	3/4"	8.0	4	34.5
	3/4"	14.0	4	33.2

* FM : 8" minimum bend radius, where C=120

Anvil® Cast Iron & Malleable Iron Threaded Fittings



Manufactured in Columbia, PA USA, Anvil offers the most complete line of Cast Iron and Malleable Iron Threaded Fittings in the industry. Our versatile range of fittings is designed to provide connection options for different applications and environments.

Cast Iron (Gray Iron) Threaded Fittings are manufactured in accordance with ASME/ANSI B14.4 and are UL/ULC listed and FM approved.

Malleable Iron Fittings are manufactured in accordance with ASME/ANSI B16.3 and Unions ASME/ANSI B16.39 and are available in Class 150, Class 250, and Class 300 UL/ULC listed and FM approved. In both classes, all Elbows and Tees 3/8" and larger are 100% air tested at a minimum of 100 psi (6.9 bar).

Cast Iron Flanged Fittings are manufactured in accordance with ASME B16.1 and are available in both Class 125 and Class 250.

Anvil® Steel Pipe Nipples & Steel Pipe Couplings

Anvil offers a variety of Steel Pipe Nipples and Steel Pipe Couplings for the fire protection industry.

Anvil's Steel Pipe Nipples are manufactured in accordance with ASTM/ANSI A 733 welded and seamless carbon steel pipe nipples. Materials include black and hot-dipped galvanized finishes. Anvil manufactures a wide range of stock pipe nipples in 1/8" diameter through 8" diameter close through 72" inch length in half-inch increments. We also offer

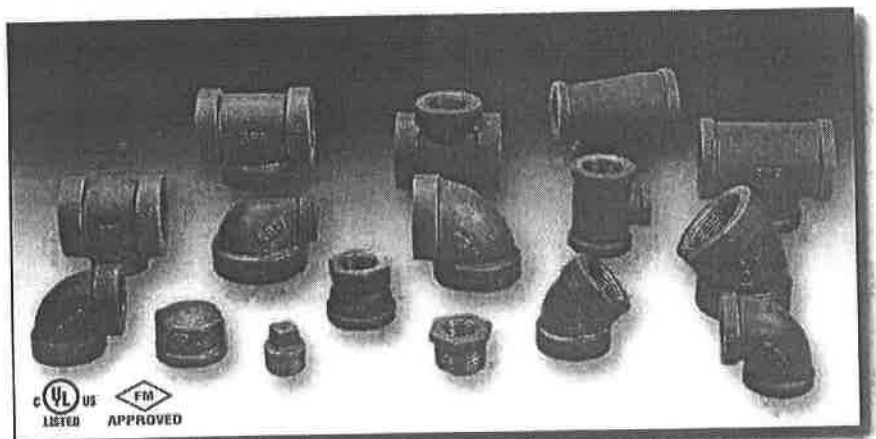
standard nipple packs ranging from one each (close to 6") and standard six packs which offer multiple counts of each. Cartons are packed with handles for easy carrying.

Steel Pipe Couplings are manufactured in accordance with ASTM specification A 865. Straight-tapped couplings range in size from 1/8" NPS through 2" NPS, while 2 1/2" NPS and larger are taper tapped.

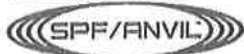
SPF™ Ductile Iron & Cast Iron Threaded Fittings

SPF Ductile Iron Threaded Fittings are UL/ULC Listed and FM Approved for 500 psi service. These fittings provide a dependable threaded connection and are available in a range of styles and specifications. All SPF Ductile Iron Threaded Fittings dimensions conform to ANSI B16.3 Class 150 requirements, and threads are NPT per ANSI/ASME B1.20.1.

SPF Cast Iron Threaded Fittings are UL/ULC Listed and FM Approved for 300 psi service. These fittings are available in a range of styles and specifications. All SPF Cast Iron Threaded Fittings dimensions conform to ANSI B16.4 requirements, and threads are NPT per ANSI/ASME B1.20.1.



REDUCING COUPLING



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 B16.3 Class 150.

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.



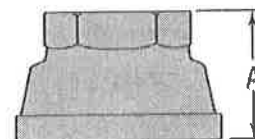
APPROVED

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

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 1/2 25 x 15	840010755	DRC031	500 3450	1.69 42.92	0.39 0.18
1 x 3/4 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.



COUPLING



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 B16.3 Class 150.

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.



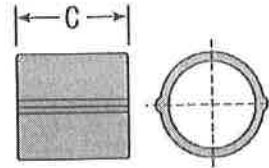
APPROVED

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

COUPLING

Nominal Size	Anvil Item Number	Universal Number	Dimensions A	Approx. Wt. Each
In. (mm)			In. (mm)	Lbs. (kg)
1	840008692	DC1033	1.67	0.40
25			42.42	0.18
1 1/4	840008700	DC1044	1.93	0.57
32			49.02	0.26
1 1/2	840008718	DC1055	2.15	0.75
40			54.61	0.34
2	840008726	DC1066	2.53	1.15
50			64.26	0.52

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



90° ELBOW

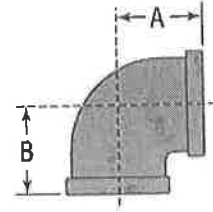


Ductile Iron

Submittal Sheet



90° ELBOW						
Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure	Dimensions- In.(mm)		Approx. Wt. Each
				A	B	
<i>In. (mm)</i>			<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1	840000004	DB90033	500 3450	1.50 38.10	1.50 38.10	0.62 0.28
20	840000012	DB90044	500 3450	1.75 44.45	1.75 44.45	0.90 0.41
1 1/2	840000020	DB90055	500 3450	1.94 49.276	1.94 49.276	1.20 0.54
40	840000038	DB90066	500 3450	2.25 57.15	2.25 57.15	1.85 0.84



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 B16.3 Class 150. Threads are NPT per ANSI/ASME B1.20.1.



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

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.

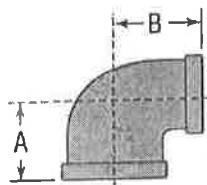
PROJECT INFORMATION:		APPROVAL STAMP:
Project:		
Date:	Phone:	
Architect / Engineer:		
Contractor:		
Address:		
Notes 1:		
Notes 2:		



REDUCING 90° ELBOW



Ductile Iron



REDUCING 90° ELBOW						
Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure	Dimensions		Approx. Wt. Each
				A	B	
<i>in. (mm)</i>			<i>PSI (kPa)</i>	<i>in. (mm)</i>	<i>in. (mm)</i>	<i>Lbs. (kg)</i>
1 x 1/2 25 x 15	840001036	DB90031	500 3450	1.26 32.00	1.36 34.54	0.44 0.20
1 x 3/4 25 x 20	840001044	DB90032	500 3450	1.37 34.79	1.45 36.83	0.52 0.24
1 1/4 x 1/2 32 x 15	840001051	DB90041	500 34550	1.34 34.03	1.53 38.86	0.64 0.29
1 1/4 x 3/4 32 x 20	840001069	DB90042	500 3450	1.45 36.83	1.62 41.14	0.72 0.33
1 1/4 x 1 32 x 25	840001077	DB90043	500 3450	1.58 40.13	1.67 42.41	0.75 0.34
1 1/2 x 1 40 x 25	840001085	DB90053	500 3450	1.65 41.91	1.80 45.77	0.92 0.42
1 1/2 x 1 1/4 40 x 32	840001093	DB90054	500 3450	1.82 46.22	1.88 47.75	1.08 0.49
2 x 1/2 50 x 15	840001101	DB90061	500 3450	1.49 37.84	1.88 47.75	1.08 0.49
2 x 3/4 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 1 1/4 50 x 32	840001135	DB90064	500 3450	1.90 48.26	2.10 53.34	1.52 0.70
2 x 1 1/2 50 x 40	840001143	DB90065	500 3450	2.02 51.30	2.16 54.86	1.65 0.75

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 B16.3 Class 150. 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 contact your
AnvilStar™ Representative.

APPROVAL STAMP:

PROJECT INFORMATION:

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



45° ELBOW



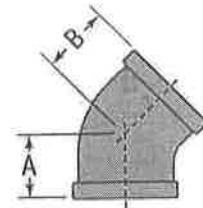
Ductile Iron



Submittal Sheet



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	840002133	DB45033	500 3450	1.12 28.44	1.12 28.44	0.46 0.21
1 1/4	840002141	DB45044	500 3450	1.29 32.76	1.29 32.76	0.73 0.33
1 1/2	840002158	DB45055	500 3450	1.43 36.32	1.43 36.32	0.92 0.42
2	840002166	DB45066	500 3450	1.68 42.67	1.68 42.67	1.50 0.68



MATERIAL SPECIFICATIONS

Ductile iron threaded fittings are UL & ULC Listed & Dimensions conform to ASME B16.3 Class 150.
 Factory Mutual Approved for 500 psi service. Threads are NPT per ANSI/ASME B1.20.1.
 Ductile iron per ASTM A536 Class 65-45-12.



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

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.

PROJECT INFORMATION:		APPROVAL STAMP:
Project:		
Date:	Phone:	
Architect / Engineer:		
Contractor:		
Address:		
Notes 1:		
Notes 2:		



CAP**ANVILStar™**
Fire Products Division of Anvil® International**Ductile Iron****Submittal Sheet**

CAPS					
Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure	Dimensions A	Approx. Wt. Each
<i>In. (mm)</i>			<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1	840005615	DCP003	500	1.16	0.32
25			3450	29.46	0.15
1 1/4	840005623	DCP004	500	1.28	0.43
32			3450	32.51	0.20
1 1/2	840005631	DCP005	500	1.33	0.60
40			3450	33.78	0.27
2	840005649	DCP006	500	1.45	0.91
50			3450	36.83	0.41

**MATERIAL SPECIFICATIONS**

Ductile iron threaded fittings are UL & ULC Listed & Dimensions conform to ASME B16.3 Class 150.
 Factory Mutual Approved for 500 psi service. Threads are NPT per ANSI/ASME B1.20.1.
 Ductile iron per ASTM A536 Class 65-45-12.



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

NOTICE: Ductile iron fittings have higher tensile strengths 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.

PROJECT INFORMATION:		APPROVAL STAMP:
Project:		
Date:	Phone:	
Architect / Engineer:		
Contractor:		
Address:		
Notes 1:		
Notes 2:		



STRAIGHT TEE

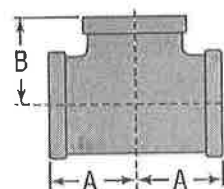


Ductile Iron

Submittal Sheet



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	840003164	DT333	500 3450	1.50 38.10	1.50 38.10	0.85 0.39
1 1/4	840003172	DT444	500 3450	1.75 44.45	1.75 44.45	1.22 0.55
1 1/2	840003180	DT555	500 3450	1.94 49.27	1.94 49.27	1.55 0.70
2	840003198	DT666	500 3450	2.25 57.15	2.25 57.15	2.45 1.11



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 B16.3 Class 150. Threads are NPT per ANSI/ASME B1.20.1.



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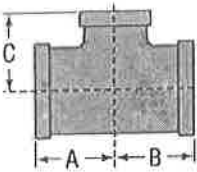
PROJECT INFORMATION:		APPROVAL STAMP:
Project:		
Date:	Phone:	
Architect / Engineer:		
Contractor:		
Address:		
Notes 1:		
Notes 2:		



REDUCING TEE



Ductile Iron



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 1/2 x 1	840004196	DT313	500 3450	1.50 38.10	1.36 34.54	1.50 38.10	0.64 0.29
25 x 15 x 25							
1 x 3/4 x 1	840004204	DT323	500 3450	1.50 38.10	1.45 36.83	1.50 38.10	0.73 0.33
25 x 20 x 25							
1 x 1 x 1/2	840004212	DT331	500 3450	1.26 32.00	1.26 32.00	1.36 34.54	0.71 0.32
25 x 25 x 15							
1 x 1 x 3/4	840004220	DT332	500 3450	1.37 34.80	1.37 34.80	1.45 36.83	0.76 0.34
25 x 25 x 20							
1 x 1 x 1/2	840004238	DT334	500 3450	1.67 42.41	1.67 42.41	1.58 40.13	0.98 0.44
25 x 25 x 32							
1 x 1 x 1 1/2	840004246	DT335	500 3450	1.80 45.72	1.80 45.72	1.65 41.91	1.16 0.53
25 x 25 x 40							
1 1/4 x 1 x 1/2	840004253	DT431	500 3450	1.34 34.04	1.26 32.00	1.53 38.86	0.82 0.37
32 x 25 x 15							
1 1/4 x 1 x 3/4	840004261	DT432	500 3450	1.45 36.83	1.37 34.80	1.62 41.15	0.90 0.41
32 x 25 x 20							
1 1/4 x 1 x 1	840004279	DT433	500 3450	1.58 40.13	1.50 38.10	1.67 42.42	1.00 0.45
32 x 25 x 25							
1 1/4 x 1 x 1/2	840004287	DT434	500 3450	1.75 44.45	1.67 42.42	1.75 44.45	1.08 0.49
32 x 25 x 32							
1 1/4 x 1 x 3/4	840004295	DT435	500 3450	1.88 47.75	1.80 45.72	1.82 46.22	1.42 0.64
32 x 25 x 40							
1 1/4 x 1 1/4 x 1/2	840004303	DT441	500 3450	1.34 34.04	1.34 34.04	1.53 38.86	0.86 0.39
32 x 32 x 15							
1 1/4 x 1 1/4 x 3/4	840004311	DT442	500 3450	1.45 36.83	1.45 36.83	1.62 41.15	0.92 0.42
32 x 32 x 20							
1 1/4 x 1 1/4 x 1	840004329	DT443	500 3450	1.58 40.13	1.58 40.13	1.67 42.42	0.95 0.43
32 x 32 x 25							
1 1/4 x 1 1/4 x 1 1/2	840004337	DT445	500 3450	1.88 47.75	1.88 47.75	1.82 46.22	1.45 0.66
32 x 32 x 40							
1 1/4 x 1 1/4 x 2	840004345	DT446	500 3450	2.10 53.34	2.10 53.34	1.90 48.26	1.75 0.79
32 x 32 x 50							
1 1/2 x 1 x 1/2	840004352	DT531	500 3450	1.41 35.81	1.34 34.04	1.66 42.16	0.95 0.43
40 x 25 x 15							
1 1/2 x 1 x 3/4	840004360	DT532	500 3450	1.52 38.61	1.37 34.80	1.75 44.45	1.14 0.52
40 x 25 x 20							
1 1/2 x 1 x 1	840004378	DT533	500 3450	1.65 41.91	1.50 38.10	1.80 45.72	1.17 0.53
40 x 25 x 25							
1 1/2 x 1 x 1 1/4	840004386	DT534	500 3450	1.82 46.22	1.67 42.42	1.88 47.25	1.34 0.61
40 x 25 x 32							
1 1/2 x 1 1/4 x 1 1/2	840004394	DT535	500 3450	1.94 49.28	1.80 45.72	1.94 49.28	1.45 0.66
40 x 25 x 40							
1 1/2 x 1 1/4 x 1	840004402	DT541	500 3450	1.41 35.81	1.34 34.04	1.66 42.16	0.95 0.43
40 x 32 x 15							
1 1/2 x 1 1/4 x 3/4	840004410	DT542	500 3450	1.52 38.61	1.45 36.83	1.75 44.45	1.15 0.52
40 x 32 x 20							

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 1/2 x 1 1/4 x 1	840004428	DT543	500 3450	1.65 41.91	1.58 40.13	1.80 45.72	1.25 0.57
40 x 32 x 25							
1 1/2 x 1 1/4 x 2	840004436	DT546	500 3450	2.16 54.86	2.10 53.34	2.02 51.30	1.90 0.86
40 x 32 x 50							
1 1/2 x 1 1/2 x 1/2	840004444	DT551	500 3450	1.41 35.81	1.41 35.81	1.16 29.46	1.15 0.52
40 x 40 x 15							
1 1/2 x 1 1/2 x 3/4	840004451	DT552	500 3450	1.52 38.61	1.52 38.61	1.75 44.45	1.24 0.56
40 x 40 x 20							
1 1/2 x 1 1/2 x 1	840004469	DT553	500 3450	1.65 41.91	1.65 41.91	1.80 45.72	1.30 0.59
40 x 40 x 25							
1 1/2 x 1 1/2 x 1 1/4	840004477	DT554	500 3450	1.82 46.22	1.82 46.22	1.88 47.25	1.48 0.67
40 x 40 x 32							
1 1/2 x 1 1/2 x 2	840004485	DT556	500 3450	2.16 54.86	2.16 54.86	2.02 51.30	1.98 0.90
40 x 40 x 50							
2 x 1 x 2	840004493	DT636	500 3450	2.25 57.15	2.02 51.31	2.25 57.15	2.15 0.98
50 x 25 x 50							
2 x 1 1/4 x 2	840004501	DT646	500 3450	2.25 57.15	2.10 53.34	2.25 57.15	2.30 1.04
50 x 32 x 50							
2 x 1 1/2 x 1/2	840004519	DT651	500 3450	1.49 37.85	1.41 35.81	1.88 47.25	1.50 0.68
50 x 40 x 15							
2 x 1 1/2 x 3/4	840004527	DT652	500 3450	1.60 40.64	1.52 38.61	1.97 50.04	1.62 0.73
50 x 40 x 20							
2 x 1 1/2 x 1	840004535	DT653	500 3450	1.73 43.94	1.65 41.91	2.02 51.31	1.64 0.74
50 x 40 x 25							
2 x 1 1/2 x 1 1/4	840004543	DT654	500 3450	1.90 48.26	1.82 46.22	2.10 53.34	1.80 0.82
50 x 40 x 32							
2 x 1 1/2 x 1 1/2	840004550	DT655	500 3450	2.02 51.31	1.94 49.28	2.16 54.86	2.00 0.91
50 x 40 x 40							
2 x 1 1/2 x 2	840004568	DT656	500 3450	2.25 57.15	2.16 54.86	2.25 57.15	2.35 1.07
50 x 40 x 50							
2 x 2 x 1/2	840004576	DT661	500 3450	1.49 37.85	1.49 37.85	1.88 47.25	1.60 0.73
50 x 50 x 15							
2 x 2 x 3/4	840004584	DT662	500 3450	1.60 40.64	1.60 40.64	1.97 50.04	1.68 0.76
50 x 50 x 20							
2 x 2 x 1	840004592	DT663	500 3450	1.73 43.94	1.73 43.94	2.02 51.31	1.85 0.84
50 x 50 x 25							
2 x 2 x 1 1/4	840004600	DT664	500 3450	1.90 48.45	1.90 48.45	2.10 48.45	2.04 0.93
50 x 50 x 32							
2 x 2 x 1 1/2	840004618	DT665	500 3450	2.02 51.31	2.02 51.31	2.16 48.45	2.18 0.99
50 x 50 x 40							
2 x 2 x 2 1/2	-	DT667	500 3450	2.60 66.03	2.60 66.03	2.39 54.45	3.61 1.64
50 x 50 x 65							
2 1/2 x 2 x 3/4	-	DT762	500 3450	1.74 44.35	1.60 40.64	2.32 51.31	2.28 1.03
65 x 50 x 20							

MATERIAL SPECIFICATIONS

Ductile iron threaded fittings are UL & ULC Listed & Dimensions conform to ASME B16.3 Class 150.
 Factory Mutual Approved for 500 psi service. Threads are NPT per ANSI/ASME B1.20.1.
 Ductile iron per ASTM A536 Class 65-45-12.

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.



APPROVAL STAMP:

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

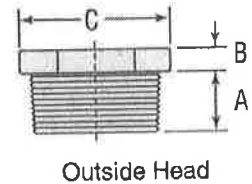
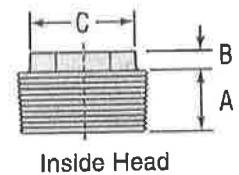




Ductile Iron



BUSHINGS							
Nominal Size	Anvil Item Number	Universal Number	Dimensions			Style	Approx. Wt. Each
			A	B	C		
<i>in. (mm)</i>			<i>in. (mm)</i>	<i>in. (mm)</i>	<i>in. (mm)</i>		<i>Lbs. (kg)</i>
1 x 1/2 25 x 15	840600001	DBUSH31	0.75 19.05	0.25 6.35	1.42 36.06	Outside	0.22 0.10
1 x 3/4 25 x 20	840600019	DBUSH32	0.75 19.05	0.25 6.35	1.42 36.06	Outside	0.17 0.08
1 1/4 x 1 32 x 25	840600027	DBUSH43	0.80 20.32	0.28 7.17	1.76 44.70	Outside	0.28 0.13
1 1/2 x 1 40 x 25	840600035	DBUSH53	0.83 21.08	0.31 7.874	2.00 50.80	Outside	0.45 0.20
1 1/2 x 1 1/4 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 1 1/4 50 x 32	840600068	DBUSH64	0.88 22.35	0.34 8.636	2.48 62.99	Outside	0.73 0.33
2 x 1 1/2 50 x 40	840600076	DBUSH65	0.88 22.35	0.34 8.636	2.48 62.99	Outside	0.61 0.28



MATERIAL SPECIFICATIONS

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

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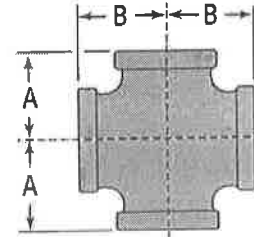
APPROVED
For Listing / Approval
details contact your
AnvilStar™ Representative.

PROJECT INFORMATION:		APPROVAL STAMP:
Project:		
Date:	Phone:	
Architect / Engineer:		
Contractor:		
Address:		
Notes 1:		
Notes 2:		



CROSS**Ductile Iron****ANVILStar™**
Fire Products Division of Anvil® International**Submittal Sheet**

CROSS						
Nominal Size	Anvil Item Number	Universal Number	Max. Working Pressure	Dimensions		Approx. Wt. Each
				A	B	
<i>In. (mm)</i>	<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1 25	840006647	DX033	500 3450	1.50 38.10	1.50 38.10	0.98 0.44
1 1/4 32	840006654	DX044	500 3450	1.75 44.45	1.75 44.45	1.50 0.68
1 1/2 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
1 1/4 x 1 32 x 25	840007678	DX043	500 3450	1.58 40.13	1.67 42.41	1.27 0.58
1 1/2 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

**MATERIAL SPECIFICATIONS**

Ductile iron threaded fittings are UL & ULC Listed & Dimensions conform to ASME B16.3 Class 150.
 Factory Mutual Approved for 500 psi service. Threads are NPT per ANSI/ASME B1.20.1.
 Ductile iron per ASTM A536 Class 65-45-12.



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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.

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THIS INFORMATION PROVIDED IS BASED ON ASTM GUIDELINES FOR WELDED PIPE SPECIFICATIONS AND ASTM REQUIREMENTS. ACTUAL PIPE AND MATERIAL TEST REPORTS PROVIDED WOULD MEET OR EXCEED THESE GUIDELINES.

TEST REPORTS WOULD PROVIDE SPECIFIC AND ACTUAL DETAILS CONCERNING THE MECHANICAL AND CHEMICAL PROPERTIES OF THE ACTUAL PIPE, AS WELL AS ADDITIONAL TESTS RESULTS REQUIRED BY ASTM.

SCHEDULE 40 Black and Galvanized Steel ERW Pipe

Pipe Size Nominal	O.D.	I.D.	Weight / Foot	CRR Values	Test Pressure
				Threaded	psi
1"	1.315	1.049	1.680	1.0	700
1-1/4"	1.660	1.380	2.270	1.0	1200
1-1/2"	1.900	1.610	2.720	1.0	1200
2"	2.375	2.067	3.660	1.0	2300
2-1/2"	2.875	2.469	5.800	1.0	2500
3"	3.500	3.068	7.580	1.0	2220
4"	4.500	4.026	10.800	1.0	1900
5"	5.563	5.047	14.630	1.0	1670
6"	6.625	6.065	18.990	1.0	1520
8"	8.625	7.981	28.580	1.0	1340

COMPOSITION AND PROPERTIES

Chemical and mechanical properties requirements are as prescribed by applicable ASTM standards edition January 2006.

Chemical Requirements, Percent (Product)

Specification	Grade	C	Mn	P	S	Other
		max	max	max	max	
ASTM A53	A	0.250	0.950	0.05	0.045	-

1 Residual elements max: Cu-0.40, Ni-0.40, Cr-0.40, Mo-0.15 and V-.08. These live elements combined shall not exceed 1%.

Mechanical Properties-Tensile Requirements

Specification	Grade	Strength-psi.			
		Yield		Tensile	
		Min	Max	Min	Max
ASTM A53	A	30,000	-	48,000	-

NOTE: Elongation requirements vary with nominal area of test specimen and specified minimum tensile strength of the steel grade.