Reliable®

TECHNOLOGY • QUALITY • SERVICE

PRODUCT BROCHURE

SERVICIOS FF S.R.L.

MANUFACTURER & DISTRIBUTOR OF FIRE PROTECTION EQUIPMENT

THE RELIABLE AUTOMATIC SPRINKLER CO., INC.

Reliable products have been installed throughout the world.
Our products can be found in well-renowned projects such as:

AIRPORT HANGERS AND TERMINALS
American Airlines Terminal - John F. Kennedy Airport – NYC
Delta Airlines - LaGuarida Airport - NYC
Dubai International Airport – Dubai
Frankfurt (B) - GermanyFrankfurt Hahn – Germany
Jet Blue Terminal at LaGuardia Airport – NYC
London Gatwick (N) - UK
London Heathrow (BA World Cargo Centre) - UK
London Heathrow (Terminal 5) - UK
Orlando International Airport Baggage Claim – Orlando, FL
Philadelphia International – Philadelphia, PA
Prince George Regional Airport – Prince George, BC Canada

DATA AND DISTRIBUTION CENTERS
Google - Lenoir, NC and Monks, SC
Microsoft Data Systems - San Antonio, TX
America Cold – Quincy, WA
IKEA Distribution Center – Tacoma, WA
Johnson & Johnson Pharmaceuticals – NJ
Walmart Distribution Center – PA, MA & KY

HOSPITALS
Arnold Palmer Hospital – Orlando, FL
Children's Hospital – Philadelphia, PA

HOTELS AND RESORTS
Trump Taj Mahal – Atlantic City, NJ
MGM City Center – Pelli Tower – Las Vegas, NV
Ritz-Carlton – Baltimore, MD and Dallas, TX
St. Regis Hotel - NYC

MANUFACTURING FACILITIES
BMW - Wackersdorf+ Munich, Germany
Ford Motor Company – Dagenham, UK
Goodyear Tyres - Germany
Kraft-Cheese - Fallingbostel, Germany
Pirelli Cables - Bursa, Turkey
Porsche Car Painting - Stuttgart, Germany

Rolex Watches - Switzerland
Texas Instruments – Richardson, TX
Toyota Plant – TX, WV & KY

SCHOOLS AND DORMITORIES
University of Pennsylvania – Philadelphia, PA
Boston College - Chestnut Hill, MA
Notre Dame - Notre Dame, IN

OFFICE BUILDINGS
Bank of America – London, UK, Richmond, VA and NYC
Bristol Meyers - NYC
Comcast Center – Philadelphia, PA
Daimler-Chrysler - Berlin, Germany
Goldman Saks – NYC
Is Bank – Istanbul, Turkey
Nike Headquarters - Frankfurt, Germany
Philip Morris - NYC
SAP - Walldorf, Germany
Time Warner – NYC
Trump Towers – NYC

STADIUMS
Air Canada Center – Toronto, Canada
Budweiser Event Center – Loveland, CO
Arsenal FC (Emirates Stadium) – London, UK
Coors Field – Denver, CO
Fenway Park – Boston, MA
NY Met's Stadium – NYC
Pepsi Center – Denver, CO
Philadelphia Phillies Stadium – Philadelphia, PA
Soldier Field – Chicago, IL
Toyota Stadium – Chicago, IL
Yankee Stadium – Bronx, NY

OTHER NOTABLE PROJECTS
Harrods - London, UK
Riker's Island Prison - NYC
United Nations HQ, Beirut, Lebanon
National Library of Scotland – Edinburgh, Scotland
St. Patrick's Cathedral - NYC

Table of Contents

Reliable is your one source for

all your fire protection needs.














SPECIAL HAZARDS / SPECIAL SYSTEMS

SYSTEM COMPONENTS

FABRICATION

BASIC

F1FR-56

Technical Bulletin: 014

Features:

- Combines the durability of standard sprinklers with the attractive low profile of a decorative sprinkler
- 3mm glass bulb

Style:	Upright, Pendent, Conventional, Recessed Pendent, Horizontal Sidewall, Recessed HSW, Conical Concealed (CCP), Vertical Sidewall
K-Factor:	5.6 (80)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C) For CCP: Sprinkler: 135° F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C) Cover Plate: 135° F (57°C), 165°F (74°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP Push-on/Thread-off
Cover Plate:	CCP
Finish:	Sprinkler: Bronze, Chrome, White Poly Coated, Custom Escutcheon: Brass, Chrome, White, Custom Cover Plate: White, Chrome, Custom

Note: In late 2009, Technical Bulletin 017 was combined into Bulletin 014. In 2011 Bulletin 143 was combined into Bulletin 014.

F1FR

Technical Bulletin: 136

Features:

- Light and Ordinary Hazard Applications (2.8 and 4.2 K-factor - Light Hazard only)
- 3 mm glass bulb
- Push-on/Thread-off FP escutcheon available for low profile aesthetics

Style:	Upright, Pendent, Conventional, Vertical Sidewall, Horizontal Sidewall, Recessed Pendent, Recessed HSW
K-Factor:	2.8 (40), 4.2 (60), 8.0 (115)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4)
Escutcheon:	F1, F2, FP Push-on/Thread-off
Finish:	Brass, Chrome, White, Custom

Note: In 2010 for 5.6 K–Factor sprinklers, please refer to Technical Bulletin 014

For more detailed information including approval data, please refer to the technical bulletin specified.

BASIC cont.

F1FR56-300

Technical Bulletin: 026

Features:

- High pressure rated automatic sprinkler having a maximum service pressure of 300 psi (20,7 bar)
- 3mm glass bulb
- For high rise buildings where a quick response rating is required and pressure entering the sprinkler system is in excess of 175 psi (12 bar)

Style:	Upright, Pendent, Recessed Pendent, Horizontal Sidewall, Recessed HSW, Conical Concealed (CCP)
K-Factor:	5.6 (80)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C) For CCP: Sprinkler: 135° F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C) Cover Plate: 135° F (57°C), 165°F (74°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP Push-on/Thread-off
Cover Plate:	CCP
Finish:	Sprinkler: Bronze, Chrome, White Poly Coated, Custom Escutcheon: Brass, Chrome, White, Custom Cover Plate: White, Chrome, Custom

Note: In late 2009, Technical Bulletin 168 was combined into Bulletin 026. In 2011 Bulletin 164 was combined into Bulletin 026.

F1FR-300

Technical Bulletin: 156

Features:

- High pressure rated automatic sprinklers having a maximum service pressure of 300 psi (20,7 bar)
- 3 mm glass bulb
- Sturdy brass machined cup

Style:	Upright, Pendent, Recessed Pendent
K-Factor:	8.0 (115)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1
Finish:	Brass, Chrome, White, Custom

Note: In late 2009, for 5.6 K–Factor sprinklers, please refer to Technical Bulletin 026

GFR

Technical Bulletin: 131

Features:

- Solder type fusible link
- Light and Ordinary Hazard Applications per NFPA 13 (2.8 and 4.2 K-factor - light hazard only)
- Intermediate Level with shield approved for in-rack installations

Style:	Upright, Pendent, Horizontal Sidewall, Intermediate Level Upright, Intermediate Level Pendent Conventional, Recessed Pendent, Recessed Horizontal Sidewall
K-Factor:	2.8 (40), 4.2 (60), 5.6 (80), 8.0 (115), 8.2 (119)
Temp:	165°F (74°C), 212°F (100°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4)
Escutcheon:	F1, F2
Finish:	Brass, Chrome, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

BASIC cont.

F1FR-FS56
Flat Spray

Technical Bulletin: 022

Features:

- VdS Approved and CE Certified – for International market only
- Excellent choice for applications with lower clearance above the suspended open ceilings and in racks
- 3mm glass bulb

Style:	Pendent, Pendent with shield
K-Factor:	80 metric (5.6 US)
Temp:	57°C (135°F), 68°C (155°F), 79°C (175°F), 93°C (200°F), 141°C (286°F)
Thread Size:	R1/2" BSPT (1/2" NPT)
Finish:	Sprinkler: Bronze Shield: Galvanized

F1FR-FS LO
Large Orifice Flat Spray

Technical Bulletin: 037

Features:

- VdS Approved and CE Certified – for International market only
- Excellent choice for applications with lower clearance above the suspended open ceilings and in racks
- 3mm glass bulb

Style:	Pendent, Pendent with shield
K-Factor:	115 metric (8.0 US)
Temp:	57°C (135°F), 68°C (155°F), 79°C (175°F), 93°C (200°F), 141°C (286°F)
Thread Size:	R1/2" BSPT (1/2" NPT)
Finish:	Sprinkler: Bronze Shield: Galvanized

F1FR LO
Large Orifice Flat Spray

Technical Bulletin: 038

Features:

- VdS Approved and CE Certified – for International market only
- Combines the durability of standard sprinklers with the attractive low profile of a decorative sprinkler
- 3mm glass bulb

Style:	Upright, Pendent, Recessed Pendent
K-Factor:	115 metric (8.0 US)
Temp:	57°C (135°F), 68°C (155°F), 79°C (175°F), 93°C (200°F), 141°C (286°F)
Thread Size:	R1/2" BSPT (1/2" NPT)
Escutcheon:	F1, F2, FP Push-on/Thread-off
Finish:	Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

DECORATIVE

G5-56

Technical Bulletin: 034
Coming Soon!

Features:

- Smooth, aesthetic ceiling profile
- Same Thread-on cover plate attachment as G4 Models with ¾" (19mm) assembly adjustment
- Factory installed protective cap
- G5-56 is also Factory Mutual Approved as Standard Response

Style:	Flat Concealed
K-Factor:	5.6 (80)
Temp:	Sprinkler: 165°F (74°C), 212°F (100°C), Cover Plate: 135°F (57°C), 165°F (74°C)
Thread Size:	Non-Adjustable Version: 1/2 NPT (R1/2), Adjustable Version: 1" NPT Male or Female
Cover Plate:	Flat or Perforated Cover Plate
Finish:	Brass, Chrome, White, Custom

G4A Concealed

Technical Bulletin: 154

Features:

- Quick Response
- Solder type fusible link
- Smooth, aesthetic ceiling profile
- 1/2" (13mm) total adjustment provided by economical standard inlet version; 1-1/2" (38mm) total adjustment provided by adjustable inlet versions
- Factory installed protective cap
- Light and Ordinary Hazard Applications (2.8 and 4.2 K-factor - Light Hazard only)
- G4A is also Factory Mutual Approved as Standard Response

Style:	Flat Concealed
K-Factor:	2.8 (40), 4.2 (60), 5.6 (80)
Temp:	Sprinkler: 165°F (74°C), 212°F (100°C), Cover Plate: 135°F (57°C), 165°F (74°C)
Thread Size:	Non-Adjustable: 1/2 NPT (R1/2), Adjustable: 1" NPT Male or Female
Cover Plate:	Flat Cover Plate
Finish:	Brass, Chrome, White, Custom

G4A-300 Concealed

Technical Bulletin: 162

Features:

- Smooth aesthetic ceiling profile
- Solder type fusible link
- Cover plate assembly attachment with 1/2" (13mm) adjustment. Does not require clips or springs
- Factory installed protective cap
- 300 psi (20,7 bar) maximum pressure rating

Style:	Flat Concealed
K-Factor:	5.6 (8.0)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	Non-Adjustable: 1/2 NPT (R1/2), Adjustable: 1" NPT Male or Female
Cover Plate:	Flat Cover Plate
Finish:	Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

DECORATIVE cont.

F4FR Concealed

Technical Bulletin: 125

Features:

- 1/2" (13 mm) total adjustment provided by economical standard inlet version
- 3 mm glass bulb
- 1-1/2" (38 mm) total adjustment provided by adjustable inlet versions with either 1" NPT male or female threads, eliminating costly reducing coupling
- Light and Ordinary Hazard Applications (2.8 and 4.2 K-factor - Light Hazard only)
- Smooth aesthetic ceiling profile

Style:	Flat Concealed
K-Factor:	2.8 (40), 4.2 (60), 5.6 (80)
Temp:	Sprinkler: 135°F (57°C), 155°F (68°C) Cover Plate: 135°F (57°C)
Thread Size:	Non-Adjustable: 1/2" NPT (R1/2), Adjustable: 1" NPT Male or Female
Cover Plate:	Flat Concealed
Finish:	Brass, Chrome, White, Custom

F4FR-NF

Technical Bulletin: 002

Features:

- Constructed of non-ferrous material designed for MRI rooms, swimming pools, and corrosive environments
- Laboratory tested in an MRI room environment
- Cup and skirt fabricated from corrosion resistant brass
- Cover plate attachment provides 1/2" (13 mm) adjustment
- Smooth aesthetic ceiling profile
- Ordinary temperature rating
- Threaded cover plate for secure attachment

Style:	Concealed Pendent
K-Factor:	5.6 (80)
Temp:	Sprinkler: 135°F (57°C), 155°F (68°C), Cover Plate: 135°F (57°C),155°F (68°C)
Thread Size:	1/2" NPT (R1/2)
Cover Plate:	Flat Concealed
Finish:	Bronze, Brass, Chrome, Black, White, Custom

XL Commercial

Technical Bulletin: 145

Features:

- Solder type fusible link
- Light and Ordinary Hazard applications per NFPA 13
- Standard coverage for Light and Ordinary Hazard as per NFPA 13
- 4" (102 mm) - 12" (305 mm) ceiling-to-deflector distance for horizontal sidewall

Style:	Flush Style Pendent, Horizontal Sidewall
K-Factor:	5.6 (80)
Temp:	165°F (74°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	ZXF, ZXC, ZXCH, ZX2H
Finish:	Sprinkler: Sliver, White Custom, Escutcheon: Bright Chrome, Dull Chrome, White

For more detailed information including approval data, please refer to the technical bulletin specified.

EXTENDED COVERAGE

JL112 and J112 Upright

Technical Bulletin: 173

Features:

- Extended Coverage for both Light and Ordinary Hazard occupancies for coverage areas from 144 ft² to 400 ft²
- Quick Response for Light Hazard - 16' x 16' to 20' x 20' sprinkler spacing
- Quick Response for Ordinary Hazard - 12' x 12' & 14' x 14' sprinkler spacing
- Standard Response for Ordinary Hazard - 16' x 16' to 20' x 20' sprinkler spacing
- Available with solder link or 3 mm glass bulb

Style:	Upright
K-Factor:	11.2 (160)
Temp:	JL112 Upright: 165° F (74° C), JL112 Upright: 212° F (100° C) J112 Upright: 155° F (68°C), J112 Upright: 200° (93°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Bronze, Chrome, White Polyester

JL112 and J112 Pendent & Recessed Pendent

Technical Bulletin: 172

Features:

- Extended Coverage for both Light and Ordinary Hazard occupancies for coverage areas from 144 ft² to 400 ft²
- Quick Response for Light Hazard - 16' x 16' to 20' x 20' sprinkler spacing
- Quick Response for Ordinary Hazard - 12' x 12' & 14' x 14' sprinkler spacing
- Standard Response for Ordinary Hazard - 16' x 16' to 20' x 20' sprinkler spacing
- Available with solder link or 3 mm glass bulb

Style:	Pendent, Recessed Pendent
K-Factor:	11.2 (160)
Temp:	JL112 Pendent: 165° F (74°C), JL112 Recessed Pendent: 212° F (100° C), J112 Pendent: 155° F (68°C), J112 Recessed Pendent: 200° (93°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1, F2, FP Push-on/Thread-off
Finish:	Bronze, Chrome, White Polyester

F1FR56 QREC

Technical Bulletin: 028

Features:

- 3mm glass bulb
- Covers areas up to 20' x 20' (6.1 m x 6.1 m) for pendent and recessed pendent; covers areas up to 16' x 20' (4.9 m x 6.1 m) horizontal sidewall and recessed horizontal sidewall

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP)
K-Factor:	5.6 (80)
Temp:	135° F (57°C), 155°F (68°C), 175°F (79°C) For CCP: Sprinkler: 135° F (57°C), 155°F (68°C) Cover Plate: 135° F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2
Cover Plate:	CCP
Finish:	Sprinkler: Bronze, Chrome, White Poly Coated, Custom Escutcheon: Brass, Chrome, White, Custom Cover Plate: White, Chrome, Custom

Note: In late 2009, for 5.6 K–Factor sprinklers, Technical Bulletin 151 was combined into Bulletin 028

For more detailed information including approval data, please refer to the technical bulletin specified.

EXTENDED COVERAGE cont.

F1FR, F1FR Recessed

Technical Bulletin: 148

Features:

- 3 mm glass bulb
- Covers areas up to 20' x 20' (6.1 m x 6.1 m) for pendent and recessed pendent; covers areas up to 16' x 20' (4.9 m x 6.1 m) and 16' x 24' (4.9 m x 7.3 m) for horizontal sidewall and recessed horizontal sidewall
- 4" (102 mm) - 12" (305 mm) ceiling-to-deflector distance for horizontal and recessed horizontal sidewall

Style:	Pendent, Horizontal Sidewall, Recessed Pendent, Recessed Horizontal Sidewall
K-Factor:	8.0 (115)
Temp:	135°F (57°C),155°F (68°C), 175° (79°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1, F2
Finish:	Brass, Chrome, White, Custom

Note: In 2010 for 5.6 K–Factor sprinklers, please refer to Technical Bulletin 028

F1FR EPEC

Technical Bulletin: 012

Features:

- LPCB Approved - for International market only
- Maximum coverage area up to 17.64m^2 compared to traditional 12m^2
- Maximum sprinkler spacing up to 4.2m compared to traditional 3.5m
- Reduced installation cost by using less sprinklers and system branch pipes
- Reduced water storage volume to 30 minutes instead of 60 minutes

Style:	Pendent, Recessed Pendent
K-Factor:	115 (8.0)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C)
Thread Size:	3/4-14 BSPT per ISO R7-1
Finish:	Bronze, Chrome, White

F1FR56-300 QREC

Technical Bulletin: 030

Features:

- 3mm glass bulb
- Covers areas up to 20' x 20' (6.1 m x 6.1 m)

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP)
K-Factor:	5.6 (80)
Temp:	135° F (57°C), 155°F (68°C), 175°F (79°C) For CCP: Sprinkler: 135° F (57°C), 155°F (68°C) Cover Plate: 135° F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP
Cover Plate:	CCP
Finish:	Sprinkler: Bronze, Chrome, White Poly Coated, Custom Escutcheon: Brass, Chrome, White, Custom Cover Plate: White, Chrome, Custom

Note: In late 2009, for 5.6 K–Factor sprinklers, Technical Bulletin 167 was combined into Bulletin 030

For more detailed information including approval data, please refer to the technical bulletin specified.

EXTENDED COVERAGE cont.

F1FR-300 QREC

Technical Bulletin: 159

Features:

- 300 psi (20,7 bar) maximum high pressure rating
- 3 mm glass bulb
- Sturdy brass machined cup
- Covers areas up to 20' x 20' (6.1 m x 6.1 m) for pendent and recessed pendent; covers areas up to 16' x 20' (4.9 m x 6.1 m) and 16' x 24' (4.9 m x 7.3 m) for horizontal sidewall and recessed horizontal sidewall

Style:	Pendent, Horizontal Sidewall, Recessed Pendent, Recessed Horizontal Sidewall
K-Factor:	8.0 (115)
Temp:	135°F (57°C),155°F (68°C), 175° (79°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1, F2
Finish:	Brass, Chrome, White, Custom

Note: In 2010 for 5.6 K–Factor sprinklers, please refer to Technical Bulletin 030

F1FR QREC CCP

Technical Bulletin: 151

Features:

- Utilizes Model F1FR QREC Pendent Sprinkler
- Provides quick response, extended coverage protection up to 20' x 20' coverage
- Push-on/Thread-off, sturdy convenient cover plate
- Factory assembled sprinkler and cup, shipped complete with protective cap
- Sprinkler assembly and cover plate packaged separately
- Two versions: 1/2" (13 mm) and 5/16" (8 mm) adjustments
- Attractive, low cost, conical concealed profile

Style:	Conical Concealed (CCP)
K-Factor:	8.0 (115)
Temp:	Sprinkler: 135°F (57°C),155°F (68°C), Cover Plate: 135°F (57°C)
Thread Size:	3/4"NPT (R3/4)
Cover Plate:	CCP
Finish:	Chrome, White, Custom

Note: In 2010 for 5.6 K–Factor sprinklers, please refer to Technical Bulletin 028

F1FR-300 QREC CCP

Technical Bulletin: 167

Features:

- Utilizes Model F1FR QREC-300 Pendent Sprinkler
- Provides quick response, extended coverage protection up to 20' x 20' coverage
- 300 psi (20,7 bar) working pressure rating
- Sturdy brass cup
- Factory assembled sprinkler and cup, shipped complete with protective cap
- Push-on/Thread-off cover plate optional adjustments of 1/2" (13 mm) and 5/16" (8 mm)
- Attractive, low cost conical concealed profile

Style:	Conical Concealed (CCP)
K-Factor:	8.0 (115)
Temp:	Sprinkler: 135°F (57°C), 155°F (68°C) Cover Plate: 135°F (57°C)
Thread Size:	3/4" NPT (R3/4)
Cover Plate:	CCP
Finish:	Chrome, White, Custom

Note: In 2010 for 5.6 K–Factor sprinklers, please refer to Technical Bulletin 030

For more detailed information including approval data, please refer to the technical bulletin specified.

EXTENDED COVERAGE cont.

DH56

Technical Bulletin: 015

Features:

- Provides extended coverage for long and narrow spaces such as hallways, corridors, decks and rooms up to 28 ft (8.5 m) in width with a throw of 8 ft (2.4 m) or 10 ft (3.0 m)
- Light Hazard applications
- Low profile, Push-on/Thread-off or standard friction fit escutcheons, or cover plate that provides 1/2" (13 mm) of assembly adjustment
- Factory-assembled sprinkler and cup, shipped complete with protective cap for concealed and FP recessed versions
- 250 psi (17,2 bar) maximum high pressure rating

Style:	Conical Concealed (CCP), Horizontal Sidewall, Horizontal Sidewall Recessed
K-Factor:	5.6 (80)
Temp:	Sprinkler: 155°F (68°C), 200°F (93°C) Coverplate: 135°F (57°C), 165°F (24°C)
Thread Size:	1/2" NPT
Escutcheon:	FP, F2
Cover Plate:	CCP/HSW
Finish:	Brass, Chrome, White, Custom, Cover Plate: White

DH80

Technical Bulletin: 003

Features:

- Provides coverage for long, narrow applications as well as wide rooms; coverage area up to 28' wide with a throw of 14'
- Applications include hallways, decks, balconies, corridors, breezeways
- 4" (102 mm) - 12" (305 mm) ceiling-to-deflector distance
- Minimum spacing between sprinklers 12 feet (3,6 m)
- Light Hazard applications per NFPA 13, 250 psi (17,2 bar) working pressure rating
- Low-profile, Push-on/Thread-off or standard friction fit escutcheons, or cover plate provide 1/2" (13 mm) of horizontal adjustment

Style:	Horizontal Sidewall, Recessed Horizontal Sidewall, Conical Concealed Horizontal Sidewall (CCP)
K-Factor:	8.0 (115)
Temp:	Sprinkler: 135°F (57°C), 155°F (68°C) Cover Plate: 135°F (57°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	FP, F2
Cover Plate:	CCP/HSW
Finish:	Brass, Chrome, White, Custom, Cover Plate: White, Custom

G4 XLO QREC EC "The Concealer Plus"

Technical Bulletin: 144

Features:

- Standard Response (EC) 20 feet x 20 feet (6,1 m x 6,1 m) coverage for Light Hazard occupancies
- Quick Response (QREC) 16 feet x 16 feet (4,9 m x 4,9 m) and 18 feet x 18 feet (5,5 m x 5,5 m) coverage for Light Hazard occupancies
- Push-on/Thread-off cover plate assembly with 1/2" (13 mm) adjustment
- Smooth aesthetic ceiling profile
- Factory installed protective cap

Style:	Flat Concealed
K-Factor:	11.2 (160)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	3/4" NPT (R3/4)
Cover Plate:	Flat Cover Plate
Finish:	Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

EXTENDED COVERAGE cont.

SWC

Technical Bulletin: 163

Features:

- Utilizes the Model F1FR-300 QREC-9 Horizontal Sidewall Sprinkler with 3 mm glass bulb
- Tamper resistant cover plate prevents the sprinkler from being used for unintended purposes
- Sprinkler is approved for both 175 psi (12,0 bar) and 300 psi (20,7 bar) applications
- 4" (102 mm) - 12" (305 mm) ceiling-to-deflector distance
- Sturdy brass cup
- Light hazard applications per NFPA 13, covering areas up to 16' x 22' (4.9 m x 6.7 m)
- Push-on/Thread-off, cover plate provides 1/2" of adjustment

Style:	Conical Concealed Horizontal Sidewall (CCP)
K-Factor:	8.0 (115)
Temp:	Sprinkler: 135°F (57°C), 155°F (68°C) Cover Plate: 135°F (57°C)
Thread Size:	3/4" NPT (R3/4)
Cover Plate:	CCP/HSW
Finish:	White, Custom

DRY

F3QR

Technical Bulletin: 157

Features:

- Uses Belleville spring closure technology
- 3 mm glass bulb
- Threaded, single-piece machined galvanized 1" (25 mm) nipple with extension inlet
- A variety of escutcheon and cover plate adjustments ranging from 3/8" (9.5 mm) to 1-1/2" (38 mm)
- Meets all of UL and FM compliance requirements for dry sprinklers
- Lengths to 48" (1220 mm)
- Light Hazard/Ordinary Hazard applications as per NFPA 13 and FM Data Sheets

Style:	Pendent, Recessed Pendent, Horizontal Sidewall, Recessed Horizontal Sidewall, Conical Concealed (CCP)
K-Factor:	5.6 (80)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C)
Thread Size:	1" NPT (R1)
Escutcheon:	Standard for Pendent, F1 or FP for Recessed Pendent & HSW, HB for Pendent & HSW
Cover Plate:	CCP
Finish:	Brass, Chrome, White, Custom

DH56 Dry

Technical Bulletin: 016

Features:

- Extended coverage, Light Hazard horizontal sidewall
- Quick response for 28' x 8 and 28' x 10 coverage
- cULus Listed for 4" to 12" below the ceiling

Style:	Horizontal Sidewall, Horizontal Sidewall Recessed, Conical Concealed Horizontal Sidewall (CCP)
K-Factor:	5.6 (80)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), 200°F (93°C), Cover plate: 135°F (57°C), 165°F (74°C)
Thread Size:	1" NPT (R1)
Escutcheon:	Standard for Pendent, FP for Recessed Pendent & HSW, HB for Pendent & HSW
Cover Plate:	CCP/HSW
Finish:	Brass, Chrome, White

For more detailed information including approval data, please refer to the technical bulletin specified.

INSTITUTIONAL

XL Institutional

Technical Bulletin: 113

Features:

- Solder type fusible link
- Designed for use in correctional and mental health facilities and in any other type of institution where attempts by an occupant at self-injury might involve the use of a fire sprinkler
- Low breakaway weight
- Tamper resistant escutcheon assembly
- Available in both standard and extended coverage. Extended coverage up to 16' x 16' (4.9 m x 4.9 m) for pendent and horizontal sidewall.
- Industry's only extended coverage horizontal sidewall for institutional occupancies, having a ceiling-to-deflector distance of 4" (102 mm) - 12" (305 mm)

Style:	Pendent, Horizontal Sidewall, EC Pendent, EC Horizontal Sidewall
K-Factor:	5.6 (80)
Temp:	165°F (74°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	INST XL, INST, EC
Finish:	Chrome, Escutcheon: Zinc or Aluminum, White

For more detailed information including approval data, please refer to the technical bulletin specified.

Sprinklers COMMERCIAL STANDARD RESPONSE

BASIC

F1 56

Technical Bulletin: 013

Features:

- Combines the durability of a standard sprinkler with the attractive low profile of a decorative sprinkler
- 5mm glass bulb

Style:	Upright, Pendent, Recessed Pendent, Conventional, Vertical Sidewall, Horizontal Sidewall, Recessed HSW
K-Factor:	5.6 (80)
Temp:	135° F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C), 360°F (182°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP Push-on/Thread-off
Finish:	Sprinkler: Bronze, Chrome, White Poly Coated, Custom Escutcheon: Brass, Chrome, White, Custom

F1

Technical Bulletin: 117

Features:

- All hazards (2.8 and 4.2 K-Factor - Light Hazard only) for pendent and recessed pendent; Light Hazard only for horizontal sidewall and recessed horizontal sidewall
- 5 mm glass bulb
- Available in standard coverage and extended coverage
- Extended coverage area up to 20' x 20' (6.0 m x 6.0 m) for pendent and recessed pendent

Style:	Upright, Pendent, EC Pendent, Conventional, Vertical Sidewall, Horizontal Sidewall, Recessed Pendent, Recessed EC Pendent
K-Factor:	2.8 (40), 4.2 (60), 8.0 (115)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C), 360°F (182°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4), R3/8
Escutcheon:	F1, FP for F1 Recessed
Finish:	Brass, Chrome, White, Custom

Note: In 2010 for 5.6 K–Factor sprinklers, please refer to Technical Bulletin 013 & 027 (5.6 K-Factor EC)

F156-300

Technical Bulletin: 025

Features:

- 300 psi (20,7 bar) working pressure rating
- 5mm glass bulb

Style:	Upright, Pendent, Recessed Pendent
K-Factor:	5.6 (80)
Temp:	135° F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C), 360°F (182°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2
Finish:	Sprinkler: Bronze, Chrome, White Poly Coated, Custom Escutcheon: Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

BASIC cont.

F1-300

Technical Bulletin: 155

Features:

- 300 psi (20,7 bar) working pressure rating
- 5 mm glass bulb
- All occupancy hazards per NFPA 13
- Sturdy machined brass cup

Style:	Upright, Pendent, Recessed Pendent
K-Factor:	8.0 (115)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1, F2, FP
Finish:	Brass, Chrome, White, Custom

Note: In 2010 for 5.6 K-Factor sprinklers, please refer to Technical Bulletin 025

G

Technical Bulletin: 110

Features:

- Solder-type fusible link
- All occupancy hazards (1.9, 2.8 and 4,2 K-Factor - Light Hazard only)

Style:	Upright, Pendent, Conventional
K-Factor:	1.98 (28.5), 2.82 (40.6), 4.10 (59.1), 4.24 (61), 5.6 (80), 7.96 (114.7), 8.20 (118.2)
Temp:	135°F (57°C), 165°F (74°C), 212°F (100°C), 286°F (141°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4), 10 mm, 20 mm
Finish:	Brass, Chrome, White, Custom

G, G/F1 Recessed

Technical Bulletin: 112

Features:

- Solder type fusible link
- G VSW, G HSW-EC4 and G/F1/HSW-EC4- light hazard only;
  G HSW-1 - Light and Ordinary Hazard
- G HSW-1 (2.8 and 4.2 K-Factor - Light Hazard only)
- K=5.6 for EC4 coverage areas up to 16'x20' (4.9m to 6.1m); K=8.0 for EC4 coverage areas up to 16'x24' (4.9m to 7.3m)

Style:	Vertical Sidewall-Upright, Vertical Sidewall-Pendent, Horizontal Sidewall, Recessed Horizontal Sidewall, EC Horizontal Sidewall, Recessed Extended Coverage Sidewall
K-Factor:	2.82 (40.6), 4.24 (61), 5.6 (80), 7.96 (114.7), 8.2 (118.2)
Temp:	135°F (57°C), 165°F (74°C), 212°F (100°C), 286°F (141°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4)
Escutcheon:	G/F1
Finish:	Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

DECORATIVE

G4

Technical Bulletin: 121

Features:

- Smooth aesthetic ceiling profile
- 1/2" (13 mm) total adjustment provided by economical standard inlet version; 1-1/2" (38 mm) total adjustment provided by adjustable inlet versions
- Adjustable inlet version eliminates costly reducing coupling
- Ordinary and intermediate temperature ratings
- Multiple orifices for design flexibility
- Light and Ordinary Hazard Applications (2.8 and 4.2 K-Factor - Light Hazard only)

Style:	Flat Concealed
K-Factor:	2.8 (40), 4.2 (60), 5.6 (80)
Temp:	Sprinkler: 135°F (57°C), 165°F (74°C), 212°F (100°C), Cover Plate: 135°F (57°C), 165°F (74°C)
Thread Size:	Non-Adjustable: 1/2 NPT (R1/2), Adjustable: 1" NPT Male or Female
Cover Plate:	Flat Concealed
Finish:	Brass, Chrome, White, Custom

G4-300

Technical Bulletin: 161

Features:

- 1/2" (13 mm) cover plate adjustment
- Smooth aesthetic ceiling profile
- Factory installed protective cap
- Ordinary and intermediate temperature ratings
- 300 psi (20,7 bar) maximum pressure rating
- Light and Ordinary Hazard Applications (2.8 and 4.2 K-Factor - Light Hazard only)

Style:	Flat Concealed
K-Factor:	5.6 (80)
Temp:	135°F (57°C), 165°F (74°C), 212°F (100°C), Cover Plate: 135°F (57°C), 165°F (74°C)
Thread Size:	Non-Adjustable: 1/2 NPT (R1/2), Adjustable: 1" NPT Male or Female
Cover Plate:	Flat Concealed
Finish:	Brass, Chrome, White, Custom

G4FR

Technical Bulletin: 122

Features:

- Smooth aesthetic ceiling profile
- 1/2" (13 mm) total adjustment provided by economical standard inlet version; 1-1/2" (38 mm) total adjustment provided by adjustable inlet versions
- Adjustable inlet version eliminates costly reducing coupling
- Multiple orifices for design flexibility
- Light and Ordinary Hazard Applications (2.8 and 4.2 K-Factor - Light Hazard only)

Style:	Flat Concealed
K-Factor:	2.8 (40), 4.2 (60), 5.6 (80)
Temp:	Sprinkler: 165°F (74°C), 212°F (100°C), Cover Plate: 135°F (57°C), 165°F (74°C)
Thread Size:	Non-Adjustable: 1/2 NPT (R1/2), Adjustable: 1" NPT Male or Female
Cover Plate:	Flat Concealed
Finish:	Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

DECORATIVE cont.

G4, G4FR "Sealing Concealed"

Technical Bulletin: 123

Features:

- Cover plate with gasket assembly for dust free environments while offering an attractive appearance
- 1/2" (13 mm) total adjustment provided by economical standard inlet version; 1-1/2" (38 mm) total adjustment provided by adjustable inlet versions
- Adjustable inlet version eliminates costly reducing coupling
- Ordinary and intermediate temperature rating
- Multiple orifices for design flexibility
- Light and Ordinary Hazard Applications (2.8 and 4.2 K-Factor - Light Hazard only)

Style:	Flat Concealed
K-Factor:	2.8 (40), 4.2 (60), 5.6 (80)
Temp:	Sprinkler: 135°F (57°C), 165°F (74°C), 212°F (100°C), Cover Plate: 135°F (57°C), 165°F (74°C)
Thread Size:	Non-Adjustable: 1/2 NPT (R1/2), Adjustable: 1" NPT Male or Female
Cover Plate:	Flat Concealed
Finish:	Brass, Chrome, White, Custom

G Recessed

Technical Bulletin: 111

Features:

- Smooth aesthetic ceiling profile
- 1/2" (13 mm) total adjustment provided by economical standard inlet version; 1-1/2" (38 mm) total adjustment provided by adjustable inlet versions
- Adjustable inlet version eliminates costly reducing coupling
- Small diameter escutcheon
- Light and Ordinary Hazard Applications (2.75, 2.82 and 4.24 K-Factor - Light Hazard only)

Style:	Recessed Pendent
K-Factor:	2.75 (39.2) 2.82 (40.6), 4.24 (61), 5.53 (79.7), 5.6 (80), 7.96 (114.7)
Temp:	135°F (57°C), 165°F (74°C), 212°F (100°C)
Thread Size:	Non-Adjustable: 1/2 NPT (R1/2), Adjustable: 1" NPT Male or Female, R1 Male or Female
Escutcheon:	G Recessed
Finish:	Brass, Chrome, White, Custom

G/F1

Technical Bulletin: 120

Features:

- Decorative recessed pendent sprinkler
- Rapid and easy installation
- 3/4" (19 mm) adjustment to flush pendent position
- 1/2" (13 mm) adjustment for recessed position with 1/4" (6 mm) minimum recess
- Light and Ordinary Hazard Applications (2.8 and 4.2 K-Factor - Light Hazard only)

Style:	Recessed Pendent
K-Factor:	2.8 (40), 4.2 (60), 5.6 (80), 8.0 (115)
Temp:	135°F (57°C), 165°F (74°C), 212°F (100°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4)
Escutcheon:	G/F1
Finish:	Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

EXTENDED COVERAGE

JL112 and J112 Upright

Technical Bulletin: 173

Features:

- Extended Coverage for both Light and Ordinary Hazard occupancies for coverage areas from 144 ft² to 400 ft²
- Quick Response for Light Hazard - 16' x 16' to 20' x 20' sprinkler spacing
- Quick Response for Ordinary Hazard - 12' x 12' & 14' x 14' sprinkler spacing
- Standard Response for Ordinary Hazard - 16' x 16' to 20' x 20' sprinkler spacing
- Available with solder link or 3 mm glass bulb

Style:	Upright
K-Factor:	11.2 (160)
Temp:	JL112 Upright: 165° F (74° C), JL112 Upright: 212° F (100° C) J112 Upright: 155° F (68°C), J112 Upright: 200° (93°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Bronze, Chrome, White Polyester

JL112 and J112 Pendent & Recessed Pendent

Technical Bulletin: 172

Features:

- Extended Coverage for both Light and Ordinary Hazard occupancies for coverage areas from 144 ft² to 400 ft²
- Quick Response for Light Hazard - 16' x 16' to 20' x 20' sprinkler spacing
- Quick Response for Ordinary Hazard - 12' x 12' & 14' x 14' sprinkler spacing
- Standard Response for Ordinary Hazard - 16' x 16' to 20' x 20' sprinkler spacing
- Available with solder link or 3 mm glass bulb

Style:	Pendent, Recessed Pendent
K-Factor:	11.2 (160)
Temp:	JL112 Pendent: 165° F (74°C), JL112 Recessed Pendent: 212° F (100° C), J112 Pendent: 155° F (68°C), J112 Recessed Pendent: 200° (93°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1, F2, FP Push-on/Thread-off
Finish:	Bronze, Chrome, White Polyester

GFR VELO-ECOH

Technical Bulletin: 160

Features:

- Provides Extended Coverage Ordinary Hazard and protection to 400 ft² (37,2 m²) per sprinkler
- Recessed pendent version provides 3/4" (19 mm) adjustment to flush pendent position
- Can be used for all editions of NFPA 13
- Solder fusible link

Style:	Pendent, Recessed Pendent
K-Factor:	14.0 (200)
Temp:	165°F (74°C), 212°F (100°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1
Finish:	Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

EXTENDED COVERAGE cont.

GFR VELO-ECOH UPRIGHT

Technical Bulletin: 165

Features:

- Provides Extended Coverage Ordinary Hazard and protection to 400 ft² (37,2 m²) per sprinkler
- Very extra large orifice of nominal K=14.0 permitting low pressures
- Can be used for all editions of NFPA 13
- Solder fusible link

Style:	Upright
K-Factor:	14.0 (200)
Temp:	165°F (74°C), 212°F (100°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Bronze, Chrome, Custom

F156 SREC

Technical Bulletin: 027

Features:

- Combines the durability of a standard sprinkler with the attractive low profile of a decorative sprinkler
- 5mm glass bulb

Style:	Pendent, Recessed Pendent
K-Factor:	5.6 (80)
Temp:	135° F (57°C), 155°F (68°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP
Finish:	Sprinkler: Bronze, Chrome, White Poly Coated, Custom Escutcheon: Brass, Chrome, White, Custom

F156-300 SREC

Technical Bulletin: 029

Features:

- High pressure rated automatic sprinklers which can handle a maximum service pressure of 300 psi (20,7 bar)
- Combines durability of a standard sprinkler with the attractive low profile of a decorative sprinkler
- 5 mm glass bulb

Style:	Pendent, Recessed Pendent
K-Factor:	5.6 (80)
Temp:	135° F (57°C), 155°F (68°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP
Finish:	Sprinkler: Bronze, Chrome, White Poly Coated, Custom Escutcheon: Brass, Chrome, White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

EXTENDED COVERAGE cont.

F1-300 SREC

Technical Bulletin: 158

Features:

- High pressure rated automatic sprinklers which can handle a maximum service pressure of 300 psi (20,7 bar)
- Combines durability of a standard sprinkler with the attractive low profile of a decorative sprinkler
- 5 mm glass bulb
- Sturdy brass cup

Style:	Pendent, Recessed Pendent
K-Factor:	8.0 (115)
Temp:	135°F (57°C), 155°F (68°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1
Finish:	Brass, Chrome, White, Custom

Note: In 2010 for 5.6 K–Factor sprinklers, please refer to Technical Bulletin 029

MBEC-14 "Metal Building Sprinkler"

Technical Bulletin: 169

Features:

- Sprinkler for prengineered metal buildings having a maximum bay width of 25 ft (7.6 m) and 32 ft (9.8 m) high
- Designed to be installed on piping that is supported by the primary structure, not the purlins
- Provides Extended Coverage for Ordinary & Extra Hazard protection to 175 ft.^{2} (16.3 m^2) per sprinkler
- Density/Area demand based upon hazard to be protected
- Can be used for all editions of NFPA13 that permit extended coverage sprinklers for wet, dry and preaction sprinkler systems

Style:	Horizontal Sidewall
K-Factor:	14.0 (200)
Temp:	165°F (74°C), 212°F (100°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Bronze, Chrome, Custom

DRY

F3

Technical Bulletin: 153

Features:

- Utilizes Belleville Spring Closure technology
- 1-1/2" (38 mm) escutcheon adjustment on pendent sprinkler
- 1/2" (13 mm) escutcheon adjustment on recessed sprinkler with push-on/thread-off FP Model escutcheon ring
- 3/8" (9,5 mm) cover plate adjustment on concealed sprinkler with push-on/thread-off CCP cover
- Attractive appearance. Employs 5mm glass bulb and galvanized nipple
- Lengths available to accommodate installation dimensions from 2" (51 mm) to 48" (1219 mm), in 1/4" (6 mm) increments
- Standard Coverage for Light and Ordinary Hazard

Style:	Pendent, Recessed Pendent, Horizontal Sidewall, Recessed Horizontal Sidewall, Conical Concealed (CCP)
K-Factor:	5.6 (80)
Temp:	135°F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C)
Thread Size:	1" NPT (R1)
Escutcheon:	Standard for Pendent, FP for Recessed Pendent & HSW, HB for Pendent & HSW
Cover Plate:	CCP
Finish:	Brass, Chrome, White, Custom, Corrosion Resistant finishes available

For more detailed information including approval data, please refer to the technical bulletin specified.

F1S5-FS56 Flat Spray

Technical Bulletin: 023

Features:

- VdS Approved and CE Certified – for International market only
- Excellent choice for applications with lower clearance above the suspended open ceilings and in racks
- 5mm glass bulb

Style:	Pendent, Pendent with shield
K-Factor:	80 metric (5.6 US)
Temp:	57°C (135°F), 68°C (155°F), 79°C (175°F), 93°C (200°F), 141°C (286°F)
Thread Size:	R1/2" BSPT (1/2" NPT)
Finish:	Sprinkler: Bronze Shield: Galvanized

F1S5 Standard Spray

Technical Bulletin: 024

Features:

- VdS Approved – for International market only
- Combines the durability of standard sprinklers with the attractive low profile of a decorative sprinkler
- 5mm glass bulb

Style:	Upright, Pendent, Conventional, Recessed Pendent
K-Factor:	80 metric (5.6 US)
Temp:	57°C (135°F), 68°C (155°F), 79°C (175°F), 93°C (200°F), 141°C (286°F)
Thread Size:	R1/2" BSPT (1/2" NPT)
Escutcheon:	F1, F2, FP Push-on/Thread-off
Finish:	Bronze, Chrome, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

JL-14 ESFR

Technical Bulletin: 018

Features:

- Early suppression, fast response sprinkler for the protection of high-piled storage
- Levered fusible alloy solder link available with a 165°F (74°C) or a 212°F (100°C) temperature rating
- Delivers approximately 100 gpm (378 L/min) of water at 50 psi (3,5 bar)

Style:	ESFR Pendent
K-Factor:	14.0 (202)
Temp:	165°F (74°C), 212°F (100°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Bronze

H ESFR

Technical Bulletin: 150

Features:

- Early suppression, fast response sprinkler for the protection of high-piled storage
- 2.5 mm glass bulb
- Eliminates many of the in-rack sprinkler requirements as compared to using control-mode type sprinklers

Style:	ESFR Pendent
K-Factor:	14.0 (200)
Temp:	286°F (141°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Bronze

JL-17 ESFR

Technical Bulletin: 019

Features:

- Early suppression, fast response sprinkler for the protection of high-piled storage
- Levered fusible alloy solder link available with a 165°F (74°C) or a 212°F (100°C) temperature rating
- Delivers approximately 121 gpm (458 L/min) of water at 52 psi (3,6 bar)

Style:	ESFR Pendent
K-Factor:	16.8 (241.9)
Temp:	165°F (74°C), 212°F (100°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Bronze

For more detailed information including approval data, please refer to the technical bulletin specified.

HL-22 ESFR

Technical Bulletin: 010

Features:

- Early suppression, fast response sprinkler for the protection of high-piled storage
- Levered fusible alloy solder link available with a 165°F (74°C) or a 212°F (100°C) temperature rating
- Eliminates in-rack sprinkler requirements and is optimized for use in buildings over 40' up to 45' in height
- Maximum ceiling-to-deflector distance is 18" (457 mm)
- Lower flow requirements offers opportunities to reduce sizing requirements of system pipe, fire pumps, underground pipe and storage tanks

Style:	ESFR Pendent
K-Factor:	22.4 (320)
Temp:	165°F (74°C), 212°F (100°C)
Thread Size:	1" NPT (R1)
Finish:	Bronze

HL-22 Specific Application ESFR

Technical Bulletin: 177

Features:

- Early suppression, fast response sprinkler for the protection of high-piled storage
- Eliminates in-rack sprinklers for 48’ high buildings
- Lower flows offer opportunities to reduce interior piping, fire pump sizes, underground pipe, and tank sizes
- Maximum deflector distance from ceiling (roof) is 14” (356mm)
- Utilizes fusible alloy solder link
- Delivers approximately 166 gpm (632 L/min) of water at 55 psi (3,8 bar)

Style:	ESFR Pendent
K-Factor:	22.4 (320)
Temp:	212°F (100°C)
Thread Size:	1" NPT (R1)
Finish:	Bronze*

**Sprinkler frame is painted White in order to provide a visual identifier of the temperature rating*

K-22 ESFR

Technical Bulletin: 166

Features:

- Early suppression, fast response sprinkler for the protection of high-piled storage
- 2.5 mm glass bulb
- Eliminates in-rack sprinkler requirements and is optimized for use in 45' (13.7 m) high buildings with 40' (12.2 m) storage
- Maximum ceiling-to-deflector distance is 18" (457 mm)
- Lower flow requirements offers opportunities to reduce sizing requirements of system pipe, fire pumps, underground pipe and storage tanks

Style:	ESFR Pendent
K-Factor:	22.4 (320)
Temp:	155°F (68°C), 200°F (93°C)
Thread Size:	1" NPT (R1)
Finish:	Bronze

For more detailed information including approval data, please refer to the technical bulletin specified.

J168

Technical Bulletin: 011

Features:

- Control mode, density/area upright sprinkler for extra hazard and storage occupancies per NFPA 13 requirements
- Very large orifice for use in high challenge storage occupancies
- Can operate at pressures as low as 7 psi
- Solder fusible link
- Provides opportunities for reduced design areas, higher storage, reduced ceiling clearance to storage, and other savings in sprinklers design
- The best choice for densities of 0.44 gpm/ft^2 (15 L/min/m^2) or larger

Style:	Upright
K-Factor:	16.8 (24.2)
Temp:	165°F (74°C), 212°F (100°C), 286 °F (141°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Bronze, Corrosion Resistant finishes available

N252 EC

Technical Bulletins: 008 & 908

Features:

- Can be used as a control mode, density/area sprinkler for storage and as a control mode specific application sprinkler
- Extended coverage for density/area design for coverage up to 196 ft^2 (14 feet x 14 feet) for Extra Hazard, high-piled and rack storage applications
- Solder fusible link
- Can be installed directly on the piping for exposed pipe systems
- Complies with the criteria for protection of retail stores as described in NFPA 2002, section 12-7.2
- Installations for finished ceilings utilize the Push-on/Thread-off FP recessed escutcheon which provides a 1/2" (13 mm) adjustment
- Minimum operating pressure of 7 psi

Style:	Pendent, Recessed Pendent
K-Factor:	25.2 (36.3)
Temp:	165°F (74°C), 212°F (100°C)
Thread Size:	1" NPT (R1)
Escutcheon:	FP
Finish:	Bronze, White

G XLO

Technical Bulletin: 129

Features:

- Solder fusible link
- Extra large orifice for use in high challenge storage occupancies
- Can operate at pressures as low as 7 psi
- Lower operating pressure saves cost by reducing branch line sizes, fire pump sizes, fewer sprinklers
- 1/2" NPT (R1/2) available for retrofit installations only

Style:	Upright
K-Factor:	11.2 (160)
Temp:	165°F (74°C), 212°F (100°C), 286 °F (141°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4)
Finish:	Brass, Chrome, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

G VELO

Technical Bulletin: 146

Features:

- Solder fusible link
- Very extra large orifice for use in high challenge storage occupancies
- Can operate at pressures as low as 7 psi
- Lower operating pressure saves cost by reducing branch line sizes, fire pump sizes, fewer sprinklers
- May be installed in drops or directly into branch line fittings
- The best choice for densities of 0.38 gpm/ft^2 (15 L/min/m^2) or larger
- Simplifies future ESFR conversions

Style:	Pendent
K-Factor:	14.0 (200)
Temp:	165°F (74°C), 212°F (100°C), 286 °F (141°C)
Thread Size:	3/4" NPT (R3/4)
Finish:	Brass, Chrome, Custom

F1, F156, F1FR, F1FR56

Technical Bulletin: 031

Features:

- Available in either Standard Response or Quick Response
- Intermediate level sprinklers for fixed fire protection systems

Style:	Upright, Pendent
K-Factor:	5.6 (80), 8.0 (115)
Temp:	F156: 135° F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C), 286°F (141°C), 360°F (182°C) F1FR, F1FR56: 135° F (57°C), 155°F (68°C), 175°F (79°C), 200°F (93°C), 286°F (141°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4)
Finish:	Bronze, Custom

G Intermediate Level

Technical Bulletin: 114

Features:

- Solder fusible link
- Can be used whenever there is a danger of inhibiting operation of a sprinkler due to wetting from an overhead sprinkler
- Available with corrosion-resistant finishes
- Multi-level in-rack installations or beneath open-grid catwalks are typical applications

Style:	Upright, Pendent
K-Factor:	5.6 (80), 8.0 (115)
Temp:	165°F (74°C), 212°F (100°C), 286 °F (141°C)
Thread Size:	1/2" NPT (R1/2), 3/4" NPT (R3/4)
Finish:	Brass, Chrome, Custom, Corrosion Resistant finishes available

For more detailed information including approval data, please refer to the technical bulletin specified.

Sprinklers RESIDENTIAL

Our Residential Sprinklers are designed for the lowest flows to meet the minimum design density of .05 gpm/ft² (Bulletin 135) as well as .10 gpm/ft² (Bulletin 176).
Most of Reliable's Residential Sprinklers have sloped ceiling approvals for up to 4/12 and 8/12 pitch. See Technical Bulletin 035 for sloped ceiling design requirements.

For additional information on our Residential Sprinklers, please see
- Technical Bulletin 140 for Design and Installation Guide
- Technical Bulletin 007 for Wall Wetting Patterns

F1RES 30

Technical Bulletin: 135

Features:

- Listed for a minimum of .05 gpm/ft²
- 3 mm glass bulb
- For use in NFPA 13D installations with limited water supplies or small water meters that limit the available gpm
- Can reduce the size of storage tanks or for systems supplied by wells
- For use in NFPA 13 and NFPA 13R installations where larger K-Factor sprinklers over discharge in small rooms
- Great for retrofit installations
- For use in horizontal ceilings
- Industry's only concealed 3.0 K-Factor sprinkler

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP) Pendent
K-Factor:	3.0 (4.0)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F2, FP
Cover Plate:	CCP
Finish:	White, Custom

F1RES 30 LL

Technical Bulletin: 033

Features:

- Listed for a minimum of .05 gpm/ft²
- 3 mm glass bulb
- For use in NFPA 13D installations with limited water supplies or small water meters that limit the available gpm
- Great for retrofit installations
- For use on flat ceilings

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP) Pendent
K-Factor:	3.0 (4.0)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F2, FP
Cover Plate:	CCP
Finish:	White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

F1RES 49

Technical Bulletins: 135 & 176

Features:

- Listed for a minimum of .05 gpm/ft²
- 3 mm glass bulb
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA 13
- Approved for installation up to 8 inches below the ceiling
- Available with 3/4" adjustable two-piece escutcheon and 1/2" adjustable low profile, Push-on/Thread-off escutcheon
- Listed for use with smooth flat horizontal and sloped ceilings

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP) Pendent
K-Factor:	4.9 (70)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP
Cover Plate:	CCP
Finish:	White, Custom

F1RES 49 LL

Technical Bulletin: 033

Features:

- Listed for a minimum of .05 gpm/ft²
- 3 mm glass bulb
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA 13
- Approved for up to 8 inches below the ceiling
- Available with 3/4" & 1/2" adjustable two-piece escutcheons and 1/2" adjustable low profile, Push-on/Thread-off escutcheon
- Can be used for flat and sloped ceilings

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP) Pendent
K-Factor:	4.9 (70)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP
Cover Plate:	CCP
Finish:	White, Custom

F1RES 44

Technical Bulletins: 135 & 176

Features:

- Listed for a minimum of .05 gpm/ft²
- 3 mm glass bulb
- Available with 1/2" (13 mm) adjustable two-piece escutcheon
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA 13
- Listed for use with smooth flat horizontal and sloped ceilings

Style:	Horizontal Sidewall, Recessed Horizontal Sidewall, Sidewall Concealed (CCP)
K-Factor:	4.4 (63.4)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F2
Cover Plate:	CCP/HSW
Finish:	White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

F1RES 44 LL

Technical Bulletin: 033

Features:

- Listed for a minimum of .05 gpm/ft²
- 3 mm glass bulb
- Available with 1/2" (13 mm) adjustable two-piece escutcheon
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA 13
- Can be used for flat and sloped ceilings, specifically for discharging down and across the slope

Style:	Horizontal Sidewall, Recessed Horizontal Sidewall, Sidewall Concealed (CCP)
K-Factor:	4.4 (63.4)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F2
Cover Plate:	CCP/HSW
Finish:	White, Custom

RFC49

Technical Bulletin: 006

Features:

- Very low water flow and pressure requirements
- ½" (13mm) Total cover plate adjustment
- Flat cover plate with smooth aesthetic ceiling profile
- cULus Listed

Style:	Flat Concealed
K-Factor:	4.9 (70.6)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Cover Plate:	Flat Concealed RFC
Finish:	White, Chrome, Custom

RFC49 LL

Technical Bulletin: 032

Features:

- Listed for a minimum of .05 gpm/ft²
- Solder fusible link
- Smooth, aesthetic ceiling profile
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA 13
- Push-on/Thread-off cover plate provides 1/2" (13 mm) of adjustment
- For use on flat and sloped ceilings

Style:	Flat Concealed
K-Factor:	4.9 (70.6)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Cover Plate:	Flat Concealed (1/2" adjustment)
Finish:	White, Chrome, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

RFC43

Technical Bulletin: 006

Features:

- Listed for a minimum of .05 gpm/ft²
- Solder fusible link
- Smooth, aesthetic ceiling profile
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA 13
- Cover plate provides 1/2" (13 mm) of adjustment
- Listed for use with smooth flat horizontal and sloped ceilings

Style:	Flat Concealed
K-Factor:	4.3 (62.4)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Cover Plate:	Flat Concealed RFC
Finish:	White, Chrome, Custom

RFC43 LL

Technical Bulletin: 032

Features:

- Listed for a minimum of .05 gpm/ft²
- Solder fusible link
- Smooth, aesthetic ceiling profile
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA 13
- Push-on/Thread-off cover plate provides 1/2" (13 mm) of adjustment
- Can be used for flat and sloped ceilings

Style:	Flat Concealed
K-Factor:	4.3 (62)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Cover Plate:	Flat Concealed (1/2" adjustment)
Finish:	White, Chrome, Custom

RFC30

Technical Bulletin: 006

Features:

- Very low water flow and pressure requirements
- ½" (13mm) Total cover plate adjustment
- Flat cover plate with smooth aesthetic ceiling profile
- cULus Listed

Style:	Flat Concealed
K-Factor:	3.0 (4.0)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Cover Plate:	Flat Concealed RFC
Finish:	White, Chrome, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

RFC30 LL

Technical Bulletin: 032

Features:

- Listed for a minimum of .05 gpm/ft²
- Solder fusible link
- Smooth, aesthetic ceiling profile
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA 13
- Push-on/Thread-off cover plate provides 1/2" (13 mm) of adjustment
- Can be used for flat and sloped ceilings

Style:	Flat Concealed
K-Factor:	3.0 (43)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Cover Plate:	Flat Concealed (1/2" adjustment)
Finish:	White, Chrome, Custom

F1RES 58

Technical Bulletins: 135 & 176

Features:

- Listed for a minimum of .05 gpm/ft²
- 3 mm glass bulb
- Larger K-factor provides lower pressure demands for 0.1 densities for NFPA 13 applications
- Approved with F1 escutcheon for a 3/4" (19 mm) adjustment

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP) Pendent, Horizontal Sidewall, Recessed Horizontal
K-Factor:	5.8 (83.5)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP
Cover Plate:	CCP
Finish:	White, Custom

F1RES 58 LL

Technical Bulletin: 033

Features:

- Listed for a minimum of .05 gpm/ft²
- 3 mm glass bulb
- For use in wet pipe systems in accordance with NFPA 13D and 13R, and for use in the residential portions of any occupancy per NFPA13
- Available with 3/4" & 1/2" adjustable two-piece escutcheon and 1/2" adjustable low profile Push-on/Thread-off escutcheon
- Can be used for flat and sloped ceilings

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP) Pendent, Horizontal Sidewall, Recessed Horizontal
K-Factor:	5.8 (83.5)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Escutcheon:	F1, F2, FP
Cover Plate:	CCP
Finish:	White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

F1RES 76

Technical Bulletins: 135 & 176

Features:

- Listed to provide a minimum density to .05 gpm/ft²
- 3 mm glass bulb
- Largest K-Factor on the market today for NFPA 13 Residential Applications
- The larger K-Factor provides lower pressure demands for .10 densities per NFPA 13 requirements

Style:	Pendent, Recessed Pendent, Conical Concealed (CCP) Pendent
K-Factor:	7.6 (108.5)
Temp:	Sprinkler: 155°F (68°C), 175°F (79°C), CCP Cover Plate: 135°F (57°C)
Thread Size:	3/4" NPT (R3/4)
Escutcheon:	F1, F2, FP
Cover Plate:	CCP
Finish:	White, Custom

RFC56

Technical Bulletin: 009

Features:

- Listed for a minimum of .05 gpm/ft²
- Larger K-factor provides lower pressure demands for 0.1 densities for NFPA 13 applications
- Solder fusible link
- Smooth, aesthetic ceiling profile
- Cover plate provides 1/2" (13 mm) of adjustment
- For use on horizontal ceilings

Style:	Flat Concealed
K-Factor:	5.6 (80)
Temp:	Sprinkler: 165°F (74°C), Cover Plate: 135°F (57°C)
Thread Size:	1/2" NPT (R1/2)
Cover Plate:	Flat Concealed G4
Finish:	White, Custom

For more detailed information including approval data, please refer to the technical bulletin specified.

HV Spray Nozzles

Technical Bulletin: 105

High Velocity Spray Nozzles

- Model HV - A without Strainer
- Model HV - AS with Strainer

Features:

- Dense, high velocity core of water spray
- Solid uniform fixed pattern spray
- Brass housing
- Minimum desired pressure - 50 psi
- Four (4) orifice sizes
- Eight (8) models available

Thread Size:	3/4" NPT (R3/4)
Finish:	Brass, Chrome-Plated

Open Sprinklers

Technical Bulletin: 104

Type

- Model G & F1 - Open Standard (Spray) Upright and Pendent Sprinklers
- Model G & F1 - Conventional Open Style Sprinkler
- Model G & F1 - Open Sidewall Sprinklers

For more detailed information including approval data, please refer to the technical bulletin specified.

B, FM Spray Nozzles

Technical Bulletin: 103

Features:

- Designed for external use.
- Installed in locations where a blanket of water is desired over a predetermined area
- For use on deluge systems where exposure protection form a nearby hazard is required
- Designed to spray a water discharge pattern on the outside of buildings, over window glazing, or under cornice areas

• Model B Type: Window, Thread Size: 1/2" NPT (R1/2), K-Factor: 1.81 (26), 2.57 (37), 3.56 (50), Installation Position: Pendent

• Model FM - Window Type: Window, Thread Size: 1/2" NPT, 3/4" NPT, K-Factor: 7.0 (121), 11.21 (161), 16.0 (230), Installation Position: Pendent

• Model FM Type: Cornice, Thread Size: 1/2" (NPT), 3/4" (NPT), K-Factor: 7.0 (121), 11.21 (161), 16.0 (230), Installation Position: Upright

Finish: Bronze, Chrome, Lead, Wax

A Spray Nozzle

Technical Bulletin: 106

Features:

- Non-automatic fixed pattern
- Solid cone discharge of low to medium velocity water droplets
- Effective in covering exposed horizontal, vertical curved and irregular shaped surfaces
- All brass and bronze construction
- No moving parts. No orifice less than 1/4" (6 mm)
- Three orifice sizes and three discharge angles

Model Numbers:	Model R20- 80 - K-Factor = 1.90 Model R30- 80 - K-Factor = 3.05 Model R60- 80 - K-Factor = 5.80 Model R20- 110 - K-Factor = 1.90 Model R30- 110 - K-Factor = 3.05 Model R60- 110 - K-Factor = 5.80 Model R20- 140 - K-Factor = 1.90 Model R30- 140 - K-Factor = 3.05 Model R60- 140 - K-Factor = 5.80
Discharge Angle:	80°, 110°, 140°
Thread Size:	1/2" NPT (R1/2)
Finish:	Bronze, Chrome, Lead, Wax

For more detailed information including approval data, please refer to the technical bulletin specified.

PILOT LINE DETECTOR

F1-FTR (PLD)

Technical Bulletin: 180

Features:

- Fixed temperature, heat detector
- 2.5 mm glass bulb
- Quick response
- Die cast brass frame
- Coverage area listings permit reduction in the number of pilot line sprinklers
- For use in pilot lines as a listed heat detector for deluge and preaction systems
- May be installed in either the upright or pendent position
- Listed spacings of 40' x 40' and 50' x 50' for unobstructed construction

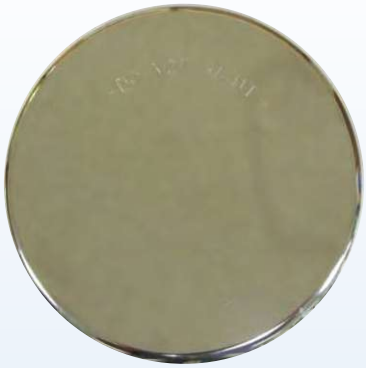
Style:	Pendent, Upright
Temp:	135°F (57°C), 155°F (60°C), 175°F (79°C), 200°F (93°C)
Thread Size:	1/2" NPT (R1/2)
Finish:	Brass, Chrome, White

For more detailed information including approval data, please refer to the technical bulletin specified.

Cover Plate Finishes

Reliable cover plates are available in three standard finishes

Bronze



Bright Chrome

White Paint

And in five special application finishes

Bright Brass

Black Plating

Black Paint

Off White

Satin Chrome

Custom colors can also be done.
Please allow additional time.
All custom finishes must be done by Reliable.

Due to variations in printing, we cannot guarantee the colors shown here with actual products. Please check with your local Reliable sales office.

For more detailed information including approval data, please refer to the technical bulletin specified.

Cabinets

Technical Bulletin: 204

Sprinkler Emergency Cabinets carry an emergency supply of sprinklers and a sprinkler wrench.

- Two Models:
  (1) Model A4 - 3, 6, or 12 capacity
  (2) Model A3 - 6, 12 capacity
- Provides storage for spare sprinklers and sprinkler wrench

Escutcheons

Technical Bulletin: 204

Escutcheons enhance the appearance of installations by covering exposed fittings of automatic sprinklers that are visible beyond finished ceilings and walls.

- Model B - One Piece
  Diameter: 2-7/8"; Depth: 11/16"; 1/2" NPT
- Model C - One Piece
  Diameter: 2-7/8"; Depth: 1/8"; 1/2" NPT
- Model HB - Two Piece
  Diameter: 3-1/2"; Depth: 2"; Min: 3"; Max: 1/2" and 3/4" NPT

Installation and Service Wrenches

Technical Bulletin: 205

Different wrench models available for our sprinklers and valves.
Please refer to the individual Technical Bulletin for the correct wrench.

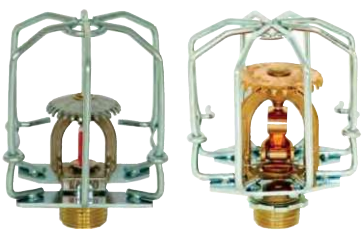
Sprinkler Wrenches:

- Model G4
- Model GFR2
- Model RC1
- Model G3R/C
- Model ZX Pendent
- Model XLO EC
- Model XLO
- Model XLO2
- Model ZX Horizontal Sidewall
- Model FC Flat Concealed
- Model D
- Model H
- Model G3
- Model N
- Model J1
- Model RJ
- Model FEA Escutcheon Wrench

Valve Wrenches:

- Model A & D Dry Pipe Valve Seat
- Model C1 & C2 Lever Bracket Nut
- Model E Alarm Valve Seat
- Model DDX Deluge Valve Seat
- Model DDX Dry Pipe Valve Seat

Sprinkler Guards C & D



Technical Bulletin: 208

Model C Series Sprinkler Guards are designed to be assembled onto installed sprinklers. Guards protect automatic sprinklers in locations where they are subject to physical damage.

Model D Series Sprinkler Guards are supplied as kits to be assembled to the sprinkler at the job site before sprinkler installations. They are also available factory assembled on the sprinkler - ready for immediate sprinkler/guard installation.

Model C-1: Pendent, Upright, HSW, Vertical Sidewall, Upright, Pendent; Model C-2: Pendent; Model C-3: Upright Intermediate; Model C-5: Pendent Intermediate; Model D-1: Pendent, Upright, HSW; Model D-3: Upright Intermediate; Model D-4: Pendent Intermediate (Large Shield); Model D-5: Pendent Intermediate (Small Shield); Model D-6: Upright Intermediate

For more detailed information including approval data, please refer to the technical bulletin specified.

Smart Guide FOR ALL SPRINKLER APPLICATIONS

MODEL	AVAILABLE STYLES – SPRINKLER IDENTIFICATION NUMBER							
	UPR	PEND	PEND-REC	CONC	HSW	HSW-REC	HSW-CCP	VSW*
BASIC- STANDARD COVERAGE								
F1FR-56	RA1425	RA1414	RA1414	RA1414	RA1435	RA1435		RA1485
F1FR	R362X	R361X	R361X					
NEW F1FR56-300	RA2625	RA2614	RA2614	RA2614	RA2634	RA2634	RA2634	
F1FR-300	R5622	R5612						
GFR	R312X	R311X			R313X			
NEW F1FR-FS56 Flat Spray		RA2214						
NEW F1FR-FS LO Flat		RA3712						
NEW F1FR LO		RA3812						
F156	RA1325	RA1314	RA1314	RA1314	RA1335	RA1335		RA1385
F1	R172X	R171X						
NEW F156-300	RA2525	RA2514	RA2514	RA2514				
F1-300	R5522	R5512	R5512					
G	R102X	R101X						
G					R126X			R1285
GXLO	R2921							
GVELO		R4613						
DECORATIVE- STANDARD COVERAGE								
F1FR-56		RA1414	RA1414	RA1414		RA1435		
F1FR		R361X	R361X					
NEW F1FR56-300		RA2614	RA2614	RA2614		RA2634	RA2634	
F1FR-300 REC		R5612	R5612					
SWC 56 (300psi)				RA2634				
GFR		R311X	R311X					
NEW G5-56				RA3414				
G4A				R541X				
G4A-300				R6215				
F4FR				R251X				
F4FR-NF				RA0212				
XL Commercial		R4514			R4534			
F156		RA1314	RA1314			RA1335		
F1			R171X					
NEW F156-300		R2514	R2514					
F1-300		R5512	R5512					
G/F1 HSW1						R123X		
G4				R211X				
G4-300				R6115				
G4FR				R221X				
G4 Sealing				R211X				
G4FR Sealing				R221X				
G REC			R111X					
G/F1			R101X					

KEY

NEW New Product
X = Variable K Factor
★ Per NFPA or FM
✪ Provides Extended Coverage Ordinary & Extra Hazard protection to 175 sq. ft. per sprinkler.
◆ Extra Hazard Extended Coverage are specific for only Pre-Engineered Metal Buildings.
Approvals vary based upon K Factors, Style and Finish. Consult bulletins for specifics.
Most of Reliable's Residential Sprinklers have sloped ceiling approvals. See Bulletin 035.

NOTE: Refer to Product Bulletin for limitations on approvals.

*VSW listed for Light Hazard only

For more detailed information including approval data, please refer to the technical bulletin specified.

MAX SPACING	NOMINAL K-FACTOR	THREAD	RESPONSE	APPROVALS *See Note	TECHNICAL BULLETIN	WRENCH
★	5.6	½"	QUICK	cULus, FM	014	D, GFR2, RC1
★	2.8, 4.2, 8.0	½",¾"	QUICK	cULus, FM	136	D & GFR2
★	5.6	½"	QUICK	cULus	026	D, GFR2, RC1
★	8.0	¾"	QUICK	cULus	156	D
★	2.8-8.0	½",¾"	QUICK	cULus	131	D
12' X 12'	5.6	½"	QUICK	VdS	022	D
10' X 10'	8.0	½"	QUICK	VdS	037	D
10' X 10'	8.0	½"	QUICK	VdS	038	D
★	5.6	½"	STD.	cULus, FM	013	D & GFR2
★	2.8, 4.2, 8.0	½",¾"	STD.	cULus, FM	117	D
★	5.6	½"	STD.	cULus	025	D & GFR2
★	8.0	¾"	STD.	cULus	155	D
★	2.8-8.0	½",¾"	STD.	cULus, FM	110	D
★	2.8-8.0	½",¾"	STD.	cULus, FM	112	D
★	11.2	½",¾"	STD.	cULus, FM	129	H
★	14.0	¾"	STD.	cULus, FM	146	H
★	5.6	½"	QUICK	cULus, FM	014	D, GFR2, RC1
★	2.8-8.0	½",¾"	QUICK	cULus, FM	136	D & GFR2
★	5.6	½"	QUICK	cULus	026	D, GFR2, RC1
★	8.0	¾"	QUICK	cULus	156	GFR2
★	5.6	½"	QUICK	cULus	026	GFR2
★	2.8-8.0	½",¾"	QUICK	cULus	131	D & GFR2
★	5.6	½"	QUICK	cULus, FM	034	FC
★	2.8 & 4.2	½",1"	QUICK	cULus, FM	154	G4
★	5.6	½",1"	QUICK	cULus	162	G4
★	2.8-5.6	½",1"	QUICK	cULus	125	G4
★	5.6	½"	QUICK	cULus	002	G4
★	5.6	½"	QUICK	cULus	145	ZX
★	5.6	½"	STD.	cULus, FM	013	D & GFR2
★	2.8-8.0	½",¾"	STD.	cULus, FM	117	GFR2
★	5.6	½"	STD.	cULus	025	D & GFR2
★	8.0	¾"	STD.	cULus	155	GFR2
★	4.2-5.6	½"	STD.	cULus	112	GFR2
★	2.8-5.6	½",1"	STD.	cULus	121	G4
★	5.6	½",1"	STD.	cULus	161	G4
★	2.8-5.6	½",1"	STD.	cULus, FM	122	G4
★	2.8-5.6	½",1"	STD.	cULus	123	G4
★	2.8-5.6	½",1"	STD.	cULus	123	G4
★	2.8-8.0	½",1"	STD.	cULus, FM	111	RC1
★	2.8-8.0	½",¾"	STD.	cULus	120	RC1

Sprinkler Identification Numbers

Sample Number for F1FR HSW R 36 3 5

- Manufacturer (RASCO)
- Tech. Literature (Bulletin 136)
- Deflector Type (HSW)
- K Factor (5.62)

Refer to this table for Deflectors or K Factors

	Deflector Style	K Factor
1	Pendent	1.10, 2.82, 3.00, 4.00, 5.40, 11.40, 16.00, 22.40
2	Upright	1.98, 2.72, 3.90, 4.30, 5.50, 8.00, 14.20, 25.20
3	Horizontal	1.81, 3.70, 4.24, 5.80, 14.50
4	EC Pendent	2.57, 4.10, 5.60, 16.80
5	EC Upright	3.45, 4.20, 5.62
6	EC Horizontal	4.90, 7.96, 11.21
7	Conventional	2.75, 4.15, 6.40, 8.20
8	Vertical	4.00, 5.53, 7.00, 7.60
9	Other	Reserve

For more detailed information including approval data, please refer to the technical bulletin specified.

Smart Guide FOR ALL SPRINKLER APPLICATIONS cont.

MODEL	AVAILABLE STYLES – SPRINKLER IDENTIFICATION NUMBER						
	UPR	PEND	PEND-REC	CONC	HSW	HSW-REC	VSW*
LIGHT HAZARD EXTENDED COVERAGE							
JL112	R7326	R7216	R7216				
J112	RA7326	RA7216	RA7216				
NEW F1FR56 QREC		RA2845	RA2845	RA2845			
NEW F1FR56-EC-8					RA2845	RA2845	
F1FR-EC		R4842	R4842				
F1FR-EC9 HSW					R4862	R4862	
NEW F1FR EPEC		RA1212	RA1212				
NEW F1FR56-300 QREC		RA3045	RA3045	RA3045			
F1FR-300 QREC		R5942	R5942				
F1FR-300 QREC-9					R5962		
F1FR-QREC CCP				R4842			
F1FR-300 QREC CCP				R5942			
DH56				RA1564	RA1564	RA1564	
DH80				RA0362	RA0362	RA0362	
G4 XLO QREC				R4441			
SWC (300psi) HSW CONC				R5962			
DH56 Dry				RA1664	RA1664	RA1664	
NEW F156 SREC		RA2745	RA2745				
F1-EC		R1742	R1742				
NEW F156-300 SREC		RA2945	RA2945				
F1-300 SREC		R5842	R5842				
G/F1/EC4						R126X	
G-EC4					R126X		
ORDINARY HAZARD EXTENDED COVERAGE							
JL112	R7326	R7216	R7216				
J112	RA7326	RA7216	RA7216				
✪ MBEC-14					R6932		
GFR VELO ECOH		R6043	R6043				
GFR VELO ECOH	R6553						
EXTRA HAZARD EXTENDED COVERAGE							
N252 EC		RA0852	RA0852				
◆ MBEC-14 HSW					R6932		
DRY TYPE							
F3QR		R5714	R5714	R5714	R5734	R5734	
DH56 Dry				RA1664	RA1664	RA1664	
F3		R5314	R5314	R5314	R5334	R5334	
INSTITUTIONAL							
XL		R1314			R1334		
XL EC		R1344			R1364		
SPECIAL RESPONSE							
NEW F1S5-FS56 Flat Spray		RA2314					
NEW F1S5 Standard Spray	RA2414	RA2414	RA2414				

KEY

NEW New Product
X = Variable K Factor
★ Per NFPA or FM
✪ Provides Extended Coverage Ordinary & Extra Hazard protection to 175 sq. ft. per sprinkler.
◆ Extra Hazard Extended Coverage are specific for only Pre-Engineered Metal Buildings.
Approvals vary based upon K Factors, Style and Finish. Consult bulletins for specifics.
Most of Reliable's Residential Sprinklers have sloped ceiling approvals. See Bulletin 035.
*VSW listed for Light Hazard only

NOTE: Refer to Product Bulletin for limitations on approvals.

For more detailed information including approval data, please refer to the technical bulletin specified.

MAX SPACING	NOMINAL K-FACTOR	THREAD	RESPONSE	APPROVALS *See Note	TECHNICAL BULLETIN	WRENCH
20′ X 20′	11.2	¾″	QUICK	cULus	173 & 172	J1 & RJ
20′ X 20′	11.2	¾″	QUICK	cULus	173 & 172	J1 & RJ
16′ X 20′ & 20′ x 20′	5.6	½″	QUICK	cULus	028	D, GFR2, RC1
20′ X 20′	5.6	½″	QUICK	cULus, FM	028	D & GFR2
20′ X 20′	8.0	¾″	QUICK	cULus, FM	148	D & GFR2
14′ X 26′ & 16′ X 24′	8.0	¾″	QUICK	cULus, FM	148	D & GFR2
14′ X 14′	8.0	¾″	QUICK	LPCB	012	HW
20′ X 20′	5.6	½″	QUICK	cULus	030	D, GFR2, RC1
20′ X 20′	8.0	¾″	QUICK	cULus	159	D
14′ X 26′ & 16′ X 24′	8.0	¾″	QUICK	cULus	159	GFR2
20′ X 20′	8.0	¾″	QUICK	cULus	151	GFR2
20′ X 20′	8.0	¾″	QUICK	cULus	167	GFR2
28′ X 10′	5.6	½″	QUICK	cULus	015	GFR2
28′ X 14′	8.0	¾″	QUICK	cULus	003	GFR2
20′ X 20′	11.2	¾″	QUICK	cULus	144	XLO EC
14′ X 26′ & 18′ X 22′	8.0	¾″	QUICK	cULus	163	GFR2
28′ X 10′	5.6	1″	QUICK	cULus	016	XLO2
20′ X 20′	5.6	½″	STD.	cULus	027	D & GFR2
20′ X 20′	8.0	¾″	STD.	cULus, FM	117	D & GFR2
20′ X 20′	5.6	½″	STD.	cULus	029	D & GFR2
20′ X 20′	8.0	¾″	STD.	cULus	158	D & GFR2
16′ X 24′	5.6-8.0	½″,¾″	STD.	cULus	112	GFR2
16′ X 24′	5.6-8.0	½″,¾″	STD.	cULus	112	D
20′ X 20′ & 14′ X 14′	11.2	¾″	STD./QUICK	cULus	173 & 172	J1 & RJ
20′ X 20′ & 14′ X 14′	11.2	¾″	STD./QUICK	cULus	173 & 172	J1 & RJ
14′ X 12.5′	14.0	¾″	STD.	cULus	169	H
20′ X 20′	14.0	¾″	STD.	cULus	160	H & XLO2
20′ X 20′	14.0	¾″	STD.	cULus	165	H
14′ X 14′	25.2	1″	STD.	cULus, FM	008	N
14′ X 12.5′	14.0	¾″	STD.	cULus	169	H
★	5.6	1″	QUICK	cULus	157	G3 R/C
28′ X 10′	5.6	1″	QUICK	cULus,FM	016	XLO2 & G3
★	5.6	1″	STD.	cULus,FM	153	G3 R/C
★	5.6	½″	QUICK	cULus	113	ZX
16′ X 16′	5.6	½″	QUICK	cULus	113	ZX
12′ X 12′	5.6	½″	SPECIAL	VdS	023	D & GFR2
12′ X 12′	5.6	½″	SPECIAL	VdS	024	D & GFR2

Sprinkler Identification Numbers

Sample Number for F1FR HSW R 36 3 5

- Manufacturer (RASCO)
- Tech. Literature (Bulletin 136)
- Deflector Type (HSW)
- K Factor (5.62)

Refer to this table for Deflectors or K Factors

	Deflector Style	K Factor
1	Pendent	1.10, 2.82, 3.00, 4.00, 5.40, 11.40, 16.00, 22.40
2	Upright	1.98, 2.72, 3.90, 4.30, 5.50, 8.00, 14.20, 25.20
3	Horizontal	1.81, 3.70, 4.24, 5.80, 14.50
4	EC Pendent	2.57, 4.10, 5.60, 16.80
5	EC Upright	3.45, 4.20, 5.62
6	EC Horizontal	4.90, 7.96, 11.21
7	Conventional	2.75, 4.15, 6.40, 8.20
8	Vertical	4.00, 5.53, 7.00, 7.60
9	Other	Reserve

For more detailed information including approval data, please refer to the technical bulletin specified.

Smart Guide FOR ALL SPRINKLER APPLICATIONS cont.

MODEL	AVAILABLE STYLES – SPRINKLER IDENTIFICATION NUMBER						
	UPR	PEND	PEND-REC	CONC	HSW	HSW-REC	VSW*
STORAGE							
NEW JL-14		RA1812					
H ESFR		R5012					
NEW JL-17		RA1914					
HL-22		RA1011					
K-22		R6611					
J168	RA1124						
N252 EC		RA0842	RA0842				
G XLO	R2921						
G VELO		R4613					
NEW F1FR56-INT. LEVEL	RA3195 R7092	RA1414 R3612					
NEW F156-INT. LEVEL	RA3195	RA1314					
F1-INT. LEVEL	R7092	RA1712					
G-INT. LEVEL	R142X	R141X					
GFR-INT. LEVEL	R319X	R311X					
SPECIFIC APPLICATION							
NEW HL-22 SPEC. APP.		R7711					
N252 EC		RA0842					
RESIDENTIAL							
F1RES 30		R3511	R3511	R3511			
NEW F1RES 30 LL		RA3311	RA3311	RA3311			
F1RES 49		R3516	R3516	R3516			
NEW F1RES 49 LL		RA3316	RA3316	RA3316			
F1RES 44				R3531	R3531	R3531	
NEW F1RES 44 LL				RA3331	RA3331	RA3331	
RFC49				RA0616			
NEW RFC49 LL				RA3216			
RFC43				RA0612			
NEW RFC43 LL				RA3212			
NEW RFC30				RA0611			
NEW RFC30 LL				RA3211			
F1RES 58		R3513	R3513	R3513	R3533	R3533	
NEW F1RES 58 LL		RA3313	RA3313	RA3313	RA3313	RA3313	
F1RES 76		R7618	R7618	R7618			
RFC56				RA0914			

KEY

NEW New Product
X = Variable K Factor
★ Per NFPA or FM
✪ Provides Extended Coverage Ordinary & Extra Hazard protection to 175 sq. ft. per sprinkler.
◆ Extra Hazard Extended Coverage are specific for only Pre-Engineered Metal Buildings.
Approvals vary based upon K Factors, Style and Finish. Consult bulletins for specifics.
Most of Reliable's Residential Sprinklers have sloped ceiling approvals. See Bulletin 035.
*VSW listed for Light Hazard only

NOTE: Refer to Product Bulletin for limitations on approvals.

For more detailed information including approval data, please refer to the technical bulletin specified.

MAX SPACING	NOMINAL K-FACTOR	THREAD	RESPONSE	APPROVALS *See Note	TECHNICAL BULLETIN	WRENCH
★	14.0	¾"	FAST	cULus,FM	018	J1
★	14.0	¾"	FAST	cULus,FM	150	H
★	16.8	¾"	FAST	cULus,FM	019	J1
★	22.4	1"	FAST	cULus,FM	010	H1
★	22.4	1"	FAST	FM	166	H1
★	16.8	¾"	STD.	cULus,FM	011	J1
14' X 14'	25.2	1"	STD.	cULus,FM	008	N
★	11.2	½",¾"	STD.	cULus,FM	129	H
★	14.0	¾"	STD.	cULus,FM	146	H
★	5.6	½"	QUICK	cULus, FM	031	D & GFR2
★	8.0	¾"	QUICK	cULus, FM		
★	5.6	½"	STD.	cULus, FM	031	D & GFR2
★	8.0	½"	STD.	cULus, FM	031	D & GFR2
★	5.6-8.0	½", ¾"	STD.	cULus,FM	114	D & RC1
★	5.6-8.0	½",¾"	QUICK	cULus	131	D
★	22.4	1"	FAST	cULus	177	H1
14' X 14'	25.2	1"	STD.	cULus,FM	908	N
14' X 14'	3.0	½"	FAST	cULus	135	D & GFR2
14' X 14'	3.0	½"	FAST	cULus	033	D & GFR2
20' X 20'	4.9	½"	FAST	cULus	135 & 176	D & GFR2
20' X 20'	4.9	½"	FAST	cULus	033	D & GFR2
16' X 20'	4.4	½"	FAST	cULus	135 & 176	D & GFR2
16' X 20'	4.4	½"	FAST	cULus	033	D & GFR2
20' X 20'	4.9	½"	FAST	cULus	006	FC
20' X 20'	4.9	½"	FAST	cULus	032	FC
20' X 20'	4.3	½"	FAST	cULus	006	FC
20' X 20'	4.3	½"	FAST	cULus	032	FC
14' X 14'	3.0	½"	FAST	cULus	006	FC
14' X 14'	3.0	½"	FAST	cULus	032	FC
20' X 20'	5.8	½"	FAST	cULus	135 & 176	D & GFR2
20' X 20'	5.8	½"	FAST	cULus	033	D & GFR2
20' X 20'	7.6	¾"	FAST	cULus	135 & 176	D, RC1 & GFR2
16' X 16'	5.6	½"	FAST	cULus	009	G4

Sprinkler Identification Numbers

Sample Number for F1FR HSW R 36 3 5

- Manufacturer (RASCO)
- Tech. Literature (Bulletin 136)
- Deflector Type (HSW)
- K Factor (5.62)

Refer to this table for Deflectors or K Factors

	Deflector Style	K Factor
1	Pendent	1.10, 2.82, 3.00, 4.00, 5.40, 11.40, 16.00, 22.40
2	Upright	1.98, 2.72, 3.90, 4.30, 5.50, 8.00, 14.20, 25.20
3	Horizontal	1.81, 3.70, 4.24, 5.80, 14.50
4	EC Pendent	2.57, 4.10, 5.60, 16.80
5	EC Upright	3.45, 4.20, 5.62
6	EC Horizontal	4.90, 7.96, 11.21
7	Conventional	2.75, 4.15, 6.40, 8.20
8	Vertical	4.00, 5.53, 7.00, 7.60
9	Other	Reserve

For more detailed information including approval data, please refer to the technical bulletin specified.

Valves

ALARM

E Alarm Check Valve With E1 Trim

Technical Bulletins:
418 & 408 (O&M)

Features:

- Made expressly for all wet-pipe sprinkler systems
- Grooved seat design insures positive water flow alarm operation
- Precision retarding chamber prevents false alarms under variable pressure conditions
- External by-pass aids prevention of false alarms under all pressure conditions
- Installation in either vertical or horizontal positions
- Three connection styles available: ANSI flanged inlet and outlet, ANSI flanged inlet and grooved outlet, Metric flanged inlet and grooved outlet
- Pressure trim styles available: Individual part trim, Pre-assembled trim, Factory trimmed valve

Available Sizes: 2-1/2" (65mm) , 3" (80mm), & 65mm

E Alarm Check Valve With E2 Trim

Technical Bulletin: 422

Features:

- Designed for the International market
- Rated working pressure 10.0 bar (175 psig)
- Factory hydrostatic test pressure 24.2 (350 psig)
- End and trim connections -
  - Metric flanged inlet and outlet
- Metric flange inlet and with US grooved outlet

Available Sizes: DN100, DN150, DN200

E Alarm Check Valve With E3 Trim

Technical Bulletins:
417 & 407 (O&M)

Features:

- Made expressly for all wet-pipe sprinkler systems
- Grooved seat design insures positive water flow alarm operation
- Precision retarding chamber prevents false alarms under variable pressure conditions
- External by-pass aids prevention of false alarms under all supply pressure conditions
- Installation in either vertical or horizontal positions
- Three connection styles available: ANSI flanged inlet and outlet, ANSI flanged inlet and grooved outlet, Metric flanged inlet and grooved outlet
- Pressure trim styles available: Individual part trim, Pre-assembled trim, Factory trimmed valve

Available Sizes: 4" (100mm), 6" (150mm), & 8" (200mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

ALARM cont.

E3 High Pressure Alarm Check Valve With E3 Trim

Technical Bulletins:
410 & 409 (O&M)

Features:

- 300 psi (20,7bar) ratings. Factory tested hydrostatically to 600 psi (41.4bar)
- Grooved seat design ensures positive water flow alarm operation
- Precision retard chambers minimizes false alarms under variable pressure conditions
- External by-pass minimizes false alarms under all supply pressure conditions
- Grooved inlet and outlet connections. Less weight than flange valves
- Vertical and horizontal trims available
- Two compact galvanized trim styles available: Individual part trim, Segmentally assembled trim
- TestAnDrain valve with pressure relief, optional: Exercises the clapper with alarm test Functions like the Inspector's test port with greater convenience

Available Sizes: 4" (100mm), 6" (150mm), 165mm, & 8" (200mm)

RISER CHECK

G Riser Check Valve

Technical Bulletin: 806

Features:

- Grooved end connections
- Compact, lightweight design
- Non-slamming, spring load clapper to minimize water hammer
- Approved for horizontal and vertical installation
- Stream-lined body design provides very low friction loss
- Elastometer faced clapper provides leak-free, non-stick sealing

Available Sizes: 2-1/2" (65mm), 76mm, 3" (80mm), 4" (100mm) & 6" (150mm)

DRY

A Dry Pipe Valve

Technical Bulletin:
352 & 353 (O&M)

Features:

- Differential type - simple, lightweight construction
- Threaded-in one piece air and water seat - eases maintenance
- Bronze seat with O-ring seals - prevents corrosion and leakage
- Single hinge pin and latch design - no complicated levers
- Simple to reset - no special tools required
- Tapered air and water seats - induces hairline differential operation
- One piece rubber facing - provides more reliable rubber-to-metal water seal
- Furnished in 2-1/2" NPT, 2-1/2" grooved ends or 65 mm threads

Available Sizes: 2-1/2" (65mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

Valves

DRY cont.

D Dry Pipe Valve

Technical Bulletin:
351 & 350 (O&M)

Features:

- Differential type - simple, lightweight construction
- Screwed in one piece air and water seat - eases maintenance
- Bronze seat with O-ring seals - prevents corrosion and leakage
- Single hinge pin and latch design - no complicated levers
- Simple to reset - no special tools required
- Tapered air and water seats - induces hairline differential operation
- One piece rubber facing - provides more reliable rubber-to-metal water seal
- Three connection styles available: ANSI flanged inlet and outlet, ANSI flanged inlet and grooved outlet, Metric flanged inlet and grooved outlet

Available Sizes: 4" (100mm) & 6" (150mm)

DDX-W/D Wet/Dry Pipe Valve System

Technical Bulletin:
399 (O&M)

Features:

- Hydraulically operated latch-type valve designed for use as a primary control valve in a low pressure dry pipe valve system, or an alarm valve in a wet system
- Low air pressured system, 0.7 bar to 1.8 bar (10 to 26 psi)
- Reset externally
- One main drain
- No priming water requirement

Available Sizes: 100mm (4"), 150mm (6"), & 165mm

LOW PRESSURE DRY SYSTEMS

DDX-LP Dry Pipe Valve System

Technical Bulletins:
333, 334 (O&M), 357, 356 (O&M), 335 & 336 (O&M)

Features:

- Differential latch-type - lightweight, dependable construction
- Low air pressurized system, 10 psi - to - 26 psi (0.7 bar - to - 1.8 bar)
- Reset externally. Cover removal is not required
- No priming water requirement
- Hydrostatic testing with the clapper in the closed position
- No riser check valve required
- One main drain
- Drain valve to drain standing water column
- Valve latches in open position. No pressure operated relief valve is required
- Nitrogen pressurized system optional
- Pressure rating 250 psi (17.2 bar)

Available Sizes: 2" (50mm), 2 1/2" (65mm), 3" (80mm), 76mm, 4" (100mm), 6" (150mm), 165mm, & 8" (200mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

DELUGE

H Deluge Riser Assembly

Technical Bulletin: 507

Features:

- Incorporates a solenoid operated diaphragm type valve as the primary valve in deluge, preaction, or special types of fire protection systems
- Easily reset by external means which eliminates the need for removing the cover
- Trim is factory assembled

Available Sizes: 1-1/2" (40mm)

A Deluge Valve

Technical Bulletin: 502 & 503 (O&M)

Features:

- Differential diaphragm type - simple, lightweight, dependable
- Easily trimmed for actuation by: Manual devices, Wet pilot sprinklers, Dry pilot actuators, Solenoid valves
- Limited compression seat seal
- External hydraulic reset
- Three connection styles available: ANSI pipe threads, Grooved ends, Metric pipe threads
- Separately replaceable diaphragm and seat seal

Available Sizes: 2-1/2" (65mm)

DDX Deluge Valve

Technical Bulletin: 512, 513 (O&M), 510, 511 (O&M), 514 & 515 (O&M)

Features:

- Differential latch-type - lightweight, dependable construction
- Easily trimmed into any of nine releasing configurations
- Drop in seat & clapper assembly simplifies maintenance
- 2", 2-1/2" and 3" have stainless steel clapper and seat assembly
- Pressure-actuated clapping facing provides dependable seal
- Reset externally. Cover removal is not required
- Grooved inlet and outlet connections
- Drain valve to drain standing water column
- Valve latches in open position. No pressure-operated relief valve is required
- Pressure rating of 250 psi (17.2 bar)

Available Sizes: 2" (50mm), 2 1/2" (65mm), 3" (80mm), 76mm, 4" (100mm), 6" (150mm), 165mm, & 8" (200mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

DELUGE cont.

DDX-SS Deluge Valve

Technical Bulletin: 516 & 517 (O&M)

Features:

- Designed especially for corrosive environments – mining operations, offshore drilling platforms, chemical facilities, brackish or seawater applications, and most foam products
- Stainless steel construction with O-ring seals to resist corrosion and leakage
- Differential latch-type – lightweight, dependable construction
- Easily trimmed for releasing by manual pull stations, wet pilot sprinklers, dry pilot sprinklers and electric solenoid valves
- Screw in seat & clapper assembly simplifies maintenance
- Pressure-actuated clapper facing provides dependable seal
- Reset externally. Cover removal is not required
- Grooved inlet and outlet connections (flanged connections available soon)
- Drain valve to drain standing water column
- Valve latches in open position. No pressure-operated relief valve is required
- Pressure rating of 250 psi (17.2 bar)

Available Sizes: 8" (200mm)
4" (100mm) & 6" (150mm) Sizes – Coming Soon!

CHECK

G Swing Check

Technical Bulletin: 807

Features:

- Grooved end connections
- Compact, lightweight design
- Non-slamming, spring loaded clapper to minimize water hammer
- Approved for horizontal and vertical installation
- Streamlined body design provides very low friction loss
- Elastometer faced clapper provides leak-free, non-sticking sealing

Available Sizes: 2-1/2" (65mm), 76mm, 3" (80mm), 4" (100mm), & 6" (150mm)

DW Swing Check

Technical Bulletin: 803

Features:

- Wafer type
- Easily installed compact lightweight design
- Resilient O-ring seating provides leak-tight sealing, anti-stick operation, and simple field replacement
- Approved for vertical and horizontal installation

Available Sizes: 4" (100mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

CHECK cont.

CVE Swing Check & Riser Check

Technical Bulletin: 810

Features:

- Grooved end connections
- Valve has removable faceplate
- Approved for horizontal and vertical installation
- 300 psi (20.7bar) ratings. Factory tested hydrostatically to 600 psi (41.4bar)
- Elastometer-faced clapper provides leak-free, non-sticking sealing
- Non-slamming, spring loaded clapper to minimize water hammer

Available Sizes: 4" (100mm), 6" (150mm), 165mm, & 8" (200mm)

ACCESSORIES

CR Commercial Riser

Technical Bulletin: 617

Features:

- Cast stainless steel body construction for threaded manifolds
- Painted, cast ductile iron body construction for grooved manifolds
- Brass and galvanized trim
- Factory assembled and pressure tested
- Optional pressure relief valve kit available for all sizes
- Same take-out dimensions for the 2-8 inch grooved sizes
- Approved for installation in horizontal or vertical positions
- Built in drain port allows easy testing and replacing of pressure gauge
- Three-way valve allows easy testing and replacing of pressure gauges
- Dedicated UL Listed waterflow detector assures optimum sensitivity

Available Sizes: 1-1/2" (40mm), 2" (50mm), 2-1/2" (65mm), 3" (80mm), 4" (100mm), 6" (150mm), & 8" (200mm)

Residential Riser

Technical Bulletin: 416

Features:

- Stainless steel body constructions
- All brass trim
- Factory assembled
- Factory pressure tested at 200 psi (13,8bar)
- Choice of trim: Basic trim, Basic trim with TestAnDrain valve trim, Basic trim with pressure relief valve trim
- Choice of mounting options: Supply/system lines support, Support bracket (to stud), Recessed or flush mount (to wood panel)
- NPT (female x female) or tapered metric (female x female) connections
- Slim design allows for easy installation within 2" x 4" on 16" centers wood frame construction
- Dedicated UL Listed water flow detector assures optimum sensitivity

Available Sizes: 1" (25mm), 1-1/2" (40mm), & 2" (50mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

ACCESSORIES cont.

MP Multipurpose Residential Riser

Technical Bulletin: 414

Features:

- Designed to alarm on single fire sprinkler operation and not during normal household water usage
- Potable-water safe
- Water flow detector is preset to operate at 12 gpm +-1gpm (45.4 Lpm +-3.8 Lpm), and is factory installed with a weather-proof metal cover
- Dedicated UL Listed water-flow detector assures optimum sensitivity with the adjustable delay device minimizes false alarms caused by pressure surges or short periods of water usage above 12 gpm
- Switch can be wired for 24 VDC or 125/260 VAC operation
- Stainless steel 1" (25mm) manifold with NPT or Metric Inlet and Outlet Threads.
- Factory assembled and tested
- Rated working pressure not to exceed 175 psi
- UL Listed Assembly . NSF 61 Approved
- To be used in systems where the most remote sprinkler will flow a minimum of 11 gpm (41.6 Lpm)

Available Sizes: 1" (25mm)

MP LL Multipurpose Residential Riser

Technical Bulletin: 426

Features:

- Designed to alarm on single fire sprinkler operation and not during normal household water usage.
- Potable-water safe to NSF/ANSI Standard 61 annex G.
- Water flow detector is preset to operate at 12 gpm +-1gpm (45.4 Lpm +-3.8 Lpm), and is factory installed with a weather-proof metal cover.
- Dedicated UL Listed water-flow detector assures optimum sensitivity with the adjustable delay device minimizes false alarms caused by pressure surges or short periods of water usage above 12 gpm.
- Switch can be wired for 24 VDC or 125/260 VAC operation.
- Stainless steel 1" (25mm) manifold with NPT or Metric Inlet and Outlet Threads.
- Factory assembled and tested.
- Rated working pressure not to exceed 175 psi.
- UL Listed Assembly.
- When the Model MP LL Riser is utilized in sprinkler systems with sprinklers having K-factors less than 4.4, there must be a minimum of 15 psi of operating pressure at the system's most remote head.

Available Sizes: 1" (25mm)

C Mechanical Sprinkler Alarm

Technical Bulletins: 612 & 613 (O&M)

Features:

- Dependable - Pelton wheel type
- Prompt - positive operation
- Nylon bearings - no lubrication needed
- Compact - lightweight, easily installed
- Rust-free cast aluminum gong. No gong cover needed
- Gong available in red and bright metallic finishes
- Self-setting after operation eliminating the need of removing covers, plates, etc. to reset internal mechanisms

For more detailed information including approval data, please refer to the technical bulletin specified.

ACCESSORIES cont.

B1 Accelerator with Integral Accelo-Check

Technical Bulletins:
320 & 322 (O&M)

Features:

- Quickens operation of dry pipe valves
- Increase number of automatic sprinklers controlled by one dry pipe valve
- Equalizes rapidly as dry system is being filled with air to required pressure
- Adjusts without operation for small fluctuations in system air pressure
- Dependable in operation, compact, and light-weight construction
- Accelo-Check prevents water and debris from entering critical areas, minimizing the need of removing cover plates, etc. to reset or clean internal mechanisms
- Tested and approved for use with all Reliable dry pipe valves

A2 & B-1 Automatic Air Pressure Maintenance Devices

Technical Bulletins:
250 & 251 (O&M)

Features:

- Eliminate manual system pressure maintenance
- Prevent accidental dry pipe valve and dry pilot line deluge valve operation due to low air pressure
- Models suitable for dry nitrogen supply, or local air compressor
- Suitable for preaction system supervision
- May feed dual dry pipe valve systems
- Bypass valve incorporated for quick filling system
- Shut-off valves permit servicing without shutting down sprinkler protection
- Easily adjusted pressure settings

B & C Air Compressor Panels, C Air Pressure Maintenance Device

Technical Bulletin: 252

Features:

- Reliable supervisory pressure maintenance devices provide low pressure air or nitrogen gas to the sprinkler piping of single interlock preaction systems. Leakage caused by damage to the piping or sprinklers will cause the supervisory pressure to drop, thereby activating an annunciating device

For more detailed information including approval data, please refer to the technical bulletin specified.

ACCESSORIES cont.

A Air Compressor

Technical Bulletin: 275

Features:

- Oilless-permanently lubricated
- May be mounted in any position
- No adjustment necessary
- Motor mounted - no belts or gears
- No need for any other source of air
- Compatible with air maintenance devices having unloader valves
- Thermal protection (single phase)
- Air filter, one per cylinder
- Safety relief valve (50 psi)
- Riser mounting available

Nitrogen Regulating Device

Technical Bulletin: 253

Features:

- Designed for use with Reliable's Double Interlock Preaction Type D & F Systems or any other Reliable system installation using Reliable Model A-2 or Model C Pressure Maintenance Devices
- Use of nitrogen instead of air in refrigerated area systems minimizes possibility of ice buildup inside the system piping that could prevent proper system operation
- Can reduce a need for additional freezer wall penetrations (required to reduce ice plugging) when using air compressors
- Inexpensive to install, operated, and maintain
- Switch can be wired for 24 VDC or 125/260 VAC operation
- System down time typically limited to a few minutes required for changing cylinders
- Can increase the system reliability in installations where air supply is not dependable
- Optional adjustable low pressure switch gives warning signal at the control panel when cylinder pressure reaches a low preset level

ACD Dry System Auxiliary Condensate Drain with Sight Glass

Technical Bulletin: 441

- Used in Dry Pipe and Preaction sprinkler systems, which meet NFPA 13 (2007) Installation Requirements section 8.16.2.5.3.4
- Sight Glass Included
- Eliminates field assembly
- Ball valves – quick operation
- No assembly required
- 1" Plug included

For more detailed information including approval data, please refer to the technical bulletin specified.

ACCESSORIES cont.

Automatic Ball Drip, Sight Drain, Control Valve Seal

Technical Bulletin: 206

- Model C - Automatic Ball Drip
- Model C - Mechancial Ball Drip Valve
- Model C - 2" (50mm) Sight Drain
- Model B - Drum Drip
- Model A - Control Valve Seal
- Model A - Fill Cup

Inspectors Test Connections

- Model A - Blind Test Connection
- Model B - Sight Test Connection

Pressure Gauges

- Model UA - Water Pressure Gauge
- Model UA - Air Pressure Gauge
- Low Air Pressure Diaphragm Gauge

B1 Accelerator Trim Kit for DDX-LP

Technical Bulletin: 323

- Reliable's Model B1 Accelerator with its integral Accelo-Check (anti-flooding device) is used to speed the operation of the following systems: Model DDX-LP Dry Pipe Valve Systems and Double Interlock Preaction System, Type F. These systems contain air or nitrogen under pressure instead of water when freezing temperatures may exist

A Dry Pilot Actuator

Technical Bulletin: 504

<u>Features:</u>

- For use with Models A & DDX Deluge Valves
- Separates the water pressure, used in a deluge valve, from the air pressure used in a dry pilot line

A Hydraulic Manual Emergency Pull Box

Technical Bulletin: 506

- For use with Reliable Deluge Systems utilizing wet or dry pilot line actuation

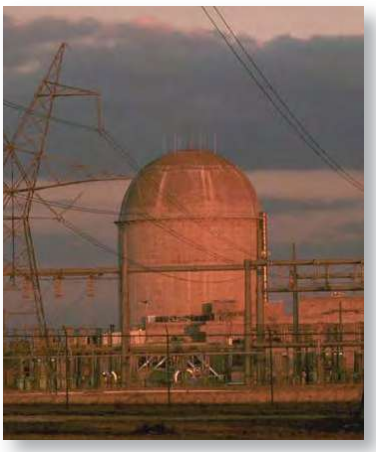
For more detailed information including approval data, please refer to the technical bulletin specified.

Special Hazards/Special Systems

Special Hazards/Special Systems

Special hazards systems are required for the protection of hazards which cannot be adequately protected by a standard sprinkler system. A special hazard can be the protection of an area, a process, a piece of equipment or a building's structural components. Reliable manufactures a complete line of deluge valves and trim configurations for deluge and preaction system applications. Preaction systems are specialized sprinkler systems used for the protection of water sensitive areas that cannot be subjected to inadvertent water discharge from the sprinkler system. Various trim arrangements, combined with a wide variety of detection and actuation devices, provide numerous system design options.

At the heart of our deluge and preaction systems is the light-weight, Reliable Model DDX Deluge Valve. This deluge valve is a hydraulically operated, straight-through-design, differential-type valve with latching clapper.



Deluge Systems

Deluge valves are automatic water control valves that are used in controlling water flow to deluge, preaction and special types of fire protection systems. Deluge sprinkler systems use open sprinklers or nozzles that are connected to a water supply through a deluge valve, which is opened by the operation of a detection system installed in the same area as the spray nozzles or open sprinklers. A deluge system is used to protect special hazards where rapidly developing fires producing high rates of heat release are expected, and an immediate application of water over the entire area is required. All of the sprinklers or nozzles discharge at the same time. This can result in a large amount of water flowing at once. Types of deluge systems include ceiling area deluge protection systems, fixed water spray deluge systems for exposure protection, and foam water spray deluge sprinkler systems. Typical installations include aircraft hangars, electrical transformers, chemical plants, cooling towers, tank farms and fuel depot loading/off-loading facilities.

Methods of deluge valve actuation include mechanical wet-pilot and dry-pilot trim assemblies, which use pilot line sprinklers or fixed temperature release pilot line detectors, and electric actuation trim, which utilize an electric detection system and associated releasing control panel.

Preaction Systems

A preaction system is a sprinkler system that utilizes closed sprinklers connected to a water supply through a deluge valve trimmed for preaction operation. The deluge valve is actuated by the operation of a detection system installed in the same area as the sprinklers, or by both the operation of a detection system and the subsequent operation of a sprinkler. These systems are used to provide fire protection primarily in water sensitive areas where serious water damage would occur as a result of damaged automatic sprinklers or sprinkler piping. Preaction systems also are effectively used to provide an early fire alarm prior to the operation of a sprinkler, providing the opportunity for fire extinguishment by hand-held means before the sprinkler activates, minimizing or eliminating water discharge. Preaction systems differ from dry pipe systems in that the primary control valve (deluge valve) for preaction is activated by a fire detection device, and not by exclusive operation of a sprinkler in the system piping, as is the case when a dry pipe valve is the primary control valve.

For more detailed information including approval data, please refer to the technical bulletin specified.

Special Hazards/Special Systems

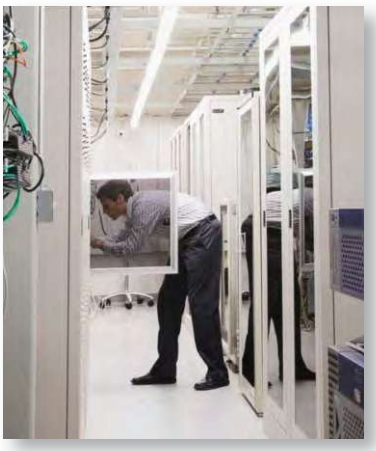
Preaction systems contain no water in the sprinkler piping under normal operating conditions. The piping either contains air at atmospheric pressure (i.e., unsupervised systems) or a low pressure compressed gas, such as air or dry nitrogen, for the purpose of supervising the integrity of the sprinkler piping. Usually, supervision of the sprinkler piping is done at a pressure of either 2 to 10 psi (0,1 to 0,7 bar) , or 10 to 26 psi (0,7 to 1,8 bar), depending on the type of preaction system being used. Areas typically protected by preaction systems include computer rooms, museums, libraries, and freezers.

Single Interlock Preaction Systems

Single interlock preaction systems are designed for water sensitive environments in heated areas that require protection from inadvertent water flow into the sprinkler system piping as a result of damaged sprinklers or sprinkler piping; or, during a fire event, where water is required at the sprinkler as soon as the sprinkler operates. Preaction systems can also replace dry pipe systems, providing cost advantages except for storage occupancies in the hydraulics of the system (i.e., 1500 ft^2 (139.4 m^2) design area vs.1950 ft^2 (181.1 m^2) design area for dry systems) and where dry system piping capacities exceed volume limitations imposed by the applicable standards, where water delivery performance is adversely affected.

Automatic (closed) sprinklers are attached to a piping system containing 2-10 psi (0,1 – 0,7 bar) supervisory pressure, and a supplemental electric fire detection system is installed in the same area protected by the sprinklers. This detection system is used in conjunction with an approved releasing control panel. Preaction systems may also be activated by mechanical means using either wet pilot or dry pilot line sprinklers or fixed temperature release pilot line detectors.

When one detector activates in the event of a fire, the deluge valve opens allowing water to enter and fill the sprinkler system piping. Water then stands ready at the sprinkler and will immediately discharge once the sprinkler operates, acting like a wet pipe sprinkler system. Water will only discharge from those sprinklers that have been operated by heat over the fire. Loss of supervisory air pressure as a result of damaged sprinklers or damaged system piping will only activate a supervisory alarm and not cause the deluge valve to open.



For more detailed information including approval data, please refer to the technical bulletin specified.

Special Hazards/Special Systems

SINGLE INTERLOCK PREACTION SYSTEMS

Single Interlock Preaction System Electric Actuation

Technical Bulletins: 719 & 721

Features:

- Utilizes Model H galvanized deluge riser assembly
- cULus Listed
- 175 psi (12.1 bar) pressure rating
- Riser assembly is factory assembled including supervised control valve and water flow pressure switch
- Galvanized trim and brass components
- Piping may be supervised with as little as 2 psi (0.1 bar) or up to a maximum 10 psi (0.7 bar).

Available Sizes: 1-1/2" (40mm)

Single Interlock Preaction System Electric Actuation

Technical Bulletin: 736

Features:

- Utilizes lightweight Model DDX deluge valve with galvanized trim
- cULus Listed; FM Approved
- Available with either 175 psi (12.1 bar) or 250 psi (17.2 bar) solenoid valve
- Piping may be supervised with as little as 2 psi (0.1 bar) or up to a maximum of 10 psi (0.7 bar).

Available Sizes: 2" (50mm), 2-1/2" (65mm), 3" (80mm), & 76mm

For more detailed information including approval data, please refer to the technical bulletin specified.

SINGLE INTERLOCK PREACTION SYSTEMS cont.

Wet Pilot Line

Technical Bulletins: 734, 731 & 741

Features:

- Utilizes lightweight Model DDX deluge valve with galvanized trim
- Provides a mechanical means of actuation using a wet pilot line release system.
- Model F1-FTR fixed temperature release devices can be used in the pilot line for optimum spacing
- Piping may be supervised with as little as 2 psi (0.1 bar) or up to a maximum of 10 psi (0.7 bar).

Available Sizes: 2" (50mm), 2-1/2" (65mm), 3" (80mm), 76mm, 4" (100mm), 6" (150mm), 165mm, & 8" (200mm)

Dry Pilot Line

Technical Bulletins: 735, 732, & 742

Features:

- Utilizes lightweight Model DDX deluge valve with galvanized trim
- Provides a mechanical means of actuation in unheated areas or where height restrictions prevent the use of wet pilot lines using a dry pilot line release system.
- Model F1-FTR fixed temperature release devices can be used in the pilot line for optimum spacing
- Piping may be supervised with as little as 2 psi or up to a maximum of 10 psi

Available Sizes: 2" (50mm), 2-1/2" (65mm), 3" (80mm), 76mm, 4" (100mm), 6" (150mm), 165mm, & 8" (200mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

SINGLE INTERLOCK PREACTION SYSTEMS cont.

Single Interlock Preaction System Electric Actuation

Technical Bulletins: 727 & 743

Features:

- Utilizes lightweight Model DDX deluge valve with galvanized trim
- cULus Listed; FM Approved
- Available with either 175 psi (12.1 bar) or 250 psi (17.2 bar) solenoid valve
- Piping may be supervised with as little as 2 psi or up to a maximum of 10 psi

Available Sizes: 4" (100mm), 6"(150mm), & 8" (200mm)

Single Interlock Preaction System Electric Actuation

Technical Bulletin: 739

Features:

- Utilizes lightweight Model DDX deluge valve with galvanized trim
- LPCB Approved
- Redundant Solenoid Valve Release
- Rated to 175 psi (12.1 bar)
- Externally Resetable Clapper
- One Main Drain

Available Sizes: 4" (100mm), 6" (150mm), & 165mm

For more detailed information including approval data, please refer to the technical bulletin specified.

DOUBLE INTERLOCK PREACTION SYSTEMS

Double Interlock Preaction Systems

Double interlock preaction systems are designed for water sensitive environments in unheated areas which require maximum protection from inadvertent waterflow into the sprinkler system piping. These systems are primarily used to protect refrigerated areas where accidental water release before a sprinkler is opened can cause freezing and blockage within the system piping. Automatic sprinklers are attached to a piping system containing 10-26 psi (0,7-1,8 bar) supervisory pressure, and a supplemental electric fire detection system is installed in the same area protected by the sprinklers. The detection system is used in conjunction with an approved releasing control panel. Double interlock systems require two independent events, the operation of both a fire detection device and a sprinkler, to occur before the deluge valve will allow water to enter the system piping, causing an immediate discharge of water from any open sprinkler(s). Water will only discharge from those sprinklers that have been operated by heat over the fire. Loss of supervisory air pressure as a result of damaged sprinklers or damaged system piping will only activate a supervisory alarm and not cause the deluge valve to open. In the event that a fire detection device is falsely operated, the control panel will annunciate an alarm condition; however, the deluge valve will not be released to flow water since only one independent event has occurred.

There are two different double interlock preaction trim assemblies available. The electric/electric type (Reliable Type D) and the electric/pneumatic type (Reliable Type F). Both systems operate by electric detection and the loss of air pressure in the system piping. but have different trim assemblies and supervisory pressure requirements.

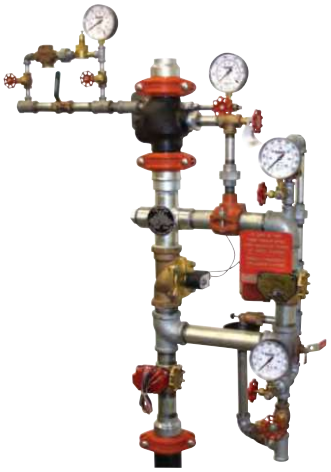
The Reliable Type D double interlock system is based upon total electric activation. It is controlled by a cross-zoned releasing panel and utilizes only one releasing device, a normally closed electric solenoid valve, as part of the trim. A low pressure switch is used to monitor the loss of system air pressure due to an open sprinkler. The system piping requires 10 psi (0,7 bar)of supervisory pressure. Operation of both a fire detection device and the low pressure switch will cause input of two signals to coexist at the releasing control panel, which will energize the solenoid valve, allowing water to flow into the system.

The Reliable Type F double interlock system utilizes an electric detection system and a mechanical release for air pressure loss. The detection system is connected to a releasing control panel for single zone operation, and the trim utilizes two releasing devices: a normally closed electric solenoid valve and a low-pressure mechanical actuator, arranged in series. The solenoid valve remains closed until energized by the releasing panel, which occurs from operation of a fire detection device. The system piping requires 10 (0,7 bar) to 26 psi (1,8 bar) of supervisory pressure, which keeps the low pressure actuator closed. A low pressure switch is used to monitor the loss of system air pressure due to a damaged sprinkler or damaged system piping. Operation of a fire detection device causes the releasing panel to energize open the solenoid valve. Operation of a sprinkler will cause the system air pressure to decrease, and the mechanical actuator will open. With the coexistence of these two independent events, the deluge valve will trip allowing water to flow into the system.

For more detailed information including approval data, please refer to the technical bulletin specified.

DOUBLE INTERLOCK PREACTION SYSTEMS cont.

Double Interlock Preaction System Type D



Technical Bulletin: 720

Features:

- Electric/Electric double interlock preaction system
- Utilizes factory assembled Model H galvanized deluge riser assembly
- cULus Listed
- Galvanized trim and brass components
- Trim includes low air pressure switch, alarm pressure switch, supervised water control valve, and Model A-2 regulating air maintenance device
- 175 psi (12.1 bar) pressure rating
- Controlled by cross-zoned releasing panel
- Piping supervised with 10 psi (0.7 bar)

Available Sizes: 1-1/2 (40mm)

Double Interlock Preaction System Type D

Technical Bulletin: 737

Features:

- Electric/Electric double interlock preaction system
- cULus Listed; FM Approved
- Utilizes lightweight Model DDX deluge valve with galvanized trim
- Trim includes Model A-2 air maintenance device and low air pressure switch
- Available with either 175 psi (12.1 bar) or 250 psi (17.2 bar) solenoid valve
- Controlled by cross-zoned releasing panel
- Piping supervised with 10 psi (0.7 bar)

Available Sizes: 2" (50mm), 2-1/2" (65mm), 3" (80mm), & 76mm

For more detailed information including approval data, please refer to the technical bulletin specified.

DOUBLE INTERLOCK PREACTION SYSTEMS cont.

Double Interlock Preaction System Type F

Technical Bulletin: 738

Features:

- Electric/Pneumatic double interlock preaction system
- cULus Listed; FM Approved
- Utilizes lightweight Model DDX deluge valve with galvanized trim
- Trim includes electric solenoid valve, low pressure pneumatic actuator, and low air pressure switch
- Available with either 175 psi (12.1 bar) or 250 psi (17.2 bar) solenoid valve
- Piping supervised with only 10 psi (0.7 bar) to 26 psi (1.8 bar)

Available Sizes: 2" (50mm), 2-1/2" (65mm), 3" (80mm), & 76mm

Double Interlock Preaction System Type D

Technical Bulletins: 728 & 744

Features:

- Electric/Electric double interlock preaction system
- cULus Listed; FM Approved
- Utilizes lightweight Model DDX deluge valve with galvanized trim
- Trim includes Model A-2 air maintenance device and low air pressure switch
- Available with either 175 psi (12.1 bar) or 250 psi (17.2 bar) solenoid valve
- Controlled by cross-zoned releasing panel
- Piping supervised with 10 psi (0.7 bar)

Available Sizes: 4" (100mm), 6" (150mm), & 8" (200mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

DOUBLE INTERLOCK PREACTION SYSTEMS

Double Interlock Preaction System Type F

Technical Bulletins: 729 & 745

Features:

- Electric/Pneumatic double interlock preaction system
- cULus Listed; FM Approved
- Utilizes lightweight Model DDX deluge valve with galvanized trim
- Trim includes electric solenoid valve, low pressure pneumatic actuator, and low air pressure switch
- Available with either 175 psi (12.1 bar) or 250 psi (17.2 bar) solenoid valve
- Piping supervised with only 10 psi (0.7 bar) to 26 psi (1.8 bar)

Available Sizes: 4" (100mm), 6" (150mm), & 8" (200mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

PREPAK SYSTEMS

PrePaK Systems

The Reliable PrePaK preaction systems are completely self contained and integrated, supervised preaction systems which provide an alternative to site assembled systems, requiring only three piping connections and minimal electrical connections. These factory-assembled, electric actuated systems consist of a supervised water supply control valve, deluge riser assembly with galvanized trim, and all associated hydraulic and electrical components, fittings, gauges, mechanical couplings and supervisory air supply necessary for the operation of an approved automatic preaction system in accordance with NFPA 13 and Factory Mutual Data Sheet requirements. Applications include single interlock, single interlock, cross-zoned, double interlock, and double interlock, cross-zoned.

Features:

- cULus Listed and FM Approved as factory assembled units.
- Available in 1-1/2" (cULus only), 2", 2-1/2", 3", 4" and 6" sizes; sizes 2" through 6" utilize the lightweight Reliable DDX deluge valve, rated to 250 psi.
- Cabinet enclosure is a 12 gauge steel cabinet having an exterior and interior rust-proof, powder coated painted finish. Several removable access panels are located on the cabinet enclosure to promote ease of access to interior components.
- Tank mounted air compressor with regulating type air maintenance device is provided.
- Available with or without the door-mounted, field-programmable Potter PFC 4410RC releasing control panel, which permits field programming for the specific preaction desired.
- Supervisory signal upon loss of air only for both single interlock and double interlock applications.
- Air compressor and releasing panel are powered independently and come wired for either a 120 VAC/60 Hz or 220 VAC/50 Hz power supply
- Domestically manufactured, assembled and tested at Reliable in Liberty, SC

PrePaK Preaction System Model H

Technical Bulletin: 723

Features:

- Utilizes Model H galvanized deluge riser assembly rated to 175 psi (12.1 bar)
- Cabinet size: 24" (609.6mm)W x 27" (685.8mm)D x 64" (1625.6mm)H; 4.5 ft^2 (.42m^2)
- 1/6 hp oilless air compressor with 2 gal. (7.6 L) tank

Available Sizes: 1-1/2" (40mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

Special Hazards/Special Systems

PREPAK SYSTEMS

PrePaK Preaction System Model DDX

Technical Bulletin: 740

Features:

- Utilizes the lightweight Model DDX deluge valve with galvanized trim
- Cabinet size: 24" (609.6mm)W x 27" (685.8mm)D x 68" (1727.2mm)H; 4.5 ft² (.42m²)
- 1/6 hp oilless air compressor with 2 gal. (7.6 L) tank for 2" and 2-1/2" sizes; 1/3 hp for 3" size

Available Sizes: 2" (50mm), 2-1/2" (65mm), 3" (80mm), & 76mm

PrePaK Preaction System Model DDX

Technical Bulletin: 733

Features:

- Utilizes the lightweight Model DDX deluge valve with galvanized trim
- Cabinet size: 25.7" (652.8mm)W x 28.9" (734mm)D x 68" (1727.2mm H; 5.1 ft² (.47m²)
- ¾ hp oilless air compressor with 8 gal. (30.3 L) tank; optional 1-1/2 hp available for 6" PrePaK only

Available Sizes: 4" (100mm), & 6" (150mm)

PrePaK Preaction System Model DDX Type F

Technical Bulletin: 747

Features:

- Utilizes the lightweight DDX deluge valve with Type F (Electric/ Pneumatic Galvanized trim
- Available with optional nitrogen installation kit, air compressor and tank, releasing/control panel for a 120 VAC / 60Hz or a 220 VAC / 50Hz power supply
- Two Cabinet sizes:
  - o 24" (0.61m) W x 27" (06.9m) D x 68" (1.73m) H 12-gauge steel enclosure
  - o 25.7" (0.65m) W x 28.9" (0.73m) D x 68" (1.73m) H 12-gauge steel enclosure

Available Sizes: 2" (50mm), 2 ½" (65mm), 3" (80mm), 4" (100mm), & 6" (150mm)

For more detailed information including approval data, please refer to the technical bulletin specified.

How Much Does It Cost?

Because the preaction system is going to rely on the installation of a complete fire detection system, the majority of your additional cost for a preaction system versus a standard wet or dry pipe system is probably already covered. In some circumstances, additional detectors may be required to insure that there is a detector in every room or area protected by the preaction system.

Existing facilities with wet or dry systems can be converted to preaction systems.

There will be the cost of the preaction valve, trim, air compressor, releasing control panel, and electric wiring for the control panel. There are also some special design criteria for piping and piping configurations that could add minimally to the cost of the system. The larger the facility the lower per square footage cost of the preaction system.

Reliable offers many valve and trim combinations to include complete prepackaged units, for your facility's requirements.

The actual answer for the cost of the preaction system is: How much will the accidental water damage loss cost? The preaction system will pay for itself in helping to eliminate damage claims, eliminating interruption of your business or institution, and providing piece of mind.

How Can I Get the Benefits of a Preaction System?

Contact a Reliable Technical Services Manager at 1-800-55-RASCO (1-800-431-1588) or contact your fire sprinkler contractor and we will work with them to provide the proper fire protection package for your facility.

Our complete line of concealed sprinklers combined with our preaction systems will give you the best combination against accidental water damage losses.

Whether you are building a new facility or want to change your existing system to a preaction system, Reliable can provide the equipment and the expertise to protect lives while protecting your property from fire and water damage loss.

How Does the Single-Interlock Preaction System Operate?

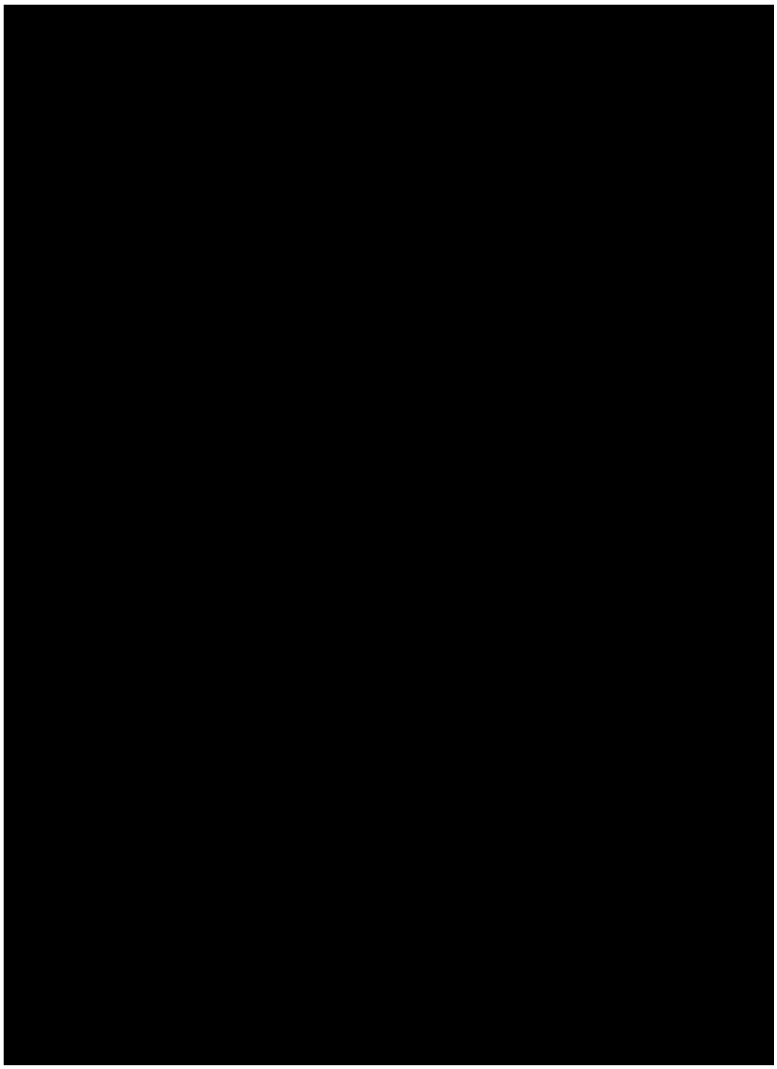
The sprinkler system is filled with compressed air to a low pressure of 2 -10 psi. There is no water in the piping sys tem. The air pressure has no relationship with actual flow of water into the piping. The compressed air is there only to supervise the integrity of the system.

Any loss of this air pressure caused by a damaged sprin kler or damaged piping, will provide an alarm signal for a supervisory condition, not a fire condition. This alarm would not cause fire trucks to roll, it would provide man agement with an indication that there has been damage to their system and that it needs to be repaired. Water will not flow upon the loss of this air pressure.

Water is allowed to flow into the sprinkler system only upon the operation of the facility's fire detection system. The smoke detection/thermal detection system sends a signal to a releasing control panel that will operate the preaction valve and allow water to flow into the system. The water is in the piping waiting for the activation of the fire sprinkler to control the fire. A false detection will fill the piping with water, but if a sprinkler has not opened or the piping has not been damaged, there will be no dis charge of water. The system will be drained down and placed back into service.

The Benefits of Fire Sprinklers Without Accidental Water Damage

The Reliable Automatic Sprinkler Co., Inc. • Manufacturer & Distributor of Fire Protection Equipment



The Problem:

Fire sprinklers have a long and successful history of saving lives and of saving properties from cata - strophic losses. As sprinkler protection has evolved, we now are using fire sprinklers more and more as life saving devices and not just as property protec - tion devices. This has been a significant step, but unfortunately not without its problems.

In many occupancies, in order to provide better fire protection and life safety, we have changed from standard response sprinklers to quick response sprinklers. To achieve the quick response necessary for life safety, we are producing sprinklers with operating mechanisms that are much smaller in mass and therefore more susceptible to damage and to accidental operation.

To add to the potential damage problem, we are now installing sprinklers in properties where sprin - klers can be more easily damaged by acts of the occupants. Striking the sprinkler or hanging objects from it can cause damage and false operation.

If the sprinkler system is a standard wet or dry pipe sprinkler system, damage to a sprinkler can cause accidental water flow. This water flow, that was designed to protect us in a fire situation from life or property loss, is now a source of property loss, potential income loss, insurance premium increases or loss of coverage, and a general interruption to business or your daily life.

The Solution:

For many years Reliable has been providing sys - tems for water sensitive areas, such as computer rooms, libraries, etc. These single-interlock preaction systems are providing fire protec - tion while helping to eliminate any accidental water damage claims. Aren't all properties really water sensitive areas?

The major benefits of the electric single-interlock preaction system, when com - pared with a wet or dry pipe system are:

1. A trouble annunciator signals whenever damage occurs to the sprinkler or the sprinkler piping. NO WATER WILL FLOW.

2. A fire alarm sounds prior to the operation of a sprinkler, which may enable the fire to be extin - guished by hand-held means before the sprinkler activates.

3. Can prevent piping from freeze damage because there is no water in the piping. Any residual water left in the piping that may freeze and damage the system will provide a supervisory trouble signal.

Two Scenarios

A hotel with a standard wet or dry pipe sprinkler system:

At 10:00 PM a just registered guest enters his room and hangs his ment bag on that special hanging device (actually a fire sprinkler)- vided by the hotel. The fire sprinkler operates and begins spraying v (black, oily water at first) at a rate of 30 to 100 or more gallons p minute. The fire alarm sounds. The hotel is evacuated and the trucks are on the way.

Thirty to forty-five minutes later (if you are lucky) the fire departmer determine that this is a false alarm and shut off the sprinkler system of the unhappy guests will wait for the elevators to be put back in-s ice and then return to their rooms. Well, some will return to their roo The rooms below and sometimes beside the activated sprinkler r will not be habitable and will have damaged property belonging to occupants.

This is only a start. What about water damage to electrical equipm sheet rock, carpets, furniture, bedding, potential mold, and of cou lost revenues for an indefinite period of time. The insurance comp will not be happy.

A hotel with a preaction sprinkler system:

At 10:00 PM a just registered guest enters his room and ha his garment bag on that special hanging device (actually a sprinkler) provided by the hotel. The fire sprinkler operates begins spitting air and maybe a few drops of water conden tion. A supervisory alarm sounds at the front desk indicatin problem with the sprinkler system. The guest calls the front because the noise from the air pressure is irritating him. Y trained maintenance man, or better yet, your fire sprinkler c tractor is called to replace the sprinkler and reset the super ry alarm. During this period, you still have not lost fire sprin protection for your property.

No fire trucks roll, no guests are upset (well maybe the one should charge for breaking the sprinkler), there is no wa damage, no lost revenues, and your insurance compan happily unaware.

These scenarios can be the same for scho dormitories, offices, mercantiles, institutio facilities, and virtually any sprinklered prope

INDEX