



FIRE SUPPRESSION



**Response Fire Systems Ltd.
2710 Beachmount Crescent
Kamloops, BC V2B 6R4**

Date: June 6, 2023

Warranty

To: A and T Project Developments

Re: Powder Heights

This letter verifies a warranty period of one year for parts and labor for the specified location and dates.

Location: Powder Heights Building 1

From: Substantial date of completion

To: One year following

Warranty coverage: All labor, piping, fittings, sprinklers & equipment attached to the new wet sprinkler and standpipe system. The water service pipe that connects the sprinkler system to the city mains was installed by others and is not covered under this warranty.

Sincerely, Morgan Martel - Principal



**Response Fire Systems Ltd.
2710 Beachmount Crescent
Kamloops, BC V2B 0E6
morgan@responsefire.ca**

Date: June 6, 2023

Re: Powder Heights

The entire building is protected by an automatic sprinkler system that is charged with water at all times. The water flow is controlled by individual sprinkler heads. These sprinkler heads are heat actuated and require a temperature of 155°F to discharge. Water will continue to flow after the sprinkler has discharged until the appropriate main control valve is shut off. Each Unit has an individual shut off valve (zone valve) and drain valve. The locations of these zone valves are on the as built drawings. Each individual valve station has a flow switch installed.

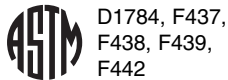
A sprinkler system main control valve should never be closed until the fire department determines that a fire condition does not exist. Once a sprinkler head has discharged it must be replaced and pressure restored to the system. This work can only be performed by a qualified sprinkler fitter with the appropriate insurance.

For any questions, service, inspections or maintenance requirements please call Morgan Martel at Response Fire Systems Ltd. At 250-578-7779, cell 250-319-5604 or email morgan@responsefire.ca



Job or Customer:
Engineer:
Contractor:
Submitted by: **Date**
Approved by: **Date**
Order No: **Date**
Specification:
Installation Date:

< STANDARDS >



introduction

IPEX BlazeMaster® pipe and fittings are designed specifically for fire sprinkler systems. They are made from a specialty thermoplastic known chemically as post-chlorinated polyvinyl chloride (CPVC). IPEX BlazeMaster pipe and fittings provide unique advantages in sprinkler installations including superior hydraulics, ease of joining, increased hanger spacing in comparison to other thermoplastics and ease of assembly. They also are based on a technology with a continuous and proven service history of more than 40 years.

Fire Performance

BlazeMaster is made with CPVC which offers an even greater fire safety profile than PVC. Like PVC, CPVC will not independently support combustion, and as such will not burn once the flame source is removed. CPVC's ignition resistance is demonstrated by its flash ignition temperature of 900°F.

CPVC also has a low flame spread. In addition, it provides outstanding smoke characteristics. In testing conducted to CAN/ULC S102.2, CPVC showed a flame spread of less than 15, and a smoke-developed classification of 15. And, like PVC, CPVC has a fuel contribution of 0.





material properties

Physical & Thermal Properties of BlazeMaster CPVC		
Property	CPVC	ASTM
Specific Gravity	1.55	D792
IZOD Impact Strength (ft. lbs./inch, notched)	3.0	D256A
Modulus of Elasticity, @ 73°F, psi	4.23 x 10 ⁵	D638
Ultimate Tensile Strength, psi	8,400	D638
Compressive Strength, psi	9,600	D695
Poisson's Ratio	.35 - .38	-
Working Stress @ 73°F, psi	2,000	D1598
Hazen-Williams C Factor	150	-
Coefficient of Linear Expansion in./in.°F)	3.4 x 10 ⁻⁵	D696
Thermal Conductivity BTU/hr.ft. ² /°F/in.	0.95	C177
Limiting Oxygen Index	60%	D2863
Electrical Conductivity	Non Conductor	

availability

Description	Size (in)
Pipe	3/4" to 3"
Fittings	
Tee (Soc)	3/4" to 3"
Reducing Tee (Soc)	3/4" to 3" x 3/4" 3" x 3/4" to 2-1/2"
Sprinkler Head Adapter Tee (Soc x Soc x SST FPT)	3/4" to 2" x 3/4" 2" x 1/2"
Sprinkler Head Adapter Tee (FPT x FPT x Soc)	1/2" x 1/2" 1"
90° Elbow (Soc)	3/4" - 3"
Sprinkler head Adapter 90° Elbow (Soc x SST FPT)	3/4" to 1-1/4" x 1/2" to 3/4"
45° Elbow (Soc)	3/4" to 3"
Cross (Soc)	3/4" to 2-1/2"
Coupling (Soc)	3/4" to 3"
Grooved Adapter Coupling (Soc x Groove)	1-1/4" to 3"
Female Adaptor (Soc x SST FPT)	3/4" to 2"
Sprinkler Head Adaptor (Soc x SST FPT)	3/4" to 1-1/4" x 1/2" to 3/4"
Sprinkler Head Adaptor (Sp x SST FPT)	3/4" to 1" x 1/2"
Reducer Bushing (Spig x Soc)	1" to 3" x 3/4" to 2-1/2"
Cap (Soc)	3/4" to 3"
Union (Soc)	3/4" to 2"
One Piece Flange (Soc)	3/4" to 3"



Outdoor Installations

IPEX BlazeMaster pipe and fittings are not listed for exposed, outdoor applications.

Joining IPEX BlazeMaster Pipe and Fittings with Red One Step Solvent Cement

Note: BlazeMaster BM-5 One Step Cement requires no cleaner or primer. Refer to individual manufacturers' installation instructions.

Cutting

IPEX BlazeMaster pipe can be easily cut with a sharp ratchet cutter (except at temperatures below 10°C (50°F)), a wheel-type plastic tubing cutter, a power saw or a fine toothed saw. To ensure the pipe is cut square, a miter box is recommended when using a saw. A square cut provides the surface of the pipe with maximum bonding area. If any indication of damage or cracking is evident at the pipe end, cut off at least 50.8 mm (2") beyond any visible crack.



Deburring

Burrs and filings can prevent proper contact between pipe and fitting during assembly, and must be removed from the outside and the inside of the pipe. A chamfering tool or a file is suitable for this purpose. A slight bevel shall be placed at the end of the pipe to ease entry of the pipe into the socket and minimize the chances of wiping solvent cement from the fitting during insertion.



Fitting Preparation

Using a clean, dry rag, wipe loose dirt and moisture from the fitting socket and pipe end. Moisture can slow the cure time and at this stage of assembly, excessive water can reduce joint strength. Check the dry fit of the pipe and fitting. The pipe should enter the fitting socket easily 1/4 to 3/4 of the way. At this stage, the pipe should not bottom out in the socket.

Solvent Cement Application

Joining surfaces shall be penetrated and softened. Cement shall be applied (worked into pipe) with an applicator half the nominal size of the pipe diameter. Apply a heavy, even coat of cement to the outside pipe end. Apply a medium coat to the fitting socket.

Pipe sizes 1-1/4" (32 mm) and above shall always receive a second cement application on the pipe end. (Apply cement on the pipe end, in the fitting socket, and on the pipe again.) Only use solvent cements that have been specifically investigated and tested for use with BlazeMaster CPVC systems and approved by the pipe and fitting manufacturer. Too much cement can cause clogged waterways. Do not allow excess cement to puddle in the pipe and fitting assembly.



Special care shall be exercised when assembling BlazeMaster systems in extremely low temperatures (below 4°C (40°F)) or extremely high temperatures (above 38°C (100°F)). Extra set time shall be allowed in colder temperatures. When cementing pipe and fittings in extremely cold temperatures, make certain that the cement has not "gelled". Gelled cement must be discarded. In extremely hot temperatures, make sure both surfaces to be joined are still wet with cement when putting them together.



Assembly

After applying cement, immediately insert the pipe into the fitting socket, while rotating the pipe one-quarter turn. Properly align the fitting for the installation at this time. Pipe must bottom to the stop. Hold the assembly for 10 to 15 seconds to ensure initial bonding. A bead of cement should be evident around the pipe and fitting juncture. If this bead is not continuous around the socket shoulder, it may indicate that insufficient cement was applied.



If insufficient cement is applied, the fitting must be cut out and discarded.

Cement in excess of the bead can be wiped off with a rag. Care shall be exercised when installing sprinkler heads. Sprinkler head fittings shall be allowed to cure for a minimum of 30 minutes prior to installing the sprinkler head. When installing sprinkler heads, be sure to anchor or hold the pipe drop securely to avoid rotating the pipe in previously cemented connections. Previously cemented fittings shall also be permitted to cure for a minimum of 30 minutes.

Warning: Sprinkler heads shall be installed only after all the CPVC pipe and fittings, including the sprinkler head adapters, are solvent welded to the piping and allowed to cure for a minimum of 30 minutes. Sprinkler head fittings should be visually inspected and probed with a wooden dowel to ensure that the water way and threads are clear of any excess cement. Once the installation is complete and cured per Table I, II or III, the system shall be hydrostatically tested. Sprinklers shall not be installed in the fittings prior to the fittings being cemented in place.

Note: Safety and Health Precautions. Prior to using CPVC solvent cements, review and follow all precautions found on the container labels, material safety data sheet, and Standard Practice for Safe Handling ASTM F 402.

Set and Cure Times

Solvent cement set and cure times are a function of pipe size, temperature, relative humidity, and tightness of fit. Curing time is faster for drier environments, smaller pipe sizes, higher temperatures and tighter fits. The assembly must be allowed to set, without any stress on the joint, for 1 to 5 minutes, depending on pipe size and temperature.



Following initial set period, the assembly can be handled carefully, avoiding significant stresses to the joint. Refer to the following tables for minimum cure times prior to pressure testing.

Pipe Size		Temperature		
inches	mm	16°C to 49°C (60°F to 120°F)	≥ 4.4°C (≥ 40°F)	≥ 17.8°C (≥ 0°F)
3/4	20	1 hr	4 hrs	48 hrs
1	25	1-1/2 hrs	4 hrs	48 hrs
1-1/4	32 & 40	3 hrs	32 hrs	10 days
2	50	8 hrs	48 hrs	Note 1
2-1/2 & 3	65 & 80	24 hrs	96 hrs	Note 1

Note: Cure times indicated in Table 1 are to be used for all LPCB approved pipe and fitting joints.

Pipe Size		Temperature		
inches	mm	16°C to 49°C (60°F to 120°F)	≥ 4.4°C (≥ 40°F)	≥ 17.8°C (≥ 0°F)
3/4	20	45 mins	1-1/2 hrs	48 hrs
1	25	45 mins	1-1/2 hrs	48 hrs
1-1/4	32 & 40	1-1/2 hrs	16 hrs	10 days
2	50	6 hrs	36 hrs	Note 1
2-1/2 & 3	65 & 80	8 hrs	72 hrs	Note 1

Pipe Size		Temperature		
inches	mm	16°C to 49°C (60°F to 120°F)	≥ 4.4°C (≥ 40°F)	≥ 17.8°C (≥ 0°F)
3/4	20	15 mins	15 mins	30 mins
1	25	15 mins	30 mins	30 mins
1-1/4	32 & 40	15 mins	30 mins	2 hrs

Note: For these sizes, the solvent cement can be applied at temperatures below -17.8°C (0°F), however, the sprinkler system temperature must be raised to a temperature of 0°C (32°F) or above and allowed to cure per the above recommendations prior to pressure testing.



Threaded Connections

IPEX BlazeMaster CPVC female threaded adapters or flanges are listed for connecting a BlazeMaster fire sprinkler system to other materials, valves, and appurtenances.

A thread sealant shall be used in making threaded connections. TFE (Teflon®) thread tape is the recommended sealant. Some thread sealants other than TFE thread tape contain solvents or other materials that may be damaging to CPVC. Contact your authorized IPEX BlazeMaster distributor or IPEX Representative for approved thread sealants. Use of thread sealants other than those approved by IPEX will void the warranty on the IPEX BlazeMaster system.

Care shall be exercised when transitioning between IPEX BlazeMaster pipe and fittings and metal. Care must be taken to avoid over-torquing. Refer to section on instructions for torque requirements.

The following is the recommended method of installation to ensure a sound connection.

- a) Begin by applying 2 to 3 wraps of TFE (Teflon®) thread tape.
- b) Tighten the sprinkler head into the adapter taking care not to cross-thread the fitting. (Recommended torque values 15-25 ft/lbs)
- c) Two to three turns beyond finger-tight is all that is required to make a sound plastic threaded connection.

CAUTION: Over-tightening will damage both the pipe and the fitting.

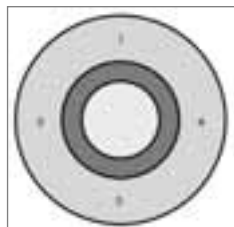
Flanged Connections

Flange Make-Up: Once a flange is joined to pipe, the method for joining two flanges is as follows:

1. Piping runs joined to the flanges must be installed in a straight line position to the flange to avoid stress at the flange due to misalignment. Piping must also be secured and supported to prevent lateral movement that can create stress and damage the flange.
2. With gasket in place, align the bolt holes of the mating flanges by rotating the ring into position. (Consideration should be given to alignment of One-Piece Flange prior to joining with pipe.)
3. Insert all bolts, washers (two standard flat washers per bolt), and nuts.
4. Make sure the faces of the mating surfaces are flush against gasket prior to bolting down the flanges.
5. Tighten the nuts by hand until they are snug. Establish uniform pressure over the flange face by tightening the bolts in 5 ft. lb. (6.8 M Kg) increments according to the sequence shown in Figure 8: Bol Tightening Sequence following a 180° opposing sequence.
6. Care must be taken to avoid “bending” the flange when joining a flange to a “raised face” flange, or a wafer-style valve. Do not use bolts to bring together improperly mated flanges.

Caution: Over-torquing will damage the flange. Torque given is for dry, non-lubricated bolt, standard washers, neoprene 3.18 mm (1/8²) thick full face gasket. If lubricant (non-petroleum based) is used, torque levels may vary. Actual field conditions may require a variation in these recommendations.

**Figure 8:
Bolt Tightening
Sequence**



Recommended Bolt Torque					
Flange Size		Bolt Diameter		Torque	
inches	mm	inches	mm	ft lbs	M Kg
3/4 - 1-1/2	19.05 - 38.10	1/2	12.70	10 - 15	13.6 - 20.3
2 - 3	50.80 - 76.20	5/8	15.88	20 - 30	27.1 - 40.7



Grooved Coupling Adapters

The following procedures are recommended for proper assembly of the Grooved Coupling Adapter. READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION.

1. Inspect the fittings and pipe to insure that they are sufficiently free from indentations, projections or roll-marks on the gasket seating areas of the fitting and pipe. The pipe should be squarely cut with any loose scale, paint and/or dirt must be removed from the groove and seating surface. Use a standard grade E*, EPDM compound that is suitable for wet fire sprinkler service. A flexible coupling shall be used with grooved coupling adapters. Caution: Use of rigid style couplings may damage the grooved coupling adapter. Consult the coupling manufacturer for proper selection.

*See manufacturer for temperature ratings.

2. Make sure the gasket is clean and free of any cracks, cuts or other defects which may cause leaks. Lubricate the gasket with a vegetable soap-based gasket lubricant. Caution: Use of petroleum based lubricants will damage the gasket and adapter resulting in stress failure of the CPVC adapter. A gasket/joint lubricant is recommended to prevent pinching the gasket and to assist in seating the gasket during the alignment process. Apply the appropriate lubricant to the gasket lips and exterior surface of the gasket.
3. Place the gasket over the metal pipe ends, being sure gasket lip does not overhang the pipe end. Insert the CPVC grooved coupling adapter into the gasket. Make sure that the gasket is centered between the two grooves. No portion of the gasket should extend into the grooves. Caution: Make sure the gasket is not pinched between the pipe and the fitting.
4. Place the metal housing over the gasket, making sure the metal housing key is into the grooves on the metal pipe and the CPVC coupling adapter. Insert the bolts and tighten by hand. Tighten the bolts alternately and equally until the bolt pads are touching metal-to-metal. In completing a proper joint, the gasket is also slightly compressed, adding to the strength of the seal from the gasket's durometer.
5. Inspect the joints before and after pressure testing. Look for gaps between the bolt pads and for housing keys that are not inside the grooves.

Penetrating Fire Rated Walls and Partitions

Before penetrating fire rated walls and partitions, consult building codes and authorities having jurisdiction in your area. Several classified through-penetration firestop systems are approved for use with CPVC pipe. Consult IPEX representative for further information. Warning: Some firestop sealants or wrap strips contain solvents or plasticizers that may be damaging to CPVC. Always consult the manufacturer of the firestop material for compatibility with IPEX BlazeMaster CPVC pipe and fittings.

Earthquake Bracing

Since IPEX BlazeMaster CPVC pipe is more ductile than metallic sprinkler pipe, it has a greater capacity to withstand earthquake damage. In areas subject to earthquakes, BlazeMaster fire sprinkler systems shall be designed and braced in accordance with local codes or NFPA 13, Section 6-4 (1999 Edition).

When it is required to earthquake brace BlazeMaster piping, it is important to use fittings, fasteners or clamps that do not have sharp edges or apply excessive compressive forces sufficient to distort the pipe.

Pressure Testing

Once an installation is completed and cured, per the previous recommendations, the system should be hydrostatically (water) pressure tested at 1379 kPa (200 psi), Table II, for 2 hours (or at 345 kPa (50 psi) in excess of the maximum pressure, Table I, when the maximum pressure to be maintained in the system is in excess of 1034 kPa (150 psi) in accordance with the requirements established by NFPA Standard 13, Section 10-2.2.1 (1999 Edition). Sprinkler systems in one- and two-family dwellings and mobile homes may be tested at line pressure, Table III in accordance with the requirements established by NFPA 13D, Section 1-5.4 (1999 Edition). When pressure testing, the sprinkler system shall be slowly filled with water and the air bled from the highest and farthest sprinkler heads before pressure testing is applied. Air must be removed from piping systems (plastic or metal) to prevent it from being locked in the system when pressure is applied. Entrapped air can generate excessive surge pressures that are potentially damaging, regardless of the piping materials used. **Air or compressed gas should never be used for pressure testing.** If a leak is found, the fitting must be cut out and discarded. A new section can be installed using couplings or a union. Unions should be used in accessible areas only.



Scope

This specification sheet covers IPEX Inc. requirements for for 3/4" through 3" (20 mm – 75 mm) **BlazeMaster CPVC SDR 13.5 Pipe** for wet pipe automatic sprinkler systems, having a rated working pressure of 175 psi (1205 kPa) at 150°F (66°C) or 315 psi (2172 kPa) at 73°F (22°C) and **BlazeMaster CPVC Schedule 80 Fittings**. The fittings, for wet pipe automatic sprinkler systems, having a rated working pressure of 175 psi (1205 kPa) at 150°F (66°C) or 315 psi (2172 kPa) @ 73°F (22°C). These products meet or exceed performance standards set by the American National Standards Institute (ANSI), the American Society for Testing and Materials (ASTM), Factory Mutual Research (FM), National Fire Protection Agency (NFPA), NSF International (NSF), Underwriters Laboratories Inc., and Underwriters' Laboratories of Canada (ULC).

Underwriters' Laboratories of Canada lists **BlazeMaster CPVC Schedule 80 Fittings** and **BlazeMaster CPVC SDR 13.5 Pipe** for use in the following applications; Residential occupancies as defined in the Standard for Sprinkler Systems in One and Two-Family Dwellings, NFPA 13D.

Multiple residential as defined in NFPA 13R.

Light-hazard occupancies as defined in the Standard for Installation of Sprinkler Systems, NFPA 13. **BlazeMaster CPVC Schedule 80 Fittings** and **BlazeMaster CPVC SDR 13.5 Pipe** can be used for both concealed and exposed installations. Refer to IPEX literature for any limitations.

Dimensions

IPEX BlazeMaster pipe is produced in SDR 13.5 dimensions to the specifications of ASTM F442. Fittings are produced to ASTM F437, F438 or F439 specifications depending on the size and configuration.

Material

BlazeMaster CPVC SDR 13.5 Pipe are made from Lubrizol Inc. Chlorinated Polyvinyl Chloride (CPVC) raw material having a cell class of 23447 as defined in ASTM Standard D 1784 "Standard Specification for Rigid Polyvinyl Chloride (PVC) and Chlorinated Polyvinyl Chloride (CPVC) Compounds". The compound is listed with NSF for potable water service.

The material has been tested in accordance with CAN/ULC Standard S102.2M88 "Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials and Assemblies" with the following results: Flame Spread 5 / Smoke Development 5-15.

BlazeMaster Schedule 80 Fittings are made from Lubrizol Inc. Chlorinated Polyvinyl Chloride (CPVC) raw material having a cell class of 23447 as defined in ASTM Standard D 1784 "Standard Specification for Rigid Polyvinyl Chloride (PVC) and Chlorinated Polyvinyl Chloride (CPVC) Compounds". The compound is listed with NSF for potable water service.

Marking

BlazeMaster Schedule 80 Fittings and **BlazeMaster CPVC SDR 13.5 Pipe** are made from Lubrizol Inc. Chlorinated Polyvinyl Chloride (CPVC) raw material having a cell class of 23447 as defined in ASTM Standard D 1784 "Standard Specification for Rigid Polyvinyl Chloride (PVC) and Chlorinated Polyvinyl Chloride (CPVC) Compounds". The compound is listed with NSF for potable water service.



About the IPEX Group of Companies

As leading suppliers of thermoplastic piping systems, the IPEX Group of Companies provides our customers with some of the world's largest and most comprehensive product lines. All IPEX products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have established a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX group products are:

- Electrical systems
- Telecommunications and utility piping systems
- PVC, CPVC, PP, ABS, PEX, FR-PVDF and PE pipe and fittings (1/4" to 48")
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- PE Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems

Products are manufactured by IPEX Inc. and distributed in the United States by IPEX USA LLC. PlumbBetter® is a trademark of IPEX Branding Inc.

This literature is published in good faith and is believed to be reliable. However, it does not represent and/or warrant in any manner the information and suggestions contained in this brochure. Data presented is the result of laboratory tests and field experience.

A policy of ongoing product improvement is maintained. This may result in modifications of features and/or specifications without notice.



Victaulic® FireLock Model FL-QR/C

Standard Coverage, Quick Response

Concealed Pendent Sprinklers, K5.6 (8.1)



1.0 PRODUCT DESCRIPTION

QUICK RESPONSE CONCEALED PENDENT SPRINKLERS			
SIN	V5606	V3802	V3808
ORIENTATION	Concealed Pendent	Concealed Pendent	Concealed Pendent
K-FACTOR ¹	5.6 Imp./8.1 S.I.	5.6 Imp./8.1 S.I.	5.6 Imp./8.1 S.I.
CONNECTION	½" NPT/15mm BSPT	½" NPT/15mm BSPT	½" NPT/15mm BSPT
MAX. WORKING PRESSURE	175 psi (1200 kPa)	175 psi (1200 kPa)	300psi (2068 kPa)
ESCUTCHEON	Concealed	Concealed	Concealed
GLOBE RE-DESIGNATED	GL5606	-	-
GLOBE EQUIVALENT	-	GL5604	GL5605

AVAILABLE WRENCHES			
SPRINKLER	1" ADJ Concealed	V38 Concealed	V38 Concealed
PENDENT	■	■	■

CLEAN ROOM GASKET			
SPRINKLER	1" ADJ Concealed	V38 Concealed	V38 Concealed
PENDENT		■	■

Factory Hydrostatic Test: 100% @ 500 psi/3447 kPa/34 bar

Min. Operating Pressure: UL/FM: 7psi/48 kPa/.5 bar

Temperature Rating: See tables in section 2.0

¹ For K-Factor when pressure is measured in bar, multiply S.I. units by 10.0.

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



2.0 CERTIFICATION/LISTINGS



LPS 1186: Issue 3.1
Cert/LPCB Ref. 104b/06

APPROVALS/LISTINGS					
SIN	V5606	Cover Plate	V3802	V3808	Cover Plate
Nominal K Factor Imperial	5.6	–	5.6	5.6	–
Nominal K Factor S.I. ²	8.1	–	8.1	8.1	–
Orientation	Pendent	–	Pendent	Pendent	–
Escutcheon	Concealed	–	Concealed	Concealed	–
APPROVED TEMPERATURE RATINGS F°/C°					
cULus	135°F/57°C 155°F/68°C 175°F/79°C 200°F/93°C	135°F/57°C 135°F /57°C 155°F/68°C 155°F/68°C 155°F/68°C	135°F/57°C 155°F/68°C 175°F/79°C 200°F/93°C	135°F/57°C 155°F/68°C 175°F/79°C 200°F/93°C	135°F/57°C 135°F/57°C 165°F/74°C 165°F/74°C
FM Standard Response Only	155°F/68°C 175°F/79°C 200°F/93°C	135°F /57°C 155°F/68°C 155°F/68°C 155°F/68°C	155°F/68°C 175°F/79°C 200°F/93°C	–	135°F/57°C 135°F/57°C 165°F/74°C 165°F/74°C
LPCB	–	–	155°F/68°C 175°F/79°C 200°F/93°C	–	138°F/59°C 165°F/74°C 165°F/74°C
CE	–	–	155°F/68°C 175°F/79°C 200°F/93°C	–	138°F/59°C 165°F/74°C 165°F/74°C
CCC K ZSTDY	–	–	155°F/68°C 200°F/93°C	–	135°F/57°C 135°F/57°C 165°F/74°C

APPROVALS/LISTINGS WITH CLEAN ROOM GASKET			
SIN	V3802 ³	V3808 ³	Cover Plate
Nominal K Factor Imperial	5.6	5.6	–
Nominal K Factor S.I. ²	8.1	8.1	–
Orientation	Pendent	Pendent	–
Escutcheon	Concealed	Concealed	–
APPROVED TEMPERATURE RATINGS F°/C°			
cULus	135°F/57°C 155°F/68°C 175°F/79°C 200°F/93°C	135°F/57°C 155°F/68°C 175°F/79°C 200°F/93°C	135°F/57°C 135°F/57°C 165°F/74°C 165°F/74°C

² For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.

³ Recognized as standard response when clean room gasket is installed.

NOTES

- Listings and approval as of printing.
- New York City Acceptance - All UL Listed and/or FM Approved sprinklers acceptable to NYC per section 28-113 of the Administrative Code and the OTCR Rule.

3.0 SPECIFICATIONS – MATERIAL

Deflector: Bronze

Bulb Nominal Diamter: 3.0 mm

Load Screw: Brass

Pip Cap: Brass

Spring Seal: PTFE coated Beryllium nickel alloy

Frame: Brass

Concealed Cup: Steel

Cover Plate: Steel

Lodgement Spring: Stainless Steel

Pin: Stainless Steel

Installation Wrench: Ductile Iron

Sealing Gasket: White nitrile (CLEAN ROOM USE ONLY)

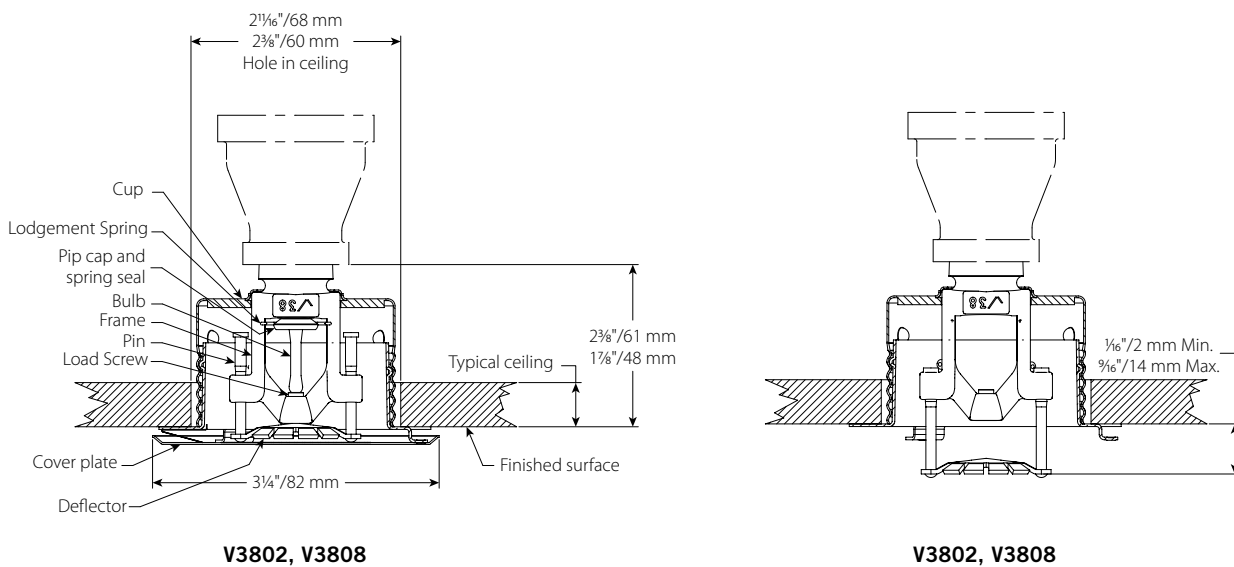
Cover Plate Finishes:

- Chrome plated
- White painted
- Flat black painted
- Custom painted

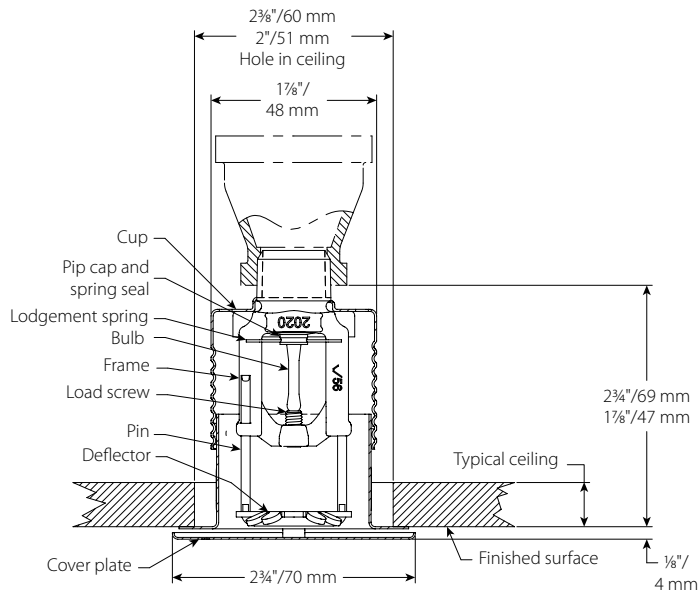
NOTE

- For cabinets and other accessories refer to separate sheet.

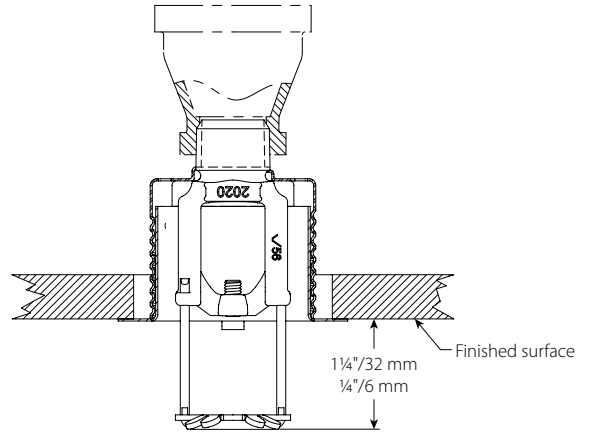
4.0 DIMENSIONS



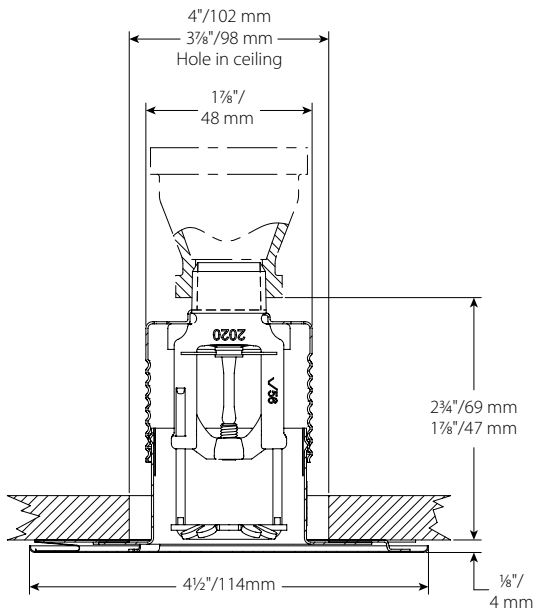
4.0 DIMENSIONS (CONTINUED)



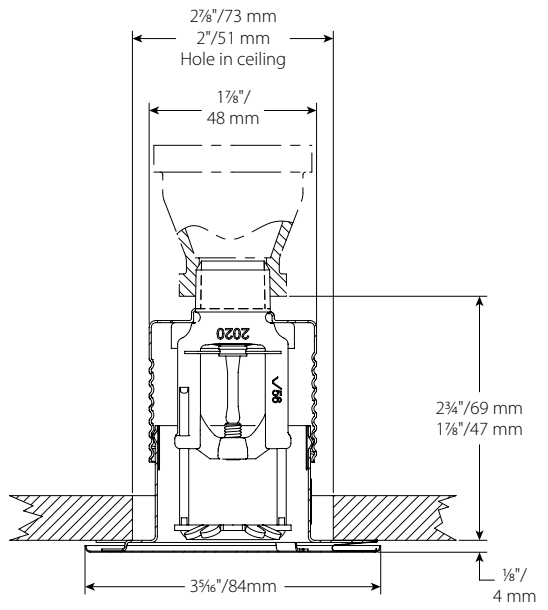
V5606



Activated Position
V5606



Seismic Coverplate
V5606




Large Coverplate
V5606

5.0 PERFORMANCE

Sprinkler is to be installed and designed as per NFPA, FM Datasheets, or any local standards.

6.0 NOTIFICATIONS

⚠ WARNING	
	<ul style="list-style-type: none">• Read and understand all instructions before attempting to install any Victaulic products.• Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.• Wear safety glasses, hardhat, and foot protection. <p>Failure to follow these instructions could result in death or serious personal injury and property damage.</p>
<ul style="list-style-type: none">• These products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc.• The installer shall understand the use of this product and why it was specified for the particular application.• The installer shall understand common industry safety standards and potential consequences of improper product installation.• It is the system designer's responsibility to verify suitability of materials for use with the intended fluid media within the piping system and external environment.• The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on materials to confirm system life will be acceptable for the intended service. <p>Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.</p>	

7.0 REFERENCE MATERIALS

Ratings: All glass bulbs are rated for temperatures from -67°F/-55°C.

[41.53: Victaulic® FireLock™ Series FL-SR/C](#)

[1-40: Victaulic FireLock™ Automatic Sprinklers Installation and Maintenance Instructions](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

Intellectual Property Rights

No statement contained herein concerning a possible or suggested use of any material, product, service, or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Victaulic or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product, service, or design in the infringement of any patent or other intellectual property right. The terms "Patented" or "Patent Pending" refer to design or utility patents or patent applications for articles and/or methods of use in the United States and/or other countries.

Note

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

Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty

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

Trademarks

Victaulic and all other Victaulic marks are the trademarks or registered trademarks of Victaulic Company, and/or its affiliated entities, in the U.S. and/or other countries.

V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

V2738 QUICK RESPONSE

These Model V2738 residential sprinklers are designed to meet the requirements of the 2002 or later NFPA 13, 13D and 13R for residential use. The Model V2738 is UL Listed for use under smooth flat horizontal ceilings. The design incorporates state-of-the-art, heat responsive, frangible glass bulb design (quick response) for prompt, precise operation.

The die cast frame is more streamlined and attractive than traditional sand cast frames. It is cast with a hex-shaped wrench boss to allow easy tightening from many angles, reducing assembly effort. This sprinkler is available in various finishes to meet many design requirements.



SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS



SPRINKLER OPERATION:

The operating mechanism is a frangible glass bulb which contains a heat responsive liquid. During a fire, the ambient temperature rises causing the liquid in the bulb to expand. When the ambient temperature reaches the rated temperature of the sprinkler, the bulb shatters. As a result, the waterway is cleared of all sealing parts and water is discharged towards the deflector. The deflector is designed to distribute the water in a pattern that is most effective in controlling the fire.

COVERAGE:

Residential spray coverage up to 320sq. ft./29.9sq. m room sizes per NFPA.

TECHNICAL SPECIFICATIONS:

Models: V2738
Style: Residential Horizontal Sidewall and Recessed Horizontal Sidewall
Nominal Orifice Size: 7/16"/12 mm
K-Factor: 4.2 Imp./6.1 S.I.[^]
Nominal Thread Size: 1/2" NPT/15 mm
Max. Working Pressure: 175 psi/1200 kPa
Factory Hydrostatic Test: 100% @ 500 psi/3450 kPa
Min. Operating Pressure: 7 psi/48 kPa
Temperature Rating: See chart on page 2

Material Specifications
Deflector: Bronze per UNS C51000
Bulb: Glass with glycerin solution.
Bulb Nominal Diameter:
 • Quick Response: 3.0 mm
Load Screw: Bronze per UNS C65100
Pip Cap: Bronze per UNS C65100
Spring: Beryllium nickel
Seal: Teflon* tape
Frame: Die cast brass 65-30
Lodgement Spring: Stainless steel per UNS S30200

Accessories

Installation Wrench:

- Open End: V27
- Recessed: V27-2

Sprinkler Finishes:

- Plain brass
- Chrome plated
- White painted**
- Custom painted**

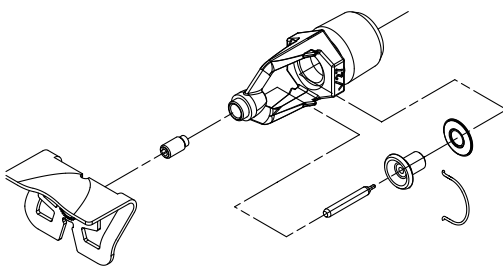
For escutcheons, cabinets and other accessories refer to separate sheet.

NOTE: Weather resistant recessed escutcheons available upon request.

[^] For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.0.

* Teflon is a registered trademark of Dupont Co.

** UL Listed for corrosion resistance.



JOB/OWNER

System No. _____
 Location _____

CONTRACTOR

Submitted By _____
 Date _____

ENGINEER

Spec Sect _____ Para _____
 Approved _____
 Date _____

V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

V2738 QUICK RESPONSE

APPROVALS/LISTINGS

Model	Orifice Size	Nominal K-Factor	Response	Deflector Type	Approved Temperature Ratings °F/°C ‡		
					cULus	NYC/MEA‡	CSFM
V2738	7/16 11	4.2 6.1	Quick	Horizontal Sidewall	155, 175 68, 79	155, 175 68, 79	155, 175 68, 79
V2738	7/16 11	4.2 6.1	Quick	Recessed Horizontal Sidewall Up to 3/4" Adjustment	155, 175 68, 79	155, 175 68, 79	155, 175 68, 79

‡ Listings and approval as of printing.

^ For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.0.

† MEA #62-99-E.

RATINGS

All glass bulbs are rated for temperatures from -67°F/-55°C to those shown in table below.

Sprinkler Temperature Classification	Victaulic Part Identification	Temperature – °F/°C		Glass Bulb Color
		Nominal Temperature Rating	Maximum Ambient Temperature Allowed	
Ordinary	C	155 68	100 38	Red
Intermediate	E	175 79	150 66	Yellow

ORDERING INFORMATION

Please specify the following when ordering:





Sprinkler Model Number	
Style	
Temperature Rating	
K-Factor	
Thread Size	
Quantity	
Sprinkler Finish	
Escutcheon Finish	
Wrench Model Number	

V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

V2738 QUICK RESPONSE



 WARNING	
  	<ul style="list-style-type: none"> • Always read and understand installation, care, and maintenance instructions, supplied with each box of sprinklers, before proceeding with installation of any sprinklers. • Always wear safety glasses and foot protection. • Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products. • Installation rules, especially those governing obstruction, must be strictly followed. • Painting, plating, or any re-coating of sprinklers (other than that supplied by Victaulic) is not allowed. <p>Failure to follow these instructions could result in serious personal injury and/or property damage.</p> <p>The owner is responsible for maintaining the fire protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to the current National Fire Protection Association pamphlet that describes care and maintenance of sprinkler systems. In addition, the authority having jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.</p> <p>If you need additional copies of this publication, or if you have any questions about the safe installation of this product, contact Victaulic World Headquarters: P.O. Box 31, Easton, Pennsylvania 18044-0031 USA, Telephone: 001-610-559-3300.</p>

AVAILABLE WRENCHES

Sprinkler Type	Open End	Recessed
V2738 – No escutcheon	V27	V27-2
V2738 – With escutcheon	—	V27-2

V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

V2738 QUICK RESPONSE

DIMENSIONS

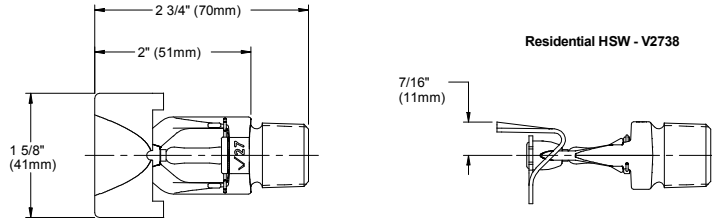
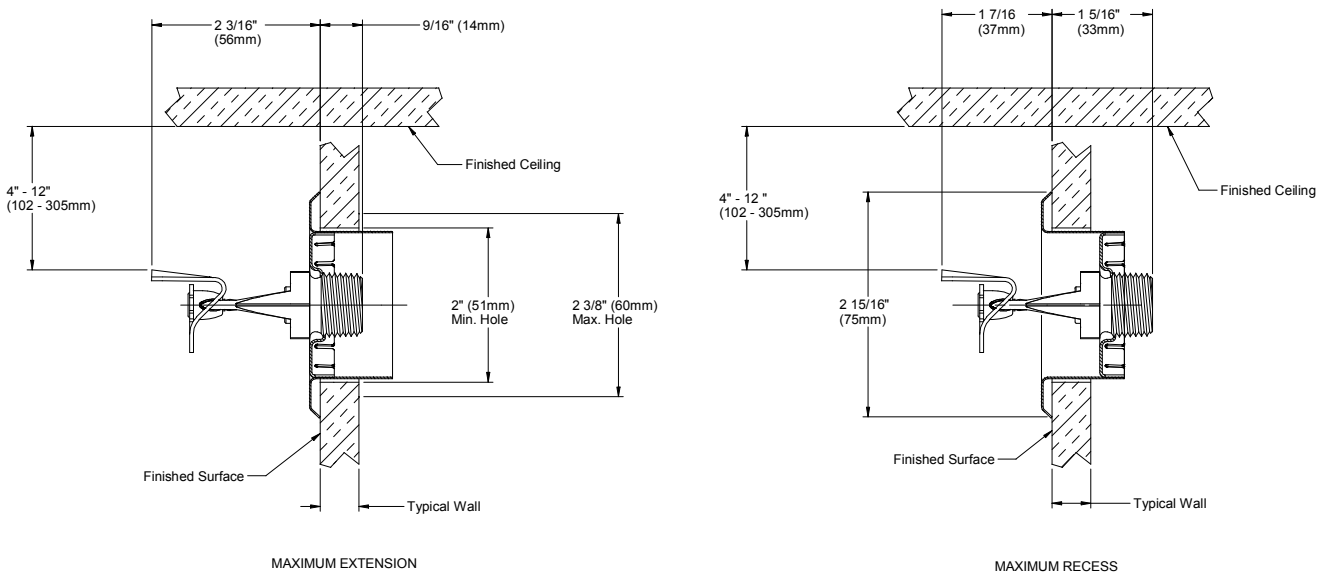


Figure 1 – 3/4" Adjustment Recessed – V2738 (drawing not to scale)



V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

V2738 QUICK RESPONSE

ROOM SIZE

Victaulic V2738, 4.2 K-Factor Horizontal Sidewall Sprinkler
For Ceiling types refer to NFPA 13, 13R or 13D 2013 Editions

Max. Coverage Area ^(a) Width X Length ^(c)	Max. Spacing	Ordinary Temp Rating 155°F/68°C		Intermediate Temp Rating 175°F/79°C		Top of Deflector to Ceiling	Installation Type	Minimum Spacing
		Flow ^(b) GPM L/min	Pressure ^(b) PSI bar	Flow ^(b) GPM L/min	Pressure ^(b) PSI bar			
12 X 12 3.7 X 3.7	12 3.7	14 53.0	11.1 0.76	14 53.0	11.1 0.76	4 to 6 inches	¾" recessed using Escutcheon or non-recessed per NFPA 13, 13R or 13D	8.0 2.4
14 X 14 4.3 X 4.3	14 4.3	14 53.0	11.1 0.76	14 53.0	11.1 0.76			
16 X 16 4.9 X 4.9	16 4.9	17 64.4	16.4 1.13	17 64.4	16.4 1.13			
16 X 18 4.9 X 5.5	16 4.9	19 72.0	20.5 1.4	19 72.0	20.5 1.4			
16 X 20 4.9 X 6.1	16 4.9	23 87.1	30.0 2.1	23 87.1	30.0 2.1			
12 X 12 3.7 X 3.7	12 3.7	15 56.8	12.8 0.88	15 56.8	12.8 0.88			
14 X 14 4.3 X 4.3	14 4.3	17 64.4	16.4 1.13	17 64.4	16.4 1.13			
16 X 16 4.9 X 4.9	16 4.9	19 72.0	20.5 1.4	19 72.0	20.5 1.4			
16 X 18 4.9 X 5.5	16 4.9	24 90.8	32.6 2.25	24 90.8	32.6 2.25			
16 X 20 4.9 X 6.1	16 4.9	28 106.0	44.4 3.06	28 106.0	44.4 3.06			

(a) For coverage area dimensions less than or between those indicated, use the minimum required flow for the next highest coverage area for which hydraulic design criteria are stated.

(b) For NFPA 13 residential applications, the greater of 0.1gpm/ft² over the design area of the flow in accordance with the criteria in the table must be used.

(c) The Width X Length dimension refers to the Width (backwall where the sprinkler is located) times the Length (horizontal throw of sprinkler)

V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

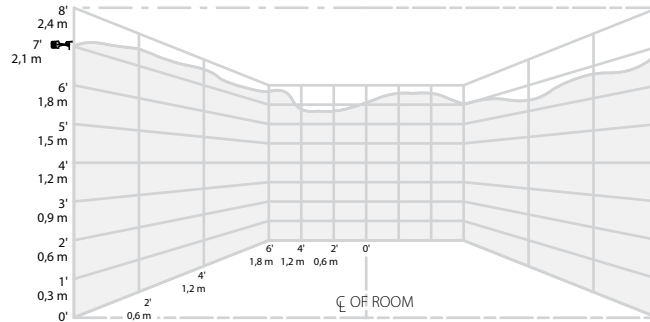
V2738 QUICK RESPONSE

NOMINAL WETTING PATTERNS

Model V2738

K4.2 Residential Horizontal Sidewall

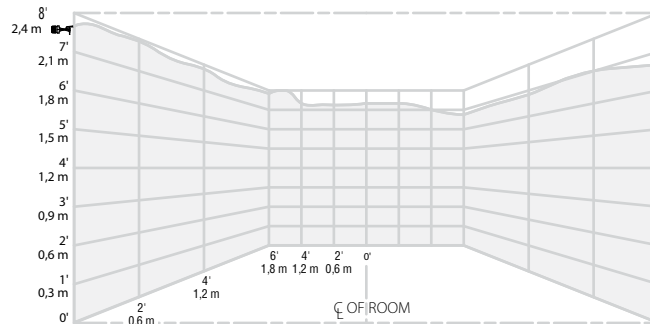
15 GPM/56.8 LPM – 12' x 12²/₃ x 3.7 m coverage area – 12"/304.8 mm from ceiling



Model V2738

K4.2 Residential Horizontal Sidewall

14 GPM/53.0 LPM – 12' x 12²/₃ x 3.7 m coverage area – 4"/101.6 mm from ceiling



See notes on page 11.

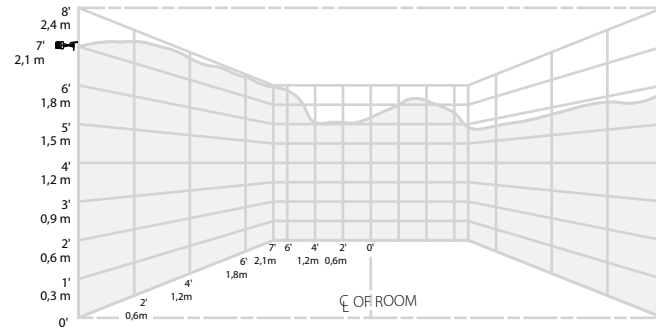
V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall
V2738 QUICK RESPONSE

NOMINAL WETTING PATTERNS

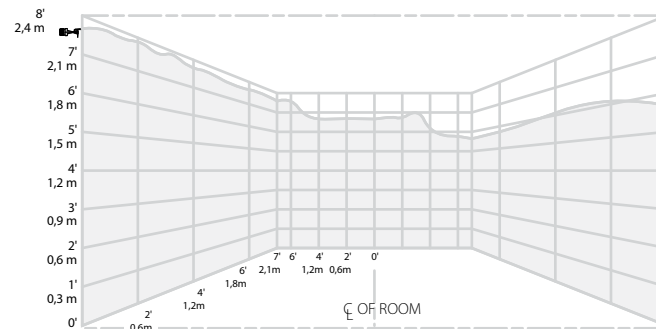
**Model V2738
 K4.2 Residential Horizontal Sidewall**

17 GPM/64.3LPM – 14' x 14'/4.3 x 4.3 m coverage area – 12"/304.8mm from ceiling



**Model V2738
 K4.2 Residential Horizontal Sidewall**

14 GPM/53.0LPM – 14' x 14'/4.3 x 4.3 m coverage area – 4"/101.6mm from ceiling



See notes on page 11.

V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

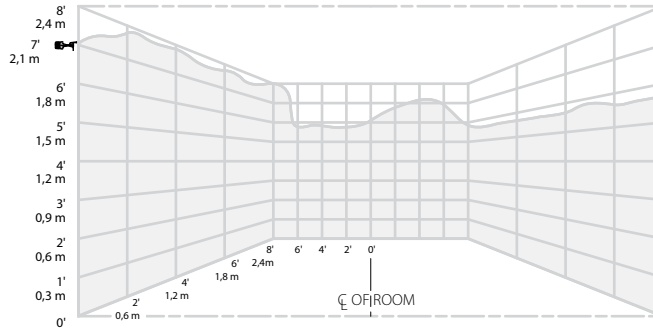
V2738 QUICK RESPONSE

NOMINAL WETTING PATTERNS

Model V2738

K4.2 Residential Horizontal Sidewall

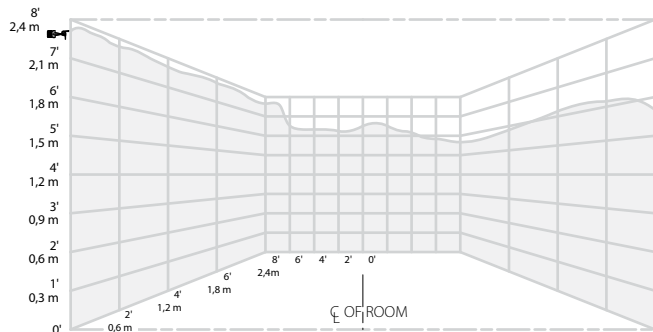
19GPM/71.9LPM – 16' x 16'/4.9 x 4.9m coverage area – 12"/304.8mm from ceiling



Model V2738

K4.2 Residential Horizontal Sidewall

17GPM/64.3LPM – 16' x 16'/4.9 x 4.9m coverage area – 4"/101.6mm from ceiling



See notes on page 11.

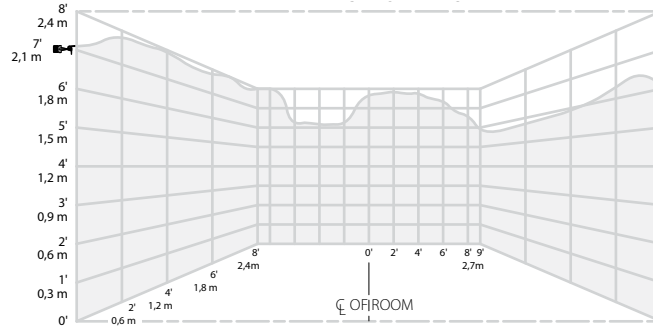
V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall
V2738 QUICK RESPONSE

NOMINAL WETTING PATTERNS

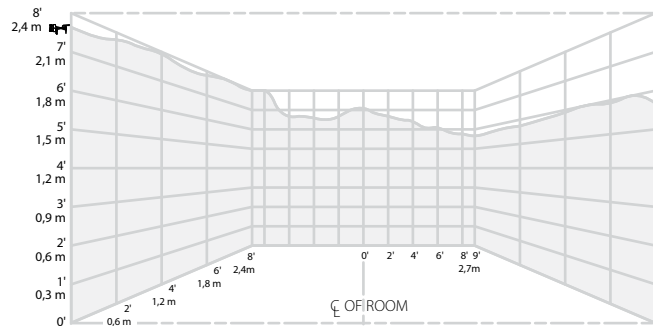
**Model V2738
 K4.2 Residential Horizontal Sidewall**

24 GPM/90.8 LPM – 16' x 18'/4.9 x 5.5 m coverage area – 12"/304.8 mm from ceiling



**Model V2738
 K4.2 Residential Horizontal Sidewall**

19 GPM/71.9 LPM – 16' x 18'/4.9 x 5.5 m coverage area – 4"/101.6 mm from ceiling



See notes on page 11.

V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

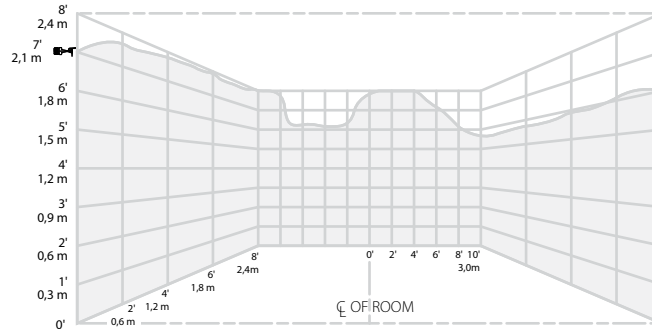
V2738 QUICK RESPONSE

NOMINAL WETTING PATTERNS

Model V2738

K4.2 Residential Horizontal Sidewall

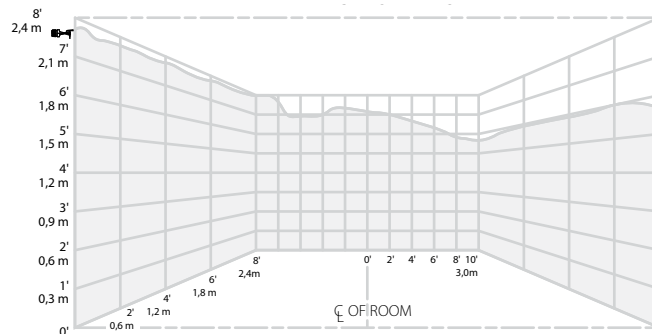
28GPM/106.0LPM – 16' x 20'4.9 x 6.1m coverage area – 12"/304.8mm from ceiling



Model V2738

K4.2 Residential Horizontal Sidewall

23GPM/87.0 LPM – 16' x 20'4.9 x 6.1m coverage area – 4"/101.6mm from ceiling



NOTES:

- 1 Data shown is approximate and can vary due to differences in installation.
- 2 These graphs illustrate approximate wall-wetting patterns for these specific Victaulic FireLock Automatic Sprinklers. They are provided as information for guidance and should not be used as minimum sprinkler spacing rules for installation. Sprinkler location shall be in accordance with the obstruction rules for residential sprinklers in NFPA 13 (2002 or later revision). Failure to follow these guidelines could adversely affect the performance of the sprinkler and will void all Listings, Approvals and Warranties.
- 3 All patterns are symmetrical to waterway.

V27, K4.2

Residential Horizontal Sidewall, Recessed Horizontal Sidewall

V2738 QUICK RESPONSE

WARRANTY

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

NOTE

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

For complete contact information, visit www.victaulic.com

40.54 3089 REV D UPDATED 03/2013

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40.54





Model 350XL

Double Check Valve Assembly

Application

Ideal for use where Lead-Free* valves are required. Designed for installation on potable water lines to protect against both backsiphonage and backpressure of polluted water into the water supply. Assembly shall provide protection where a potential health hazard does not exist.



Standards Compliance (Horizontal & Vertical)

- ASSE® Listed 1015
- IAPMO® Listed
- CSA® Certified B64.5
- AWWA Compliant C510
- Approved by the Foundation for Cross Connection Control and Hydraulic Research at the University of Southern California
- UL® Classified (less shut-off valves only)
- C-UL® Classified (less shut-off valves only)
- Meets the requirements of NSF/ANSI/CAN 61*
*(0.25% MAX. WEIGHTED AVERAGE LEAD CONTENT)

Options

(Suffixes can be combined)

- with full port QT ball valves (standard)
- L - less ball valves, male pipe thread (3/4" - 1" only)
- S - with Model SXL lead-free bronze "Y" type strainer
- FT - with integral male 45° flare SAE test fitting

Materials

Main valve body	Low Lead Cast Bronze, ASTM B 584 (3/4-1")
Housing	Reinforced Nylon
Fasteners	Stainless Steel, 300 Series
Elastomers	Silicone (FDA Approved) Buna Nitrile (FDA Approved)
Internals	Delrin
Springs	Stainless Steel, 300 series
Ball Valves	Low Lead Cast Bronze, ASTM B 584
Struts	Stainless Steel, 300 Series
Handles	Stainless Steel, 200 Series

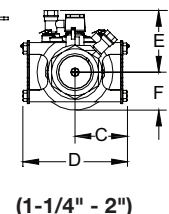
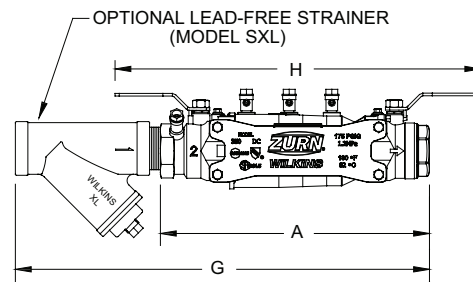
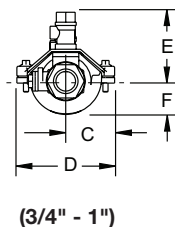
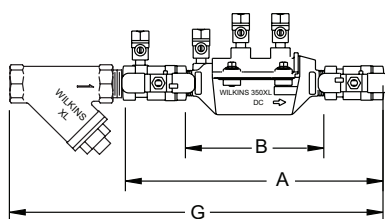
Accessories

- Repair kit
- Thermal expansion tank (Model XT)
- QT-SET Quick Test Fitting Set
- Winterizing Blow out/Flush fitting (RK34-350BOF,
- RK1-350BOF or RK114-350-375BOF)

Features

Sizes: 3/4", 1", 1-1/4", 1-1/2", 2"
 Maximum working water pressure
 Maximum working water temperature
 Hydrostatic test pressure
 End connections Threaded

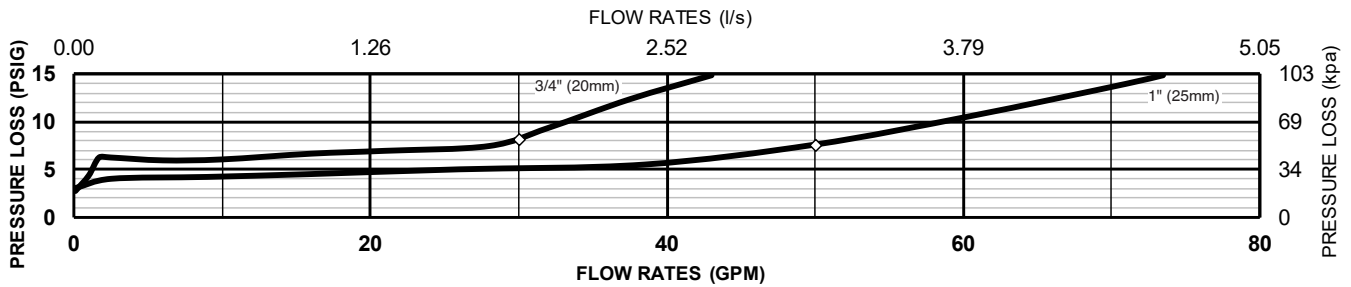
175 PSI
 180°F
 350 PSI
 ANSI B1.20.1



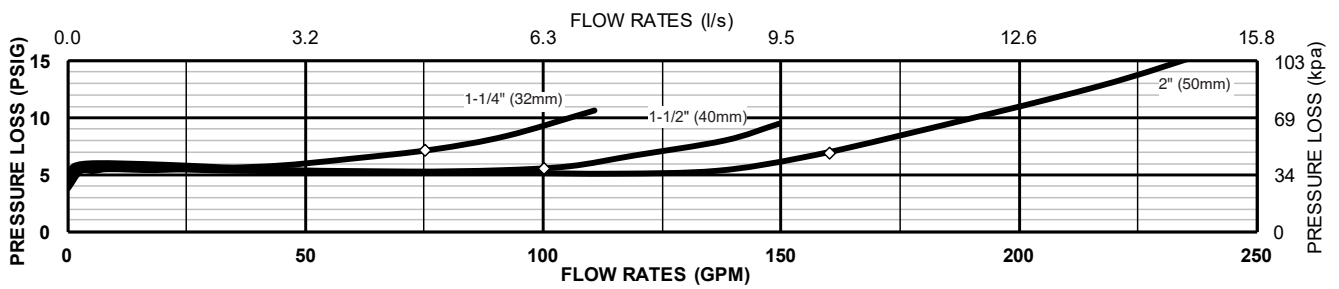
Dimensions & Weights (do not include pkg.)

MODEL 350XL SIZE	DIMENSIONS (approximate)																WEIGHT				
	A		B LESS BALL VALVES		C		D		E		F		G		H		LESS BALL VALVES		WITH BALL VALVES		
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg	lbs.	kg	
3/4	20	11	279	65/8	168	1 7/8	48	3 3/4	95	3	76	1 1/4	32	15 1/8	384	11 7/16	291	2.3	1.0	4.3	2.0
1	25	12 1/4	311	7	178	2 1/16	52	4 1/8	105	3 1/4	83	1 3/4	45	17	431	12 5/16	313	3.0	1.4	6.0	2.7
1-1/4	32	14 7/8	378	14 3/8	367	3 1/8	80	6 1/4	159	3 3/4	95	2 1/4	57	20 1/2	521	18 1/2	470	17.2	7.8	19	8.6
1-1/2	40	15 1/4	387	14 3/8	367	3 1/8	80	6 1/4	159	3 3/4	95	2 1/4	57	22	559	20 1/4	514	17	7.7	20	9.1
2	50	16	406	14 3/8	367	3 1/8	80	6 1/4	159	3 3/4	95	2 1/4	57	24	609	20 3/4	527	18	8.2	22	10

MODEL 350XL 3/4" & 1" (STANDARD & METRIC)



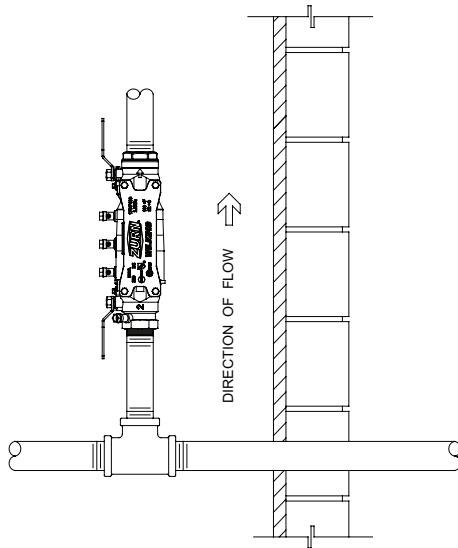
MODEL 350XL 1-1/4", 1-1/2" & 2" (STANDARD & METRIC)



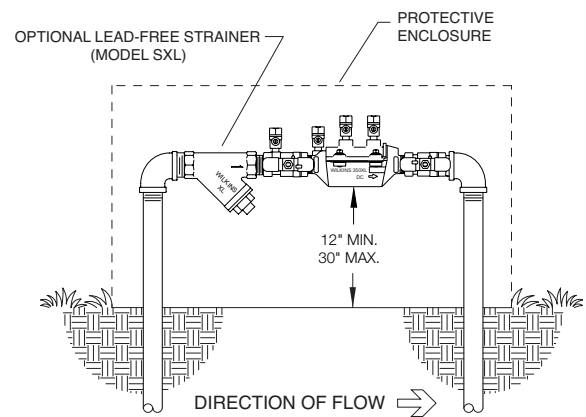
Typical Installation

Local codes shall govern installation requirements. To be installed in accordance with the manufacturers' instructions and the latest edition of the Uniform Plumbing Code. Unless otherwise specified, the assembly shall be mounted at a minimum of 12" (305mm) and a maximum of 30" (762mm) above adequate drains with sufficient side clearance for testing and maintenance. If installed below grade, be certain adequate drainage is provided to prevent the device from being submerged.

Capacity thru Schedule 40 Pipe				
Pipe size	5 ft/sec	7.5 ft/sec	10 ft/sec	15 ft/sec
1/2"	5	7	9	14
3/4"	8	12	17	25
1"	13	20	27	40
1 1/4"	23	35	47	70
1 1/2"	32	48	63	95
2"	52	78	105	167



INDOOR INSTALLATION



OUTDOOR INSTALLATION

Specifications

The Double Check Valve Backflow Preventer shall be certified to NSF/ANSI/CAN 61, shall be ASSE® Listed 1015, rated to 180°F, and supplied with full port ball valves. The main body shall be low lead Bronze for sizes 3/4" & 1", and Nylon for sizes 1-1/4" to 2". The housing shall be reinforced Nylon and the seat disc elastomers shall be silicone (FDA Approved). The first and second checks shall be accessible for maintenance without removing the device from the line. The Double Check Valve Backflow Preventer shall be a ZURN WILKINS Model 350XL.