

CPVC FlameGuard® Fire Sprinkler System Sample Specification [See MASTER SPEC version below](#)

FG-SPEC-0217

All CPVC fire sprinkler fittings shall be manufactured in the U.S.A. from a Chlorinated Polyvinyl Chloride (CPVC) compound having a Cell Classification of 23447 in accordance with ASTM D1784. Fittings shall be manufactured in strict compliance to ASTM F438 or F439, as applicable. All CPVC fire sprinkler fittings shall carry a working pressure of 175 psi @ 150F. All CPVC fire sprinkler fittings shall be installed to UL® Listed CPVC fire sprinkler pipe in accordance with Spears® Manufacturing Company FlameGuard® CPVC Fire Sprinkler Products Installation Instructions (FG-3) and Addendums. National Fire Protection Association (NFPA) Standards 13, 13D, and 13R must be referenced for design and installation requirements in conjunction with the Installation Instructions and applicable local codes. All CPVC fire sprinkler piping shall be manufactured in the U.S.A. from a Chlorinated Polyvinyl Chloride (CPVC) compound having a Cell Classification of 23447 in accordance with ASTM D1784. Piping shall be manufactured in strict compliance to ASTM F442. All CPVC fire sprinkler piping shall carry a working pressure of 175 psi @ 150F. All CPVC fire sprinkler piping shall be installed to UL® Listed CPVC fire sprinkler pipe in accordance with Spears® Manufacturing Company FlameGuard® CPVC Fire Sprinkler Products Installation Instructions (FG-3) and Addendums. National Fire Protection Association (NFPA) Standards 13, 13D, and 13R must be referenced for design and installation requirements in conjunction with the Installation Instructions and applicable local codes. All CPVC solvent cement shall be a primerless, one-step type manufactured in strict compliance to ASTM F493 and approved for use with CPVC fire sprinkler systems. All CPVC fire sprinkler fittings, pipe and solvent cement shall be listed by Underwriters Laboratories (UL®), Underwriters Laboratories Canada (ULC®) and Factory Mutual Research Corporation (FM Global) for use in light hazard wet pipe systems and bear their authorized certification marks. All CPVC fire sprinkler fittings, pipe and solvent cement shall be listed by Underwriters Laboratories (UL®) for use in light hazard dry pipe systems and bear their authorized certification marks. Thread sealant shall be that approved by the fitting manufacturer for use with CPVC fire sprinkler products. All fittings, pipe, solvent cement and thread sealant shall be certified by NSF International for potable water service. All CPVC fire sprinkler fittings and pipe shall be Spears® FlameGuard®, all solvent cement shall be Spears® FS-5 One-Step, and all thread sealant shall be Spears® Blue 75™ as produced by Spears® Manufacturing Company.

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- All CPVC fire sprinkler pipe and fittings shall be manufactured in the U.S.A. using Spears® FlameGuard® Chlorinated Polyvinyl Chloride (CPVC) Type 4 Grade I compound having a minimum Cell Classification of 23447 in accordance with ASTM D 1784.
- Pipe shall be manufactured to SDR 13.5 dimensions in strict compliance to ASTM F442 for end product use.
- Fittings shall be manufactured in strict compliance to ASTM F438 or F439, as applicable.
- All CPVC fire sprinkler fittings and pipe shall be listed by Underwriters Laboratories (UL®), FM Approvals® (FM Global) and/or The Loss Prevention Council Board (LPCB) as applicable for use in light hazard wet pipe systems and bear their authorized certification marks. Spears® FlameGuard® system shall be installed in accordance with its listings and manufacturers installation instructions.
- All CPVC fire sprinkler fittings and pipe shall be listed by Underwriters Laboratories (UL®) for use in Low Pressure Dry Pipe and Pre-Action Systems and bear their authorized certification mark. Spears® FlameGuard® system shall be installed in accordance with its listing and manufacturers installation instructions.
- All CPVC fire sprinkler fittings and pipe shall carry a working pressure of 175 psi @ 150°F. All CPVC fire sprinkler fittings shall be installed with UL® Listed CPVC fire sprinkler pipe in accordance with Spears® Manufacturing Company FlameGuard® CPVC Fire Sprinkler Products Installation Instructions (FG-3) and Addendums.
- National Fire Protection Association (NFPA) Standards 13, 13R and 13D must be referenced for design and installation requirements in conjunction with the Installation Instructions and applicable local codes.

- All CPVC fire sprinkler head adapters shall be [select type] Spears® FlameGuard® TorqueSafe™ or SofTorque™ or QuickTorque™ Gasket Sealed Head Adapters designed for use without any thread sealant or Spears® FlameGuard® Standard Brass Thread or Special Reinforced (SR) Plastic Thread CPVC fire sprinkler head adapters designed for use with thread sealant.
- All threaded head adapters and transition fittings designed for use with a sealant shall be installed with a compatible thread sealant approved by the fitting manufacturer for use with CPVC fire sprinkler products.
- All pipe, fittings, solvent cement and thread sealant suitable for potable water mixed systems shall be certified by the NSF International (NSF®). Check local codes for restrictions and limitations.
- All CPVC fire sprinkler pipe and fittings shall be Spears® FlameGuard®, all solvent cement shall be Spears® FS-5 One Step and all thread sealant shall be Spears® Blue 75™
- All ball valves shall be True Union design constructed of Type I Grade I PVC material with a cell classification 12454. One union nut /end connector shall be molded from CPVC Type 4 Grade I material with a cell classification 23447 and be orange in color. Ball valves shall have a red T-handle. The ball valve compounds shall meet their respective cell classifications defined by ASTM D1784, and shall be certified by NSF International for use with potable water. The ball valve O-rings shall be EPDM. Spears® FlameGuard® CPVC Ball Valves are suitable for use in NFPA 13D Wet Fire Sprinkler Systems ONLY.
- All CPVC swing check valves shall be one-piece design construction made from Type 4 Grade I CPVC material and be orange in color. The swing check valve compound shall meet a minimum cell classification of 23447 as defined by ASTM D1784 and shall be certified by NSF International for use with potable water. All CPVC swing check valves with threaded ends shall have a special reinforced (SR) stainless steel collar to compensate for over-tightening. Spears® FlameGuard® CPVC Swing Check Valves are suitable for use in NFPA 13D Wet Fire Sprinkler Systems ONLY.

All CPVC Fire Sprinkler Piping Products shall have a limited lifetime warranty against defects in workmanship and material

PART 1 - GENERAL

1.0 FITTING PRODUCT DESCRIPTION

All CPVC fire sprinkler fittings shall be manufactured in the U.S.A. from a Chlorinated Polyvinyl Chloride (CPVC) compound having a Cell Classification of 23447 in accordance with ASTM D1784. Fittings shall be manufactured in strict compliance to ASTM F438 or F439, as applicable. All CPVC fire sprinkler fittings shall be certified by NSF International for potable water service.

1.1 PIPE PRODUCT DESCRIPTION

All CPVC fire sprinkler pipe shall be manufactured in the U.S.A. from a Chlorinated Polyvinyl Chloride (CPVC) compound having a Cell Classification of 23447 in accordance with ASTM D1784. Pipe shall be manufactured to SDR 13.5 dimensions in strict compliance to ASTM F442. All CPVC fire sprinkler fittings shall be certified by NSF International for potable water service. Sprinkler pipe shall be rated to 175psi @ 150° F for use in light hazard wet fire sprinkler systems.

VALVE PRODUCT DESCRIPTION

Spears® FlameGuard® ball valves shall be True Union design constructed of Type I Grade I PVC material with a cell classification 12454. One union nut /end connector shall be molded from CPVC Type 4 Grade I material with a cell classification 23447 and be orange in color. Ball valve shall have a red polypropylene T-handle. The ball valve compounds shall meet their respective cell classifications defined by ASTM D1784, and shall be certified by NSF International for use with potable water. The ball valve O-rings shall be EPDM. Spears® FlameGuard® CPVC Ball Valves are suitable for use in NFPA 13D Wet Fire Sprinkler Systems ONLY.

Spears® FlameGuard® Swing Check Valves shall be constructed of one-piece design and be orange in color. The swing check valve compound shall meet cell classification 23447 as defined by ASTM D1784, and shall be certified by NSF International for use with potable water. All Swing Check Valves with threaded ends shall have a specially reinforced (SR) stainless steel collar to compensate for overtightening. Spears® FlameGuard® CPVC Swing Check Valves are suitable for use in NFPA 13D Wet Fire Sprinkler Systems ONLY.

1.2 FITTINGS & VALVES

Pipe, fitting and valve material shall meet or exceed the requirements of ASTM D1784.

1.3 SOLVENT CEMENT

All CPVC solvent cement shall be a primerless, one-step type manufactured in strict compliance to ASTM F493 and approved for use with CPVC fire sprinkler systems. All CPVC solvent cement shall be certified by NSF International for potable water service.

THREAD SEALANT

Thread sealant shall be that approved by the fitting manufacturer for use with CPVC fire sprinkler products. All thread sealant shall be certified by NSF International for potable water service.

1.4 BASIC USE

All CPVC fire sprinkler fittings and pipe shall be listed by Underwriters Laboratories (UL[®]), FM Approvals[®] (FM Global) and/or The Loss Prevention Council Board (LPCB) as applicable for use in light hazard wet pipe systems and bear their authorized certification marks. Spears[®] FlameGuard[®] system shall be installed in accordance with its listings and manufacturers installation instructions.

- All CPVC fire sprinkler fittings and pipe shall be listed by Underwriters Laboratories (UL[®]) for use in Low Pressure Dry Pipe and Pre-Action Systems and bear their authorized certification mark. Spears[®] FlameGuard[®] system shall be installed in accordance with its listing and manufacturers installation instructions.
- All CPVC fire sprinkler fittings and pipe shall carry a working pressure of 175 psi @ 150°F. All CPVC fire sprinkler fittings shall be installed with UL[®] Listed CPVC fire sprinkler pipe in accordance with Spears[®] Manufacturing Company FlameGuard[®] CPVC Fire Sprinkler Products Installation Instructions (FG-3) and Addendums.

PART 2 – PRODUCTS

2.0 MATERIALS

The piping system fittings and pipe shall be constructed from quality CPVC material. Ball valves and check valves shall be constructed of PVC/CPVC molded by Spears[®] Manufacturing Company.

2.1 MANUFACTURERS

A. FITTINGS & PIPE

Spears[®] Manufacturing Company
15853 Olden Street
Sylmar, CA 91342
Phone (818) 364-1611
FAX: (818) 367-3014

B. BALL & SWING CHECK VALVES

Spears[®] Manufacturing Company
15853 Olden Street
Sylmar, CA 91342
Phone (818) 364-1611
FAX: (818) 367-3014

C. SOLVENT CEMENTS

Spears[®] Manufacturing Company
15853 Olden Street
Sylmar, CA 91342
Phone (818) 364-1611
FAX: (818) 367-3014

PART 3 – EXECUTION

3.0 SYSTEM DESIGN

- A. System design shall be in accordance with standard industry practice for water distribution systems and the manufacturer's instructions. The design shall take into consideration such factors as pressure and flow requirements, friction loss, operating temperatures, support spacing, joining methods, and thermal expansion and contraction.
- B. A Hazen-Williams C Factor of 150 shall be used in all hydraulic calculations.
- C. Spears® FlameGuard® CPVC fire sprinkler system shall have a working pressure of 175 psi @ 150F.

3.1 INSTALLATION PROCEDURES

All CPVC fire sprinkler fittings shall be installed to UL® Listed CPVC fire sprinkler pipe in accordance with Spears® Manufacturing Company FlameGuard® CPVC Fire Sprinkler Products Installation Instructions (FG-3) and Addendums. National Fire Protection Association (NFPA) Standards 13, 13D, and 13R must be referenced for design and installation requirements in conjunction with the Installation Instructions and applicable local codes. Installation practices such as pipe support spacing, bracing, allowance for thermal expansion/contraction, solvent cementing and handling and storage shall be in accordance with the manufacturer's instructions and this specification.

3.2 TESTING

After the system is installed and any solvent cement is cured, the system shall be hydrostatically tested per the manufacturer's installation instructions in the FG-3 literature and the requirements of the applicable plumbing or mechanical code.

3.3 LIMITATIONS

Spears® Manufacturing Company FlameGuard® Fire Sprinkler System is rated for use to a maximum working pressure of working pressure of 175 psi @ 150F.

3.4 WARRANTY

Spears® Manufacturing Company shall provide a limited lifetime warranty after date of product shipment.

3.5 TECHNICAL DATA

A. APPLICABLE STANDARDS

1. ANSI/NSF Standard 14 Plastic Piping Components and Related Materials
2. ANSI/NSF Standard 61 Drinking Water System Components – Health Effects
3. ASTM D1784 Specification for Rigid Poly (Vinyl Chloride)(PVC) Compounds and Chlorinated Poly (Vinyl Chloride)(CPVC) Compounds
4. ASTM F493 Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) CPVC Plastic Pipe and Fittings

B. APPLICABLE CODES

1. BOCA, Basic Building, Mechanical Plumbing Codes
2. IAPMO, Uniform Plumbing Code
3. ICC, International Building, Mechanical and Plumbing Codes
4. ICBO, Uniform Building and Mechanical Codes
5. SBCCI, Standard Building, Mechanical and Plumbing Codes