

## Recommended Practices and Precautions for Installation

**CAUTION:** This information is general in nature and does not constitute a complete installation guide. Please read, understand and follow Viking's complete CPVC INSTALLATION AND DESIGN MANUAL prior to installing BlazeMaster® CPVC fire sprinkler pipe from Viking. Plastic piping systems must be designed, engineered, and installed in accordance with accepted industry standards and applicable building codes and requirements. Proper design, application, and installation are the responsibility of the end user.

### Installation Best Practices

- Installation should be made only by a qualified installer or contractor in accordance with all applicable codes and requirements.
- Carefully read and follow the installation instructions from Viking Plastics' CPVC Installation and Design Manual.
- Follow all recommended safe work practices.
- Make certain that all materials are compatible with BlazeMaster™ CPVC including thread sealants, gasket lubricants, firestop materials, etc.
- Use only manufacturer premix antifreeze solutions.
- Keep pipe and fittings in original packaging until needed.
- Cover pipe and fittings with an opaque tarp if stored outdoors.
- Follow proper care and handling procedures as outlined in Viking Plastics' CPVC Installation and Design Manual.
- Use tools specifically designed for use with CPVC pipe and fittings.
- Make certain to follow all solvent cement joining procedures per Viking Plastics' CPVC Installation and Design Manual, including but not limited to the following:
  - Make certain that no solvent cement is on sprinkler head and adapter threads.
  - Make certain that solvent cement does not run and plug the sprinkler head orifice.
  - Wipe off excess cement on the outside of the joint.
  - Use a dauber that is properly sized for the pipe. For 3/4 inch and 1 inch pipe, use a dauber that is 1/2 inch in size. For 1-1/4 inch through 3 inch pipe, use a dauber that is 3/4 inch in size.
- Use a drop cloth to protect interior finishes.
- Cut the pipe ends square.
- Deburr and bevel the pipe end with a chamfering tool.
- Rotate the pipe 1/4 turn when bottoming pipe in fitting socket.
- Follow the manufacturer's recommended cure times prior to hydrostatic pressure testing (at a minimum).
- Fill lines slowly to minimize any trapped air.
- Bleed the air from the system prior to hydrostatic pressure testing.
- Support sprinkler head properly to prevent lift up of the head through the ceiling when activated.
- Keep threaded rod within 1/16" of the pipe or use a surge arrestor.
- If necessary, use only insulation and/or glycerin and water solutions for freeze protection.
- Listed heat tracing may also be used for freeze protection.
- For freeze protection, also consider designing system with horizontal sidewall sprinklers installed in an interior heated wall space and/or the use of Listed dry sprinklers.
- Allow for movement due to thermal expansion and contraction.
- Ensure installers have been properly trained per BlazeMaster® CPVC Fire Sprinkler System Installation and Design Manual and renew your training every two years at a minimum.

### Please avoid the following:

- Do not use edible oils such as Crisco® as a gasket lubricant.
- Do not use any materials that are incompatible with CPVC, such as petroleum or solvent-based sealants, lubricants, firestop, etc.
- Do not use any propylene glycol-based solutions as an antifreeze.
- Do not use solvent cement that exceeds its shelf life or has become discolored or jellied.
- Do not allow solvent cement to plug the sprinkler head orifice.
- Do not allow puddling of solvent cement in fittings and pipe.
- Do not connect rigid metal couplings to CPVC grooved adapters.
- Do not thread or groove CPVC pipe.
- Do not use solvent cement near sources of heat, open flame, or when smoking.
- Do not pressure test with air.
- Do not hydrostatic pressure test until Viking's recommended cure times are met (at a minimum).
- Do not use ratchet cutters below 50° F.
- Do not use CPVC pipe that has been stored outdoors unprotected and is faded in color.
- Do not allow threaded rod to come in contact with the pipe (under normal, non-flowing conditions).
- Do not install CPVC in cold weather without allowing for thermal expansion.
- Do not use dull or broken cutting tool blades when cutting pipe.
- Do not use CPVC with incompatible materials. Refer to Lubrizol's FBC System Compatible Program for guidance regarding the chemical compatibility of certain materials with BlazeMaster CPVC pipe.

## Cut-In Procedure for System Modification or Repairs

At times it may become necessary to make modifications to existing CPVC fire sprinkler systems. This can be done safely when the proper procedures are followed. The following procedure has been developed to assure that the modifications are done successfully.

Prior to making system cut-ins on existing systems, care should be used to review proper joining procedures and to FOLLOW CUT-IN CURE SCHEDULES (Table I) to ensure the highest system integrity. Several methods can be utilized to tie into an existing system using a socket style tee fitting in combination with the use of socket unions, grooved coupling adapters, and flanges. Regardless of the method used, the following points must be followed to ensure the highest integrity:

- Using proper tools, the cut-in should be made on the smallest diameter pipe section that is capable of adequately supplying the system changes, in close proximity to the modification being made. This approach will expedite cure times prior to pressure testing.
- The cut-in connection to the existing system should be made first, prior to proceeding with additional work.
- Existing lines must be drained adequately prior to solvent cementing. Consider using a Drain Vac unit to be sure all water is removed from the system (moisture can slow the cure time and reduce joint strength).
- Carefully review and follow manufacturer's solvent cementing procedures for proper joining techniques prior to commencing with cut-in (pipe must be cut square to proper length, deburred, beveled and dried to ensure proper insertion depth and highest integrity).
- Carefully measure and cut pipe to proper length to ensure complete insertion during assembly (check the dry fit of the components being joined).

• Note: During assembly of the cut-in tee (and other components) it is important to make a one-quarter turn when inserting the pipe into the fitting per the manufacturer's assembly instructions, particularly on 1 1/2" pipe sizes and larger. This may require the use of several components assembled in combination with the cut-in tee to create a short spool piece assembly. This can be accomplished by using socket unions, flanges, or grooved coupling adapters that will ensure that a one-quarter turn can be obtained on all pipe connections being joined.

**CURE SCHEDULES: Table 1**  
225 psi (1552 kPa) Test Pressure (maximum)  
Ambient Temperature During Cure Period  
(Use this table for all cut-ins)

Pipe Size	60°F to 120°F (16°C to 49°C)	40°F to 59°F (4°C to 15°C)	0°F to 39°F (-18°C to 4°C)
3/4" (20 mm)	1 hr.	4 hrs.	48 hrs.
1" (25 mm)	1 1/2 hrs.	4 hrs.	48 hrs.
1 1/4" & 1 1/2" (32 & 40 mm)	3 hrs.	32 hrs.	10 days
2" (50 mm)	8 hrs.	48 hrs.	Note 1
2 1/2" & 3" (65 & 80 mm)	24 hrs.	96 hrs.	Note 1

Note 1: For these sizes, the solvent content can be applied at temperatures below 40°F (4.5°C), however, the sprinkler system temperature must be raised to a temperature of 40°F (4.5°C) or above to cure per the above recommendations prior to pressure testing.

- Prior to applying the solvent cement, use a clean dry rag to wipe moisture and dirt from the fitting socket and the pipe end (the presence of moisture on the joining surfaces will reduce joint integrity).
- Use a new can of solvent cement when making cut-in connections (verify the expiration date stamped on can prior to use).
- After all work is completed, the cut-in joints must be allowed to cure properly prior to pressure testing as shown in Tables I, II and III.
- After work is completed and cut-in cure times are met, inspect work for proper alignment and hanger placement prior to pressure testing.
- After cut-in cure times are met, the system must be slowly filled with water and the air bled from the furthest and highest sprinkler heads before test pressure is applied (refer to manufacturer's installation instructions regarding Hydrostatic Testing).
- After cut-in cure times are met and the air is bled from the system, it is recommended that portion of the sprinkler system containing the cut-in tee be pressure tested. Prior to pressure testing, the system must be sectioned off to its smallest area using floor valves, etc., to isolate the cut-in area. It is further recommended that the test pressure applied should not exceed 50 psi over the system pressure. This approach will minimize the potential for water damage should a leak occur.

**WARNING: AIR OR COMPRESSED GAS MUST NEVER BE USED FOR PRESSURE TESTING**

**CURE SCHEDULES: Table II**  
200 psi (1379 kPa) Test Pressure (maximum)  
Ambient Temperature During Cure Period

Pipe Size	60°F to 120°F (16°C to 49°C)	40°F to 59°F (4°C to 15°C)	0°F to 39°F (-18°C to 4°C)
3/4" (20 mm)	45 mins.	1 1/2 hrs.	24 hrs.
1" (25 mm)	45 mins.	1 1/2 hrs.	24 hrs.
1 1/4" & 1 1/2" (32 & 40 mm)	1 1/2 hrs.	16 hrs.	120 hrs.
2" (50 mm)	6 hrs.	36 hrs.	Note 1
2 1/2" & 3" (65 & 80 mm)	8 hrs.	72 hrs.	Note 1

Note 1: For these sizes, the solvent content can be applied at temperatures below 40°F (4.5°C), however, the sprinkler system temperature must be raised to a temperature of 40°F (4.5°C) or above to cure per the above recommendations prior to pressure testing.

**CURE SCHEDULES: Table III**  
100 psi (690 kPa) Test Pressure (maximum)  
Ambient Temperature During Cure Period

Pipe Size	60°F to 120°F (16°C to 49°C)	40°F to 59°F (4°C to 15°C)	0°F to 39°F (-18°C to 4°C)
3/4" (20 mm)	15 mins.	15 mins.	30 mins.
1" (25 mm)	15 mins.	30 mins.	30 mins.