CORZAN® CPVC INSTALLATION GUIDE: **SAFER, EASIER AND COST-EFFECTIVE METHODOLOGY**

CORZAN®
INDUSTRIAL SYSTEMS

PROVIDING GLOBAL INDUSTRIES WITH ROBUST AND RELIABLE SYSTEM MATERIALS THAT CAN BE CONFIDENTLY AND SUCCESSFULLY INSTALLED, EVEN IN THE HARSHEST ENVIRONMENTS

The recommended joining method for CPVC installation will depend on the product type, but across-the-board, CPVC offers **multiple installation advantages**.

Lightweight: CPVC is approximately 1/8th the weight of comparably sized steel, which helps to reduce worker strain and injuries, and eliminates the need for heavy equipment.

Easy to cut: Compound properties make CPVC easier to cut than metals, allowing for more efficient on-site fabrication.

Simple to install and maintain: CPVC installation requires no complex tools, electricity or highly skilled (and expensive) labor.

Safer: No open flame or ignition sources are required to join the material.

There are also a variety of seam welding options designed to effectively seal components together while maintaining the structural integrity of the material. Explore the recommended installation methods that vary by product type in the following sections:

GENERAL INSTALLATION GUIDELINES FOR CORZAN® CPVC

The proper installation of Corzan® Piping Systems is vital in ensuring the performance of the system. A few simple guidelines should be followed to ensure long service life and safe operation.

HANDLING

To prevent damage to the materials, proper care and attention should be exercised when transporting, storing or installing Corzan® CPVC pipe:

- Only store and ship Corzan® CPVC with other non-metallic piping.
- Do not drop or drag the materials and components during handling.
- Inspect the pipe and fittings thoroughly for cracks, gouges or other signs of damage. Pay attention to the inside surface of the part as improper handling can incur damage only detectable from the inside of the pipe.

CUTTING

A few simple guidelines ensure lengths of pipe can be easily and successfully cut:

- Best results are obtained by using fine-toothed saw blades (16 to 18 teeth per inch) with little or no offset (0.025 in. max.).
- Circular power saws (6,000 rpm) or band saws (3,600 ft./min.) are recommended using ordinary hand pressure.
- Miter boxes or other guide devices are strongly recommended for manual operation to ensure square cuts.
- Remove burrs, chips and dust following cutting to prevent contamination of the piping system and to ensure successful joining.

HANGING / LAYING OF PIPE

There are methods you can leverage to minimize stress on the piping through proper installation and appropriate expansion materials.

System Stress:

- Minimise expansion stresses with expansion joints or loops.
- Leverage recommended installation techniques.
- Space hangers and supports properly to prevent sagging. Ensure hangers and supports do not have rough or sharp edges that could damage the pipe.
- Do not over tighten the clamps and supports, this will reduce system movement and contribute to stress.
- Do not force system components into place.

Thermal Expansion and Contraction:

Corzan® CPVC piping has a low coefficient of thermal expansion among the family of thermoplastic piping materials. However, its thermal expansion is still greater than that of metal piping. Typically, expansion loops or offsets in the piping are designed to account for any thermal expansion or contraction. Additionally, expansion joints can also be used, contact Lubrizol or Corzan® piping manufacturers for more information about expansion joints.

Visit our website **www.corzan.com** to access the Thermal Expansion Calculator to account for expansion and contraction in your design.

SYSTEM TESTING

After the piping system is installed and any solvent cement joining is fully cured, the system should be pressure tested and checked for leaks using water. **We do not recommend using compressed air or inert gas for testing**.

1. All entrapped air should be allowed to vent as the system is filled with water. Water filling should occur at a velocity not more than 1 ft./sec.

2. After filling, the system should be pressured to 125% of the maximum design pressure of the lowest rated part of the system.

3. Pressure should then be held for no more than one hour while the system is checked for leaks.

RECOMMENDED INSTALLATION TECHNIQUES FOR CORZAN® CPVC PIPE AND FITTINGS

There are a variety of installation methods you can use to install your Corzan® CPVC pipe and fittings. We recommend discussing your project with a product expert to help determine which method will work best for your requirements and ensure all considerations have been made.

SOLVENT CEMENT JOINING

For most applications, Corzan® Industrial Systems recommends solvent cement welding to realise a faster, easier and safer installation process that uses solvents and resin to chemically fuse the pipe and fittings together at a molecular level.

1

CUT THE CPVC

PRO TIP Cut the pipe squarely to provide the maximum surface for a strong bond.

2

CHAMFER/DEBURR THE PIPE

PRO TIP Slightly bevel and ream the outside and the inside of the pipe to remove burrs and CPVC shavings for easing it into the socket without pushing the solvent cement into the joint.

3 PREPARE FITTING FOR SOLVENT CEMENT

PRO TIP Verify a proper interference fit by inserting the pipe easily to 1/3rd – 2/3rd of the depth into the fitting.

4 PRIME THE TWO BONDING AREAS

PRO TIP Use pressure or scrub primer on the inside of the fitting and then outside of the pipe; apply a second primer coat inside the fitting socket only.

5 APPLY SOLVENT CEMENT TO TACKY SURFACES

PRO TIP Evenly apply a heavy coat to the outside of the pipe to the depth of the socket, and a thin-to-medium coat to the inside of the fitting socket. Apply a second coat outside of the pipe only.

NOTE: Take care with excess solvent cement inside the fitting because it pushes in, while excess on the outside of the pipe pushes out and can be wiped away.

6 ASSEMBLE PARTS QUICKLY

PRO TIP Quarter-turn the pipe into the fitting to evenly spread the solvent; when the pipe bottoms, hold it and the fitting together for 30 seconds (or longer depending on weather and temperature conditions) to prevent pipe push-out.

7 SET & CURE

PRO TIP Consult individual solvent cement manufacturers for their recommendations on set and cure times.

HOT-AIR WELDING / BACK WELDING

Back-welding is a hot-air welding technique that is carried out by forcing a welding rod to fuse in the joint fillet, while softening the rod and the fillet with hot air.

THREADING

Corzan® Schedule 80 pipe up to and including 4 in. in diameter, and at an operating temperature of 130°F (54.4°C) or less, may be threaded.

FLANGING

Flanging is a process that can be used to realise temporary disassembly of a piping system, or where solvent cement joining can not be used at the assembly site. Flanged joints are fused using an elastomeric gasket between the mating faces that creates a seal.

UNDERGROUND INSTALLATION

Corzan® CPVC pipe and fittings can be installed underground, including trench design and preparation, piping assembly and placement, and backfilling according to ASTM standards D2774, D2321 or F645.

RECOMMENDED INSTALLATION TECHNIQUES FOR CORZAN® CPVC SHEET AND LINING

HIGH SPEED HOT AIR WELDING

Corzan® system components can be welded using high speed, hot air welding techniques to gain approximately 80% of the tensile strength of solid sheet.

HOT PLATE WELDING

Hot plate welding of thermoplastics involves holding two pieces of the material with defined pressure against a heated plate element until the material melts, the two pieces are then brought together quickly and held with defined pressure so that they fuse to make one piece.

WHERE TO PURCHASE CORZAN® CPVC

Corzan® Industrial Systems only partners with manufacturers that have a proven track record of quality and reliability. We carefully select manufacturers based on their ability to consistently convert Corzan® CPVC into the high performance piping systems, ducting, sheets and lining relied upon by our customers.

Visit our website **www.corzan.com** to know more about our authorised licensees.

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