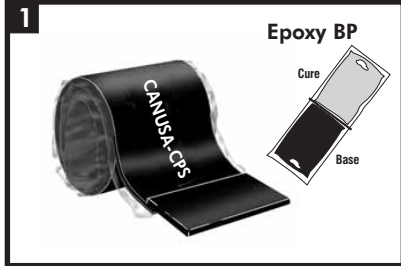


GTS-PE

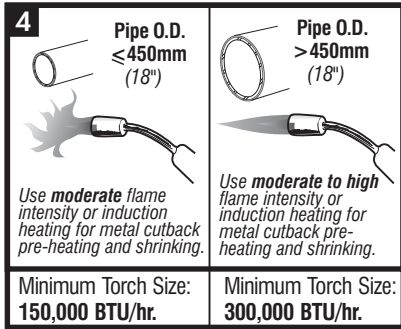
For girth-weld protection of High Performance Polyethylene pipelines

Product Description



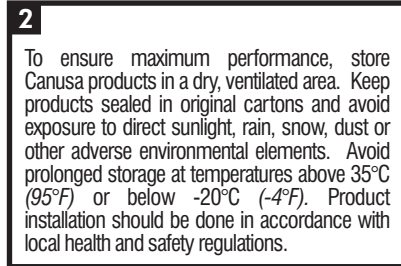
GTS-PE Global Transmission Sleeves are shipped pre-cut with a pre-attached CLH closure. Bulk quantities are also available. The sleeve adhesive is protected from contamination by an inner liner. The joint completion system may also use an epoxy primer.

Flame Intensity & Torch Size



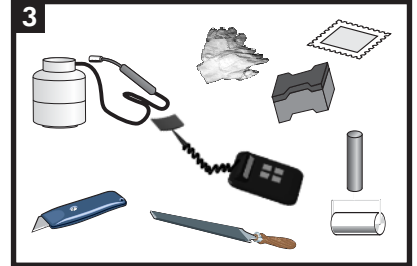
Canusa recommends the use of induction or infrared heating equipment for pipe sizes greater than 760mm (30") O.D.

Storage & Safety Guidelines



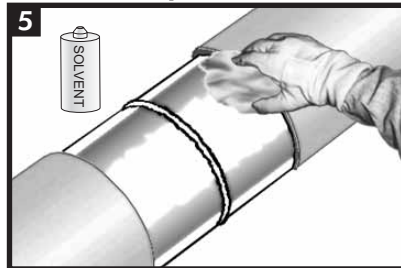
These installation instructions are intended as a guide for standard products. Consult your Canusa representative for specific projects or unique applications.

Equipment List

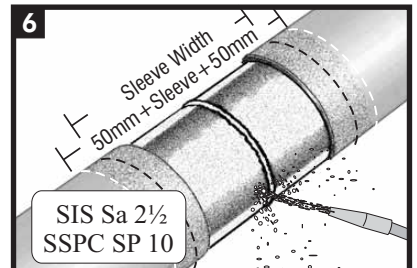


Propane tank, hose, torch & regulator
Appropriate tools for surface abrasion
Epoxy application accessories & wet film thickness gauge
Knife, roller, rags & Canusa approved solvent cleanser
Digital thermometer with suitable probe
Standard safety equipment: gloves, goggles, hard hat, etc.
Optional Heat Shields

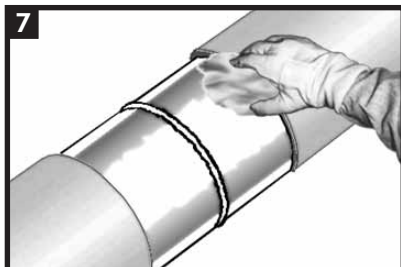
Surface Preparation



Prior to starting Joint Prep, ensure the pipe surface temperature is $>3^{\circ}\text{C}$ above dew point. Ensure that the mainline coating edges are beveled to 30° minimum. If there is the presence of oil, grease, or other surface contaminants; clean the exposed steel and adjacent pipe coating with an approved solvent cleanser.

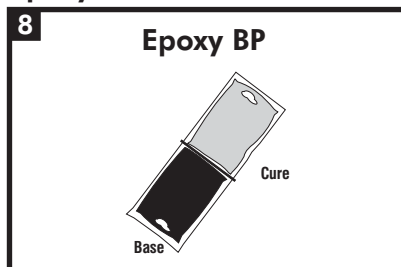


Warm the joint area to $40-50^{\circ}\text{C}$ ($104-120^{\circ}\text{F}$) before grit blasting. During high winds or cold ambient conditions (below 15°C (59°F)) pre-warm the joint area to 70°C (158°F) before grit blasting. Thoroughly clean the weld area with a sand or grit blaster to "near white metal" SIS Sa 2 1/2 or equivalent. Abrade the mainline coating adjacent to the weld area to a distance 50mm (2") beyond the sleeve width.



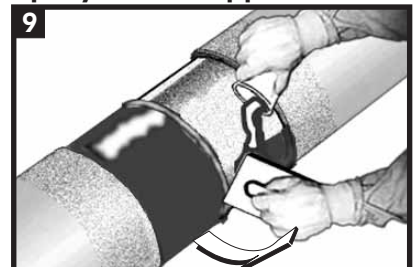
Using a dry, grease and lint-free cloth, wipe clean or air blast the steel and coated areas to remove foreign materials. If necessary, provide additional heat to ensure the surface temperature is $30-40^{\circ}\text{C}$ ($86-104^{\circ}\text{F}$).

Epoxy Primer



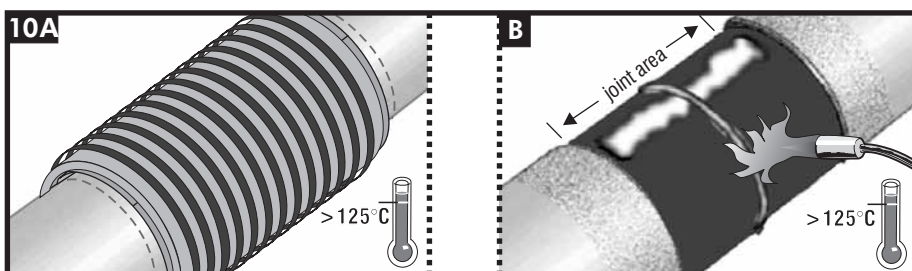
Follow the Preparation, Mixing and Application instructions provided with the supplied Canusa Epoxy Pack. For partial kit quantities: mix the E Primer Cure with the E Primer Base (4 parts base to 1 part Cure **by volume**). Mix for a minimum of 1 minute to assure uniform mixture.

Epoxy Primer Application



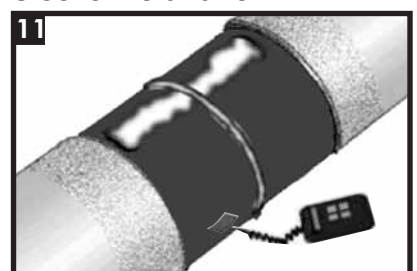
Apply mixed epoxy to a uniform specified thickness of 6-10 mils (150-250 microns) on all exposed bare metal plus 10mm (0.5") onto the adjacent pipe coating only, using the applicator pads as supplied or an approved tool.

Pre-Heat



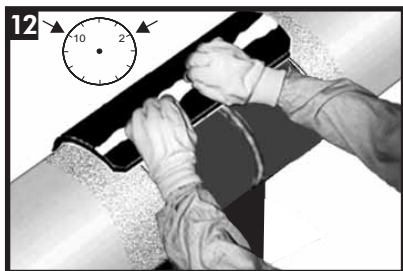
Pre-heat the epoxy to a minimum temperature of 125°C using the appropriate sized induction coil or propane torches. When heating with torch, **do not use an intense flame on the main line coating**. If a film does develop on the mainline coating use a surface abrasion tool to remove it.

Sleeve Installation



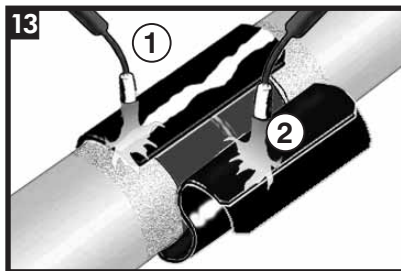
Check the temperature to ensure the preheat has been obtained on the entire pipe circumference. This preheat will substantially cure the epoxy and ensure proper flow and bonding of the sleeve adhesive. Ensure that the epoxy primer is dry to the touch prior to sleeve installation.

Sleeve Installation Cont'd



Place the underlap of the sleeve onto the joint, centering the sleeve such that the sleeve overlap is positioned at either the 10 or 2 o'clock position. Press the underlap firmly into place and use a roller to work out any trapped air. Feed the remaining length of sleeve under the pipe.

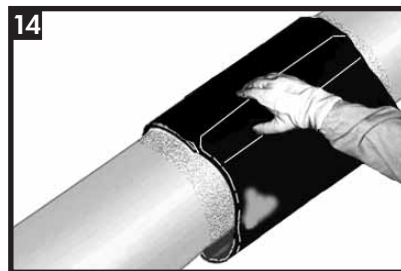
Optional Heat Shields can be used during the sleeve application. After wrapping the sleeve around the pipe, the heat shields can be wrapped adjacent to the sleeve to protect the mainline coating during shrink down.



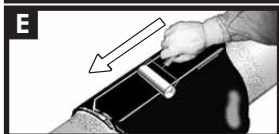
Wrap the sleeve loosely around the pipe, ensuring the appropriate overlap.

Before finishing wrapping the sleeve:

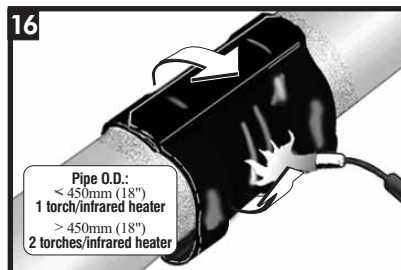
1. heat the backing side of the underlap until the backing starts to recover. Then use a roller to secure the underlap to the pipe.
2. gently heat the green-yellow coloured adhesive side of the closure seal until it appears glossy.



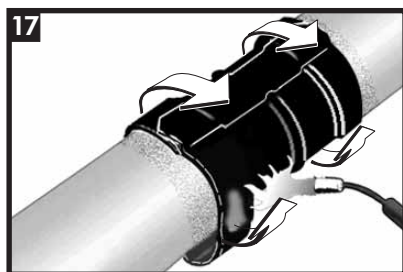
With the green-yellow coloured adhesive side facing down, firmly press the entire closure seal into place. Ensure that the closure is centred evenly over the underlap-overlap sleeve seam. If necessary, add additional heat to the closure underside in cold conditions, using a low flame intensity.



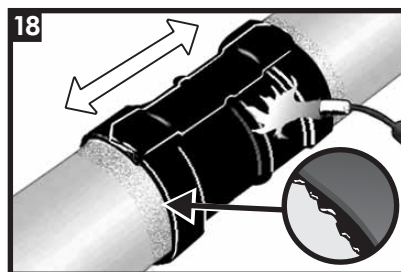
Gently heat the closure and pat it down with a gloved hand. Repeating this procedure, move from one side to the other. Smooth any wrinkles by gently working them outward from the centre of the closure with a roller.



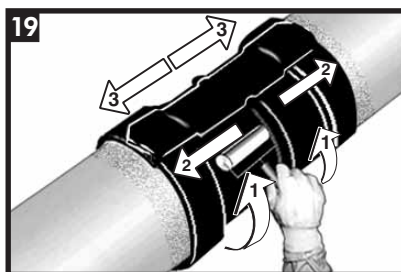
Using the appropriate sized torch, begin at the centre of the sleeve and heat circumferentially around the pipe. Use broad strokes. If utilizing two torches, operators should work on opposite sides of the pipe.



Continue heating from the centre toward one end of the sleeve until recovery is complete. In a similar manner, heat and shrink the remaining side.

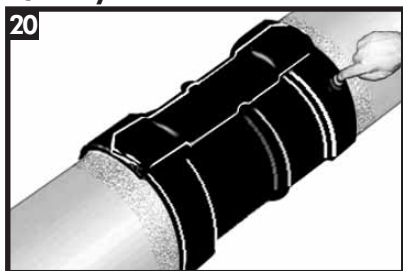


Shrinking has been completed when the adhesive begins to ooze at the sleeve edges all around the circumference. Finish shrinking the sleeve with long horizontal strokes over the entire surface to ensure a uniform bond.



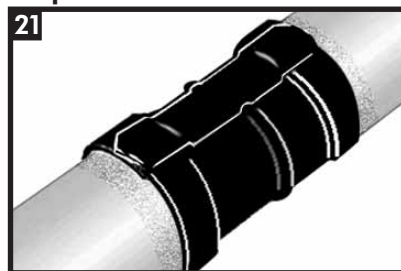
While the sleeve is still hot and soft, use a hand roller to gently roll the sleeve surface and push any trapped air up and out of the sleeve, as shown above. Continue the procedure by also firmly rolling the closure with long horizontal strokes from the weld outwards.

Quality Check - Adhesion Test



Test sleeve adhesion by gently pulling the edge of the backing back to ensure that the adhesive remains in place and is fully bonded to the factory coating. The sleeve is well bonded when the adhesive and coating remain intimately contacted. If required to improve bonding, additional heat should be applied to the sleeve.

Inspection



Visually inspect the installed sleeve for the following:

- Sleeve is in full contact with the steel joint.
- Adhesive flows beyond both sleeve edges.
- No cracks or holes in sleeve backing.

Onshore and Offshore Guidelines

After shrinking is complete, allow the sleeve to cool to less than 90°C prior to laying (for offshore applications, product can be water quenched).



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