CANUSA-CPS
Corrosion Protection & Sealing

Polypropylene Repair Products

CRP-PP Repair Patch, PP Melt Stick/Strip and PP Adhesive Filler

PP Pipeline Repair Products

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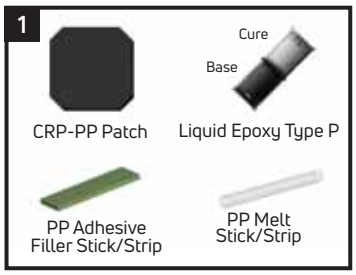

The CRP-PP Repair Patch is supplied in 6" by 6" patches or in rolls that can be field cut-to-size. PP Melt Stick/Strip is used to repair surface defects (holidays) in the mainline coating. The PP Adhesive Filler Stick/Strip is used to fill voids in the coating. Canusa Liquid Epoxy Type P is required for mainline coating damages extending to bare steel.

Equipment List

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Propane tank, hose, torch and regulator; Appropriate tools for surface abrasion: grinder, abrasive blasting equip't; Hot air tool (3400 Watt) and power source Appropriate tools for cleaning: rags & approved cleaner; Tools: roller, digital thermometer, knife, marker, measuring tape, scraper / spatula & pliers; Standard safety equipment; gloves, goggles, hard hat, etc.

Repair Analysis - Mainline Coating

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Type of Damage	Size	Repair Method
Minor Damage of 3LPP Outer Jacket	< 1 cm²	PP Surface Preparation, PP Melt Stick/Strip
Minor Damage of 3LPP Outer Jacket	< 50 cm²	PP Surface Preparation, PP adhesive filler, and CRP-PP Repair Patch
Damage Extending to Bare Steel	< 50 cm²	PP Surface Preparation, P Epoxy, PP adhesive filler, and CRP-PP Repair Patch
Damage Extending to Bare Steel	> 50 cm²	PP Surface Preparation, P Epoxy and GTS-PP HSS

Based on the above type and size of damage, combine each step

PP Surface preparation - Minor Repair

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Using a hand grinder with a P24-P40 grit flat abrasive disc, chamfer the edges of the polypropylene coating surrounding the damaged area until a smoothly contoured surface is obtained in the repair area. Using a grease and lint-free rag, clean the prepared coating with an approved cleaner (i.e. Xylol, Xylene, trich) to remove the presence of oil, grease and other contaminates.

PP Surface preparation - Major Repair - Marking Damage

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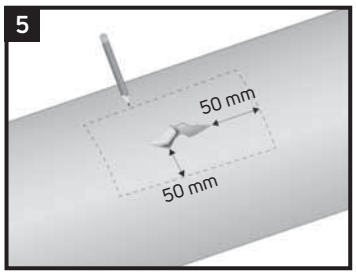

Using a marker, mark a rectangle 50mm beyond the damaged areas on all sides (major repair area).

PP Surface preparation - Major Repair - Exposed Metal

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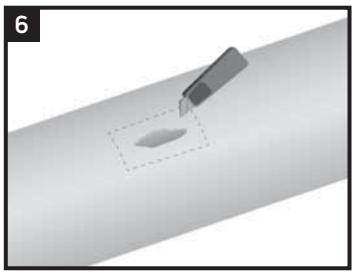

Using a knife, carefully cut out only the damaged coating into a smooth sided shape.

PP Surface preparation - Major Repair

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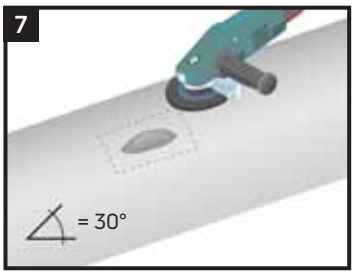

Using a hand grinder with a P24-P40 grit flat abrasive disc, lightly abrade the repair to expose FBE and/or Bare metal surface and bevel the edges of the repair area to a 15 to 30 degree angle. Using the hand grinder, lightly abrade the mainline coating in the major repair area.

PP Melt Stick/Strip - Heating Repair Area

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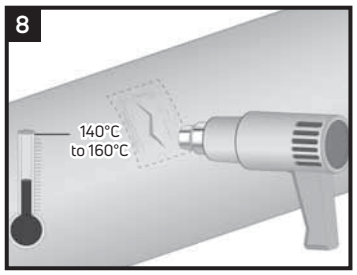

Using the hot air tool, heat the minor repair area to 140 - 160°C. Using the digital thermometer, ensure the correct temperature has been reached.

PP Melt Stick/Strip -Heating

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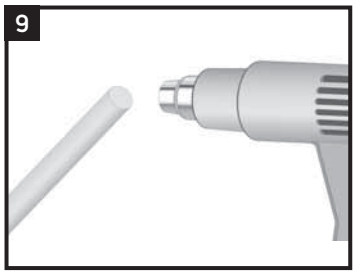

While holding the cut-to-length PP Melt Stick/Strip use the hot air tool to heat the end of the material until it becomes soft and flexible.

PP Melt Stick/Strip - Applying

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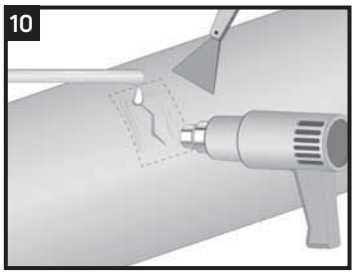

Fill the affected area with the heated PP Melt Stick/Strip. Use the hot air tool to heat the PP Melt Stick/Strip until it is soft and pliable. Force the activated material into the repair area or depression with a scraper / spatula, heating and smoothing to achieve a uniform finish.

PP Melt Stick/Strip - Quality Check

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Visually inspect the repair area. If necessary, grind or rasp any protruding material or uneven areas to achieve a flush finish with the mainline coating. Holiday test to project requirements.

P Epoxy - Application

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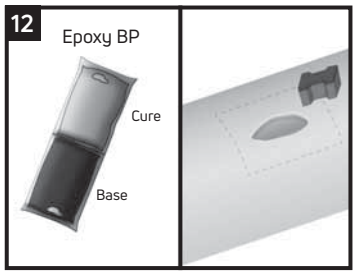
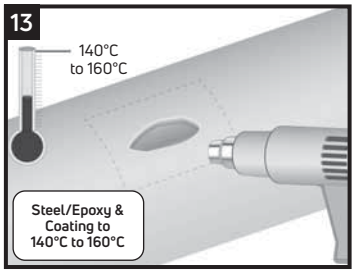


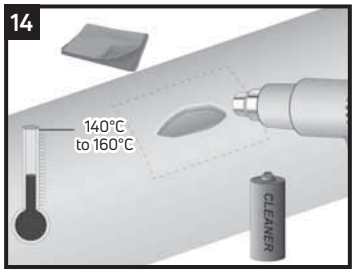
Follow the Preparation, Mixing and Application instructions provided with the supplied Canusa Epoxy Pack. Use the application pad to apply the epoxy to the FBE/steel area of the major repair area. Ensure all FBE and exposed steel is covered to a uniform thickness of 150-200 µm (6-8mils).

P Epoxy - Force Curing



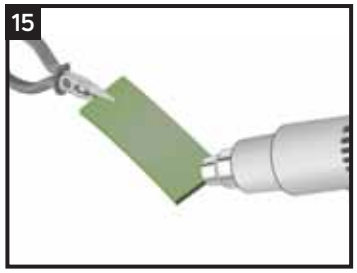
Using the hot air tool, heat the epoxy and surrounding coating to 140-160°C until cured.

PP Adhesive Filler - Heating Repair Area



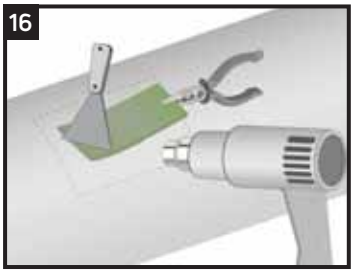
Using the hot air tool, heat the repair area to 140 - 160°C. Using the digital thermometer, ensure the correct temperature has been reached.

PP Adhesive Filler Stick/Strip - Heating Adhesive Filler



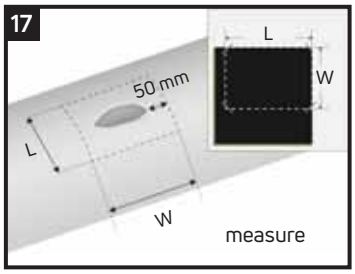
While holding the PP Adhesive Filler with a pair of pliers, use the hot air tool to heat the material until it becomes soft and flexible.

PP Adhesive Filler Stick/Strip - Applying Adhesive Filler



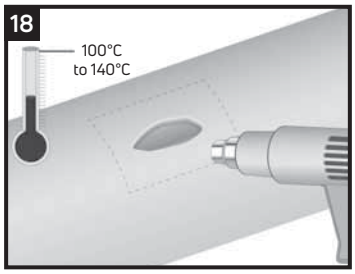
Using the pliers and the scraper / spatula, fill the affected area with the heated PP Adhesive Filler material. Use the hot air tool to heat the PP Adhesive Filler material until it is soft and pliable. Force the activated material into the repair area with a scraper / spatula, heating and smoothing to achieve a uniform finish. If necessary, grind or rasp to achieve a flush finish with the PP mainline coating.

CRP-PP - Patch Measurement



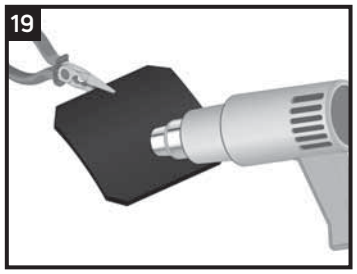
Measure the dimensions required for the CRP-PP patch. Cut the CRP-PP patch to the appropriate size to cover the patch area, with a minimum 50 mm overlap from any point of the damage. Cut 4 corners off of patch to avoid lifting of corners. In order to improve application conditions and to provide optimum performance, the CRP-PP repair patch may be preconditioned to a temperature of 60-80°C prior to application over the damaged PP coating area.

CRP-PP - Heat PP repair area



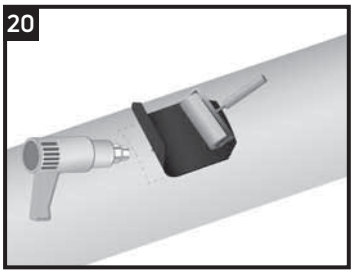
Use the hot-air tool to pre-warm the repair area to 140 - 160°C. Use a temperature measuring device to ensure the correct temperature.

CRP-PP - Heat Repair Patch



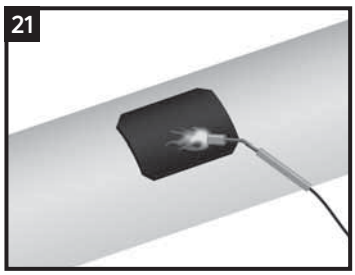
Using the hot air tool, both sides of the CRP-PP repair patch shall be warmed to soften the adhesive and backing.

CRP-PP - Hot Air Welding



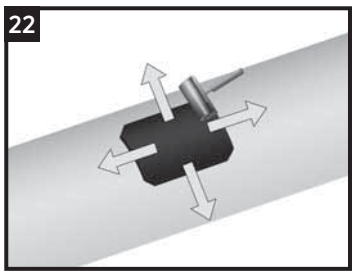
Using the hot-air tool and roller, weld the underside of the CRP-PP Patch to the repair areal of the PP mainline coating. Ensure a positive contact.

CRP-PP - Post heating



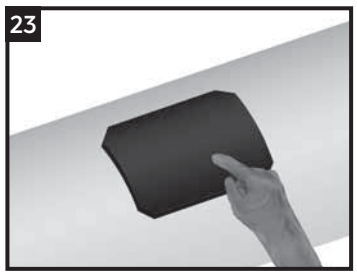
Using a propane torch and a medium flame, uniformly heat the entire outer surface of the CRP-PP repair patch and surrounding area for a minimum of 2-4 minutes.

CRP-PP - Rolling



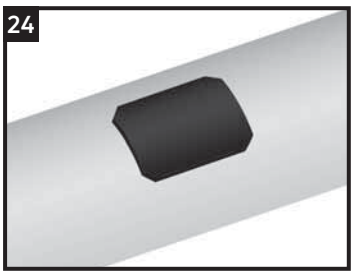
During and after post heating the repair patch, carefully roll the patch from the center towards the each edge.

CRP-PP - Quality Check



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

Repaired Area - Inspection



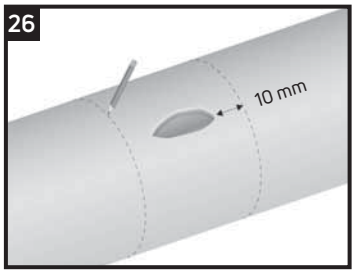
After application of appropriate repair materials, a visual inspection shall be performed in order to verify the following:

- The applied PP Adhesive Filler has been applied to a smooth, uniform finish.
- There shall be no significant wrinkles, voids, cracks, or burn marks on the applied repair materials or surrounding sleeve/coating.
- The adhesive shall protrude all around the outer perimeter of all installed CRP-PP repair patch material.
- The distance between the outer edges of the repair patch and the damaged coating area shall be a minimum of 50mm after installation.

GTS-PP - Repair Notes

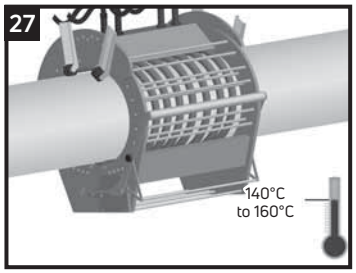
For damaged areas in excess of 50cm², a GTS-PP heat shrink sleeve shall be used in place of the CRP-PP repair patch.

GTS-PP - Repair Measurement



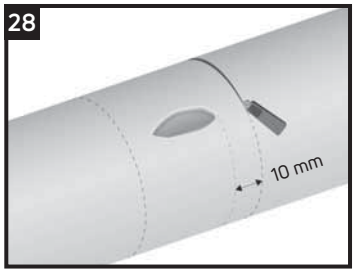
For this repair, a new coating cut back area shall be created. The 3LPP mainline coating shall be stripped away from the field joint area so that a minimum of 10 mm is cut away beyond the edges of the damaged area. If necessary, the width of the sleeve may be reduced prior to application using a straight edge and a sharp utility knife, ensuing that a smooth cut is achieved. The final width of the sleeve shall extend a minimum of 50mm beyond the edges of the new cutback area.

GTS-PP - Pre-heating for coating removal



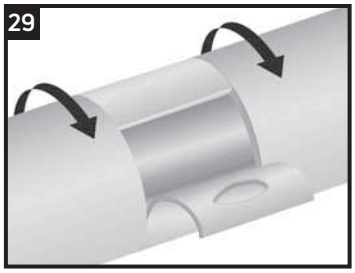
The repair area shall be heated using an induction coil to achieve a steel surface temperature of 140 to 160°C to aid in removal of the 3LPP factory coating. If necessary, a window can be cut down to the steel so accurate steel temperature can be measured.

GTS-PP - Cutting the Mainline Coating



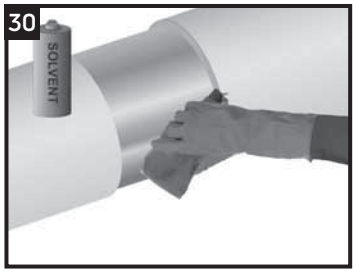
A utility knife shall be used to gently cut the factory coating around the entire circumference of the repair area as indication by markings on pipe. A longitudinal cut shall then be made between the two circumferential cuts.

GTS-PP - Removing the Mainline Coating



The factory coating between the two circumferential cuts shall then be removed by 2 operators positioned on both sides of the pipe using heat resistant gloves to pull the coating from the repair area at an angle of approximately 90-120° in both direction. Continue until the mainline coating is removed.

GTS-PP - Surface preparation



Once the coating is removed, then the sleeve shall be installed as per the detailed installation guide for GTS-PP. This includes full surface preparation as required in that install guide, and the application of the Canusa Liquid Epoxy.

Onshore & Offshore Guidelines

After Repair Applications are complete, allow the repair area to cool to less then 80°C prior to laying (for offshore applications, the repair area can be water quenched)

Storage & Safety Guidelines

To ensure maximum performance, store Canusa products in a dry, ventilated area. Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements. Avoid prolonged storage at temperatures above 35°C (95°F) or below -20°C (-4°F). Product installation should be done in accordance with local health and safety regulations.

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

Western Hemisphere

SFL Canusa - WH
4757 93rd Ave NW
Edmonton, Alberta T6B 2T6
Canada

Tel: +1 587-754-8701

Europe

SealForLife Industries
Nijverheidsstraat 13
B-2260 Westerlo
Belgium

Middle East

SFL Canusa Middle East PPTS LLC
KLP5, Block B, Unit B-01,
Sector no.: KHIA8, Al Ma'mourah
PO Box 2621, Abu Dhabi,
The United Arab Emirates

Quality Management system registered to ISO 9001

Part No. 99060-153

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