



PERP Coating Repair Patch

Repair system for damaged mill-applied PE coating.



Market	Application	Temperature Range	Performance
Water Pipelines Oil & Gas Pipelines Pipeline Rehabilitation	Repair Pipeline Rehabilitation Offshore Pipelines	up to 80°C (176°F)	EN 12068 PERP: Class C50 PERP60E: Class C60 UV PERP80: Class C80

System Description

Construction: two-layer or three-layer system
First layer:
Liquid epoxy, solvent-free two-component.
Second layer:
Copolymer adhesive.
Third layer:
Radiation-cross-linked, high density polyethylene (unexpanded).

PERP is a heat-applied patch which, in combination with mastic filler, offers an economically effective and high quality repair system for factory PE pipe coatings damaged mechanically during transportation, storage and laying of pipes. PERP, PERP80 and PERP60E are designed to repair the damaged areas on line coatings, mainly 2 or 3 layer PE. PERP60E is designed to repair the damaged areas on PE coated pipes used in high shear applications, such as directional drilling. **Sleeves** are recommended for large damaged areas (see selection table below). **Filler tape** is used to fill the holiday, thus restoring the mill-applied coating thickness

of the pipe. **Epoxy primer** is additionally used when additionally used when reinstatement of the epoxy layer is required. Installation is done with standard gas torches. To repair a damaged area, installers round out, roughen, clean and preheat the area and apply the filler tape to fill out the holiday. PERP, cut to size, is positioned onto the treated area and heated. During heating, the adhesive softens and flows to form a tight bond with the substrate. The bond strength builds up during cool-down and is fully retained after job completion

Product Advantages

- **Adaptable repair system**
Highly economical.
Save money.
- **Resistant to high shear forces**
Long lasting and high performance.
- **Excellent adhesion to commercial, PE mill-applied coatings**
Provides a virtually monolithic coating repair of high quality.

- **Available as kit or roll form**
Saves time with fast and convenient installation.
Saves money by keeping inventory and logistics costs low.
- **No special equipment required**
Makes installation fast and easy.
Keeps installation costs low.

Product Construction

	PERP (80)	PERP60E
• Backing (as supplied)	0.76 mm (0.030 in.)	0.76 mm (0.030 in.)
• Backing (fully free recovered)	0.76 mm (0.030 in.)	0.76 mm (0.030 in.)
• Adhesive (as supplied)	0.65 mm (0.026 in.)	0.80 mm (0.031 in.)

Product Selection Guide

	PERP	PERP80	PERP60E
Maximum operating temperature	65°C (149°F)*	80°C (176°F)	60°C (140°F)
Compatible line coatings	PE, FBE	PE, FBE, CTE	PE, FBE
Min preheat temperature			
bare metal	70-80°C (158-176°F)	70-80°C (158-176°F)	70-80°C (158-176°F)
line coating	70-80°C (158-176°F)	90-100°C (194-212°F)	70-80°C (158-176°F)
Recommended pipe preparation	ST3 or SA 2 ^{1/2}	ST3 or SA 2 ^{1/2}	SA 2 ^{1/2}
Filler tape	S1137-50x3x3000	S1137-50x3x3000	S1182-50x3x3000
Epoxy primer	S1239 or S1301-M	S1301-M	S1239 or S1301-M
Soil stress restrictions	None	None	None
Performance	EN12068, class C50	EN12068, class C80	EN12068, class C60 UV

* max. 70°C (158°F) when used as a repair to HSS under infill.

Product Properties

Properties	Test Method	PERP	PERP80	PERP60E
Backing				
Tensile strength	ASTM D-638	3300 psi (22.8 MPa)	3300 psi (22.8 MPa)	3300 psi (22.8 MPa)
Elongation	ASTM D-638	600%	600%	600%
Hardness, Shore D	ASTM D-2240	55	55	55
Shrink force	ASTM D-638, 150°C (302°F)	40 psi	40 psi	40 psi
Dielectric strength	ASTM D-149	900 volts/mil (35 Kv/mm)	900 volts/mil (35 Kv/mm)	900 volts/mil (35 Kv/mm)
Moisture absorption	ASTM D-570	0.05%	0.05%	0.05%
Adhesive				
Softening point	ASTM E-28	103°C (217°F)	120°C (248°F)	94°C (201°F)
Shear strength	ASTM D-1002	350 psi @ 23°C (73°F)	750 psi @ 23°C (73°F)	500 psi @ 23°C (73°F)
		11 psi @ 65°C (149°F)	65 psi @ 80°C (176°F)	87 psi @ 50°C (122°F)
		EN 12068	0.22 N/mm ² @ 50°C (122°F)	0.12 N/mm ² @ 80°C (176°F)
Sleeve				
Peel to PE	ASTM D-1000	25 lbs/in. width	21 lbs/in. width	60 lbs/in. width
	EN 12068	3.5 N/mm	3.5 N/mm	20 N/mm
Impact resistance	EN 12068, class C	> 15 Nm	> 15 Nm	> 15 Nm
Indentation	EN 12068, class C	Pass @ 50°C (122°F)	Pass @ 80°C (176°F)	Pass @ 60°C (140°F)

Ordering Information

PERP type products are available:

- as a kit
- as a roll

Example:

	Standard Ordering Options	
PERP-KIT	1 pc PERP patch 170 mm x 140 mm with rounded corners, 1 pc S1137 (50x3x25 mm), 1 pc abrasive paper P60 (150x50 mm), installation instruction	for damaged area less than 40x70 mm
PERP-170x10000	roll of 10 m (32.5 ft.) length, 170 mm (6.75") width	for extensive areas of damage
PERP-425x10000	roll of 10 m (32.5 ft.) length, 438 mm (17.25") width	
PERP80-425x1000-PCI	PCI = Permanent Change Indicator	
PERP60E-425x10000-PCI	(embossed backing)	
S1137-50x3x3000	50 mm (2") wide, 3 mm (0.12") thick, 3 m (10 ft.) long mastic for PERP + PERP80	filling adhesive, necessary where rolls are used Note: 3 rolls of filler per roll of PERP are recommended
S1182-50x1x9000	copolymer for PERP60E	
PERP-280x280-05	kit of 2 pcs PERP-280x140-05 with punched hole	to be used with HTTE, house tap tee protection
	Epoxy primer	only when 3-layer coating
S1239 or S1301-M	for PERP + PERP60E	
S1301-M	for PERP80	

Application table

Max. damaged area for using PERP. (*)

Pipe diameter	Max. damage
< 10"	100 x 100 mm (4 x 4")
< 28"	150 x 150 mm (6 x 6")
≥ 30"	300 x 300 mm (12 x 12")

(*) For larger damaged areas, the use of heat-shrinkable sleeves is recommended (refer to Berry Plastics girth weld sleeves).

For proper product installation, see latest installation instruction.



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