Raychem

PERP Coating Repair Patch

Repair system for damaged mill-applied PE coating.

Product description

PERP coating repair.
Construction: 2-layer or 3 layer system:
First (optional) 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 PERP120 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 a 3-layer coating 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 features/benefits

- **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 selection guide

	PERP	PERP80	PERP120	PERP60E
Max operating temperature	60°C (140°F)	80°C (176°F)	120°C (248°F)	60°C (140°F)
Compatible line coatings	PE, FBE	PE, FBE	PE	PE, FBE
Min preheat temperature				
- bare metal	60-70°C (140-158°F)	90-100°C (194-212°F)	150-180°C (194-212°F)	70-80°C (194-212°F)
- line coating	60-70°C (140-158°F)	70-80°C (158-176°F)	70-80°C (158-176°F)	70-80°C (158-176°F)
Recommended pipe preparation	ST3 or SA 2½	ST3 or SA 2½	ST3 or SA 2½	SA 2½
Filler tape	S1137-50x3x3000 or S1080-50x3x3000	S1137-50x3x3000 or S1238-50x3x3000	S1137-50x3x3000	S1182-50x3x3000
Epoxy primer	S1239	S1301	N/A	S1239
Soil stress restrictions	None	None	None	None
Performance	EN12068 class C50	EN12068 class C50	EN12068 class C50	EN12068 class C50

Product thickness

	PERP (80) (120)	PERP60E
Backing (as supplied)	0.030 in. (0.76 mm)	0.030 in. (0.76 mm)
Backing (fully free recovered)	0.030 in. (0.76 mm)	0.030 in. (0.76 mm)
Adhesive (as supplied)	0.026 in. (0.65 mm)	0.031 in. (0.80 mm)

Product properties: PERP (80) (120) (60E)

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Property	**Test method**	**Typical Value**
Backing		
Tensile strength	ASTM D-638	3000 psi 20 MPa
Elongation	ASTM D-638	580%
Hardness, Shore D	ASTM D-2240	55
Shrink force	ASTM D-638	40 psi 150°C (302°F)
Dielectric strength	ASTM D-149	500 volts/mil 20 kV/mm
Moisture absorption	ASTM D-570	0.05%

		PERP	PERP80	PERP120	PERP60E
Property	**Test method**	**Typical Value**			
Adhesive					
Softening point	ASTM E-28	103°C (217°F)	120°C (248°F)	155°C (311°F)	94°C (201°F)
Shear strength	ASTM D-1002	350 psi @ 23°C (73°F) 11 psi @ 65°C (149°F)	750 psi @ 23°C (73°F) 65 psi @ 80°C (176°F)	1300 psi @ 23°C (73°F) 100 psi @ 120°C (248°F)	500 psi @ 23°C (73°F) 87 psi @ 50°C (122°F)
Sleeve					
Peel to PE	ASTM D-1000	25 lbs/in. width	21 lbs/in. width	30 lbs/in. width	60 lbs/in. width
Cathodic disbondment	ASTM G-42 30 days	13 mm radius @ 65°C (149°F)	12 mm radius @ 80°C (176°F)	10 mm radius @ 120°C (248°F)	8 mm radius @ 50°C (122°F)
Impact resistance	EN12068, Class C	> 15 Nm	> 15 Nm	> 15 Nm	> 15 Nm
Penetration resist.	EN12068, Class C50	> 0.6 mm *	> 0.6 mm *	> 0.6 mm *	> 0.6 mm *

** remaining coating thickness*

Ordering information

PERP type products are available:

- as a kit
- as a roll

Example: RAYCLAD 80-6x500/A		
	Standard Ordering options	
PERP-KIT	1 pc PERP patch 170mm x 140mm with rounded corners, 1 pc S1137 filler (50x3x25mm), 1 pc abrasive paper P60 (150x50mm), Installation instruction	For damaged area less than 40x70 mm
PERP-170x10000 PERP-425x10000 PERP80-425x10000 PERP120-425x10000 PERP60E-425x10000	Roll of 10 m (32.5 ft.) length, 170 mm (6.75") width Rolls of 10 m (32.5 ft.) length, 438 mm (17.25") width	For extensive areas of damage
	50 mm (2") wide, 3 mm (0.12") thick, 3 m (10 ft.) long	Filling adhesive, necessary where rolls are used **Note:** 3 rolls of filler per roll of PERP are recommended
S1137-50x3x3000	Mastic for PERP + PERP80 + PERP120	
S1080-50x3x3000	Copolymer for PERP	
S1238-50x3x3000	Copolymer for PERP80	
S1182-50x3x3000	Copolymer for PERP60E	
PERP-280x140-05	Kit of 2 pcs PERP with punched hole	To be used with HTTE, house tap tee protection
	Epoxy primer	Only when 3-layer coating
S1239	for PERP + PERP60E	
S1301	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 Tyco Adhesives' girth weld sleeves).

For proper product installation, see latest installation instruction.

DS-PERP-REV-1-08/01