

The WPC elevated temperature with PCI (Permanent Change Indicator) is a two-layer field-joint-coating system for pipeline operating at ambient and elevated temperature.

Product description

WPC-C50, WPC65M, WPC100M field-joint coatings.

Construction: Two-layer system:

First layer: Visco-elastic adhesive sealant.

Second layer: Radiation cross-linked, high density polyethylene with PCI (Permanent Change Indicator).

WPC C50, 65M, 100M are wraparound heat-shrinkable sleeves specially suitable for higher stress conditions caused both by elevated temperatures and by soils with severe contraction between wet-dry cycles. The WPC C50, 65M, 100M are compatible with most commonly used steel pipe coatings and are used for girth weld protection or to recoat (rehabilitate) long pipe sections and large radius bends. WPC may be cut to the appropriate length to cover all pipe diameters.

The installation is carried out directly on the cleaned and pre-heated pipe surface without any primer being required. During installation, the heat-shrinkable sleeve is wrapped around and shrunk to form a tight fit around the joint. During recovery, the adhesive softens and flows to form a perfect bond with the pipe surface providing protection against corrosion. The radiation cross-linked outer layer forms a tough barrier against mechanical damage and moisture transmission.

Product features/benefits

- + **Dimpled backing provides a 'permanent change' indicator for application of heat**
Ensures correct application heat & allows easy post-heat inspection.
Reliable inspectability at any time.
- + **Low preheat sensitivity & proven functionality**
Installation friendly in combination with high functional performance.
- + **Available as all-in-one unit or roll form**
Saves money by keeping inventory and logistics costs low.
- + **High shear resistance**
WPC offers 'safer protection'.
- + **Covers a wide range of operating temperature ratings**
Offers a solution for nearly every application.
- + **No special equipment (standard gas torch & a roller) or skills required**
Makes installation fast and easy.
Keeps installation costs low.

Product selection guide

	WPC-C50	WPC65M	WPC100M
Max. operating temperature	60°C (140°F)	66°C (149°F)	80°C (178°F) (onshore) 100°C (212°F) (offshore)
Compatible line coatings	PE, FBE, Tape & Coal Tar	PE, PP, FBE, Tape & Coal Tar	PE, PP, FBE, Tape & Coal Tar
Min. preheat temperature	80°C (176°F)	60°C (140°F)	100°C (212°F)
Recommended pipe preparation	ST2½ - ST3 or SA 2½	ST2½ - ST3 or SA 2½	ST2½ - ST3 or SA 2½
Soil stress restrictions	None	Moderate	None
Performance	EN 12068 Class C50		

Product thickness

	WPC-C50	WPC65M	WPC100M
Backing (as supplied)	0.040 in. (1.0 mm)	0.030 in. (0.75 mm)	0.030 in. (0.75 mm)
Backing (fully free recovered)	0.055 in. (1.4 mm)	0.040 in. (1.0 mm)	0.040 in. (1.0 mm)
Adhesive (as supplied)	0.060 in. (1.5 mm)	0.040 in. (1.0 mm)	0.040 in. (1.0 mm)

Product properties: WPC high temperature (1)

Property	Test method	Typical value WPC-C50	Typical value WPC65M	Typical value WPC100M
Backing				
Tensile strength	ASTM D-638	3400 psi (23.5 MPa)	3400 psi (23.5 MPa)	3400 psi (23.5 MPa)
Elongation	ASTM D-638	650%	650%	650%
Hardness, Shore D	ASTM D-2240	55	55	55
Shrinkforce	ASTM D-638, 150°C (302°F)	40 psi	40 psi	40 psi
Dielectric strength	ASTM D-149	1000 volts/mil, 39 kV/mm	1000 volts/mil, 39 kV/mm	1000 volts/mil, 39 kV/mm
Water absorption	ASTM D-570	0.04%	0.04%	0.04%
Adhesive				
Softening point	ASTM E-28	82°C (180°F)	134°C (273°F)	155°C (311°F)
Lap shear	ASTM D-1002	120 psi @ 23°C (73°F) 3 psi @ 60°C (140°F)	50 psi @ 23°C (73°F) 3 psi @ 66°C (149°F)	37 psi @ 23°C (73°F) 43 psi @ 80°C (178°F)
	EN 12068 @ 10 mm (0.4) Vmin.	80 N/cm² @ 23°C (73°F) 7 N/cm² @ 50°C (122°F)	9 N/cm² @ 23°C (73°F) 1 N/cm² @ 66°C (150°F)	

Product properties: WPC high temperature (2)

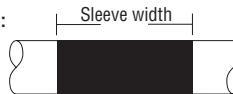
Property	Test method	Typical value WPC-C50	Typical value WPC65M	Typical value WPC100M
Sleeve				
Peel to Steel	ASTM D-1000	45 lbs/in. width, @ 23°C (73°F)	50 lbs/in. width, @ 23°C (73°F) 3 lbs/in. width, @ 65°C (149°F)	40 lbs/in. width, @ 23°C (73°F) 1.5 lbs/in. width, @ 80°C (176°F)
	EN 12068 @ 10 mm (0.4")/min.	5.6 N/mm @ 23°C (73°F) 0.5 N/mm @ 50°C (122°F)	1.5 N/mm @ 23°C (73°F) 0.2 N/mm @ 65°C (149°F)	
Cathodic disbondment	EN 12068	9 mm radius, @ 23°C (73°F)	7 mm radius, @ 65°C (149°F)	10 mm radius, @ 80°C (176°F)
Low temperature flexibility	ASTM G-42, 30 days	4 mm radius, @ 60°C (140°F)	7 mm radius, @ 65°C (149°F)	10 mm radius, @ 80°C (176°F)
Impact resistance	ASTM D-2671-C	-25°C (-13°F)	-14°C (-6.8°F)	-50°C (-58°F)
	ASTM G-14 EN 12068, Class C	> 15 Nm	80 in-lbs > 8 Nm	50 in-lbs
Penetration resistance	ASTM G-17	no holiday with 10 kV detector @ 60°C (140°F)	no holiday with 10 kV detector @ 65°C (149°F)	no holiday with 10 kV detector @ 80°C (176°F)
	EN 12068, Class C50	> 0.6 mm * @ 50°C (122°F)		

* Remaining coating thickness

Ordering information

WPC-C50, WPC65M and WPC100M type products are available:

- as cut piece (pre-cut sleeve and separate closure patch)
- as Uni-sleeve (pre-cut sleeve with pre-attached closure patch)
- as a roll (closure patch to be ordered separately)



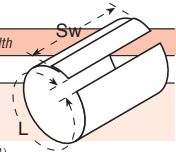
Select sleeve width that will overlap onto the mill-applied coating by 2 inches (50 mm) minimum on each side of the weld joint. Take a 10% shrinkage during installation of sleeve width into account when calculating the minimum sleeve width.

* Cut piece / Uni-sleeve

Example: WPC65M-10750X17/UNI - WPC100M-10750X17 - WPC-C50-DN250-450

⁽¹⁾ Nominal width

WPC...	Product type	Standard ordering options: WPC-C50, WPC65M, WPC100M
10750	Outside pipe diameter in mils	2.375" – 48.000"
DN250	Nominal pipe diameter in DN	DN50 – DN1200
17	Sleeve width in inches (Sw)	11" (285 mm) ⁽¹⁾ , 17" (450 mm) ⁽¹⁾ , 24" (600 mm) ⁽¹⁾ , 34" (870 mm) ⁽¹⁾
450	Sleeve width in mm (Sw)	450 mm (17") ⁽¹⁾ , 600 mm (24") ⁽¹⁾
/UNI	Designates pre-attached closure patch	optional

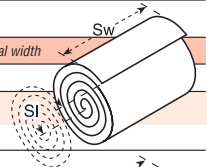


* Roll form (closure patches to be ordered separately)

Example: WPC100M-17x100-RL

⁽¹⁾ Nominal width

WPC...	Product type	Standard ordering options: WPC-C50, WPC65M, WPC100M
17	Roll width in inches (Sw)	11" (285 mm) ⁽¹⁾ , 17" (450 mm) ⁽¹⁾ , 24" (600 mm) ⁽¹⁾ , 34" (870 mm) ⁽¹⁾
100	Roll length in feet (SI)	100 ft (30 m), 66 ft (= 20 m, for C50/width 34" (870 mm) only)

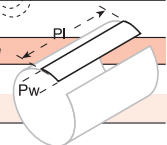


* Closure patch

Example: WPCP-IV-4X17

⁽¹⁾ Nominal width

4	Closure patch width in inches (Pw)	4" (100 mm), 5" (125 mm), 6" (150 mm), 8" (200 mm)
17	Closure patch length in inches (PI)	11" (285 mm) ⁽¹⁾ , 17" (450 mm) ⁽¹⁾ , 24" (600 mm) ⁽¹⁾ , 34" (870 mm) ⁽¹⁾



Note: WPC65M – above 20"/DN500 in high shear and high stress environments consider other product alternatives.

Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table AT-GIRTHWELD-REV-2-08/01.

For proper product installation, see latest installation instruction.



Oficinas México:

Polyken
Prolongación Estadio Azteca No.18
Col.: El Caracol, C.P.: 04300
México, D.F., Delegación: Coyoacan
Tel.: (55) 5528-0161; (55) 5528-0052
Fax.: (55) 5424-1920
ventasyservicio@polyken.com.mx
direccion@polyken.com.mx

Oficinas en Estados Unidos

Polyken
1211 San Dario Ave. No. 1481
Laredo, Tx. 78040
Tel. : (956) 220-3812

Bodega en Estados Unidos

Polyken
406 Enterprise Rd.
Interamerica Park
Laredo, Tx 78045
Tel.: (956) 727-2491
Fax.: (956) 724-8509
Contacto: Jesús Alberto Marina Delgado