



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

### Product description

**WPCT, WPC/B, WPC-B30, WPC-C30 field-joint coatings.**

**Construction:** Two-layer system:

**First layer:** Visco-elastic low preheat sealant adhesive.

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

WPC ambient is a wrap-around heat-shrinkable, ready-to-fit assembly for the corrosion protection of field girth weld joints in distribution and transmission networks, for use especially in low shear or low stress environments and in moderate climates. (Above pipe diameter DN500 (20") in high shear and high stress environments, the use of WPC-C50, HTLP60 is recommended or contact a Tyco Adhesives representative).

WPC ambient is compatible with standard pipe coatings. WPC ambient can also be used for coating bare, replacement pipe sections and large radius bends. The system is designed to be applied with minimum preheating of the pipe.

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.
- **High impact and penetration resistance**  
Tough, but flexible even at low temperatures!
- **Available as all-in-one unit or roll form**  
Saves money by keeping inventory and logistics costs low.
- **Sealing adhesive automatically flows and repairs minor mechanical damages**  
"Self-healing effect". Saves extra intervention steps.
- **No special equipment or skills required**  
Makes installation fast and easy. Keeps installation costs low.

### Product selection guide

	WPCT	WPC/B	WPC-B30	WPC-C30
<b>Max operating temperature</b>	30°C (86°F)	30°C (86°F)	30°C (86°F)	30°C (86°F)
<b>Compatible line coatings</b>	PE, FBE, Coal Tar, Tape & Asphalt	PE, FBE, Coal Tar, Tape & Asphalt	PE, FBE, Coal Tar, Tape & Asphalt	PE, FBE, Coal Tar, Tape & Asphalt
<b>Min preheat temperature</b>	60°C (140°F)	60°C (140°F)	60°C (140°F)	60°C (140°F)
<b>Recommended pipe preparation</b>	ST2½ - ST3 or SA 2½	ST2½ - ST3 or SA 2½	ST2½ - ST3 or SA 2½	ST2½ - ST3 or SA 2½
<b>Soil stress restrictions</b>	Moderate	Moderate	Moderate	Moderate
<b>Performance</b>	EN 12068 class B30	EN 12068 class B30	EN 12068 class B30	EN 12068 class C30

### Product thickness

	WPCT	WPC/B	WPC-B30	WPC-C30
Backing (as supplied)	0.022 in. (0.55 mm)	0.030 in. (0.76 mm)	0.030 in. (0.76 mm)	0.040 in. (1.0 mm)
Backing (fully free recovered)	0.030 in. (0.76 mm)	0.040 in. (1.0 mm)	0.040 in. (1.0 mm)	0.055 in. (1.4 mm)
Mastic sealant (as supplied)	0.055 in. (1.4 mm)	0.060 in. (1.5 mm)	0.047 in. (1.2 mm)	0.060 in. (1.5 mm)

### Product properties: WPC ambient (1)

Property	Test method	WPCT	WPC/B	WPC-B30	WPC-C30
		Typical Value			
<b>Backing</b>					
Tensile strength	ASTM D-638	3000 psi (20 MPa)	3000 psi (20 MPa)	3000 psi (20 MPa)	3000 psi (20 MPa)
Elongation	ASTM D-638	580%	580%	580%	580%
Hardness, Shore D	ASTM D-2240	55	55	55	55
Shrink force	ASTM D-638 150°C (302°F)	40 psi	40 psi	40 psi	40 psi
Dielectric strength	ASTM D-149	500 volts/mil 20 kV/mm	500 volts/mil 20 kV/mm	500 volts/mil 20 kV/mm	500 volts/mi 20 kV/mm
Water absorption	ASTM D-570	0.05%	0.05%	0.05%	0.05%
<b>Adhesive</b>					
Softening point	ASTM E-28	90°C (194°F)	90°C (194°F)	92°C (198°F)	92°C (198°F)
Lap shear	ASTM D-1002 EN 12068 @ 10 mm(0.4")/min.	35 psi 22 N/cm <sup>2</sup>	35 psi 22 N/cm <sup>2</sup>	8 N/cm <sup>2</sup>	8 N/cm <sup>2</sup>

## Product properties: WPC ambient (2)

Property	Test method	WPCT	WPC/B	WPC-B30	WPC-C30
<b>Sleeve</b>					
Peel to Steel	ASTM D-1000 EN 12068 @ 10mm (0.4")/min.	14 lbs/in.width 1.6 N/mm	14 lbs/in.width 1.6 N/mm	0.9 N/mm	0.9 N/mm
Cathodic disbondment	EN 12068, 30 days	8 mm radius	8 mm radius	9 mm radius	9 mm radius
Impact resistance	ASTM G-14 EN 12068	35 in-lbs > 8 Nm	50 in-lbs > 8 Nm	> 8 Nm	> 15 Nm
Penetration resistance	ASTM G-17  EN 12068 class B30 (1 N/mm <sup>2</sup> ) class C30 (10 N/mm <sup>2</sup> )	> 0.6 mm *	> 0.6 mm *	> 0.6 mm *	> 0.6 mm *

\* Remaining coating thickness

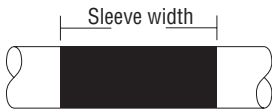
## Ordering information

### WPCT, WPC/B and WPC-C30 type products are available:

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

### WPC-B30 type products are only available

- as a roll (closure patches 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: WPCT-10750X17/UNI - WPC-10750X17/B/UNI - WPC-C30-DN250-450**

WPC...	Product type	Standard Ordering options
10750	Outside pipe diameter in mils	2.375" – 68.000" <sup>(1)</sup>
DN250	Pipe diameter in DN	DN50 – DN 1700 <sup>(1)</sup>
17	Sleeve width in inches (Sw)	11" (285 mm) <sup>(2)</sup> , 17" (450 mm) <sup>(2)</sup> , 24" (600 mm) <sup>(2)</sup> , 34" (870 mm) <sup>(2)</sup>
450	Sleeve width in mm (Sw)	17" (450 mm) <sup>(2)</sup> , 24" (600 mm) <sup>(2)</sup>
/UNI	Designates pre-attached closure patch	optional

<sup>(1)</sup> Above pipe diameter 20" (DN500) in high shear and high stress environments, the use of WPC-C50, HTLP60 or others are recommended.

<sup>(2)</sup> Nominal width

### \* Roll form (closure patches to be ordered separately)

**Example: WPCT-17x100-RL**

WPC...	Product type	Standard Ordering options
17	Roll width in inches (Sw)	11" (285 mm) <sup>(1)</sup> , 17" (450 mm) <sup>(1)</sup> , 24" (600 mm) <sup>(1)</sup> , 34" (870 mm) <sup>(1)</sup>
100	Roll length in feet (Sl)	100 ft (= 30 m), 66 ft (= 20 m, for C30/width 34" (870 mm) only)

### \* Closure patch

**Example: WPCP-IV-4x17**

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 (Pl)	11" (285 mm) <sup>(1)</sup> , 17" (450 mm) <sup>(1)</sup> , 24" (600 mm) <sup>(1)</sup> , 34" (870 mm) <sup>(1)</sup>

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.

Tyco Adhesives warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the technical data sheet when used in compliance with Tyco Adhesives' written instructions. Since many installation factors are beyond our control, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection therewith. Tyco Adhesives' liability is stated in the standard terms and conditions of sale. Tyco Adhesives makes no other warranty either expressed or implied. All information contained in this technical data sheet is to be used as a guide and is subject to change without notice. This technical data sheet supersedes all previous data sheets on this product.

# Tyco Adhesives

Corrosion Protection Group

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Local agent / Distributor:



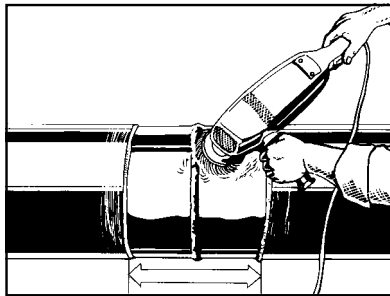
**Materials and equipment**

1. Appropriate size WPCT sleeve and WPCP IV closure patch
2. Raychem torch (or equivalent)
3. Propane gas tank, hose, regulator and gauge

4. Standard safety equipment such as gloves, goggles, hard hat, etc.

Installation has to be done according to local government regulations and usual safety precautions.

For proper selection of Tyco Adhesives joint protection materials, see Product Selection Guide or contact Tyco Adhesives.



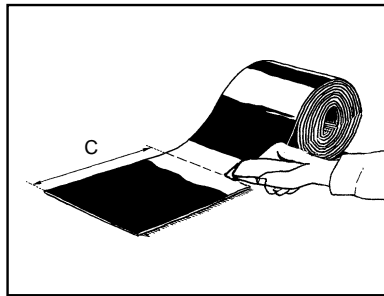
**Sleeve application**

1. Clean exposed steel and adjacent pipe coating to be covered by WPCT sleeve with a hand or power wire brush, to remove loose and foreign materials. Wiping may be necessary to remove the particles from cleaning.

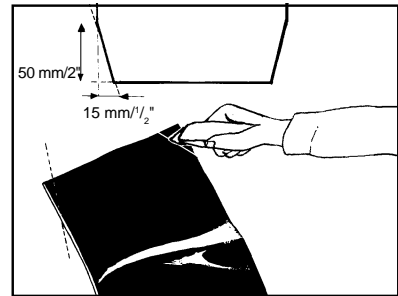
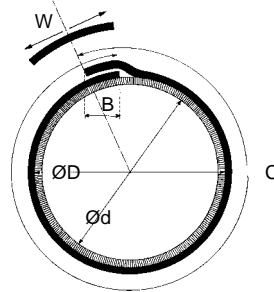
**Note:**

*Coal tar* - remove outer paper wrap 5" (125 mm) to 6" (150 mm) adjacent to cut-back to expose coal tar.

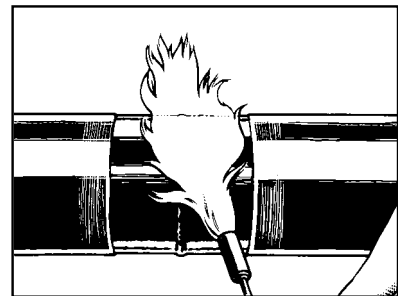
*Painted coatings* - remove whitewash paint on the surface of coating to be covered by WPCT sleeve.



2. Cut the sleeve to the appropriate length according to below table.



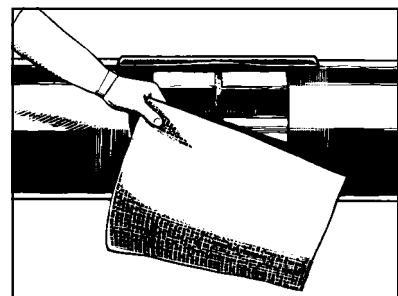
3. Cut the corners of the underlying end of the sleeve to approximately 1/2" x 2" (15 mm x 50 mm).



4. Preheat joint area until hot to the hand, approximately 140°F (60°C) minimum. Preheating reduces installation time and ensures proper bonding.

**Note:**

Two people working on opposite sides of the pipe are recommended for installing sleeves on pipe 16" (400 mm) in diameter and larger.



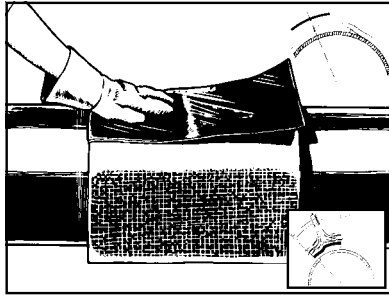
5. Remove the protective release plastic from the coated sleeve. Center sleeve over the weld so it is evenly overlapping adjacent pipe coating. Wrap loosely around pipe so that the Raychem logo runs around the pipe.

**Note:**

- 1) Clean overlap area of the sleeve to remove dirt and other foreign materials.
- 2) Edges of sleeve should extend 2" or more onto adjacent pipe coating.
- 3) Overlapping ends of sleeve should align evenly.
- 4) Position overlap to permit easy access for installing closure.

Ø D mils	Ø d	C	B	W
inches (0,001)	mm	inches/mm	in./mm	in./mm
2375	50	12/305	2/50	4/100
2875	65	13/330	2/50	4/100
3500	80	15/380	2/50	4/100
4000	90	18/460	2/50	4/100
4500	100	18/460	2/50	4/100
5563	125	21,5/550	2/50	4/100
6625	150	25/640	2/50	4/100
8625	200	31,5/800	2/50	4/100
10750	250	38,5/980	2/50	4/100
12750	300	45,5/1150	2/50	4/100
14000	350	49,5/1260	2/50	4/100
16000	400	56/1420	2/50	4/100
18000	450	62,5/1590	2/50	4/100
20000	500	69,5/1770	2/50	6/150
22000	550	77/1950	2/50	6/150
24000	600	83/2110	2/50	6/150
26000	650	89,5/2270	2/50	6/150
28000	700	95,5/2430	2/50	6/150
30000	750	102,5/2600	2/50	6/150
32000	800	108,5/2760	2/50	6/150
34000	850	115,5/2930	2/50	6/150
36000	900	122/3100	2/50	6/150

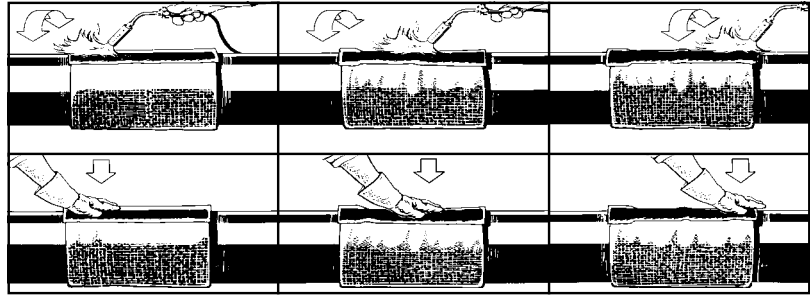
# WPCT\*



## WPCTIV closure application

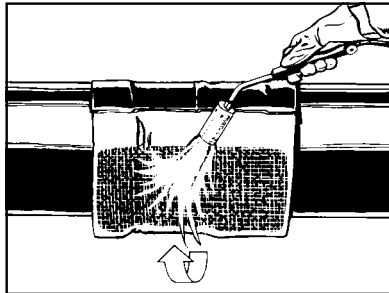
1. Press WPCTIV closure in position, centering over the exposed sheet end. (For UNISLEEVE products, the closure is pre-attached and already centered in position.)

The sheet should overlap the sheet (excluding closure) by 2" (50 mm) minimum.



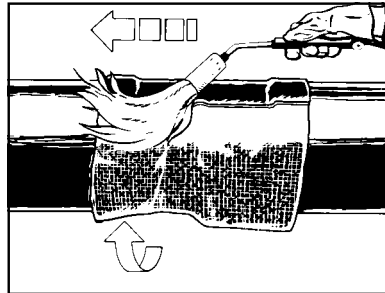
2. Using a Raychem torch (or equivalent), adjust flame length to approximately 20" (500 mm) to produce a blue tipped yellow flame. Using the yellow portion of the flame, heat the closure evenly until the pattern of the fabric reinforcement is visible.

With gloved hand, smooth any wrinkles by working outward from the center.



## Sleeve recovery

1. Using the Raychem torch (or equivalent), begin at the center of the sleeve and heat circumferentially around the pipe, using a constant paintbrush motion, until the embossed pattern on the sheet surface has changed to a smooth surface.



2. Continue heating toward one end of the sleeve, followed by the other.

### Note:

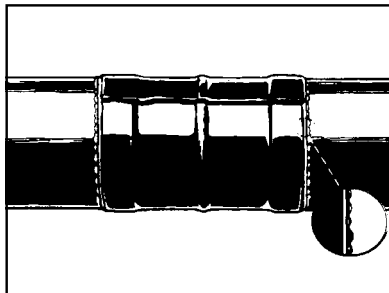
Sleeve may be recovered starting at one end and proceeding toward the opposite end, depending on conditions (i.e., wind).



3. During shrinkdown, occasionally check adhesive flow with a finger. Wrinkles should disappear automatically. Remember to wear gloves.

### Note:

While sleeve is hot, press or roll overlap and closure area to remove any air voids.



4. Sleeve is fully recovered when all of the following have occurred:

- 1) The WPCT sheet has a smooth surface.
- 2) There are no cold spots on the sleeve surface.
- 3) Weld bead profile can be seen through the sleeve.
- 4) After sleeve is cool, mastic flow is evident on both edges.
- 5) The sleeve has fully conformed to the pipe and adjacent coating.
- 6) The pattern on the backing has disappeared and the backing has a smooth surface.

\* WPCT is a trademark of Tyco.

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