



The WPC120 with PCI (Permanent Change Indicator) is a two-layer field-joint coating system for pipeline operating at 120°C (248°F) temperature.

Product description

WPC120 field-joint coating.

Construction: Two-layer system:

First layer: High shear-strength copolymer adhesive.

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

WPC120 is a wrap-around, heat-shrinkable sleeve designed for corrosion prevention and sealing on various types of piping systems (oil, gas, water, pipe-type cable, etc.), which operate at temperatures up to 120°C (248°F). WPC120 is specially suited for higher stress conditions

caused both by elevated temperatures and by soils with severe contraction between wet-dry cycles. WPC120 is normally used for girth weld protection of steel pipes coated with Raychem Rayclad120 heat shrinkable tape. WPC120 may be cut to appropriate length to cover all pipe diameters. The system is designed to be applied with minimum preheating of the pipe.

While installing, WPC120 is wrapped around the joint, a closure patch is then installed (already pre-attached if Uni-sleeve) forming a tube, and the sleeve is shrunk in place. No epoxy primer is required. Upon heat exposure, the sleeve starts shrinking from its expanded size to form a tight fit around the substrate. During recovery, the copolymer adhesive softens and flows to form a perfect bond with the pipe surface providing pipe protection against corrosion. The radiation cross-linked outer layer forms a durable barrier to moisture and mechanical damage.

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.
- **Available as a one-piece wrap-around unit or in roll form**
Saves money by keeping inventory and logistics costs low.
- **High shear resistance**
Provides high functional performance and safety.
- **High operating temperature rating**
Top performance in demanding conditions.
- **No special equipment (standard gas torch & a roller) or skills required**
Makes installation fast and easy. Keeps installation costs low.

Product selection guide

| | WPC120 |
|-------------------------------------|---------------------|
| Max operating temperature | 120°C (248°F) |
| Compatible line coatings | PE, FBE, Rayclad120 |
| Min preheat temperature | 230°C (446°F) |
| Recommended pipe preparation | SA 2½ |
| Soil stress restrictions | None |

Product thickness

| | WPC120 (/B) |
|--------------------------------|---------------------|
| Backing (as supplied) | 0.030 in. (0.75 mm) |
| Backing (fully free recovered) | 0.039 in. (1.0 mm) |
| Adhesive (as supplied) | 0.039 in. (1.0 mm) |

Product properties: WPC120 (1)

| Property | Test method | Typical Value |
|---------------------|---------------|---|
| Backing | | |
| Tensile strength | ASTM D-638 | 2700 psi @ 23°C (73°F) 660 psi @ 120°C (248°F) |
| Elongation | ASTM D-638 | 580% @ 23°C (73°F) 560% @ 120°C (248°F) |
| Hardness, Shore D | ASTM D-2240 | 57 |
| Shrink force | ASTM D-638 | 45 psi |
| | 150°C (302°F) | |
| Dielectric strength | ASTM D-149 | 800 volts/mil 31.5 kV/mm |
| Moisture absorption | ASTM D-570 | 0.04% |
| Adhesive | | |
| Softening point | ASTM E-28 | 155°C (311°F) |
| Lap shear | ASTM D-1002 | 1300 psi @ 23°C (73°F) 100 psi @ 120°C (248°F) |

Product properties: WPC120 (2)

| Property | Test method | Typical Value Property |
|------------------------------|--------------------------------------|---|
| Sleeve | | |
| Peel to Steel | ASTM D-1000 | 30 lbs/in.width @ 23°C (73°F) 6 lbs/in.width @ 120°C (248°F) |
| Cathodic disbondment | ASTM G-42, 30 days | 10 mm radius @ 120°C (248°F) |
| Hot water immersion | ASTM D-870, @ 90°C (194°F), 120 days | no delamination, no blisters or water under sleeves |
| Soil stress creep resistance | TP-206, @ 120°C (248°F), 24 hrs | 0.002 inches (0.051 mm) |
| Low temperature flexibility | ASTM D-2671-C | -55°C (-67°F) |
| Impact resistance | ASTM G-14 | 75 in-lbs |
| Penetration resistance | ASTM G-17 | no holiday with 12 kV detector @ 120°C (248°F) |

⁽¹⁾ Nominal width

Ordering information

WPC120 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 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: WPC120-10750X17/B/UNI | | |
|--------------------------------|---------------------------------------|---|
| Standard Ordering options | | |
| WPC... | Product type | WPC120 |
| 10750 | Outside pipe diameter in mils | 2.375" – 48.000" (DN50 – DN 1200) |
| 17 | Sleeve width in inches (Sw) | 11" (285 mm) ⁽¹⁾ , 17" (450 mm) ⁽¹⁾ , 24" (600 mm) ⁽¹⁾ , 34" (870 mm) ⁽¹⁾ |
| B | Thickness code | B |
| /UNI | Designates pre-attached closure patch | optional |

⁽¹⁾ Nominal width

* Roll form (closure patches to be ordered separately)

| Example: WPC120-17x100-RL | | |
|---------------------------|---------------------------|---|
| Standard Ordering options | | |
| WPC... | Product type | WPC120 |
| 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 (Sl) | 100 ft (30 m) |

⁽¹⁾ Nominal width

* Closure patch

| Example: WPCP-IV-4x17 | | |
|-----------------------|-------------------------------------|---|
| 4 | Closure patch width in inches (Pw) | 4" (100 mm), 6" (150 mm) |
| 17 | Closure patch length in inches (Pl) | 11" (285 mm) ⁽¹⁾ , 17" (450 mm) ⁽¹⁾ , 24" (600 mm) ⁽¹⁾ , 34" (870 mm) ⁽¹⁾ |

⁽¹⁾ Nominal width

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.