



The most widely used girth weld protection system for three-layer coated pipes.

Product description

HTLP60, HTLP80 field-joint coatings.

Construction: Three-layer system:

First layer: Liquid epoxy, solvent-free two-component.

Second layer: High shear strength copolymer adhesive.

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

The HTLP system is a wrap-around heat-shrinkable sleeve which replicates the structure and performance of mill-applied three-layer PE coatings. HTLP also has excellent compatibility and has been extensively used on many other mill-applied coatings (see below). By far the majority of the girth welds worldwide on three-layer coated pipes, diameters up to 100" (DN2500), have been coated with HTLP.

During installation, the epoxy is applied to the prepared pipe surface and the heat-shrinkable sleeve is immediately wrapped around the joint over the wet epoxy. Heat is then applied to the sleeve which shrinks to form a tight fit around the joint. While curing, the epoxy forms strong mechanical and chemical bonds to the pipe surface & to the copolymer adhesive layer. The radiation cross-linked outer layer forms a tough barrier against mechanical damage and moisture transmission.

Product features/benefits

- Fully resistant to shear forces induced by soil and thermal movements. The HTLP is tough & lasts as long as a 3-layer, mill-applied coating.
- Sleeve applied over wet epoxy--allowing formation of strong mechanical & chemical bonds. Allows fast application, combined with high performance!
- Superior cathodic disbondment and hot water immersion resistance. Offers the optimum barrier protection against corrosion.
- Fully reconstructs the coating of three-layer coated pipes. Thus, the HTLP allows the pipeline to have a virtually monolithic coating system.
- 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.

Product selection guide

	HTLP60	HTLP80
Max operating temperature	65°C (149°F)	80°C (176°F)
Compatible line coatings	PE, PP, FBE, Coal Tar	PE, FBE, Coal Tar
Min preheat temperature	70°C (158°F)	70°C (158°F)
Recommended pipe preparation	SA 2½	SA 2½
Soil stress restrictions	None	None
Performance	EN 12068 Class C50	EN 12068 Class C80 UV Class C80 UV

Product thickness

	/B	/1-1.5	/C
Backing (as supplied)	0.030 in. 0.75 mm	0.030 in. 0.75 mm	0.041 in. 1.04 mm
Backing (fully free recovered)	0.039 in. 1.0 mm	0.039 in. 1.0 mm	0.055 in. 1.4 mm
Adhesive (as supplied)	0.039 in. 1.0 mm	0.060 in. 1.5 mm	0.060 in. 1.5 mm

Product properties: HTLP

Property	Test method	Typical Value HTLP60	Typical Value HTLP80
Backing			
Tensile strength	ASTM D-638	3000 psi (20 MPa)	3000 psi (20 MPa)
Elongation	ASTM D-638	580%	580%
Hardness, Shore D	ASTM D-2240	55	55
Shrink force	ASTM D-638, 150°C (302°F)	40 psi	40 psi
Dielectric strength	ASTM D-149	500 volts/mil (20 kV/mm)	500 volts/mil (20 kV/mm)
Moisture absorption	ASTM D-570	0.05%	0.05%
Adhesive			
Softening point	ASTM E-28	103°C (217°F)	120°C (248°F)
Lap shear	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)
	EN 12068, @ 10 mm (0.40")/min.	0.22 N/mm ² @ 50°C (122°F)	
Sleeve			
Peel to Steel	ASTM D-1000 EN 12068, @ 10 mm (0.40")/min.	25 lbs/in. width 4.2 N/mm	21 lbs/in. width 4.0 N/mm
Cathodic disbondment	ASTM G-42, 30 days	13 mm radius @ 65°C (149°F)	12 mm radius @ 80°C (176°F)
Hot water immersion	ASTM D-870, 120 days	no delamination, no blisters or water ingress, @ 80°C (176°F)	no delamination, no blisters or water ingress, @ 65°C (149°F)
Soil stress creep resistance	TP-206 65°C (149°F) 80°C (176°F)	0.009 mm. (0.0004 in.)	0.003 mm (0.0001 in.)
Low temperature flexibility	ASTM D-2671-C	-40°C (-40°F)	-25°C (-13°F)
Impact resistance	ASTM G-14 EN 12068, class C	66 in-lbs > 15 Nm *	95 in-lbs > 15 Nm *
Penetration resistance	ASTM G-17, @ 65°C (149°F) ASTM G-17, @ 80°C (176°F) EN 12068, Class C50	no holidays @ 10,000 volts > 0.6 mm *	no holidays @ 10,000 volts > 0.6 mm *

* Construction /1-1.5 or thicker

Ordering information

HTLP type products are available:

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

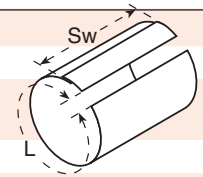


Select sleeve width that will overlap onto the mill-applied coating by **2 inches** (50 mm) minimum on each side of the weld joint. Take a 10% shrinkage during installation of sleeve width into account when calculating the minimum sleeve width.

* Cut piece / Uni-sleeve

Example: HTLP60-16000X17/B (/UNI)

		Standard Ordering options
60	Operating temperature in Celsius	60 (= 65°C (149°F)), 80 (= 80°C (176°F))
16000	Outside pipe diameter in mils	2.375" – 100.000" (DN50 – DN2500)
17	Sleeve width in inches (Sw)	11" (285 mm) ⁽¹⁾⁽²⁾ , 17" (450 mm) ⁽¹⁾ , 20" (514 mm) ⁽¹⁾⁽²⁾ , 24" (600 mm) ⁽¹⁾ , 34" (870 mm) ⁽¹⁾
/B	Product thickness	/B, /1-1.5, /C
/UNI	Designates pre-attached closure	Optional

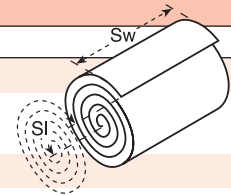


⁽¹⁾ nominal width ⁽²⁾ not standard in all countries

* Roll form (closure patches to be ordered separately)

Example: HTLP/WPC60-20x100/1-1.5-RL

		Standard Ordering options
60	Operating temperature in Celsius	60 (= 65°C (149°F)), 80 (= 80°C (176°F))
20	Roll width in inches (Sw)	11" (285 mm) ⁽¹⁾⁽²⁾ , 17" (450 mm) ⁽¹⁾ , 20" (514 mm) ⁽¹⁾⁽²⁾ , 24" (600 mm) ⁽¹⁾ , 34" (870 mm) ⁽¹⁾
100	Roll length in feet (Sl)	100 ft (= 30 m), 66 ft (=20 m, for 34" (870 mm) width)
/B	Product thickness	/B, /1-1.5, /C

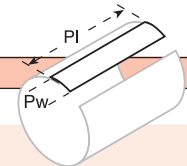


⁽¹⁾ nominal width ⁽²⁾ not standard in all countries

* 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) ⁽¹⁾⁽²⁾ , 17" (450 mm) ⁽¹⁾ , 20" (514 mm) ⁽¹⁾⁽²⁾ , 24" (600 mm) ⁽¹⁾ , 34" (870 mm) ⁽¹⁾



⁽¹⁾ nominal width ⁽²⁾ not standard in all countries

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

HTLP type products are installed with epoxy primer:

HTLP60 is installed with S1239 or S1301-M or S1301-HB primer.

HTLP80 is installed with S1301-M or S1301-HB primer.

Epoxy Primers are ordered separately. For more ordering information on epoxy primers see application tables DS-S1239-REV-1-0604 and DS-S1301M-REV2-0604 or latest revision. As field application of primers may vary, consult a Tyco Adhesives Representative or Authorized Distributor for rate of coverage guidance.



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