

HTLP60 Wrap-around Sleeve & Epoxy System

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

Product description

HTLP60 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 HTLP60 system is a wrap-around heat-shrinkable sleeve which replicates the structure and performance of mill-applied three-layer PE coatings. HTLP60 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 HTLP60.

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

| Product thickness | /B | /1-1.5 | /1.2-1 | /1.4-1 | /C |
|--------------------------------|-------------------|-------------------|------------------|-------------------|-------------------|
| Backing (as supplied) | 0.030 in. 0.75 mm | 0.030 in. 0.75 mm | 0.035 in. 0.9 mm | 0.041 in. 1.04 mm | 0.041 in. 1.04 mm |
| Backing (fully free recovered) | 0.039 in. 1.0 mm | 0.039 in. 1.0 mm | 0.047 in. 1.2 mm | 0.055 in. 1.4 mm | 0.055 in. 1.4 mm |
| Adhesive (as supplied) | 0.039 in. 1.0 mm | 0.060 in. 1.5 mm | 0.039 in. 1.0 mm | 0.039 in. 1.0 mm | 0.060 in. 1.5 mm |

Product properties: HTLP

| Property | Test method | Typical Value HTLP60 |
|------------------------------|--|--|
| Backing | | |
| Tensile strength | ASTM D-638 | 3300 psi (22.8 MPa) |
| Elongation | ASTM D-638 | 650% |
| Hardness, Shore D | ASTM D-2240 | 55 |
| Shrink force | ASTM D-638, 150°C (302°F) | 40 psi |
| Dielectric strength | ASTM D-149 | 900 volts/mil (35 KV/mm) |
| Moisture absorption | ASTM D-570 | 0.05% |
| Adhesive | | |
| Softening point | ASTM E-28 | 103°C (217°F) |
| Lap shear | ASTM D-1002 | 350 psi @ 23°C (73°F) 11 psi @ 65°C (149°F) |
| | EN 12068, @ 10 mm (0.40")/min. | 0.22 N/mm² @ 50°C (122°F) |
| Sleeve | | |
| Peel to Steel | ASTM D-1000 | 25 lbs/in. width |
| | EN 12068, @ 10 mm (0.40")/min. | 4.2 N/mm |
| Cathodic disbondment | ASTM G-42, 30 days | 13 mm radius @ 65°C (149°F) |
| Hot water immersion | ASTM D-870, 120 days | no delamination, no blisters or water ingress, @ 65°C (149°F) |
| Soil stress creep resistance | TP-206 65°C (149°F) | 0.009 mm. (0.0004 in.) |
| Low temperature flexibility | ASTM D-2671-C | -40°C (-40°F) |
| Impact resistance | ASTM G-14 EN 12068, class C | 66 in-lbs > 15 Nm * |
| Penetration resistance | ASTM G-17, @ 65°C (149°F) EN 12068, Class C | no holidays @ 10.000 volts > 0.6 mm * @ 50°C (122°F) |

* 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)

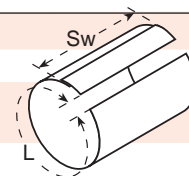


Select sleeve width that will overlap onto the mill-applied coating by **2 inches (50 mm)** minimum on each side of the weld joint. Take a 10% shrinkage during installation of sleeve width into account when calculating the minimum sleeve width.

* Cut piece / Uni-sleeve

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

| Standard Ordering options | | |
|---------------------------|----------------------------------|--|
| 60 | Operating temperature in Celsius | 60 (= 65°C (149°F)) |
| 16000 | Outside pipe diameter in mils | 2.375" – 100.000" (DN50 – DN2500) |
| 17 | Sleeve width in inches (Sw) | 11" (11.25 or 285 mm) ⁽¹⁾⁽²⁾ , 17" (17.75 or 450 mm) ⁽¹⁾ , 20" (20.25 or 514 mm) ⁽¹⁾⁽²⁾ 24" (23.5 or 600 mm) ⁽¹⁾ , 34" (34.25 or 870 mm) ⁽¹⁾ |
| /B | Product thickness | /B, /1-1.5, /1.2-1, /1.4-1, /C |
| /UNI | Designates pre-attached closure | Optional |

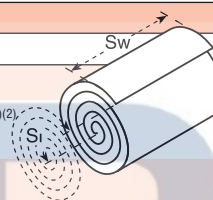


⁽¹⁾ nominal width ⁽²⁾ not standard in all countries

* Roll form (closure patches to be ordered separately)

Example: HTLP60-20x100/1-1.5-RL

| Standard Ordering options | | |
|---------------------------|----------------------------------|--|
| 60 | Operating temperature in Celsius | 60 (= 65°C (149°F)) |
| 17 | Roll width in inches (Sw) | 11" (11.25 or 285 mm) ⁽¹⁾⁽²⁾ , 17" (17.75 or 450 mm) ⁽¹⁾ , 20" (20.25 or 514 mm) ⁽¹⁾⁽²⁾ 24" (23.5 or 600 mm) ⁽¹⁾ , 34" (34.25 or 870 mm) ⁽¹⁾ |
| 20 | Roll width in inches (Sw) | 11" (11.25 or 285 mm) 17" (17.75 or 450 mm) 20" (20.25 or 514 mm) ⁽¹⁾⁽²⁾ 24" (23.5 or 600 mm) ⁽¹⁾ 34" (34.25 or 870 mm) ⁽¹⁾ |
| 100 | Roll length in feet (SI) | 100 ft (= 30 m), 66 ft (=20 m, for 34" (870 mm) width) |
| /B | Product thickness | /B, /1-1.5, /1.2-1, /1.4-1, /C |

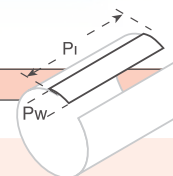


⁽¹⁾ nominal width ⁽²⁾ not standard in all countries

* Closure patch

Example: WPCP-IV-4X17

| | | |
|----|-------------------------------------|--|
| 4 | Closure patch width in inches (Pw) | 4" (100 mm), 6" (150 mm), 8" (200 mm) |
| 17 | Closure patch length in inches (PI) | 11" (11.25 or 285 mm) ⁽¹⁾⁽²⁾ , 17" (17.75 or 450 mm) ⁽¹⁾ , 20" (20.25 or 514 mm) ⁽¹⁾⁽²⁾ 24" (23.5 or 600 mm) ⁽¹⁾ , 34" (34.25 or 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 latest application table AT-GIRTHWELD. For proper product installation, see latest installation instruction.

HTLP60 type products are installed with epoxy primer: HTLP60 is installed with S1239, S1301-M primer or S1401.

Epoxy Primers are ordered separately. For more ordering information on epoxy primers see application tables DS-S1239, DS-S1301M, DS-S1401 or latest revision. As field application of primers may vary, consult a Berry Plastics CPG Representative or Authorized Distributor for rate of coverage guidance.



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