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 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Test method</th>
<th>Typical Value HTLP60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backing</td>
<td>ASTM D-638</td>
<td>3300 psi (22.8 MPa)</td>
</tr>
<tr>
<td>Elongation</td>
<td>ASTM D-638</td>
<td>650%</td>
</tr>
<tr>
<td>Hardness, Shore D</td>
<td>ASTM D-2240</td>
<td>55</td>
</tr>
<tr>
<td>Shrink force</td>
<td>ASTM D-638, 150°C (302°F)</td>
<td>40 psi</td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>ASTM D-149</td>
<td>900 volts/ml (35 KV/mm)</td>
</tr>
<tr>
<td>Moisture absorption</td>
<td>ASTM D-570</td>
<td>0.05%</td>
</tr>
<tr>
<td>Adhesive</td>
<td>ASTM E-28</td>
<td>103°C (217°F)</td>
</tr>
<tr>
<td>Lap shear</td>
<td>ASTM D-1002</td>
<td>350 psi @ 23°C (73°F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 psi @ 65°C (149°F)</td>
</tr>
<tr>
<td></td>
<td>EN 12068, @ 10 mm (0.40”)/min.</td>
<td>0.22 N/mm² @ 50°C (122°F)</td>
</tr>
<tr>
<td>Sleeve</td>
<td>ASTM D-1000</td>
<td>25 lbs/in. width</td>
</tr>
<tr>
<td></td>
<td>EN 12068, @ 10 mm (0.40”)/min.</td>
<td>4.2 N/mm</td>
</tr>
<tr>
<td>Cathodic disbondment</td>
<td>ASTM G-42, 30 days</td>
<td>13 mm radius @ 65°C (149°F)</td>
</tr>
<tr>
<td>Hot water immersion</td>
<td>ASTM D-870, 120 days</td>
<td>no delamination, no blisters or water ingress, @ 65°C (149°F)</td>
</tr>
<tr>
<td>Soil stress creep resistance</td>
<td>TP-206</td>
<td>0.009 mm, (0.0004 in.)</td>
</tr>
<tr>
<td>Low temperature flexibility</td>
<td>ASTM D-2671-C</td>
<td>-40°C (-40°F)</td>
</tr>
<tr>
<td>Impact resistance</td>
<td>ASTM G-14</td>
<td>66 in-lbs</td>
</tr>
<tr>
<td></td>
<td>EN 12068, class C</td>
<td>&gt; 15 Nm *</td>
</tr>
<tr>
<td>Penetration resistance</td>
<td>ASTM G-17, @ 65°C (149°F)</td>
<td>no holidays @ 10,000 volts</td>
</tr>
<tr>
<td></td>
<td>EN 12068, Class C</td>
<td>&gt; 0.6 mm * @ 50°C (122°F)</td>
</tr>
</tbody>
</table>

*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)

* Cut piece / Uni-sleeve

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

Standard Ordering options

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

(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

<table>
<thead>
<tr>
<th>60</th>
<th>Operating temperature in Celsius</th>
<th>60 (= 65°C (149°F))</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Roll width in inches (Sw)</td>
<td>11” (11.25 or 285 mm) (1)(2), 17” (17.75 or 450 mm) (1)(2), 20” (20.25 or 514 mm) (1)(2), 24” (23.5 or 600 mm) (1), 34” (34.25 or 870 mm) (1)</td>
</tr>
<tr>
<td>20</td>
<td>Roll width in inches (Sw)</td>
<td>11” (11.25 or 285 mm) (1)(2), 17” (17.75 or 450 mm) (1)(2), 20” (20.25 or 514 mm) (1)(2), 24” (23.5 or 600 mm) (1), 34” (34.25 or 870 mm) (1)</td>
</tr>
<tr>
<td>100</td>
<td>Roll length in feet (Sl)</td>
<td>100 ft (= 30 m), 66 ft (= 20 m, for 34” (870 mm) width)</td>
</tr>
<tr>
<td>/B</td>
<td>Product thickness</td>
<td>/B, /1-1.5, /1.2-1, /1.4-1, /C</td>
</tr>
</tbody>
</table>

(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 (Pl) | 11” (11.25 or 285 mm) (1)(2), 17” (17.75 or 450 mm) (1)(2), 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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