Covalence®
Heat Shrinkable Technology
SEALFORLIFE

PRODUCT DATA SHEET

COVALENCE® HTLP60

Product Information

A girth weld protection system for three-layer coated pipes.
Product description: Covalence® 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).

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 permanent Change Indicator (PCI).

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.

Features:
- Fully resistant to shear forces induced by soil and thermal movements.
- Sleeve applied over wet epoxy, allowing formation of strong mechanical & chemical bonds.
- Superior cathodic disbondment and hot water immersion resistance.
- Fully reconstructs the coating of three-layer coated pipes.
- Dimpled backing provides a “permanent change” indicator for application of heat.

Benefits:
- The HTLP is tough & lasts as long as a 3-layer, mill-applied coating.
- Allows fast application combined with high performance!
- Offers the optimum barrier protection against corrosion.
- HTLP systems allow the pipeline to have a virtually monolithic coating system.
- Ensures correct application heat & allows easy post-heat inspection. Reliable inspectability at any time.

Product selection guide	
Max operating temperature	65°C (149°F).
Compatible line coatings	PE, FBE, Coal Tar, DFBE
Min. preheat temperature	70°C (158°F)
Recommended pipe preparation	Sa 2½
Soil stress restrictions	None
Performance	EN 12068 Class C50

Product properties

Backing

Property	*Test method*	*Typical value*
Tensile strength at break	ASTM D 638	3300 psi (22.8 MPa)
Elongation at break	ASTM D 638	600%
Hardness, Shore D	ASTM D 2240	57
Shrink force	ASTM D 638, 150°C (302°F)	40 psi
Dielectric strength	ASTM D 149	900 V/mil (35 kV/mm)
Moisture absorption	ASTM D 570	0.04%

Adhesive

Property	*Test method*	*Typical value*
Softening point	ASTM E 28	103°C (217°F)
Lap shear	ASTM D-1002 EN 12068 @10 mm (0.4”)/min	350 psi @ 23°C (73°F) 11 psi @ 65°C (149°F) 0.22 N/mm^2 @ 50°C (122°F)

Installed sleeve

Property	*Test method*	*Typical value*
Peel to steel	EN 12068 @10 mm (0.4”)/min	3.2 N/mm
Cathodic disbondment	ASTM G-42, 30 days, @ 65°C (149°F)	13 mm radius
Hot water immersion	ASTM D 870 120 days, @ 60°C (140°F)	No delamination, no blisters or water ingress
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	EN 12068, Class C	> 15 J *
Indentation resistance	EN 12068, Class C @ 60°C (140°F)	Residual thickness > 0.6 mm *

** Construction /1.0-1.5 or thicker.*

Note: The typical values in this data sheet are based on lab prepared samples. Values shown are not to be interpreted as product specifications.

Product thickness

Designation /…	/B	/1-1.5	/C	/2-1-8*
Backing as supplied	0.75 mm (0.030 in)	0.75 mm (0.030 in	1.04 mm (0.041 in)	1.5 mm (0.060 in)
Backing fully free recovered	1.00 mm (0.039 in)	1.00 mm (0.039 in)	1.40 mm (0.055 in)	2.00 mm (0.079 in)
Adhesive as supplied	1.00 mm (0.039 in)	1.50 mm (0.060 in)	1.50 mm (0.060 in)	1.80 mm (0.071 in)

. Minimum order quantities apply*

General order information

Covalence® HTLP type products are available
- As cut piece (pre-cut with separate closure patch)
- As Uni-sleeve (pre-cut with attached closure patch)
- As a roll (closure patches to be ordered separately)

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

Cut piece / Uni-sleeve		
Example	**HTLP60-16000X17/B(/UNI)**	
	Designation	**Standard ordering options**
60	Operating temperature (°C)	60 (=65°C (149°F))
16000	Outside pipe diameter (mils)	2.375 – 100.000 (DN50 – DN2500)
17	Sleeve width (in) (Sw)	17 (17.75” or 450 mm)* 20 (20.25” or 514 mm)* 24 (23.50” or 600 mm)*
/B	Product thickness	/B /1-1.5 /C
UNI	Designates pre-attached closure patch	Optional
		** nominal width*

Roll form (closure patch to be ordered separately)		
Example	**HTLP60-20X100/C-RL**	
	Designation	**Standard ordering options**
60	Operating temperature (°C)	60 (=65°C (149°F)
20	Roll width (in) (Sw)	17 (17.75” or 450 mm)* 20 (20.25”or 514 mm)* 24 (23.50” or 600 mm)*
100	Roll length (ft) (Sl)	100 ft (= 30 m)
/C	Product thickness	/B /1-1.5 /C
		** nominal width*

Closure patches (to be ordered separately)		
Example	**WPCP-IV-4X17**	
	Designation	**Standard ordering options**
4	Patch width (in) (Pw)	4 (100 mm) 6 (150 mm) 8 (200 mm)
17	Patch length (in) (Pl)	17 (17.75” or 450 mm)* 20 (20.25” or 514 mm)* 24 (23.50” or 600 mm)*
		** nominal width*

Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see latest application AT-GIRTHWELD.

For proper product installation, see latest installation instruction.

General order information (continued)

Recommended primer	HTLP60 type products are installed with S1301-M epoxy primer . Epoxy primers are ordered separately. For more ordering information on epoxy primers see application tables PDS-S1301M. As field application of primers may vary, consult a Seal For Life Representative or Authorized Distributor for rate of coverage guidance.
Handling	Handle with care. Keep boxes upright.
Storage	Store indoor, clean and dry, away from direct sunlight in a cool place below +50°C. Unlimited shelf life.

Information

Documentation	Extensive information is available on our web-site. Application instructions and other documentation can be obtained by contacting our head office, from our local distributor or by sending an email to **info@sealforlife.com**
Certified staff	Application of the described coating system should be carried out by certified personnel.

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