

COVALENCE[®] WPC100M

Product Information

Product description: Covalence[®] WPC100M system is a two-layer wrap-around heat-shrinkable sleeve field-joint coating system for pipeline operating at elevated temperatures.

Construction: Two-layer system

- **First layer:** Visco-elastic butyl based adhesive.
- **Second layer:** Radiation cross-linked, high density polyethylene with permanent Change Indicator (PCI).

The WPC100M is compatible with most commonly used steel pipe coatings and is used for offshore and onshore girth weld protection or to recoat (rehabilitate) long pipe sections and large radius bends. The installation is carried out directly on the cleaned and pre-heated pipe surface without any primer required. During installation, the heat-shrinkable sleeve is wrapped around and shrunk to form a tight fit around the joint. During recovery, the adhesive softens and flows to form a perfect bond with the pipe surface providing protection against corrosion. The radiation cross-linked outer layer forms a tough barrier against mechanical damage and moisture transmission.

Features:

- Low preheat sensitivity & proven functionality.
- Covers a wide range of operating temperature ratings.
- Very good low temperature flexibility for installations in cold climates.
- No special equipment (standard gas torch & a roller).
- Dimpled backing provides a "permanent change" indicator for application of heat.

Benefits:

- Installation friendly in combination with high functional performance.
- No shelf life issues.
- Offers the optimum barrier protection against corrosion.
- Makes installation fast and easy. Keeps installation costs low.
- Dimpled backing allows easy post-heat inspection and offers a reliable inspectability at any time.

Product selection guide

Max operating temperature	80°C (179°F) For offshore applications max. operating temperature 100°C (212°F)
Compatible line coatings	PE, PP, FBE, Asphalt Enamel, Tape & Coal Tar
Min. preheat temperature	100°C (212°F)
Recommended pipe preparation	ST2 ½ - ST3 or SA2 ½
Soil stress restrictions	Moderate

Product thickness

	-	/C*
Backing as supplied	0.75 mm (0.030 in)	1.04 mm (0.041 in)
Backing fully free recovered	1.00 mm (0.039 in)	1.40 mm (0.055 in)
Adhesive as supplied	1.00 mm (0.039 in)	1.50 mm (0.060 in)

* Minimum order quantities apply

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 %
Specific gravity	ASTM D-792	0.97 g/cm ³
Hardness, Shore D	ASTM D-2240	57
Shrink force	ASTM D-638, @ 150°C (302°F)	40 psi
Dielectric Strength	ASTM D-49	900 V/mil (35 kV/mm)
Moisture absorption	ASTM D-570	0.04%

Adhesive

Property	Test method	Typical value
Softening Point	ASTM E-28	155°C (311°F)
Lap shear	ASTM D-1002 EN 12068	47 psi @ 23°C (73°F) 5 psi @ 80°C (176°F) 1.3 N/mm ² @ 23°C (73°F) 0.1 N/mm ² @ 80°C (176°F)

Installed sleeve

Property	Test method-	Typical value
Peel to Steel	ASTM D-1000 EN 12068 DIN30672	42 pli 0.7 N/mm 4.8 N/mm
Cathodic disbondment	ASTM G-42 @ 80C (176°F), 30 days	17 mm radius
Hot water immersion	ASTM D-870 @ 65°C (149°F), 120 days	No delamination, no blisters or water ingress
Low temperature flexibility	ASTM D-2671, C	-40°C (-40°F)
Impact resistance	ASTM G-14 EN12068 class C	64 in lbf > 8 J > 15 J *
Penetration resistance	ASTM G-17 @ 65°C (149°F)	No holidays @ 10,000 v
Indentation resistance	EN 12068, Class C, @ 80°C (176°F)	Residual thickness > 0.6 mm *

* Construction /C 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.

Wrap-around Mastic Pipe Sleeve for High-Temperature Pipes Installation Instructions

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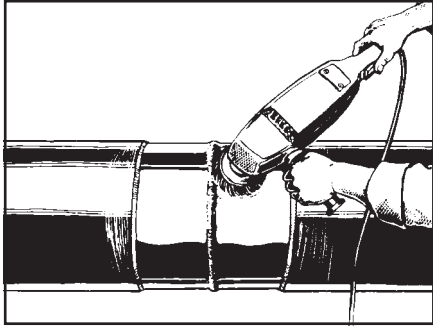
Materials and equipment

1. Appropriate size WPC 100M sleeve and WPCP IV closure
2. Torch
3. Propane gas tank, hose, regulator and gauge
4. Contact pyrometer
5. Hand roller (straight)

6. Standard safety equipment such as gloves, goggles, hard hat, etc.

Installation has to be done according to local government regulations and usual safety precautions.

For proper selection of joint protection materials, see Product Selection Guide or contact your local Sales Engineer.



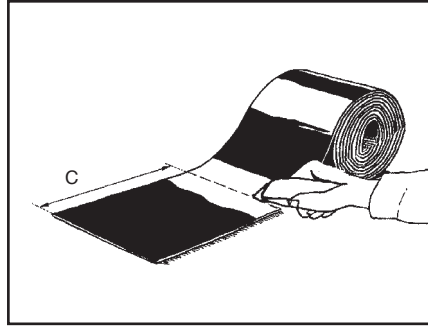
Sleeve application

1. Clean exposed steel and adjacent pipe coating to be covered by WPC 100M sleeve by gridblasting (SA 2 1/2) or with a hand or power wire brush, to remove loose and foreign materials. Wiping may be necessary to remove the particles from cleaning.

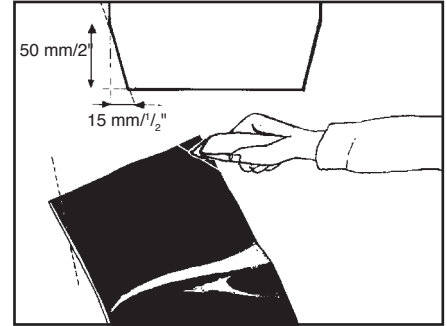
Note:

Coal tar - remove outer paper wrap 5" (125 mm) to 6" (150 mm) adjacent to cut-back to expose coal tar.

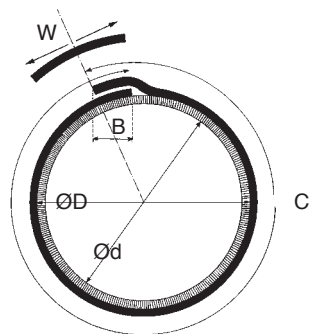
Painted coatings - remove whitewash paint on the surface of coating to be covered by WPC 100M sleeve.



2. Cut the sleeve to the appropriate length according to below table.

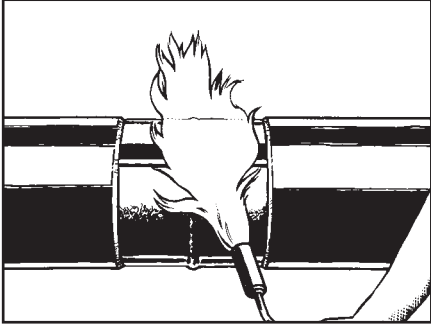


3. Cut the corners of the underlying end of the sleeve to approximately 1/2" x 2" (15 mm x 50 mm)



Ø D mils inches(0,001)	Ø d mm	C in./mm	B in./mm	W in./mm
3500	80	15/380	2/50	4/100
4500	100	18/460	2/50	4/100
5563	125	21,5/550	2/50	4/100
6625	150	25/640	2/50	4/100
8625	200	31,5/800	2/50	4/100
10750	250	38,5/980	2/50	4/100
12750	300	45,5/1150	2/50	4/100
14000	350	49,5/1260	2/50	4/100
16000	400	56/1420	2/50	4/100
18000	450	62,5/1590	2/50	4/100
20000	500	69,5/1770	2/50	6/150
22000	550	77/1950	2/50	6/150
24000	600	83/2110	2/50	6/150
26000	650	89,5/2270	2/50	6/150
28000	700	95,5/2430	2/50	6/150
30000	750	102,5/2600	2/50	6/150
32000	800	108,5/2760	2/50	6/150
34000	850	115,5/2930	2/50	6/150
36000	900	122/3100	2/50	6/150
38000	950	128,5/3260	2/50	6/150
40000	1000	135/3430	2/50	6/150
42000	1050	141,5/3590	2/50	6/150
44000	1100	147,5/3750	2/50	6/150
46000	1150	154/3910	2/50	6/150
48000	1200	160/4065	2/50	6/150
50000	1250	167/4240	2/50	6/150
52000	1300	174/4420	2/50	6/150
54000	1350	180,5/4590	2/50	6/150
56000	1400	187/4750	2/50	6/150
58000	1450	193,5/4920	2/50	6/150
60000	1500	200/5080	2/50	6/150

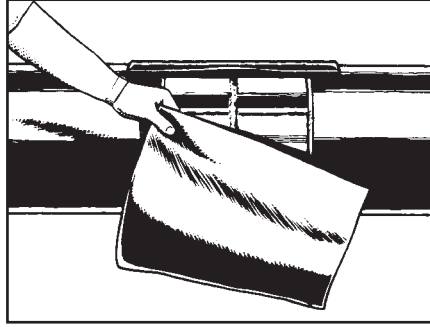
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2. Preheat joint area to approximately 212°F (100°C) minimum. Preheating reduces installation time and ensures proper bonding.

Note:

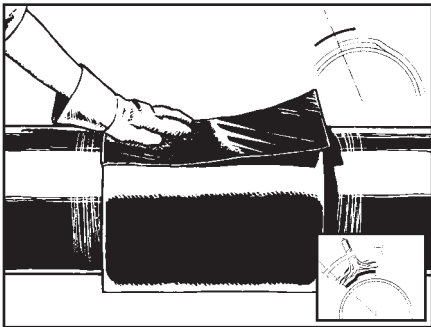
Two people working on opposite sides of the pipe are recommended for installing sleeves on pipe 16" (400 mm) in diameter and larger.



3. Remove the protective release plastic from the coated sleeve. Center sleeve over the weld so it is evenly overlapping adjacent pipe coating. Wrap loosely around pipe.

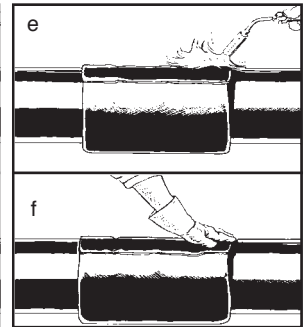
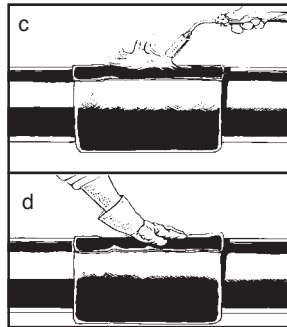
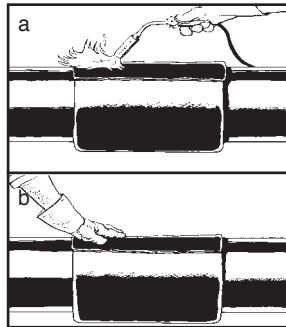
Note:

- 1) Clean overlap area of the sleeve to remove dirt and other foreign materials.
- 2) Edges of sleeve should extend 2" or more onto adjacent pipe coating.
- 3) Overlapping ends of sleeve should align evenly.
- 4) Position overlap to permit easy access for installing closure.



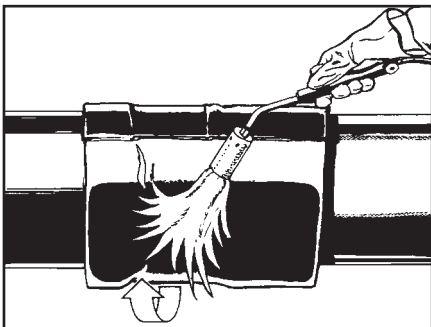
WPCP IV closure application

1. Press the WPCP IV closure in position, centering over the exposed sheet end. (For UNI-sleeve products, the closure is preattached and already centered in position.) The sheet should overlap the sheet (excluding closure) by 2" (50mm) minimum.



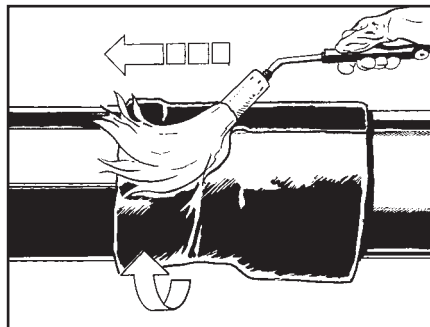
2. Using a torch, adjust flame length to approximately 20" (500mm) to produce a yellow flame. Using the yellow portion of the flame, heat the closure evenly until the pattern of the fabric reinforcement is visible.

With gloved hand, pat down the closure and smooth any wrinkles by gently working them outward from the center of the closure.



Sleeve recovery

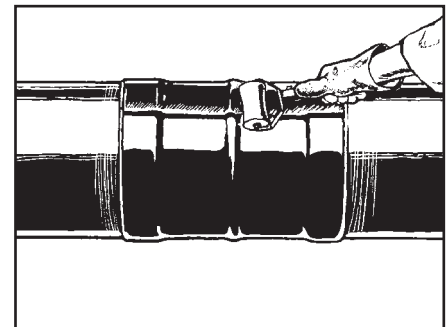
1. Using the torch, begin at the center of the sleeve and heat circumferentially around the pipe, using a constant paintbrush motion. While heating, the embossed or dimpled pattern on the sheet surface should change to a smooth surface.



2. Continue heating toward one end of the sleeve, followed by the other.

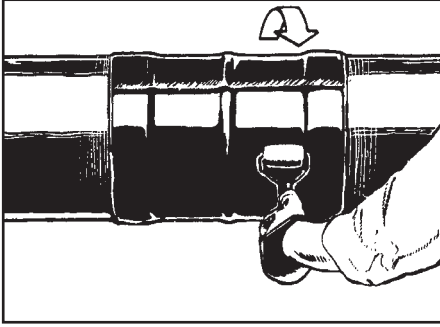
Note:

Sleeve may be recovered starting at one end and proceeding toward the opposite end, depending on conditions (i.e., wind).

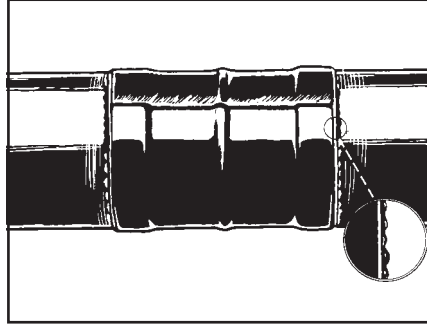


3. When the sleeve has been shrunk onto the joint area, run a small hand roller over the sleeve to push out any trapped air.

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4. Particular attention should be paid to the weld and cut-back area.



5. Sleeve is fully recovered when all of the following have occurred:

- 1) There are no cold spots or dimples on the sleeve surface.
- 2) Weld bead profile can be seen through the sleeve.
- 3) After sleeve is cool, mastic flow' is evident on both edges.
- 4) The sleeve has fully conformed to the pipe and adjacent coating.
- 5) The pattern on the backing has disappeared and the backing has a smooth surface.

Berry Plastics 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 Berry Plastics written instructions. Since many installation factors are beyond the control of Berry Plastics, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection herewith. Berry Plastics liability is stated in the standard terms and conditions of sale. Berry Plastics 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.



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