

## COVALENCE® CSEM

### Product Information

**Product description:** Covalence CSEM, kit providing waterproof seal between casing & carrier pipe, which comprises:

- High shrinkage Covalence heat-shrinkable sleeve
- Closure patch Covalence WPCP-IV
- PP support sheet

**Heat Shrinkable sleeve Construction:** Two-layer system:

- **First layer:** Visco-elastic adhesive sealant.
- **Second layer:** Thick walled, radiation cross-linked, high density polyethylene backing with **PCI** (Permanent Change Indicator).
- **Additional component:** Non-shrinkable, polypropylene support sheet

CSEM is a heat-shrinkable, wrap-around sleeve with a very high shrink ratio, especially developed for casing/service pipe sealing.

The special adhesive inside the CSEM assures an excellent bond between the sleeve and bare or pre-coated pipes.

The crosslinked HDPE backing gives the CSEM sleeve a high mechanical resistance as well as a high recovery capacity.

In addition to the CSEM sleeve, a support sheet is supplied which provides a smooth step-down in the transition area to ensure a tight closure and enhances the mechanical strength.

CSEM is installed using standard gas torches. After pipe surface preparation and preheating, the support sheet is wrapped around the transition to be sealed followed by the heat-shrinkable sleeve. The sleeve is closed with a glass fiber reinforced closure patch, forming a tube, and shrunk in place tightly fitting around the substrate.

During recovery, the adhesive softens and flows to form a tight bond. The bond strength builds up during cool down and is fully retained after completion of the job.

### Features:

- High shrinking ratio – conforms to high transitions.
- Resists a wide range of environmental and mechanical forces.
- Specially formulated sealant
- Sealing adhesive automatically flows and repairs minor mechanical damages
- Usable also when the service pipe is not concentric with the casing
- No special equipment (standard gas torch & a roller).
- Dimpled backing provides a “permanent change” indicator for application of heat.

### Benefits:

- Provides high mechanical resistance and high recovery capacity.
- Reliable, moisture-proof seal.
- Ensures a strong bond & tight seal to virtually any substrate. Maintains its elasticity and sealing characteristics over a wide temperature range
- Self-healing effect
- Highly versatile
- 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 properties

Backing		
Property	Test method	Typical value
<b>Tensile strength at break</b>	ASTM D-638	22.8 MPa
<b>Elongation at break</b>	ASTM D-638	600 %
<b>Hardness, Shore D</b>	ASTM D-2240	55
<b>Shrink force</b>	ASTM D-638 150 °C	0,28 MPa
<b>Dielectric Strength</b>	ASTM D-149	35 kV/mm
<b>Water absorption</b>	ASTM D-570	0,05%
Adhesive		
Property	Test method	Typical value
<b>Softening point</b>	ASTM E-28	134°C
<b>Shear strength</b>	EN 12068 @23 °C @10 mm/min	> 0,1 N/mm <sup>2</sup>
Installed sleeve		
Property	Test method	Typical value
<b>Peel to steel</b>	EN 12068 @10 mm/min	1.1 N/mm @ 23 °C
<b>Cathodic disbondment</b>	EN 12068	< 10 mm radius @ 23 °C
<b>Low Temperature flexibility</b>	ASTM D-2671-C	- 14 °C
<b>Impact resistance</b>	ASTM G-14 EN 12068 Class C	> 15 Nm
<b>Indentation resistance</b>	EN 12068 Class C30	No holiday with 10 KV detector @ 60 °C Residual thickness > 0.6

*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

Product thickness	
<b>Backing as supplied</b>	0,90 mm
<b>Backing fully free recovered</b>	1.20 mm
<b>Adhesive as supplied</b>	1.50 mm
<b>Support sheet</b>	1.10 mm

### Product selection guide

<b>Max operating temperature</b>	65°C
<b>Compatible line coatings</b>	PE, PP, FBE, Tape & Coal Tar
<b>Min. preheat temperature</b>	60°C
<b>Recommended pipe preparation</b>	ST2½ - ST3 or SA2½
<b>Soil stress restrictions</b>	Moderate
<b>Performance</b>	EN 12068 C30 – GASD A.09

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