



How to select a heat-shrinkable product

### Selecting the sleeve

Covalence heat-shrinkable sleeves lead the world in corrosion protection of pipeline girth welds. They are specifically designed to combine ease of field installation with a level of performance that matches, or exceeds, that of the main pipe coating. Project specifications and/or local standards must be observed, when specifying a shrinkable sleeve for protection of a girth weld.

To ensure an optimal choice, the following parameters must be considered:

- Pipe operating temperature

As temperature increases, the overall resistance of a coating generally decreases. Therefore, in order to ensure adequate lifetime, it's important to select a coating that has been correctly performance tested at maximum operating temperature. Covalence mastic coated sleeves are available for temperatures up to 80 °C (176 °F), and hot-melt sleeves up to 120 °C (248 °F).

- Pipe coating type

Covalence heat-shrinkable sleeves are compatible with all commonly used pipe coatings, although somewhat different installation procedures may be required, depending on the line coating employed.

The sleeves adhere well to coal tar (CT), coal tar enamel (CTE), asphalt-based coatings, fusion-bonded epoxies (FBE), and all commonly applied polymer pipe coatings – including polyethylene (PE) and polypropylene (PP).

Some polypropylene coated pipes require special Covalence sleeves. When using polypropylene pipe coating; please consult your Covalence representative for assistance in selecting the appropriate heat-shrinkable joint protection sleeve.

The Covalence "HTLP " three-layer system is often used on three-layer polyethylene pipe coatings to provide 'factory original 'quality to the field applied girth weld protection. The same system can also be applied on two-layer polyethylene.

- Cutback distance

Covalence offers heat-shrinkable sleeves in four standard widths:  
285 mm (11.25 inches), 300 mm (12 inches), 450 mm (17.75 inches),  
500 mm (19.75 inches), 600 mm (23.50 inches) and 870 mm (34.25 inches)\*.  
(\* )These standard widths may not be standard for all products.

- Outside pipe diameter

When buried, larger diameter pipes incur higher soil stress due to the weight of the soil above them. These stresses create tangential forces, which in low performance coatings tend to cause wrinkling at the two, four, eight and ten o' clock positions on the pipe. The best way to combat these forces is with high-modulus polymer shrink sleeves coated with high shear-strength adhesive. Covalence heat-shrinkable sleeves possess the highest modulus in the industry, while the hot-melt adhesives are made of the finest copolymers. Covalence hot-melt coated shrink sleeves provide the greatest resistance to soil stresses on all diameters. Below 20 inches diameter, Covalence's high performance mastic coated shrink sleeves often provide a good balance of performance, economy and ease of installation.

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## Selecting the proper sleeve

Project specifications and local standards must be considered when specifying a shrinkable sleeve. Next to these the following parameters must be considered for selecting the proper shrinkable sleeve:

- Pipe Coating Type: Bitumen, Coal Tar Enamel (CTE), Cold Applied Tapes (CAT), Fusion Bonded Epoxy (FBE), Polyethylene (PE), Polypropylene (PP)
- Pipe Operating Temperature: 0 -120 °C (0-248 °F)
- Pipe Operating Pressure: 100 mbar =1.42 psi, >4 bar =56.88 psi.
- Pipe Medium: Gas, water, oil, etc.
- Pipe Diameter: Outside diameter. For instance; 1" or DN25 for steel pipe, 160 mm jacket diameter for insulated steel pipe.
- Pipe Preparation: Surface cleaning: abrading, brushing, grit blasting.  
Obtainable preheat temperature: very low (20-40 °C)(68-104 °F), low (60-70 °C)(140-158 °F), high (80-100 °C)(176-212 °F), very high (230 °C)(446 °F)
- Adverse Soil Conditions: stable: low soil stresses - unstable: shifting soil conditions, significant pipe motion relative to soil
- Mechanical Resistance Heat-shrinkable Coating: medium (B): moderate impact and penetration resistance; high (C): high impact and penetration resistance
- Pipe Laying Method: Open Trench, Directional Drilling, Off-Shore
- Climate conditions (Ambient Temperature during Sleeve Application):  
Sea climate: not very cold -not very warm  
Land climate: very cold -warm  
Desert climate: very cold -hot

All of the above parameters affect the type of coating which will provide the best performance, ease of installation and value.



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