| HDD Pipeline Reinforced Backing Heat Shrinkable Sleeve Coating System<br>Technical Data Sheet | |
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| **Product Name** | HDD Pipeline Reinforced Backing Heat Shrinkable Sleeve、Horizontal Directional Drilling Heat shrinkable sleeve、HDD Heat Shrink Coating System |
| **System Description** | This system is a wrap-around heat shrinkable sleeve reinforced with fiberglass. It is designed to protect girth welds against corrosion and is the optimum joint protection for PE coated pipes used in directional drilling applications. The reinforcement gives the backing greater wear resistance. The Heat Shrinkable Sleeve coating shall be capable of withstanding a maximum continuous operating high temperature. Coating system shall withstand the Pull-through applications of Horizontal Directional Drilling (HDD) applications.<br>The Heat Shrinkable Sleeve shall provide mechanical protection to the epoxy layer and shall seal onto the epoxy layer and the adjacent line coating. |
| **Product Features** | Highly resistant to shear and peel forces induced by soil and thermal movements.<br>It should offers abrasion and wear resistance at pull-through comparable to mill coatings.<br>Provision of appropriate wear cone which can protect leading edge of sleeve against pull-through forces.<br>Sleeve applied over wet epoxy---there are no curing or waiting times/formation of strong mechanical & chemical bonds.<br>Superior cathodic disbandment and hot water immersion resistance.<br>Pre-attached closure patch.<br>Low preheat requirements. |
| **Executive Standard** | ISO21809-3:2016<br>Petroleum and natural gas industries — External coatings for buried or submerged pipelines used in pipeline transportation systems — Part 3: Field joint coatings |
| **Shelf Life** | 24 Months |
| **Selection Range** | Thickness: Backing 1.85mm, Backing fully free recovered 2.30mm, Adhesive 1.20mm, Wear cone (incl. adhesive) 3.05mm<br>HSS Width: 450mm、500mm、550mm<br>HDD Width: 200mm、300mm<br>Length: L=π×D×1.07 +120(mm), D≤700mm. L=π×D×1.07 (mm), D＞700mm |
| **Package Specification** | Cartons+Pallets |

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| Technical Index Property | Test Standard | HDD HSS FJC 14C 50℃ | HDD HSS FJC 14C 60℃ | HDD HSS FJC 14C 70℃ | HDD HSS FJC 14C 80℃ | HDD HSS FJC 14C 100℃ | HDD HSS FJC 14C 110℃ |
|---|---|---|---|---|---|---|---|
| Thickness – Sleeve Layers, mm | ISO21809-3:2016 Annex B | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 |
| Holiday detection at 5 kV/ mm + 5 kV | ISO21809-3:2016 Annex C | no holiday | no holiday | no holiday | no holiday | no holiday | no holiday |
| Impact resistance (holiday detection at 5 kV/mm + 5 kV), at 23 °C, J/mm | ISO21809-3:2016 Annex D | 7.5 | 7.7 | 7.7 | 7.9 | 8.1 | 8.3 |
| Indentation resistance: Pressure *T*max, N/mm2<br>Residual thickness, mm<br>Amount of penetration, mm | ISO21809-3:2016 Annex E | 10.0<br>0.7<br>- | 10.0<br>0.8<br>- | 10.0<br>0.7<br>- | 10.0<br>0.8<br>- | 10.0<br>0.7<br>- | 10.0<br>0.8<br>- |
| Cathodic disbondment at 28 days<br>at 23 °C, mm<br>*T*max, limited to 95 °C, mm | ISO21809-3:2016 Annex G | 4<br>7 | 3<br>8 | 4<br>7 | 3<br>8 | 3<br>7 | 4<br>8 |
| Peel strength at 10 mm/min to pipe surface and to polyolefin plant coating at 23 °C, N/mm *T*max, N/mm | ISO21809-3:2016 Annex H | 5.2<br>0.4 | 5.4<br>0.3 | 5.3<br>0.3 | 5.6<br>0.4 | 5.5<br>0.3 | 5.3<br>0.3 |
| Peel strength at 10 mm/min to pipe surface and to polyolefin plant coating after 100- day hot-water immersion test at Tmax limited as per Annex I, at 23 °C, *P*100/*P*0 | ISO21809-3:2016 Annex I<br>ISO21809-3:2016 Annex H | 0.87 | 0.86 | 0.87 | 0.88 | 0.87 | 0.86 |
| Lap shear strength a, 10mm/ min<br>at 23 °C, N/mm2<br>*T*max, N/mm2 | ISO21809-3:2016 Annex J | 7.2<br>0.7 | 7.4<br>0.8 | 7.5<br>0.88 | 7.4<br>0.7 | 7.6<br>0.8 | 7.3<br>0.7 |
| Thermal ageing resistance (aged at *T*max + 20 °C), % | ISO21809-3:2016 Annex M | 85 | 89 | 87 | 88 | 87 | 86 |

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| —Elongation at break *E*100/ *E*70), at 23 °C<br>—Peel strength to pipe sur-face (*P*100/*P*70), at 23 °C | ISO21809-3:2016 Annex M | N.A.<br>0.85 | N.A.<br>0.89 | N.A.<br>0.88 | N.A.<br>0.87 | N.A.<br>0.85 | N.A.<br>0.85 |
| Bursting strengt hof rein-forced backing (*B*100/*B*70), at 23 °C | ISO21809-3:2016 Annex O | 0.87 | 0.85 | 0.85 | 0.89 | 0.87 | 0.88 |
| Bursting strength of rein-forced backing, at 23 °C, at 2000N | ISO21809-3:2016 Annex O | no holiday | no holiday | no holiday | no holiday | no holiday | no holiday |
| Oxidation induction time on the backing at 220 °C (intercept in the tangent method), min | ISO11357-6-2018 | 17 | 19 | 20 | 19 | 21 | 20 |
| Thermal stability at 130°C for 50 weeks, installed system, at 130 °C, visual | ISO21809-3:2016 Annex | No cracks | No cracks | No cracks | No cracks | No cracks | No cracks |

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| **Installation Instructions** | I. Construction tools: flame spray gun, pressure roller, wire brush, rag, etc.<br>II. Installation HSS steps:<br>1. Sandblasting and cleaning the joint part: draw the joint installation part at the joint, and remove the water and soil at the joint installation part.<br>2. Preheating and sanding: preheat the pipe wall at the joint installation position to about 70 ℃ and sanding along the circumference.<br>3. Apply epoxy primer<br>4. The HSS shall be used to cover the pipe, the two ends of the pipe to be connected shall be aligned horizontally, and the gap between the two sections shall be kept as small as possible. When the gap is greater than 15mm, the end face of the pipe shall be treated to minimize the gap.<br>5. Heat evenly along the circumference from the middle, make it shrink completely, and then extend to both ends for heating. When heating, the allowable heating temperature of the heat shrinkable zone shall not exceed 250 ℃, and pay attention to uniform use of fire. After all shrinkage, reheat the uneven surface to make it completely flat. After the whole heating, turn down the flame and reheat again to make the hot melt adhesive overflow fully.<br>6. During the heating process, the joint is rolled several times with the pressure roller, and the fusion lap joint is mainly rolled to eliminate bubbles. III. Installation HDD steps:<br>1. The HDD shall be used to cover the pipe, the two ends of the pipe to be connected shall be aligned horizontally, and the gap between the two sections shall be kept as small as possible. When the gap is greater than 15mm, the end face of the pipe shall be treated to minimize the gap. |

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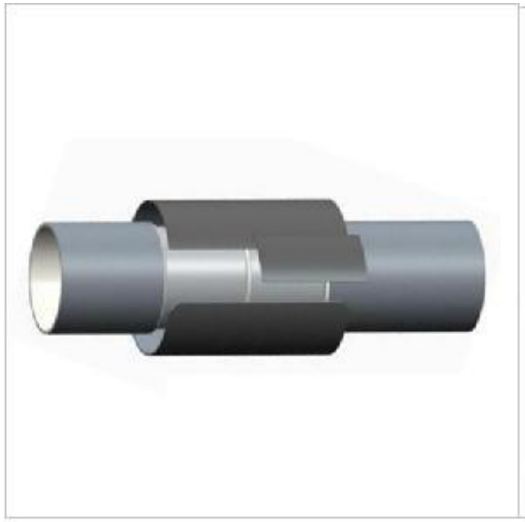
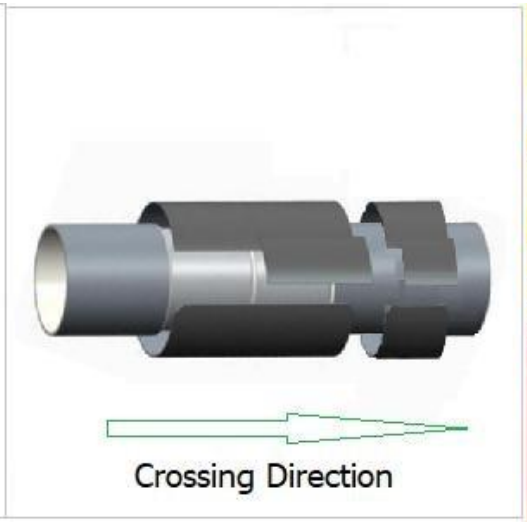
| | 2. Heat evenly along the circumference from the middle, make it shrink completely, and then extend to both ends for heating. When heating, the allowable heating temperature of the heat shrinkable zone shall not exceed 250 ℃, and pay attention to uniform use of fire. After all shrinkage, reheat the uneven surface to make it completely flat. After the whole heating, turn down the flame and reheat again to make the hot melt adhesive overflow fully.<br>3. During the heating process, the joint is rolled several times with the pressure roller, and the fusion lap joint is mainly rolled to eliminate bubbles. IV. Installation quality judgment:<br>1. The heat shrinkable belt shrinks evenly along the circumference, and the surface is smooth without wrinkles, bubbles, voids, scorching and cracking.<br>2. The adhesive layer at the edge of the heat shrinkable zone is fully melted and evenly overflowed.<br>VI. Note:<br>1. When the connected pipe needs to be moved, it should be moved after the joint is cooled to below 50 ℃, and the position with less stress at the joint should be kept as far as possible.<br>2. The heat shrinkable tape after installation shall be covered to avoid direct sunlight. When the temperature of the joint is too high, the cooling measures (such as watering, etc.) should be taken. |






**Apply and Installation Pictures**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**Manufacturer:**

China Sichuan Forever Radiation Technology Co.,Ltd, The main products are 3LPE Heat Shrinkablhke Sleeve, HDD Pipeline Shrinkable Sleeve, 2LPE Heat Shrinkable
Tape, 3LPE Heat Shrinkable Tubular Sleeves, Polyethylene Pressure-sensitive Adhesive Shrinkable Sleeve, 3LPE & 3LPP Heat Shrinkable Wrapping Tape, Heat Shrinkable Water-proof End Cap, 3LPP Heat Shrinkable Sleeve, Epoxy Primer, Non-crystalline Low-viscosity Polyolefin Based Visco-Elastic Tape, Repair Patch, PE Melt Stick, Heat Shrinkable 3LPE Tape For Pre-insulated Pipe, OEM Heat Shrinkable Material Service, Auto-Matic and Manual Type Installation Tools, Irradiation Service, Third Party Inspection Service.

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