

Denso Bore-Wrap

Field-Applied Abrasion Resistant Outerwrap (ARO)

Composition

Denso Bore-Wrap is a fibreglass cloth impregnated with a water activated resin.

Uses

Denso Bore-Wrap is an Abrasion Resistant Outerwrap (ARO) that offers excellent performance against impact, gouge, abrasion and fracture to protect anti-corrosion coatings during pipeline installations in difficult terrain or by means of trenchless installation methods such as directional drilling, HDD or boring. Denso Bore-Wrap creates an abrasion resistant, sacrificial outer laminate which protects pre-approved field joint coatings and mainline coatings such as epoxies, shrink sleeves, 3LPE, 3LPP and FBE.

Denso Bore-Wrap minimises the need for spot repairs or re-pulling pipe from damage, while providing the best mechanical protection of the underlying field-joint and/or mainline coatings.

Characteristics

Denso Bore-Wrap:

- Prevents coating damages
- Rapid application and cure time
- No mixing or VOCs
- Tapered surface profile
- Outstanding abrasion, gouge and impact resistance
- Resistant to aggressive soil conditions

Application

See *Instructions for Use* for additional detail.

Application temperature: -17°C to 93°C

Follow the coating manufacturer's recommended installation procedure. When using a two-part epoxy resin system as the anti-corrosion coating, Denso Bore-Wrap should be applied within the manufacturers re-coat window to minimise additional surface preparation requirements. Where required, roughen existing coating to degloss before application of Denso Bore-Wrap. Do not open the foil pouch containing Denso Bore-Wrap until you are ready to use the product.

For field joint coatings, begin wrapping 150 mm in front of the field joint coating moving back towards the end of the pipe. For mainline application, the wrap will start at the pipe closest to the installation point and move back towards the end of the pipe.

With the randomised angle matting surface facing out, and the woven structured (checkerboard) side of the fibre placed facing the surface of the pipe, wrap the material circumferentially, ensuring that the leading edge has a minimum of 2 layers (100% overlap). Proceed to spirally wrap with a minimum 50% overlap, spraying each layer with water as it is applied. When more than one roll is necessary to complete the application, ensure to begin the next roll 150 mm over the end of the prior roll while it is still wet. Continue application until the wrap has extended to the end of the mainline or 150 mm beyond the field joint coating. Finish with a 2-layer (100% overlap) final wrap-around circumferentially and end with the fibre on top of the fibre to ensure a single layer is not hanging from the back.

At the completion of each roll, ensure the wrap is completely saturated with water. Then immediately begin wrapping Denso Poly-Wrap spirally with 50% to 67% overlap (2 to 3 layers), in the same direction as the layers of Bore-Wrap were applied and compress it quickly and with tension applied. It should have slight necking from the tension. Overlap each end of the Bore-Wrap by at least 50 mm to ensure the ends lay flat and the resin can be retained. 2 to 3 passes should suffice.

Once compressed, use the Denso Perforating Tool to puncture Denso Poly-Wrap. This will allow for excess resin, moisture, and CO₂ from the reaction to escape. Perforate using enough pressure to get through the Denso Poly-Wrap but not through the layers of Bore-Wrap. Denso Poly-Wrap should be left in place to provide UV stability of the Denso Bore-Wrap.

When the material has fully cured and immediately prior to installation, the Denso Poly-Wrap must be removed. Cure can be checked by using a Shore D gauge on a high point of the resin (avoid measuring near ridges and fibres as the gauge tip can move).

Denso Bore-Wrap

The product is ready to be used at a Shore D of 65 or greater.

COLD WEATHER INSTALLATIONS: Follow procedure, however, use ethylene glycol in the sprayer 30% to 50% with the water to prevent freezing and to progress the curing process. Bore-Wrap will not cure on its own at temperature below 5°C.

HOT WEATHER INSTALLATIONS: Follow procedure, however, use ice water in the sprayer to slow down the curing process, thus allowing the installer more working time.

Availability

Tape width	Roll length	Rolls/ carton	Approx. coverage*
150 mm	9 m	6	0.69 m ² /roll
250 mm	6 m	5	0.77 m ² /roll
250 mm	9 m	4	1.16 m ² /roll
250 mm	15.2 m	3	1.93 m ² /roll

*with 50% overlap

The material is sealed in a nitrogen filled foil bag and boxed in quantities depending on roll size.

Storage

Store in original, unopened packaging in a cool shaded area between 5°C and 32°C. Bore-wrap is sensitive to temperature. Storage above recommended temperatures for longer periods may reduce the shelf life. Do not open a bag containing Bore-Wrap until you are ready to use it, as Bore-Wrap cures when exposed to atmospheric moisture/humidity. Care must be taken when handling the sealed bags to prevent puncturing or scuffing. If the protective foil pouch is punctured, the Bore-wrap will cure within the sealed foil pouch.

Health & Safety

Wear protective clothing and ensure adequate ventilation. Avoid contact with skin and eyes. See Safety Data Sheet (SDS) for further information.

Waste material

Please avoid or minimise waste wherever possible. Please do not discard waste material, including packaging, in the surrounding environment. Ensure product is fully cured before disposal and follow all relevant legislation for disposal.

Denso Bore-Wrap

Typical Properties

Thickness	1,041 microns/layer	ISO 21809-3, Annex B
Impact	113.9 Joules	RP 0394
Gauge Depth	609 microns @ 50 kg double burr	CSA Z245.20 Clause 12.15
3 mm Gauge Tip	625 kg	NFPCA HDD Load to Penetrate
10 mm Gauge Tip	2000 kg	NFPCA HDD Load to Penetrate
Flexibility	>3 deg/PD	CSA Z245.20 Clause 12.11
Abrasion Resistance	40,164 cycles/ply	ASTM D-4060 C-17 Wheel
Fracture Toughness Testing	21.1 MPa m ^{1/2}	ASTD E1922
TG	131°C	
Tensile Strength	230 MPa	ASTM D638
Tensile Modulus	15,320 MPa	ASTM D638
Tensile Elongation	1.66%	ASTM D638
Flexural Strength	195 MPa	ASTM D7262
Flexural Modulus	13,721 MPa	ASTM D7262
Compression Strength	820 MPa	ASTM D695
Modulus of Elasticity	15.32 GPa	ASTM D3039
Shore D	78 (pull back ready at 65)	ISO 868 / ASTM D2240
Specific Gravity	1.71 g/cm ³	ASTM D792
Water Absorption 2h @ 100°C	0.221 grams	ASTM D570
Water Absorption 24h @ 23°C	0.102 grams	ASTM D570
Indentation at 10 N/mm ²	No observable damage	ISO 21809-3, Annex E
Dielectric Strength	110 V/mil	ASTM D149
Working time	7 minutes	
Cure Schedule	30 minutes 21°C - 26°C	
Lap Shear	1.63 MPa	ASTM D5868
Shelf Life	1 year when stored as recommended	

Important: Winn & Coales (Denso) Ltd pursue a policy to develop and continually improve all of our products and therefore the information given in this data sheet is intended as a general guide and does not constitute a warranty of specification. However, our sales personnel are committed to assist the user in establishing the suitability of the product for its intended purpose and additional specific information is available on request. Winn & Coales (Denso) Ltd operate a Quality Management System registered to BS EN ISO 9001 (BSI Certificate no. FM01548) and an Environmental Management System registered to BS EN ISO 14001 (BSI Certificate no. EMS583748).

Page 3 of 3
Revision date: 10/06/2026

WINN & COALES (DENSO) LTD
Denso House, 33-35 Chapel Road,
London, SE27 0TR
United Kingdom



TEL: +44 (0) 20 8670 7511
FAX: +44 (0) 20 8761 2456
WEB: www.denso.net
EMAIL: mail@denso.net