

Winn & Coales International Ltd.

140

Since 1883
140 Years Service to Industry

Cover: The NSC 2.2 Pipeline,
Botswana, South Africa -
See story pages 4 and 5.

DENSO DIGEST

Winn & Coales International Ltd

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Denso[®]

WINN & COALES INTERNATIONAL

For further information on our products and their suitability for your particular project, please contact any of the Denso companies listed below:

WINN & COALES (DENSO) LTD

✓ Corrosion prevention and sealing systems

Denso House, Chapel Road, London SE27 0TR, England

Tel: +44 (0) 20 8670 7511

Email: mail@denso.net

Website: www.denso.net



PREMIER COATINGS LTD

✓ Membranes and corrosion prevention systems

Headcorn Road, Smarden, near Ashford, Kent TN27 8PJ, England

Tel: +44 (0) 1233 770663

Email: enquiries@premiercoatings.com

Website: www.premiercoatings.com



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✓ Corrosion resistant linings

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Email: mail@denso.net

Website: www.denso.net



DENSO NORTH AMERICA INC. - CANADA

✓ Corrosion prevention and sealing systems

90 Ironside Crescent, Unit 12, Toronto, Ontario, M1X 1M3 Canada

Tel: +1 416 291 3435

Email: sales@densona-ca.com

Web site: www.densona.com



DENSO INC. - USA

✓ Corrosion prevention and sealing systems

9710 Telge Road, Houston, Texas 77095 United States of America

Tel: +1 281 821 3355

Email: info@densona.com

Website: www.densona.com



DENSO SOUTH AFRICA (PTY) LTD

✓ Corrosion prevention and sealing systems

120 Malacca Road, Redhill Industrial Area, Durban North 4051 Republic of South Africa

Tel: +27 31 569 4319

Email: bid@denso.co.za

Website: www.denso.co.za



DENSO (AUSTRALIA) PTY LTD

✓ Corrosion prevention and sealing systems

77-95 National Boulevard Campbellfield, Victoria 3061, Australia

Tel: +61 1300 658 590

Email: denso@densoaustralia.com.au

Website: www.densoaustralia.com.au



DENSO (NEW ZEALAND) LTD

✓ Corrosion prevention and sealing systems

PO Box 76167, Manakau City, Auckland New Zealand

Tel: +64 9274 1255

Email: info@denso.co.nz

Website: www.densoaustralia.com.au



SEASHIELD INTERNATIONAL

✓ Marine corrosion protection systems

Denso House, Chapel Road, London SE27 0TR, England Tel: +44 (0) 20 8670 7511

9710 Telge Road, Houston, Texas 77095 United States of America Tel: +1 281 821 3355

77-95 National Boulevard, Campbellfield, Victoria 3061, Australia Tel: +61 1300 658 590

PO Box 76167, Manakau City, Auckland, New Zealand Tel: +64 9274 1255

Email: mail@denso.net
Website: www.denso.net

Email: info@densona.com
Website: www.densona.com

Email: denso@densoaustralia.com.au
Website: www.densoaustralia.com.au

Email: denso@densoaustralia.com.au
Website: www.densoaustralia.com.au



VISCOTAQ PRODUCTS & SERVICES

✓ Corrosion prevention and sealing systems

9710 Telge Road, Houston, Texas 77095 United States of America

Tel: +1 281 821 3355

Email: info@densona.com

Website: www.densona.com



Denso Steelcoat™ Systems Standing the Test of Time in Pipebridge Revisits



On recent revisits to two Steelcoat 100/400™ System applications in the Northeast of England, Winn & Coales (Denso) Ltd. were proud to confirm that both applications were performing as expected, providing exemplary protection from corrosion over a decade since their installations.

PROJECT SUMMARY

Product Type:
Coatings for Exposed Steel

Country: United Kingdom
Object: Exposed steel pipebridges
Problem: Corrosion prevention
Product Solution: Denso Steelcoat 100/400™ System



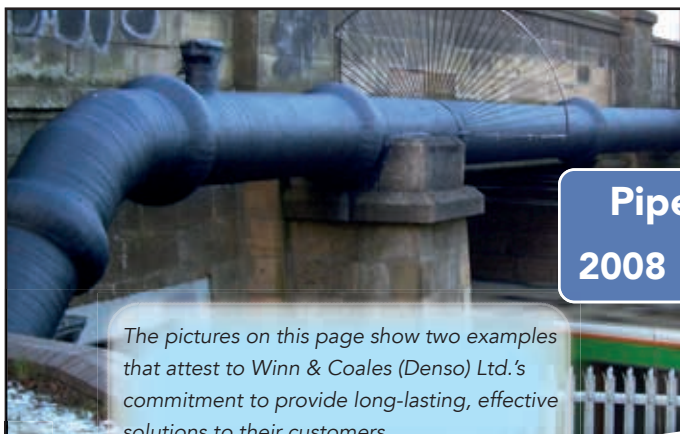
Pipebridge A
2010 ↔ 2024



The Steelcoat 100/400 System consists of Denso Hi-Tack™ Primer, Denso™ Profiling Mastic, Denso Hi-Tack™ Tape, Denso Ultraseal™ Tape and Denso Acrylic Topcoat™ and offers an excellent long-term coating solution for exposed steel and pipework – particularly in areas faced with damp conditions. The system requires minimal surface preparation and is easy to apply, making it ideal for use in remote or difficult to access areas where preventing contamination of the surrounding environment is of the utmost importance.

Winn & Coales pride themselves on the longevity and effectiveness offered by the complete and correct applications of their innovative products and systems. The revisited Steelcoat™ systems – originally applied in 2008 and 2010 respectively – serve as demonstrable proof of their enviable track record of success and affirms their position as industry leaders.

Winn & Coales (Denso) Ltd are leading manufacturers and suppliers of corrosion prevention and sealing systems and celebrated 140 years of service to industry in 2023.



Pipebridge B
2008 ↔ 2024



The pictures on this page show two examples that attest to Winn & Coales (Denso) Ltd.'s commitment to provide long-lasting, effective solutions to their customers.

Denso Protects Phase 2 of the NSC Pipeline

The North-South Carrier (NSC) is a pipeline in Botswana that carries raw water south for a total distance of 360 kilometers (220 miles) to the capital city of Gaborone.

PROJECT SUMMARY

Product Type:
Coatings for Buried Steel

Country: Republic of South Africa
Object: Raw water pipeline
Problem: Corrosion prevention
Product Solution: Denso™ Liquid Field Joint Coating System

Phase 1 was completed in 2000, of which Denso also supplied the corrosion prevention, and Phase 2 of the NSC is currently under construction and is due to be completed in June 2024.

This project required a suitable, cost-effective, easy-to-apply corrosion prevention solution that could withstand the harsh African climate and, with the success from the previous pipeline projects in Botswana, and our relationships with the contractors, Denso were the supplier of choice.

Above: Side booms lowering the 1200mmØ pipe.

Below: Completed field joint wrapped with our Denso™ Liquid Field Joint Coating System.





Excavator backfilling once the pipeline has been installed and inspected for any damages..

The NSC 2.2 included the internal and external protection of 13,500 welded field joints, air valves, scour valves and bends.

Pipe length: NSC 2.2-253km

Pipe diameter: 1200mmØ

Internal protection:

Denso™ ST 100 applied at 500 microns min DFT

External protection:

Liquid Field Joint Coating System consisting of: Protal 7200™ applied at 600 microns DFT, Denso Primer D™, Denso CPT 1000™ Tape Innerwrap and Denso CPT 1000™ Tape Outerwrap applied with a 55% tape overlap.

SeaShield™ Project Revisited 10+Years after the Original Application

Following a recent trip to New Zealand, we're proud to provide everyone with a 10+ year update on the condition of a SeaShield system that we originally applied in 2012!

The original project was undertaken in July 2012 when Denso Australia was tasked with providing a long-term corrosion protection solution for a steel pile design which required us to accommodate for a floating wharf.

This picture taken recently shows the 10+ years old SeaShield 500 Series application is still in excellent condition.

2023



View of the SeaShield 500 Jacket showing its vertical overlapped joint.





2023

View of the SeaShield protected pile from underneath the floating wharf.

The project site was located at Opuia Marina in New Zealand - a location which is part of the Bay of Islands. After carefully assessing the client's needs, it was decided that the SeaShield 500 Series system would be the best fit for the job as this would allow us to protect the steel pile against the abrasive action of the floating wharf's collars, and tint the jacket to best match the colour scheme of the Marina.

Working with both the Marina's engineers and Marine and Civil Solutions, Denso Australia were able to provide a solution to lower the profile of the High Density Polyethylene (HDPE) ring and modify it to accept the jacket and jacket joint. This left enough room to install a 3mm jacket and 12.5mm annulus within which to fill the epoxy grout. It was decided, due to working depths and time constraints, to pour a Denso 311 Epoxy plug and then pump the 550 Underwater Epoxy grout.

Below: Pumping the SeaShield Epoxy Grout into the 12.5mm annulus...



2012

7

Fast forward to late 2023, an inspection was conducted. Here, it was found that the SeaShield 500 Series system had excelled in its protective role. The FRP (Fibre Reinforced Plastic) showed minimal abrasion, impact, and gouge damage. Additionally, the jetty pile protected by the system was in excellent condition, thus reaffirming the 500 Series system's exceptional performance in mitigating corrosion in the splash zone.

For those who are unfamiliar with it, the SeaShield 500 Series is a heavy-duty system comprising a tough FRP jacket filled with epoxy grout and used for the protection of steel, timber and concrete piles.



PROJECT SUMMARY

Product Type:
Sub Sea Splash Zone Coating

Country: New Zealand
 Object: Steel pile
 Problem: Protection from floating wharf collars
 Product Solution: SeaShield™ 500 Series

...during the original Seashield 500 Series application in 2012.



2012

Denso Steelcoat™ System is used to Protect Oil Storage Tank Bases in Fujairah

The client owner of the oil tanks that are being protected in this project, is a major oil producing company with operations dating back to 1939, when a 75-year concession was signed to explore for oil and gas in Abu Dhabi. As a global industry leader in environmental sustainability, this major oil producer is the first in the world to capture carbon from the iron and steel industry.

PROJECT SUMMARY

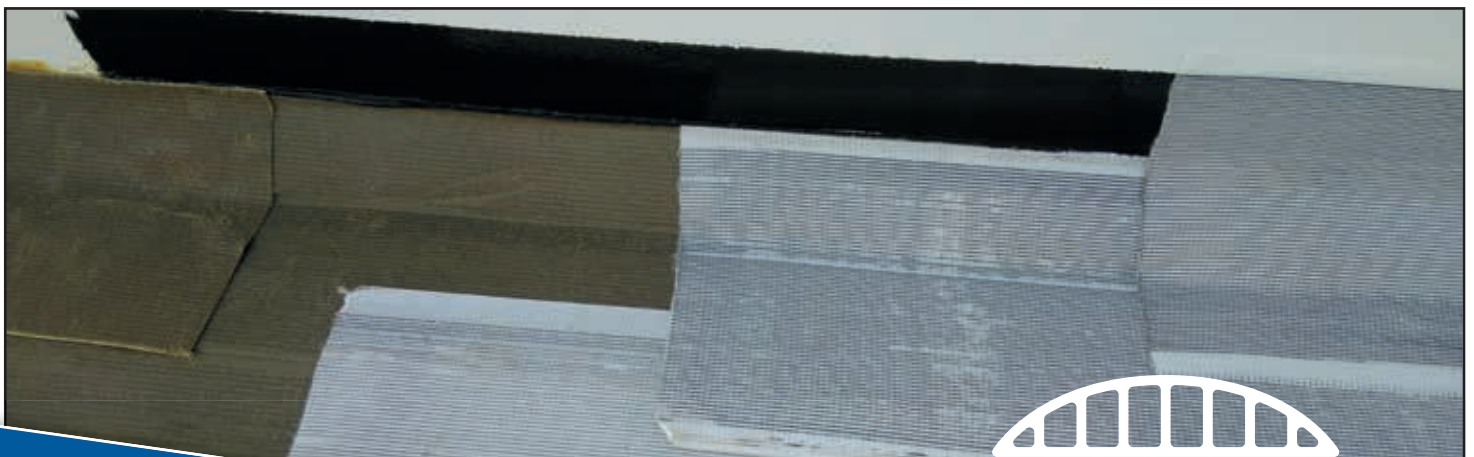
Product Type:
Coatings for Exposed Steel

Country:	Abu Dhabi
Object:	Oil storage tanks
Problem:	Corrosion prevention
Product Solution:	Denso™ Steelcoat Tank Base Protection System



Above: After cleaning the substrate around the berm seal area and coating it with Denso™ Hi-Tack Primer, any voids or internal angles are filled with Densyl™ Mastic to form a smooth profile before applying the layer of Denso™ Hi-Tack Tape. Then Denso Primer D™ is applied to the area immediately around the Denso Hi-Tack Tape in a minimum 50mm strip and allowed to dry (Primer D is the black area in the picture).

Below: A layer of Denso™ Ultraseal RT Tape is then applied over the Denso Hi-Tack Tape extending onto the 50mm Denso Primer D strip.





The project involved the refurbishment of 8 No.110 meter diameter tanks in total and the client needed a protective system that was able to withstand:

- 1 - Extreme Tank movement at the berm seal.
- 2 - Extreme UV in the GCC region.
- 3 - Must be able to adhere/bond extremely well to different substrates.



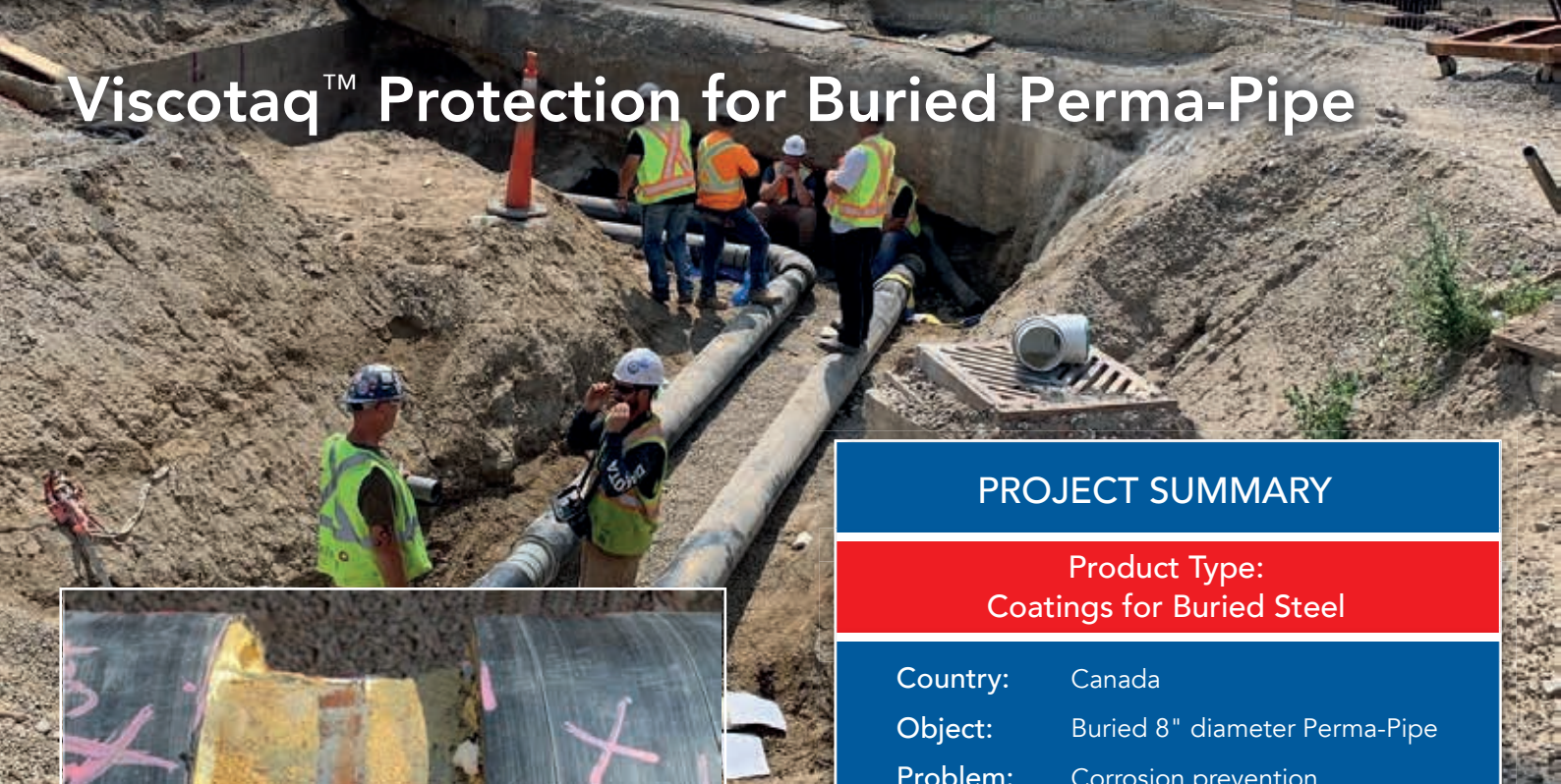
Above: The layer of Denso™ Ultraseal RT Tape is carefully fitted into place before a coat of Denso Acrylic Topcoat is applied over it to complete the Denso Steelcoat System.

The Denso Steelcoat Tank Base Protection System was selected for this project as it has proven to be the most robust Berm Seal Tank Sealing System in the market based on the systems success on over 350 plus tanks throughout the Middle East over the last 11 years. Experienced local Denso agent Bin Moosa & Daly Ltd recommended and supplied the Denso system and the installation work was carried out by contractor Dhafir Technologies LLC.

The Denso Steelcoat Tank Base protection system is designed to prevent corrosion around the periphery of the tank base, the weld area and the lower wall. The system can also prevent crevice corrosion in the underside of the tank base which can lead to metal loss, perforation and structural problems.

Five out of the eight tanks have been completed to-date with all tanks scheduled for completion in 2025.

Viscotaq™ Protection for Buried Perma-Pipe



The field weld area before surface preparation.

PROJECT SUMMARY	
Product Type: Coatings for Buried Steel	
Country:	Canada
Object:	Buried 8" diameter Perma-Pipe
Problem:	Corrosion prevention
Product Solution:	Viscotaq™ System

Denso North America and the General Contractor were tasked with a unique assignment issued by the University based in Ontario, Canada. The project application involved adding a protective layer to the field welds on buried Perma-Pipe. A major obstacle the General Contractor immediately encountered was finding a product that could manage the high temperature of the equipment, while still providing durability and corrosion protection.

The field weld area after surface preparation.



Denso North America, a leading provider of corrosion prevention and sealing solutions, collaborated with a prominent general contractor on a significant project for a large reputable university in Ontario, Canada. The collaborative effort aimed to protect and preserve a buried high temperature Perma-Pipe application using ViscoMastic™ XHT, ViscoWrap™ XHT, and Viscotaq™ Adhesion Promoter products from Denso.



After a preliminary site visit, followed by further discussions, the solution was confirmed: Denso's Viscotaq would be utilized on this application. The application would consist of the following steps for maximum effective performance:

- Step 1.** Preparing the surface of the pipe for effective Adhesion.
- Step 2.** Applying Viscotaq's Adhesion Promoter as a precautionary step for added adhesion.
- Step 3.** Filling in the gaps surrounding the field welds with ViscoMastic™ XHT. This step allows for a smooth profile, which eases the ViscoWrap™ application.
- Step 4.** Applying the ViscoWrap XHT over the ViscoMastic XHT and overlapping onto existing Perma-Pipe.

The Denso Viscotaq products were applied meticulously by the highly capable General Contracting team along with the support of Denso personnel

Starting to wrap the ViscoWrap XHT.



Below and right: The completed ViscoWrap XHT joint protection.



Applying the ViscoMastic XHT to smooth the joint's profile.

After executing the application of Viscotaq products, the buried Perma-Pipe is now protected from corrosion, and is successfully in service for many years to follow.



New Kapalama Container Terminal Utilizes Denso™ and Viscotaq™ Protected Tie Rods

The New Kapalama Container Terminal Phase 2 Project was constructed from 2021 to 2024 and features an 84-acre container yard and 1,863 linear feet of additional berthing capacity.



Kapalama Container Terminal Phase 2 during construction in late 2022.



Above: Tie rods wrapped with Denso™ Tape followed by a Viscotaq™ PVC Outerwrap.

Over 115,000 cubic yards of concrete was poured and over 80,000 feet of 3" and 3-1/2" tie rods were installed to secure the foundation.

With the highly corrosive marine environment that the harbor is faced with, the Hawaii DOT Engineers selected Denso™ Tape and Viscotaq™ PVC Outerwrap to protect the tie rods from corrosion.

Prior to installation, the 45' and 30' pieces of tie-rods were wrapped with 4" wide Denso™ Tape spirally with a 55% overlap. Next, 4" wide Viscotaq PVC Outerwrap was applied spirally with a 55% overlap to provide additional mechanical protection during handling and installation.

PROJECT SUMMARY	
Product Type: Coatings for Buried Steel	
Country:	Honolulu, Hawaii, USA
Object:	Tie rods
Problem:	Corrosion prevention
Product Solution:	Denso™ and Viscotaq System

After the protected tie rods were installed, a final layer of protection was utilized by sliding PVC pipes over the surface.

By utilizing the Denso™ Petrolatum Tape System to protect the tie-rods at the Kapalama Container Terminal, The Hawaii DOT knows that the structures foundation will be sound well past the design life.



Above: The Denso™ wrapped tie rods are first installed and then...Below: Protected with PVC piping before final burial.



Denso™ Bitumen Tape Wrap System Repairs Damaged Factory Coating



Areas of damaged or loose factory coating are sanded down prior to application of Denso Primer D.

PROJECT SUMMARY

Product Type:
 Coatings for Buried Steel

Country: London, United Kingdom
Object: Pipeline
Problem: Damaged factory coating
Product Solution: Denso™ Bitumen Tape Wrap System

Below: Densoclad 70 is then circumferentially wrapped around the pipe with a 55% overlap.



A Denso™ Bitumen Tape Wrap System, comprising a bitumen-based primer (Denso Primer D™), a heavy-duty PVC-backed bitumen tape (Densoclad 70™), and a protective outerwrap (Denso™ Glass Outerwrap) was recently specified for the repair of a damaged epoxy polyurethane factory coating at the new HS2 terminus being constructed at London Euston train station.



Above: Denso GOW is applied in a similar fashion, with a double layer of Denso Clear Outerwrap applied to aid curing and later removed.

Following the damage to the current coating, the harmful effects of the corrosion process had already begun to inflict damage upon the pipe and had propagated underneath the coating itself, causing it to delaminate. To eliminate any further damage, the Denso™ Bitumen Tape Wrap System was applied to provide not only protection from further corrosion damage, but a large degree of mechanical protection too.

Below: Completed application of Denso Glass Outerwrap.

Denso™ Glass Outerwrap (GOW) is a fiberglass cloth impregnated with a water activated resin that offers exceptional mechanical and impact strength for buried pipes exposed to aggressive backfill conditions. Once fully cured (after compression underneath a double layer of Denso™ Clear Outerwrap) the Denso GOW fully encapsulates the whole system with a long-term protective coating that is ready for immediate service.



If you would like more information about our long-term corrosion prevention and sealing systems that deal with the problem areas listed below, simply tick the boxes and send us back this completed page and we will supply you with more information.

BURIED ONSHORE COATINGS

- External corrosion prevention for underground pipelines, welded joints, valves and fittings.
- Protection of mounded LPG vessels and fuel tanks.

SUBSEA & SPLASH ZONE COATINGS

- Maintenance corrosion protection for steel jetty piles.
- Subsea pipelines and outfalls.
- Protection of timber and concrete piling.

SEALING MASTICS

- Joint sealing of precast concrete manholes and culverts.
- Joint and crack sealing of asphalt road surface wearing courses.
- Joint sealing for airport runways.
- Sealing of cable entry ducts.

EXPOSED SURFACE COATINGS

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- Corrosion prevention for metal roof purlins and metal roof sheets.
- Protecting pre-stressing and post tensioning bridge cables and ground anchorages.

INDUSTRIAL LININGS

- Internal linings for tanks, pumps, vessels and pipelines.
- Linings for concrete bunds and floors.
- External abrasive wear protection.

INDUSTRIAL TAPES

- Sealing and insulating.
- Protecting and bonding.

MEMBRANES AND FLASHINGS

- Tanking / waterproofing.
- Exposed rooftops and parapets.

DIY WEATHERPROOFING

- Waterproofing and flashing.

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Name: Title:

Address:

Phone: Email:

UK: mail@denso.net ● USA: info@densona.com ● CANADA: sales@densona-ca.com

AUSTRALIA: denso@densoaustralia.com.au ● NEW ZEALAND: info@denso.co.nz ● SOUTH AFRICA: bid@denso.co.za



WINN & COALES INTERNATIONAL LTD

TEL: +44 (0) 208 670 7511
EMAIL: mail@denso.net
WEB: www.denso.net

33 - 35 Chapel Road
London SE27 0TR
UNITED KINGDOM

