The Denso P2 System[™] applied to the Pex Hill Service Reservoir pipework double flanged joints. See pages 6 & 7



An important new member joins the Denso™ family! See page 3...

DENSO DIGEST

Winn & Coales International Ltd

Volume 36, Number 2





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,

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

PREMIER COATINGS LTD

✓ Membranes and corrosion prevention systems Headcorn Road, Smarden, near Ashford, Kent TN27 8PJ, England

ARCHCO

✓ Corrosion resistant linings Denso House, Chapel Road, London SE27 0TR, England

DENSO NORTH AMERICA INC - CANADA

✓ Corrosion prevention and sealing systems
90 Ironside Crescent, Unit 12, Toronto, Ontario, M1X 1M3
Canada

DENSO USA - LP ✓ Corrosion prevention and sealing systems 9710 Telge Road, Houston, Texas 77095 United States of America

DENSO SOUTH AFRICA (PTY) LTD

✓ Corrosion prevention and sealing systems 120 Malacca Road, Redhill Industrial Area, Durban North 4051 Republic of South Africa

DENSO (AUSTRALIA) PTY LTD

✓ Corrosion prevention and sealing systems 77-95 National Boulevard Campbellfield, Victoria 3061, Australia

DENSO (NEW ZEALAND) LTD

✓ Corrosion prevention and sealing systems PO Box 76167, Manakau City, Auckland New Zealand

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 _____

VISCOTAQ PRODUCTS & SERVICES

✓ Corrosion prevention and sealing systems 9710 Telge Road, Houston, Texas 77095 United States of America Tel: +44 (0) 20 8670 7511 Fax: +44 (0) 20 8761 2456 Email: mail@denso.net Website: www.denso.net

Tel: +44 (0) 1233 770663 Fax: +44 (0) 1233 770633 Email: enquiries@premiercoatings.com Website: www.premiercoatings.com

Tel: +44 (0) 20 8761 6244 Fax: +44 (0) 20 8761 2456 Email: mail@denso.net Website: www.denso.net

Tel: +1 416 291 3435 Fax: +1 416 291 0898 Email: sales@densona-ca.com Web site: www.densona.com

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Please Welcome a New Member of the Denso[™] Family...

Winn & Coales International are proud to announce the acquisition of the global _____Viscotaq™ business.

SCOTAQ





The creators of Viscotaq[™], based in San Antonio, USA are the formulators and manufacturers of viscoelastic protective coating technology. The patented Viscotaq[™] product range is used for corrosion prevention and sealing applications on vital infrastructure across a broad range of sectors. The unique, self-healing technology of Viscotaq[™] offers asset owners outstanding, long-term protection against corrosion. The company was originally established in June 2000 in San Antonio, USA and thereafter rapidly became the North American market leader of viscoelastic coatings and sealants in the corrosion industry

Edwin Welles, President and co-inventor of the Viscotaq[™] technology commented: .

"We feel honoured being part of the Winn & Coales family now. A similar business culture, with a privately-owned structure and a technology driven mentality was a natural fit for us. The acquisition will give the company the opportunity to grow rapidly, both nationally and internationally and above all, guarantee dedicated service and supply to existing and future clients across the globe. I personally feel privileged to make the next step in my career at Winn & Coales, a leader in our industry with an outstanding reputation."

For more than 90 years, the Winn & Coales International Group of companies has been creating bespoke and off-the-shelf solutions that provide enduring protection against corrosion and chemical attack to buried and exposed pipes, valves, fittings, steelwork, marine structures, tanks and concrete bunded areas. The acquisition of Viscotaq is aligned with the Company's focus on investing in and providing the highest quality corrosion prevention solutions for their customers.

Chairman of Winn & Coales International, Mr Chris Winn commented, "The acquisition of Viscotaq is particularly exciting for the Company, as the Viscotaq[™] product line enhances and complements our existing range of coatings, which are already well established in the market. We are now able to offer all corrosion prevention technologies to our customers, and we look forward to building on our leading brands further with our new colleagues at the company.

After 138 years of trading, Winn & Coales International Ltd remains a privately-owned business. Through their seven subsidiary companies in the UK, USA, Canada, South Africa, Australia & New Zealand, together with their global network of distributors, they are able to provide tailor made solutions to challenging corrosion problems all over the world.







Denso[™] USA Makes Sure Wind Turbines Don't Get Blown Away with Corrosion

Over 900 wind turbine anchor bolts were protected from environmental corrosion with Denso™ ColorTape.

Wind energy is quickly becoming a major producer of the world's energy. Wind turbine towers can be upwards of 280 feet tall. These massive structures are anchored to their foundation by bolts set in concrete. Corrosion of these bolts is one of the major causes of wind turbine collapses. Protecting these anchor bolts from corrosion is critical to the long-term service life of a wind turbine.



Denso $^{\rm M}$ ColorTape recently installed on 76 exterior anchor bolts on wind turbine tower

Inset: Initial trial application of the Denso[™] ColorTape which showed how easily the tape conforms over irregular shapes.

PROJECT SUMMARY

Product type: Coatings for Exposed Steel

Country:	United States of America
Object:	Wind turbine tower anchor bolts
Problem:	Corrosion prevention
Product Solution:	Denso™ColorTape

A recent wind farm project in California chose Denso[™] ColorTape to protect the anchor bolts on 13 new towers. Each tower had 76 exterior anchor bolts that were exposed to the environment.

After a quick trial application, it was apparent the Denso[™] ColorTape was an excellent product for protecting these bolts for several reasons. To start, it requires very minimal surface preparation. A quick hand tool cleaning with a wire brush in accordance with SSPC SP-2 is all that is needed. Denso ColorTape can also be easily applied in one step and is extremely conformable to virtually any size or shape, making it ideal to wrap the nuts and bolts. From time to time, these bolts will have to be re-tensioned meaning whatever type of protection is used on the bolts will have to be removed. The Denso ColorTape is easily removed and can then be reapplied after the re-tensioning process is complete. All of these features make the Denso ColorTape the perfect product to prevent corrosion of anchor bolts.

The contractor and owner were extremely pleased with the simplicity and effectiveness of this application.





Denso[™] Protection for a Partially Buried Cooling Tower Pipe Sleeve

Staff at the Irving Oil Refinery in Saint John, New Brunswick, Canada (the largest oil refinery on the Eastern side of the whole of North America), were looking to protect a 400mm (16") diameter cooling tower pipe spool piece from corrosion.



Phase 1: Spool piece cleaned and ready for the Denso[™] 'Above Grade' system.



Phase 1: The application of Denso[™] LT Tape over the Denso[™] Paste.

The spool piece was located outside approximately 400mm (16") above grade, and it was decided to use the Denso[™] Paste, Denso[™] Profiling Mastic, Denso[™] LT Tape and Archco[™] 15 Acrylic Topcoat System. **See Phase 1 photos.**

The customer was so satisfied with the installation they decided to proceed to protect the restrained pipe sleeve that transitioned below grade directly below the pipe sleeve completed previously. In this case Denso recommended that they use Denso Paste, Denso Profiling Mastic in the channel supports, Denso LT Tape and Denso[™] Glass Outerwrap for mechanical protection from soil movement since this portion of the pipe will be partially buried. **See Phase 2 photos.**

The Denso systems were installed to the complete satisfaction of Irving Oil by MacDonald Applicators.

PROJECT SUMMARY

Product type: Coatings for Exposed Steel

Country:	Canada	
Object:	Cooling tower pipe sleeve	
Problem:	Corrosion prevention	
Product Solution:		





Phase 1: A coat of Archco[™] 15 Acrylic Topcoat completes the 1st Denso system.

Phase 2: A Denso[™] Glass Outerwrap layer completes the 2nd Denso system.







Denso P2 System[™] Used in Refurbishment of Old Water Pumping Station

The Denso P2 System[™] in the process of being applied to the Pex Hill Service Reservoir pipelines double flanged joints.

As part of United Utilities water quality improvement programme, JMC North West Ltd, on behalf of NMCN, recently completed works to bury the above ground timing loop at the Pex Hill Service Reservoir. The challenge was to provide a durable, reliable corrosion prevention solution to protect over 90 double flanged joints prior to full encapsulation. To provide this high level of protection, JMC North West Ltd turned to Winn & Coales (Denso) Ltd for their services.









Above: Densoclad™ Tape is wrapped over Denso Profiling Mastic™ as part of the Denso P2 System™.



Winn & Coales recommended their Denso P2 System[™], proven to effectively protect ferrous pipes, joints and fittings from the costly effects of corrosion. Fully compliant with the P2 Civil Engineering Specifications for the Water Industry (7th Edition), this time-proven system can be easily applied on-site before the pipe is buried – providing long-term corrosion prevention for the project at Pex Hill.

The Denso P2 System incorporates Denso Primer D[™], Denso[™] Profiling Mastic and Densoclad[™] Tape. Training on how to apply the system was provided, on-site, by two members of the Winn & Coales (Denso) Ltd team.

PROJECT SUMMARY

Product type: Coatings for Buried Steel

Country:	United Kingdom
Object:	Service reservoir pipework
Problem:	P2 level corrosion prevention required
Product Solution:	Denso P2 System™







Denso Australia was approached by SA Water to come up with a solution to a structural problem they had with the concrete support columns that hold up the roofs on their large tank reservoirs scattered around South Australia.

It was decided to utilise the Denso SeaShield Series 400[™] System used in marine environments. A complete revamp of this system was required which included the use of square - instead of round jackets.

In addition, all products used had to be AS 4020 approved for potable water. This was quite easily achieved but at a considerable cost to Denso Australia.

The project was very successful and the solution was utilised on many sites where structural integrity was required.

PROJECT SUMMARY

Product type: Sub Sea Splash Zone Coating

Country:	Australia
Object:	Concrete support columns
Problem:	Structural deterioration
Product Solution:	SeaShield 400™ System

The completed SeaShield Series 400™ System protecting a support column. 8





SeaShield[™] Systems Protect Navigation Beacons

This Department of Transport and Main Roads work program, involved the replacement of eight 610mm OD navigation beacons that had reached the end of their service life.



Pensar were engaged to undertake the replacement program and contacted Denso to supply our corrosion prevention systems. Each pile required a protection coverage length of 7.2m using the SeaShield 2000FD[™] System whilst each pile cap was coated with Steelcoat 100[™] System. The combination of both systems will ensure enduring corrosion protection for these critical assets.

Prior to mobilisation, a 'hands on' training session was held with the Pensar Project Manager and application team using the SeaShield 2000FD[™] System components, hydraulic tensioning kit and Steelcoat[™] materials (Denso[™] Hi-Tack Primer, Denso[™] Hi-Tack Tape and Single Pack Elastomeric top coat). Piles were barged out to their installation location and the SeaShield 2000FD[™] System was applied on the work platform prior to being raised into place. The Steelcoat 100[™] System was applied to the pile cap following installation and allowed to cure prior to the final beacon and ladder installation.

At Denso, our customer service extends through the full construction life cycle. We maintained communication with the Pensar team throughout installation to ensure that the work was undertaken in accordance with the required engineering specifications. The Denso Australia inhouse manufacturing team were poised to respond to project scope changes, enabling a quick turnaround when additional jackets were required.

PROJECT SUMMARY

Product type: Sub Sea Splash Zone Coating

Country:	Australia
Object:	Marine navigation beacons
Problem:	Corrosion Prevention
Product Solution:	SeaShield 100 [™] and SeaShield 2000FD™ Systems

The completion of this project has enabled long term navigation and delineation for recreational and commercial vessels in the Southern Moreton Bay waters and has assisted in providing Pensar with excellent project delivery credentials for future work programs.

The SeaShield Series 2000 ${\rm FD}^{\rm m}$ System Jackets being hydraulically tensioned around the pile.







Denso[™] Protection for Indian Fertilizer Plant Pipeline

The fertilized plant pipeline lengths are pre-wrapped before being installed and buried

The existing Gorakhpur Fertiliser unit, part of the Fertiliser Corporation of India Ltd (FCIL) is located about 12km north of Gorakhpur town, in the eastern part of Uttar Pradesh on NH-28.



Densoclad 70HT[™] Tape is spirally wrapped around the pipeline.

Following the formation of HURL in June 2016, the foundation stone of the Gorakhpur Fertiliser Project was laid by the Prime Minister of India, Mr Narenda Modi, on the 22nd July, 2016.

PROJECT SUMMARY

Product type: Coatings for Buried Steel

Country:	India
Object:	Buried pipeline
Problem:	Corrosion prevention
Product Solution:	Densoclad 70HT™ Tape

Consultant PDIL and HURL studied Denso's proposed single tape system (Densoclad 70HT[™]) and approved it. Densoclad 70HT[™] was used for roughly 700m of 16 inch buried line. The client and contractor were very happy with the product, it's an easy, user-friendly system which enabled them to finish the wrapping faster.

A close-up of Densoclad 70HT[™] Tape.







JSW Jaigad Port Prestressed Cables Protected with a Denso[™] System

JSW Infrastructure has grown to become one of India's leading infrastructure development companies. Its ports and terminals in Maharashtra and Goa currently have an operational capacity of 33 MPTA. Within the next four years, this is going to increase more than six-fod to reach 200 MTPA through Greenfield and Brownfield expansions.

The JSW Jaigarh Port in Maharashtra.

JSW Jaigarh Port is the first deep water, 24/7 operational private port in Maharashtra. Opened in August 2009, JSW Jaigarh Port was built in a record time of 20 months. This greenfield, all-weather port occupies a strategic location on the west coast, as it is situated between the ports of Mumbai and Goa.



The prestressed cable sleeve is applied with Denso Paste™ before being spirally wrapped with Densyl™ Tape.

For their Jaigad Port expansion project, ITD is working on different areas including a berth/bridge within close proximity to the sea. They wanted to protect the prestressed cables, which are critical to the bridge structure and hence needed a time-proven corrosion prevention solution. To achieve this level of protection, they opted for the use of Denso Paste[™], combined with Densyl[™] Tape and Denso[™] PVC Self-Adhesive Tape subsequently applied.

PROJECT SUMMARY

Product type: Coatings for Exposed Steel

Country:	India
Object:	Prestressed cable sleeves
Problem:	Corrosion prevention
Product Solution:	Densyl™Tape System

Denso™ PVC Self-Adhesive Tape is spirally wrapped over the Densyl™ Tape, completing the protection system for the cable sleeves.







Steelcoat 100[™] System Protects the UK'S First Stainless Steel Road Bridge

During Storm Desmond in 2015 the 18th Century Stone Bridge Structure connecting the Ullswater Valley at Pooley Bridge in Cumbria was completely destroyed.

The new stainless steel bridge in Cumbria.

The structure was replaced by the UK's first stainless steel road bridge, which measures 128ft and crosses the River Eamont.

Eric Wright Civil Engineering Ltd were awarded the contract to construct the replacement bridge and Winn and Coales (Denso) Ltd supplied the Steelcoat 100[™] System to the "bi-metal splice areas" where the stainless steel structure was secured to the carbon steel backspan at the abutments. The Steelcoat 100[™] System will protect these areas against the possibility of galvanic corrosion.

The Steelcoat 100[™] System consisted of Denso S105[™] Paste and Denso[™] Hi-Tack Tape. Denso[™] Profiling Mastic was used to profile the bolts prior to application of the Denso[™] Hi-Tack Tape.

Denso S105[™] Paste is applied to the structure.



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PROJECT SUMMARY

Product type: Coatings for Exposed Steel

Country:	United Kingdom
Object:	Bi-metal splice areas
Problem:	Corrosion prevention
Product Solution:	Denso Steelcoat 100 [™] System

Denso[™] Profiling Mastic is then applied to profile the bolts.



A wrap of Denso™ Hi-Tack Tape completes the Steelcoat 100 System.







Denso[™] Tape System used in Refurbishment of Iconic Dublin Landmark



'Central Plaza'

As part of a €76 million refurbishment project on the iconic Old Central Bank Building in Dame Street, Dublin, Winn and Coales (Denso) Ltd products were used to protect the tie bars which support the 8-storey structure.

The building, which was constructed in the 1970's, is Ireland's only suspended building. The design of the building was based on two central concrete pillars which formed an anchor for approx. 2500m of tie bars to secure each floor of the building.

Each concrete floor was constructed at ground level and then lifted by jacks into position where they are secured by the tie bars.

During the refurbishment, DBFL Consulting Engineers Ltd inspected the condition of the tie bars and found that after removing the existing Denso Tape[™] (applied some 40 years earlier) the tie bars were still in very good condition. In order to provide maximum long-term protection, it was decided to update the existing Denso Tape. Winn and Coales (Denso) Ltd suggested using the Denso[™] Petrolatum Tape System, consisting of Denso Paste[™], Denso Tape[™] and Denso[™] PVC Self-Adhesive Tape to ensure the tie bars remain in pristine condition.

UMR Group were selected to install the system and although working with restricted space between the tie bars, the system was installed in accordance with recommendations.

Where these bars change direction at the top storey, they are inside hollow nodal units. It was therefore necessary to ensure there was no risk of corrosion in these areas. To ensure the integrity of the tie bars, UMR Group injected Denso[™] Void Filler Type I to expel any trapped moisture/air from the nodes, thus protecting from potential corrosion in the future. Care was necessary to ensure these complex areas were completely filled and the UMR Group had provided

PROJECT SUMMARY

Product type:		
Coatings for Buried Steel		

Country:	Ireland
Object:	Tie bars
Problem:	Corrosion prevention
Product Solution:	Denso™ Petrolatum Tape System and Denso™ Void-Filler Type 1

complex pumping systems with vent pipes and also heated the nodes to ensure that the Denso Void Filler remained hot and fluid during the pumping operation.

On completion, the building (which has been renamed 'Central Plaza') will house retails units, offices and will have a stunning rooftop restaurant with a complex glass roof providing panoramic views of Dublin.

Installation of the Denso[™] Petrolatum Tape System. After a spiral wrap of Denso[™] Tape, the tie rods are then spiral wrapped with Denso[™] PVC Self-Adhesive Tape for extra protection.







SEWA – Hamdah to Bediyah Carbon Steel Main Transmission Pipeline Protected with Denso[™]



Sharjah Electricity and Water Authority, also popularly known as 'SEWA', is a government utility in the Emirate of Sharjah. They provide electricity, water and natural gas to over 300,000 consumers.

One of the significant achievements that SEWA has achieved is the successful completion of the five ISO policies:

- ISO 9001:2008 (Quality)
- ISO 14001:2004 (Environment)
- OHSAS 18001:2007 (Occupational Health and Safety)
- ISO 50001:2018 (Energy)
- ISO 55001 (Asset Management)

Winn & Coales (Denso)'s Densyl[™] Tape system was selected for the long-term protection of all buried 800mm diameter girth weld joints on the 40km external

Densyl[™] Tape is applied with a 55% overlap.



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3LPE coated carbon steel pipeline, along with all fittings, flanges & dismantling joints - based on its success with numerous similar projects throughout the U.A.E.

Winn & Coales (Denso) Ltd is approved to BS EN ISO 9001:2015, Certificate no. FM 01548 and ISO 14001:2015, Certificate no. EMS 583748. All our products are manufactured and tested to internationally recognised test methods, i.e. ASTM methods, and supplied strictly in accordance with the requirements laid out in the ISO 9001 International Quality Standard, and the company's ISO 9001 Quality Manual.

Our UAE Distributors, Bin Moosa & Daly, are renowned for their sound business practices (also with ISO



Denso[™] PVC Self-Adhesive Tape also applied with a 55% overlap.





accreditation), customer- orientated approach and as a one-stop-shop for leading European and Australian brands of MEP products. Their experienced Engineers provide accurate solutions, backed by dedicated, reliable service and logistics teams. Together, Winn & Coales (Denso) Ltd and Bin Mooosa & Daly Ltd ensure that our customers receive the right product with the right quality at the right time.

Approved Denso system for this project:

Denso Paste: (Primer) Apply thin layer over 100% of substrate @ approx. 200 microns subject to product / substrate temperature.

Densyl Tape: Applied spirally with a 55% overlap. 2 No. 4.15mm Layers = 2.3mm. Starting and finishing each joint with two full circumferential turns overlapped onto the existing factory coating by a minimum 75mm.

Denso PVC SA Tape 200 (Outer wrap) Applied spirally 2 x 2 No. 55% overlap - 4 No. 0.19mm Layers = 0.76mm. starting and finishing each joint with two full circumferential turns overlapped by a minimum of 50mm past the edge of the above Densyl Tape directly onto the existing 3LPE factory coating.

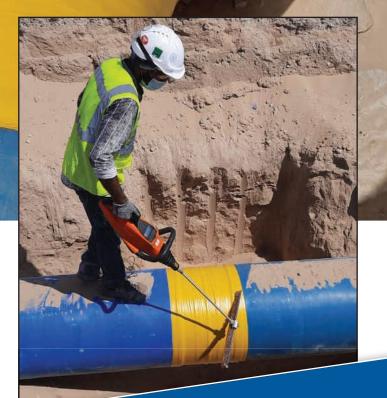
Total System thickness: 3.06mm – Holiday Test @ 10kV.

All of the Denso protected girth weld joints were tested for holidays after wrapping with the Densyl[™]Tape System.

PROJECT SUMMARY

Product type: Coatings for Buried Steel

Country:	United Arab Emirates	
Object:	Buried pipeline	
Problem:	Corrosion prevention	
Product Solution:	Densyl™ Tape System	



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	SUBSEA & SPLASH ZONE COATINGS	SEALING MASTICS
External corrosion prevention for underground pipelines, welded joints, valves and fittings.	Maintenance corrosion protection for steel jetty piles.	Joint sealing of precast concrete manholes and culverts.
Protection of mounded LPG vessels and fuel tanks.	Subsea pipelines and outfalls. Protection of timber and concrete piling.	Joint and crack sealing of asphalt road surface wearing courses. Joint sealing for airport runways.
EXPOSED SURFACE COATINGS	INDUSTRIAL LININGS	Sealing of cable entry ducts.
Corrosion prevention for chemical plant, structural steelwork, above ground pipes,	Internal linings for tanks, pumps, vessels and pipelines.	INDUSTRIAL TAPES
storage tanks, offshore rigs, bridges and support cables, cranes and pipe bridges.	Linings for concrete bunds and floors.	Sealing and insulating.
Corrosion prevention for metal roof purlins and metal roof sheets.	External abrasive wear protection.	Protecting and bonding.
Protecting pre-stressing and post tensioning bridge cables and ground	MEMBRANES AND FLASHINGS	DIY WEATHERPROOFING
anchorages.	Tanking / waterproofing.	Waterproofing and flashing.
	Exposed rooftops and parapets.	
For further information - tick boxes, fill in coupon and email or post to your nearest Denso branch (full list of addresses on page 2)		
Name:	Title:	
Company:		
Address:		

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