

DENSO® DIGEST



LEADERS IN CORROSION PREVENTION
& SEALING TECHNOLOGY

WINN & COALES INTERNATIONAL LTD

This issue of the Denso Digest contains a selection of recent corrosion prevention project stories from around the world featuring Denso tape wrap systems, liquid coatings, liquid linings and joint sealing applications.

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Introducing ... **NEW** Denso ColourTape and Mastic

Available in a selection of colours, new Denso Colourtape and Colourtape Mastic have been developed to be easily applied without the need of a primer to wire brushed steel surfaces (surface tolerant), give an attractive appearance and above all offer excellent protection to steel pipes and fittings in aggressive environments. They are also ideal for waterproofing electrical cable ends and joints. Denso ColourTape and ColourTape Mastic form the new Denso Steelcoat 300 System

Denso ColourTape

A flexible, self coloured petrolatum tape which can be used without a primer on minimally prepared steel surfaces.

ColourTape Mastic

A light coloured mastic for filling voids and smoothing profiles prior to the application of Denso ColourTape.



Features:

- Superior clean appearance
- Surface tolerant - hand wire brushing only
- No primer required
- Faster to apply and much improved service life when compared to conventional paints
- Can be used above or below ground
- Suitable for colour coding

... and Denso Steelcoat Systems

Denso Steelcoat Systems, a series of improved product combinations for the long term protection of above ground pipe and steelwork have been developed to make choosing the right system simpler and to offer a range of options to suit most applications and budgets. Choices of, service life length, degree of mechanical protection, amount of surface preparation, operating temperatures up to 150°C, substrate condition and final appearance are available. Steelcoat Systems are a result of our continuing aim to offer our customers an improved service.

... and Finally

Why not visit our
new UK web site on
www.denso.net

Denso Protal 7050

Liquid Epoxy Coating used on Buried Pipeline Rehab

The Great Lakes Transmission Company selected Protal 7050 to recoat approximately 2 miles of 36" diameter pipe. Protal 7050 was chosen over several other competitive liquid coatings after an extensive test program. The testing program involved cathodic disbondment tests at 176°F (80°C), which Protal 7050 achieved excellent results.

The project consisted of excavating and exposing the 36" diameter pipe and removing the old asphaltic coating while in service. The pipe was then inspected for stress corrosion cracking and sandblasted to SSPC SP-10 or NACE No.2 Standard. After the surface was prepared Protal 7050 was applied using plural component spray equipment. Protal 7050 was sprayed at an average of 28-30 mils in one coat with a tack-free time of 30 minutes at 87°F (31°C) and had a backfill time of 2 1/2 hours.

Protal 7050 is a 100% solids liquid epoxy that exhibits excellent cathodic disbondment results up to 176°F (80°C). In addition the coating offers high

impact resistance, fast curing, high abrasion resistance, high adhesion and VOC free qualities rendering it environmentally responsible.

Plural spray equipment was used to apply the coating.



Coating thickness is checked with wet film gauge during spraying application of Denso Protal 7050.



The Great Lakes Rehab Project.

Denso manufactures a full line of Protal liquid coatings to meet the demand of the pipeline industry. In this product line we have pipeline coatings that can be backfilled in less than 120 minutes at 14°F (-10°C) and other coatings that can stand operating temperatures up to 250°F (121°C). Denso Protal liquid coatings are the coatings of choice by owners, oil and gas specifiers and contractors across North America.

Denso Road Products Come In Useful in Canadian Climate

Canada is one of the few countries in the world with such a varied climate. Not only do we experience our four distinct seasons throughout the year, complete with our fabulous colored maple leaves in the fall, but the harsh reality of winter creates havoc to our road infrastructure.

With spring and fall typically receiving rain, winter follows with metre deep snow conditions and freezing temperatures. The phenomenon of freezing and thawing, along with the relevant expansion and contraction of road surfaces when water expands into ice and vice versa, causes tremendous destruction to our asphalt roadways.

Enter Denso North America Inc. With our complete line of Denso Road Products for joint sealing and waterproofing, we are rapidly becoming well known for supplying a long-term solution to the problems of the massive deterioration of our road infrastructure, bridge structures, airport facilities and



Densoband is hot applied to the vertical joint face.

rail crossings.

For several years we have steadily pursued our belief in Denso Products as a viable solution to repairing damaged streets, highways, bridges, rail crossings and other similar applications in this country.

Densoband (formerly known as Tokband Spezial), a modified



A flexible, waterproof bond between the new asphalt and the existing road surface is one of the main benefits of using Densoband.

bitumen, hot applied joint sealant has become very popular for sealing joints between asphalt, concrete and steel to ensure that future maintenance to roads is kept to a minimum. This product has been applied in every conceivable application, from asphalt to asphalt, asphalt to concrete, and asphalt to steel as well as asphalt to rubber, in the case of rail crossings. Whether applied to road surfaces or bridge structures, Densoband has proven to be the definitive solution to asphalt repair.

Likewise, Denso (formerly known as Tok) Reinstatement Tape, Seam Seal Mastic and Paving Tape have been used extensively in suburban areas of Canada to seal and waterproof joints in road structures for many years to come. These cold applied tape products eliminate the need for crews to transport dangerous hot bitumen hoppers, messy and inaccurate liquid pourings and provide our clients with ease of application, flexibility and rapid repairs.

Now widely used throughout Canada, Denso Road Products are rapidly gaining a reputation as the only long term solution to our ever present problem of road, bridge and airport maintenance repairs and new road construction.

With a little practice, Densoband can be rapidly applied to most road building materials.



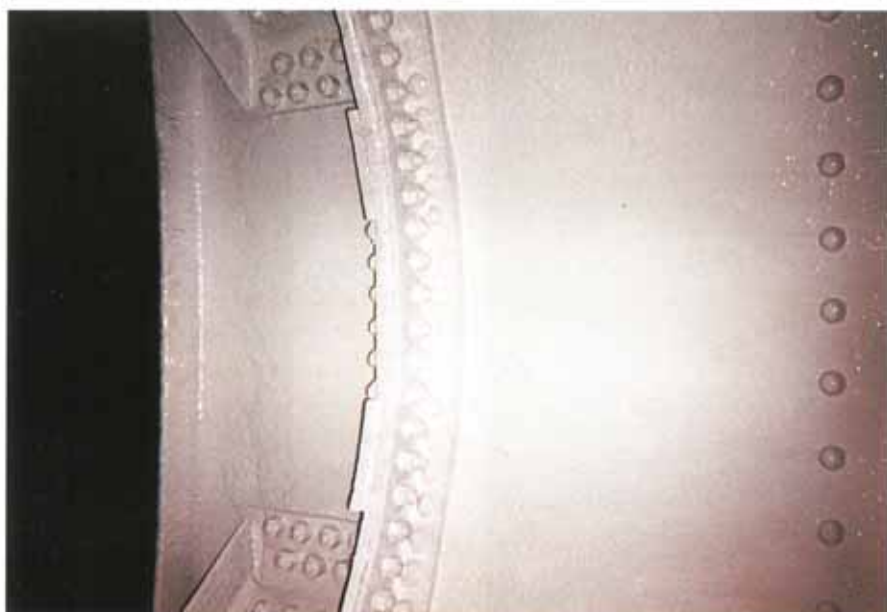
Denso S.T. Epoxy Mastic Protection for Dartford Tunnel Access

Since the first tunnel was opened in 1963, the Dartford River Crossing now comprises two tunnels plus the Queen Elizabeth II Bridge. This may be common knowledge, but what is not so well known is that two 100ft shafts were sunk, one each side of the Thames, in the thirties as part of the pre-war plan for a tunnel and are still performing a valuable function today. They now provide access for maintenance of the two modern tunnels.

Some 6 metres in diameter, the shafts are lined with bolted cast iron segments, caulked in between, and originally coated with bitumen. After 60 years it was decided to recoat the shaft linings with the latest state-of-the-art protective coating from Winn & Coales: their recently introduced Denso S.T. Epoxy Mastic. The Denso coating was approved by Kvaerner Construction Regions Ltd, on behalf of Dartford River Crossings Limited.

The work is being carried out by North Kent Shotblasting, who have removed the old bitumen coating and shotblasted the surface to the Sa2 standard

The finished coating.



Denso S.T. Epoxy was spray applied to the bolted cast iron shaft segments.



before spray application of the two coats of Denso S.T. Epoxy Mastic.

Denso S.T. Epoxy Mastic is a surface tolerant coating with exceptional adhesion properties which can be spray applied to deliver long-term protection in a wide range of corrosive environments.



A pipelength being lowered into position.

Anglian Water Chooses Denso Protection for New Pipeline Joints

Anglian Water's new 600mm diameter 8km pipeline runs from Bourne to West Pinchbeck near Spalding, South Lincolnshire, and is now nearing completion. It is a duplicate main to reinforce treated water supply to Anglian Water customers in this area. The contractors for this major project are CG Godfrey of West Pinchbeck.

The lengths of 600mm ductile iron pipe are supplied

prewrapped by the manufacturers. To ensure corrosion-free joints CG Godfrey are using special triangular Densyl Mastic sections from Winn & Coales to smooth the contours of the Tyton push socket joints. The whole joint is then overwrapped with Densoclad 70 Tape to give long term protection.

Densoclad 70 is a robust, heavy duty tape specifically designed for the protection of medium to large diameter pipe and welded joints. The tough pvc backing combined with a polymer bitumen adhesive ensures complete protection against hostile environments, including immersed conditions, as well as resistance to damage by impact during backfill of the pipe trench.



Densyl Mastic was used to smooth the contours of the joint before wrapping with tape.



Robust Densoclad 70 Tape was used to protect the Tyton push socket joints.

Grain Jetty gets Denso Seashield System

The Kwinana Grain Jetty is operated by CBH (Co-operative Bulk Handling) who maintain the jetty's structural integrity for Wesfarmers.

The function of the jetty is to load grain to large grain carriers, which deliver to all parts of the globe.

Denso (Australia) Pty Ltd has devised a pile protection program, which has been in operation for a significant time.

A total of 800 piles will be protected by the Denso SeaShield System at the end of the project.

The system used on the piles is Denso SeaShield 150 Series, which protects the 2.591m splashzone area and Densopol 60 Tape (Rockrap 3000) which protects the area from the top of the splashzone to the concrete soffit.

Approximately 500 piles have been protected to date with the remaining 300 to follow.

A simple modification to the SeaShield System enabled brackets to be easily dealt with. A weld at the joint was also possible.



A close up shows Densopol 60 Tape (Rockrap 300) protecting the area from the top of the SeaShield Jacket to the concrete soffit.



Cross view of the protected raker piles



The head of the jetty is the area that is currently being worked on



Archco-Rigidon Lined Water Pumps get New Lease of Life

Process water pumps at BHP Rolling Mills, Rooty Hill, New South Wales were recently internally lined with Archco-Rigidon 423D corrosion resistant coating.



A grit blasted pump coated with PD-2 Primer.

The project carried out by contractor Ivory's Special Coatings PTY Ltd, consisted of first grit blasting the metal of the various components to Sa2^{1/2} then brush applying a coat of PD-2 Primer.

A white base filler coat of Archco-Rigidon 423D was then applied to fill the cavities and pits and allowed to cure. High spots and dags were ground off prior to the application of the contrastingly coloured top coat which contained 10% styrene monomer/wax emulsion.

The results were refurbished pumps with an added five years service life.

ARCHCO RIGIDON
Resistant  Materials



The white base filler coat of Archco-Rigidon 423D.



Pump components coated with the final coat of Archco-Rigidon 423D which is in a contrasting colour.

Archco-Rigidon Coating protects Sea Water Filters

Plenty Ltd of Newbury has dispatched the first of two batches of specially constructed sea water filter vessels for a liquified natural gas plant operated by a large Middle East company.

Plenty Ltd recommended to the customer that the 2 $\frac{1}{2}$ m length by 800mm diameter filter vessels should be lined with Archco-Rigidon 423D coating in order to protect them against the corrosive action of sea water.

Archco-Rigidon 423D is a spray and/or brush applied glass flake filled vinyl ester resin coating which has a proven track record in such corrosive environments.

The lining was applied by specialist contractors Advanced Surface Coatings Ltd at their Eastleigh, Hants, site. Plenty Ltd inspectors were present to check for pinholes and holidays and carry out pull-off tests for coating adhesion. Both the coating and its application passed Plenty's rigorous integrity testing.

Archco-Rigidon 423D was also used on the internal faces of the filter vessel lids.



A pair of sea water filter vessels built by Plenty Ltd and protected with Archco-Rigidon 423D.



Welsh Water overflow storage uses Tokstrip Sealant

Tokstrip was chosen as the the flexible sealant between box culvert sections which are being used to build an off line storm water storing area for Welsh Water Plc at Rhos-on-Sea, Colwyn Bay.

The contractors, Triact Civil Engineering Limited, have already completed a 356m section comprised of 2.1m x 2.1m x 2.4m precast concrete box culverts and are now starting on two further sections. One will be 320 metres of 3.3m x 1.5m culverts and the other approximately 220 metres of 2.4m x 2.4m box culverts. Tokstrip is also being used as the sealant for these two sections.

When completed, the overall box culvert sections will act to intercept polluted Command Surface Overflows (CSO) for the Colwyn Bay area's main trunk sewer. In times of heavy rainfall it will store the first polluted flush and when the storm has



The joint faces of the units are primed with Tokstrip Primer to enable good adhesion of the Tokstrip.

passed the water will be released into the main sewer and passed to the treatment works in the normal manner.



One of the box culvert sections is lowered into position.

DoE approved, Tokstrip is now widely used for sealing the joints of precast concrete sectional units in drainage and sewerage construction. Under compression it deforms through the joints to provide a flexible watertight seal. Tests supervised by the Building Research Station have shown that Tokstrip ogee pipe joints reach an internal hydrostatic pressure of 2.5 bar (37psi) and retained a seal under shear loading, angular deflection and straight draw.

The primed box culvert units are stockpiled ready for use.



Tokstrip[®]

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Would you like more information about our long-term corrosion prevention and sealing systems?

If you are interested in any of the products featured in this issue of the Denso Digest please tick box:
Please indicate page number(s):



We can offer tried and tested systems to deal with all the problem areas listed below, simply fax back this completed page and we will supply you with more information.

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- External coatings for buried and above ground pipes.
- Internal linings for water, chemical and sewage.
- Corrosion prevention for welded joints, valves and fittings.
- Protection of mounded LPG vessels.

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- Long-term protection for steel jetty piles.
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- Subsea pipelines and outfalls.
- Protection of timber piling.

CIVIL / ROAD

- Joint sealing of asphalt wearing courses.
- Crack sealing for road pavements.
- Joint sealing of precast concrete pipes and culverts.
- Corrosion prevention for post and pre-stressed tendons.

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- Corrosion prevention for gantry cranes, cooling towers, pylons and steelwork.
- Corrosion prevention for pipes, valves and fittings.
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- Waterproofing of rooftops and parapets.
- Sealing of cable entry ducts.



**LEADERS IN
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- Corrosion prevention for steel structures.
- Protection against abrasive wear.
- Corrosion prevention for concrete bunds and floors.
- Corrosion prevention for pipework, pumps and valves.

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our new UK web site
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