

WINN & COALES INTERNATIONAL LTD

# Denso Digest



QUALITY & INNOVATION FROM 1883 INTO THE 21<sup>ST</sup> CENTURY



# WINN & COALES INTERNATIONAL LTD

For more advice or product information please contact your local Denso company or fax/mail the form on the back of this publication.

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 ✓ Anti-corrosion and sealing systems

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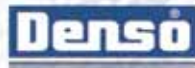
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# Jacking Up With Denso Steelcoat 700 System

Having found that previous coatings were only giving 12 months protection for its De Long jack-up barge, Titan Marine (UK) of Newhaven, Sussex, has switched to the Denso S.T. Epoxy Steelcoat system following extensive trials.

The jack-up barge or platform can be compared to a barge that climbs up its legs to provide a general working platform with accommodation and engine room for the compressor and generators below. It has a 1500 tonnes lift capacity. The three legs are 30m in length but can be extended so that the jack-up barge can work in up to 50m water depths on a hard bottom. The barge is 26m by 26m, with a moulded depth of 3.5m, with a wide slot penetrating 15m in from her stern, making her a three sided U-shape. Known as the 'Katja' she was purpose built at Le Havre in 1978 for EDF, the French electricity generating company.

Typical of some of its uses in UK waters are pile driving, jetty repairs, lifting buoys and providing a floating stage for a production of Shakespeare's play, The Tempest. The latter was between the piers at Brighton and incorporated a firework display from the 'Katja'.

Titan Marine Industries Inc. the American parent company, also owns two other jack-up barges, currently working in Venezuela and Brazil.

Denso S.T. Epoxy has been applied to all surfaces of the 'Katja' except the legs which needed to retain a rough surface for the jacks to grip on. It is a mastic coating with exceptional adhesion properties. It can be spray or brush applied to deliver long-term protection in a wide range of corrosive environments.

To enable quick identification of the subject matter within each story in this brochure we have adopted the following colour codes.

PROJECTS INVOLVING:	
PROTECTIVE COATINGS FOR.....	
	BURIED PIPELINES & LPG VESSELS
	EXPOSED STEEL & PIPEWORK
	SUB SEA PIPELINES & JETTY PILES
PROTECTIVE LININGS FOR.....	
	STORAGE TANKS, PUMPS ETC.
SEALING & WATERPROOFING.....	
	SEALING MASTICS
	MEMBRANES & FLASHINGS
	INDUSTRIAL TAPES



Above and below:  
Denso S.T. Epoxy coating used on the 'Katja' jack up barge.



## Sealing Mastics - Jointing Asphalt Road Surfaces

## 20,000 Metres of Densoband Jointing Strip Used on the M25

Densoband is being used to form a flexible watertight joint between concrete and asphalt on the major resurfacing project being carried out on the M25 between Clacket Lane Services and the junction with the M26. Main contractors are Fitzpatrick Contractors, with sub-contractors Tarmac Ltd National Contracts applying the asphalt black top and the Densoband jointing strip. Both carriageways are being resurfaced over the 6½ km section involving the use of 20,000 metres of Densoband.

As a result of wear in excess of that originally visualised for this section of the M25, a new concrete reinforced pavement is being laid on the existing surface of the inside lane and middle lane of each carriageway, with new Macadam asphalt on the hard shoulder and outside lane. Following application of Densoband Primer, Tarmac Ltd are applying the Densoband as a vertical jointing strip between the new concrete pavement and the Macadam asphalt base course each side of it.

Approved by the Highways Agency and the British Airports Authority, Densoband forms a flexible watertight joint between hot rolled asphalt and asphalt, concrete or steework. Because water, salts, pollutants, weed seeds etc cannot penetrate the sealed joint it remains unaffected by extremes of temperature and further deterioration.

The prudent use of Densoband as an asphalt joint sealant greatly reduces future road maintenance costs and expensive, unpopular repairs making it a cost effective alternative to traditional jointing materials.



Above: Heating Densoband with a torch ensures an excellent bond with the vertical joint face.  
Below: The Densoband Applicator Machine was used for fast reliable application of the product.



## Sealing Mastics - Jointing Asphalt Road Surfaces



## Densoband Takes The Chequered Flag!

The Canadian division of Denso North America Inc. has long been a leader in supplying corrosion protection solutions to the pipeline industry in Canada.

This success with the pipeline industry is largely due to our involvement in particular with



the oil & gas transmission sectors. We are, however, also focused on the transportation sector across Canada. Denso road products are becoming very well known for providing solutions for the joint sealing of asphalt, concrete and steel appurtenances in the transportation industry.

One such product is Densoband, a modified polymer bitumen strip applied between old asphalt, concrete or steel surfaces and a new asphalt inlay. This material is produced in roll form with a disposable interleave film and is used in conjunction with a bitumen based primer. Densoband has high adhesive qualities and can withstand

asphalt movement as well as thermal expansion and contraction. It provides an excellent uniform, flexible waterproof seal.

Applications in Canada have included new road construction, road rehabilitation, bridges, rail systems, municipal parking garages and road cuts to name a few. We have applied Densoband between two asphalt surfaces, between asphalt and concrete surfaces and between asphalt to steel, including asphalt and heavy industrial rubber bumpers used at rail crossings for anti-vibration.

One of the more interesting projects the Canadian group has recently been involved in was the rehabilitation of crew pits at the Montreal Grand Prix, held annually in Canada as part of the worldwide Formula One racing circuit. Our involvement in this project was to provide joint sealing between the old asphalt road surface and new paved

pit areas for crew maintenance. This joint sealing had to guarantee a complete waterproof seal and Densoband was the only product called upon that could meet the strict specifications laid down for this race.

There is nothing more thrilling than to watch these magnificent high speed racing machines travel around a circuit except when the drivers cross 'the Densoband finish line' in the pit area. We really think Densoband deserves the chequered flag!



Corrosion Prevention - Jetty Piles / Splash Zone

# New SeaShield System Guards New Humber Ro-Ro Terminal

The Humber Sea Terminal Ro-Ro berth, owned by Simon Carves, is located on the south bank of the Humber. The conditions in the estuary are extreme with very fast tidal flows, short periods of slack water and zero visibility, which makes working in the water very difficult and hazardous.

When the contractor, Edmund Nuttall, was instructed to install a corrosion control coating on the steel piles below low water they approached Winn & Coales (Denso) Ltd for their recommendation.

In a team effort between Nuttalls, the diving contractor Jones Marine, and Winn & Coales, a system, SeaShield 2000 HD, incorporating an extremely

lowered down the pile to the desired position, the divers then entered the water and quickly positioned the jacket and secured it firmly around the pile.

With careful management, optimum use was made of the available time and the installation of the SeaShield 2000 HD system was completed successfully.



Left: The SeaShield 2000 HD Jackets are fastened using an extremely robust securing mechanism.

Below: Installation of the SeaShield Jackets using the special hinged cage devices.



robust securing mechanism was developed to stand up to the fast and turbulent tidal flow.

To maximise the short working time available at slack water, a hinged cage device was constructed to hold the SeaShield jacket in place around the pile. At slack water the cage was



The Humber Sea Terminal Ro-Ro Berth.

## Denso Void Filler Helps Protect Latest Medway Bridge

The completion of the strengthening of the M2 bridge over the River Medway by contractors Edmund Nuttall Ltd to carry M2 road traffic means that there is now a bridge carrying east to west traffic and a second for west to east. A third bridge to be built at this location will be for the high speed Chunnel rail link.

Denso Void Filler has been used to play its part in the anti-corrosion protection of the prestressed stay cables that support the bridge, which were installed by specialist sub-contractors Freyssinet. The 96 prestressed cables, with a maximum length of 148m, are pregouted and Freyssinet specified Denso Void Filler to provide long life protection to the end caps.

Denso Void Filler is a petrolatum compound which contains additives to displace moisture and inhibit corrosion. It can be injected cold or hot, if required, from a heated tank with its own pumping system specifically designed by Winn & Coales Engineering Division.

Denso Tape was also used on this Medway bridge for protection on the supporting Macalloy bars at the side of the bridge.



Application of Denso Void Filler to the prestressed cable end caps

The Medway bridge under construction.



## Tokstrip Sealant Used for Precast Concrete Hydrobreak System

Contractors GMI Construction Group plc of Leeds have recently developed a 2½ acre site at Sandiacre, near junction 25 of the M1 in Nottinghamshire for the construction of office units for Business Homes of Leeds. The work included the construction of a holding tank for surface water as part of a hydrobreak system for the site.

This holding tank was formed from a twin run of precast concrete culvert sections supplied and delivered to site by Hanson Concrete Products. Each section weighed 24 tonnes and measured 6m x 2.9m x 1.4m (internal dimensions). The use of Tokstrip, flexible joint sealant between the culvert sections on this project was specified by the consultants, White, Young and Green of Leeds. In order to avoid an existing building, the holding tank constructed from the precast concrete culverts was split into two lengths: one of 36m length and the other 22m.

Tokstrip has gained an enviable 40 year track record of use within the construction industry. To ensure its lead in the market place the product has

recently undergone a major revamp. Only one grade of Tokstrip is now required for all year round use and it is more user friendly and easier to handle. The standard Tokstrip primer is now faster drying and a clear primer is available for areas where appearance is important. Under compression Tokstrip deforms through the joints to provide a flexible watertight seal.

# Tokstrip®

Each of the 6m x 2.9m Hanson culvert sections were joined together using Tokstrip flexible joint sealant.





# The Denso Petrolatum Interface Coating System

When pipeline companies begin coating rehabilitation projects, the selection of the mainline coating material is only half the battle. Just as critical as the new field applied coating is the tie-in coating (or interface coating) that encapsulates and seals the new coating to the old existing one.

The Denso Petrolatum Interface Coating System is a transitional coating system used between dissimilar coatings such as asphalt, enamel, bees wax, polyethylene, adhesive tapes, FBE, liquid coatings etc. As with all Denso petrolatum tape systems a big advantage is minimal surface preparation of SSPC-SP.2 (hand tool cleaning) or SSPC-SP.3 (power tool cleaning). Another key benefit with this system is that the materials can be applied to wet pipe, in cold or hot weather and

to cold or hot operating pipe.

The system consists of Denso Paste, Densyl Tape and Denso Glass Outerwrap. First a thin layer of Denso Paste is spread one to two feet (300-600mm) onto both the new and old coating. Secondly the Densyl Tape is spirally wrapped with a 55% overlap to create a double layer system. Finally the Denso Glass Outerwrap is applied with a 55% overlap a minimum of 4 inches (100mm) over the Densyl Tape. additional layers will provide increased mechanical

strength and soil stress protection.

There are many conditions to which the denso Petrolatum Interface Coating is ideally suited:

- As a tie-in or interface coating between dissimilar metals.
- As a transitional coating from the below ground coating to the above ground coating. The Denso Glass Outerwrap can be painted to match above ground piping.
- As an encapsulation coating over pipeline repair systems such as Clockspring, Petrosleeves etc.

The Denso Petrolatum Interface Coating system is rapidly becoming the preferred system for many major pipeline companies in both the United States and Canada.



The Denso Petrolatum Interface Coating System...

Top Left:  
... used as a transitional coating from the below ground coating to the above ground coating.

Top Right:  
... used as a tie-in or interface coating between two dissimilar coatings.

Left:  
... used as an encapsulation coating over a steel pipe repair sleeve.

## Corrosion Prevention - Exposed Steel Pipes

## Ultra Long-term Denso Steelcoat Protection Saves Sewage Pipes Replacement

During a recent comprehensive maintenance inspection at the Bothwellbank Sewage Treatment works near Hamilton, Glasgow, West of Scotland Water's engineers debated whether to replace the two steel sewer inlet pipes on the connecting pipebridge over the River Clyde.

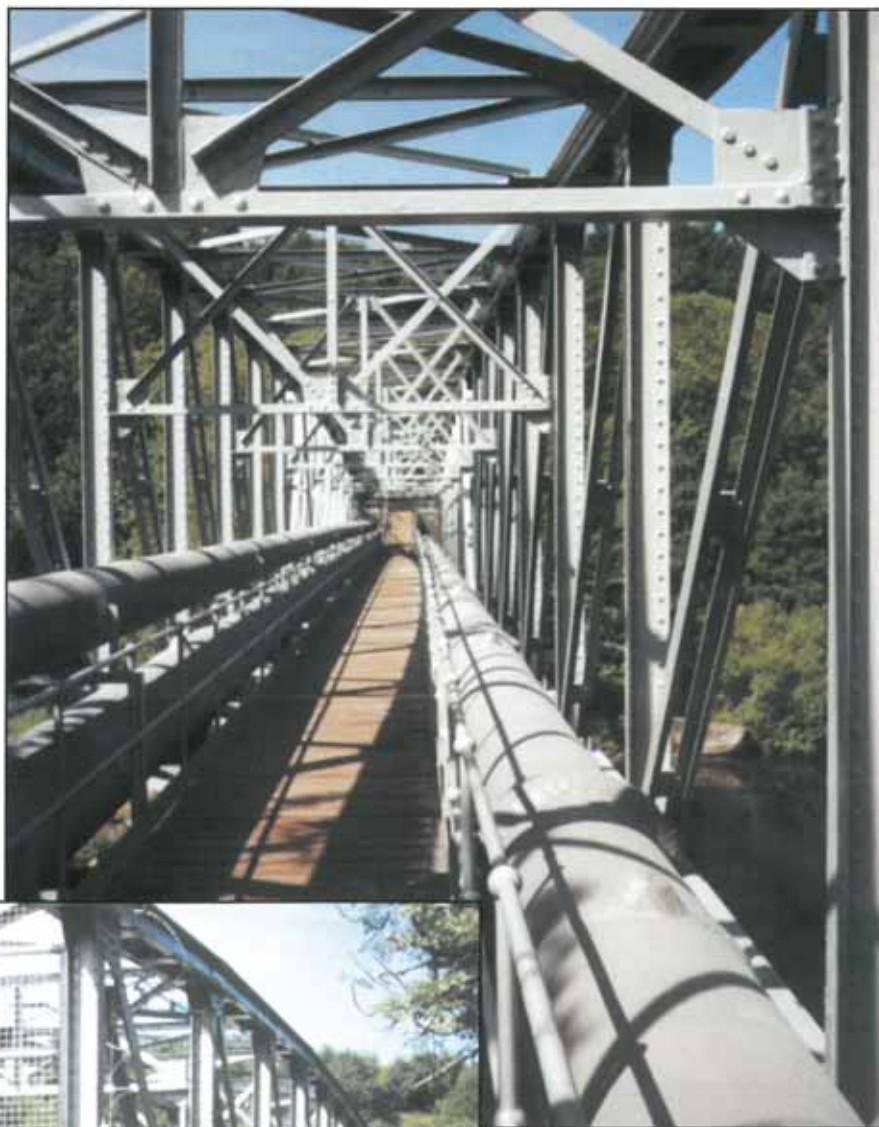
The pipebridge has a total span of 78m and carries two 600mm sewage pipes into the Treatment Works. The passing years confirmed that the previous conventional paint system had greatly deteriorated with considerable thinning of the steel pipes due to corrosion and wear.

Initially, the West of Scotland Water's engineers considered replacing the two pipes. Then having studied the specification and recent case histories of the Steelcoat 400/100 Tape Wrap System, the decision was made to reline the pipes and then wrap and coat the external surfaces with the Denso materials. The pipebridge structure did not require such a heavy duty system so the Denso Steelcoat 700 Epoxy system was selected. Abrasive blast cleaning was not necessary and the contractors applying the Steelcoat Systems were Border Coatings of Leaderfoot, Melrose.

The Denso Steelcoat 400/100 System has a life expectancy of 30 years and comprises an inner layer of Hi-Tack petrolatum

tape and primer and an outer layer of bitumen based Ultraseal Tape and Acrylic Topcoat. The tough, robust system guarantees a minimum coating thickness of 2.5mm.

Steelcoat 700 System applied to the surrounding steelwork consists of two coats of brush applied Denso S.T. Epoxy (two colours). Denso Weathershield was a final coat option for exposed conditions.



*A new lease of life - the pipes were protected with the Denso Steelcoat 400/100 System and the surrounding pipebridge structure was protected with the Denso Steelcoat 700 System.*

Corrosion Prevention - Exposed Steel Pipes

# Denso Steelcoat System Selected For Repairs On Waste Water Treatment Pipes

Located in Western Australia, the Jandakot Waste Water Plant has numerous above ground pipes coated with coal tar epoxy. When it became evident that, due to fire damage, significant areas of coal tar coating had to be removed, preference was given for the Denso Steelcoat 300 System which offers the benefit of extremely fast application time.



Above:  
Exposed pipe showing a typical fire damaged section.

The pipe surface was first power tool cleaned and then a single wrap of Denso ColourTape (white) was applied with a 55% overlap to ensure a double coating thickness.



Centre:  
The Denso Steelcoat 300 System was exceptionally quick to apply.



Left:  
A completed section of pipe.



Front cover:  
20,000 metres of Densoband used on the M25  
(see story page 4).



Most Denso products are covered by patents and the words "DENSO", "DENSYL", "ARCHCO-RIGIDON", "DENSOPOL", "DENSOCCLAD", "TOKSTRIP", "CORROCLAD", "SYLGLAS", and "PROTAL" are registered trade names in the UK and many other countries.

## 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 also 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.

### BURIED ONSHORE COATINGS

### SUB SEA/SPLASH ZONE COATINGS

### SEALING MASTICS

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

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

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

### EXPOSED SURFACE COATINGS

### INDUSTRIAL LININGS

- Corrosion prevention for chemical plant, structural steelwork, above ground pipes, storage tanks, offshore rigs, bridges and support cables, cranes and pipe bridges.
- Corrosion prevention for metal roof purlins and metal roof sheets.
- Protecting pre-stressing and post tensioning bridge cables and ground anchorages.

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

- Sealing of cable entry ducts.

### INDUSTRIAL TAPES

- Sealing and insulating
- Protecting and bonding

### MEMBRANES & FLASHINGS

### DIY WEATHERPROOFING

- Tanking / waterproofing.
- Exposed rooftops and parapets.

- Waterproofing and flashing

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