WINN & COALES INTERNATIONAL LTD

Denso Digest

THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2010

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Spray applying Protal 7200 to 36″ girth weld in 35 seconds in the USA - see story page 8 and 9.

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LEADERS IN CORROSION PREVENTION & SEALING TECHNOLOGY

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LEADERS IN CORROSION PREVENTION & SEALING TECHNOLOGY

Rehabilitation of Existing Wastewater Pipelines

Sandwiched between the Engen Refinery and Mondi Paper Mill and a stone's throw from the Durban coast, lies the Bluff Central Wastewater Pump Station.

Denso Surface Tolerant Epoxy and Denso Steelcoat 500 System were approved to provide long term corrosion prevention to the existing wastewater pipeline.

After mechanical preparation to ST2 and degreasing, a coat of Denso ST Epoxy at 250μm was applied by brush to the entire pipe surface. This was then overwrapped with the Denso Steelcoat 500 System ensuring the pipeline has all the protection required to withstand the harshest and most corrosive environment.

Project Summary	
Product type: Exposed Steel Coating	
Country:	South Africa
Location:	Durban
Object:	Wastewater pipeline
Problem:	Corrosion prevention
Product solution:	Denso Steelcoat 500 System

Pictues show the wastewater pipeling protected with the Denso Steelcoat 500 sytem.

For quick identification of the relevant product type used in each story we have used the following colour codes:

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

LEADERS IN CORROSION PREVENTION & SEALING TECHNOLOGY

Fire Resistant Densyl KF Colourtape System used on Fire Water Pipeline Flanges

At the Otahuhu Power Station in Auckland, New Zealand, the cooling towers are constructed of wood. This is fine when they are operational but pose a fire risk when a cooling cell is offline. Elevated temperatures in the system can dry the cell out creating a potential fire hazard.

The power station, owned by a major energy company in New Zealand, Contact Energy, is a gas thermal station situated between a residential and industrial area. As a result a fire suppression system was specified. The company contracted to construct this system, Wormald engineering required a large number of flange joints to be protected post installation.

Crucial to the success of the installation is a line pressure test, to be conducted prior to the Denso application. An opportunity existed to train the operators in the correct application of the fire resistant Densyl KF Colourtape system.

An inspection was required at various stages of the installation to ensure the correct application was carried out. As a result the asset owner was reassured that the training on site would offer peace of mind in the correct installation of the system.

In this project Denso were involved in the specification, supply, training and after sales service. As the asset owner was represented by a large engineering consulting company, this ensures that Denso Systems are considered across a wider network.

Below and inset: Fire water pipeline flanges protected with Densyl KF Colourtape which is fire resistant.

Application of the Denso KF Colourtape.

Project Summary	
Product type: Exposed Steel Coating	
Country:	New Zealand
Location:	Auckland
Object:	Fire water pipe
Problem:	Corrosion prevention
Product solution:	Densyl KF Colourtape

LEADERS IN CORROSION PREVENTION & SEALING TECHNOLOGY

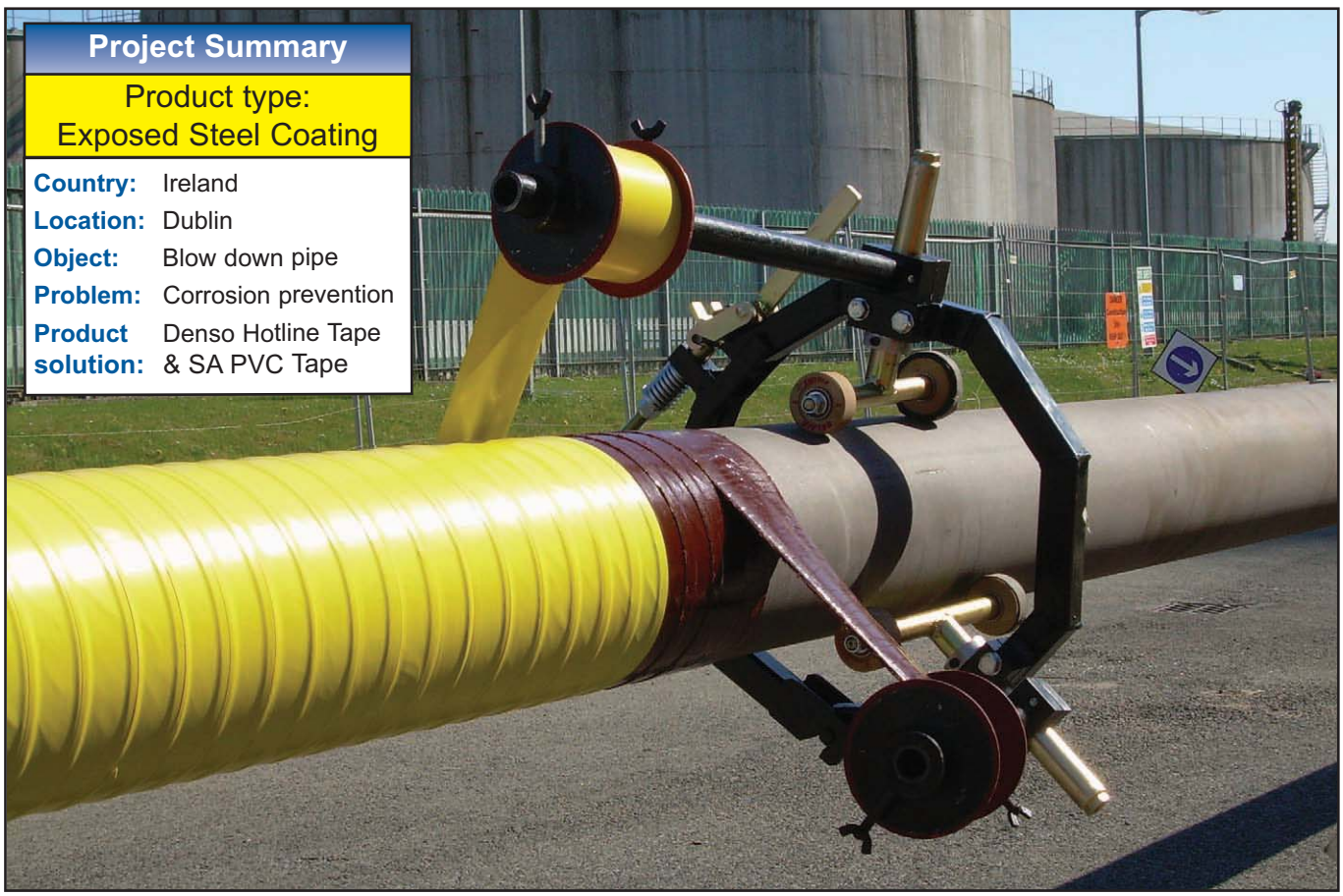
Denso Hotline Tape Protects Blow Down Pipe

Denso Hotline Tape was chosen by Utility Operating and Maintenence Service Ltd (UOMS) for the protection of a new underground boiler blow down pipe at Synergen's Dublin Bay Power Station. UOMS and Synergen are wholly owned by ESBI, a leading engineering and energy company.

Denso Hotline Tape was chosen because of its ability to withstand temperatures of 110°C, which can be the temperature of the water removed from the boiler by the blow down pipe. To complete the protection system Denso Self-Adhesive PVC Tape was applied over the Hotline Tape with both tapes applied in one aplication using a Denso Hand Wrapping Machine. This wrapping work was carried out on site by UOMS and local contractor CLG Developments.

Denso Hotline Tape is a cold applied, conformable petrolatum based tape for the protection of pipes operating at elevated temperatures (up to 110°C). It is suitable fro the protectiuon of copper, iron or steel pipes above ground, in ducts or set in concrete and in consequence is becoming widely used by factory and power station engineers.

The perfect dual application of Denso Hotine Tape and Denso Self-adhesive PVC Tape is acheived in one easy operation using a Denso Hand Wrapping Machine.



Project Summary

Product type:
Exposed Steel Coating

Country:	Ireland
Location:	Dublin
Object:	Blow down pipe
Problem:	Corrosion prevention
Product solution:	Denso Hotline Tape & SA PVC Tape

The Skilled Trade of Field-Hand Applied Epoxies

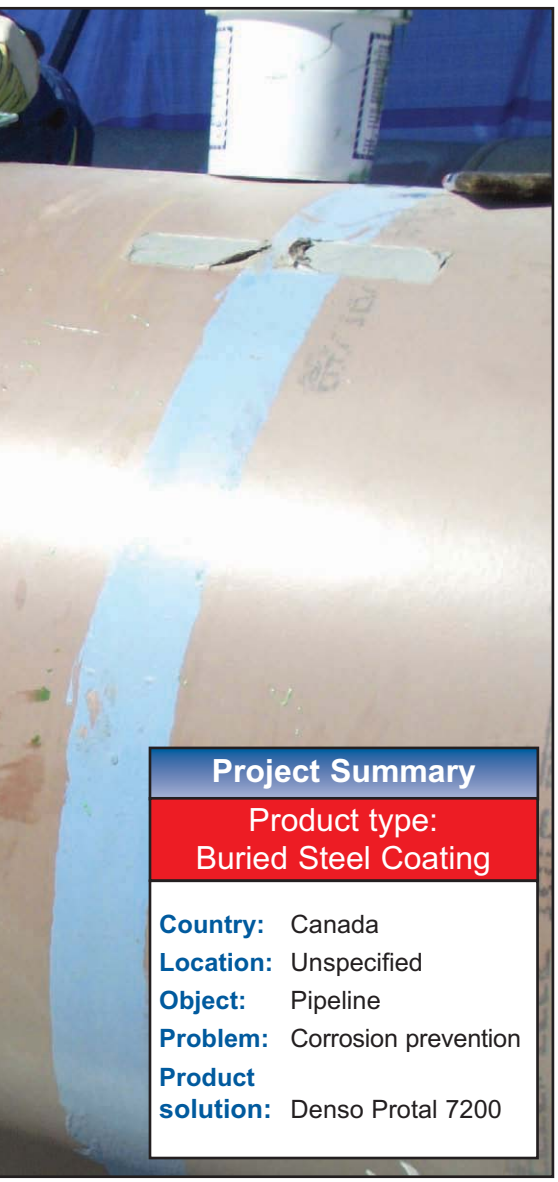
There has been a lot of discussion surrounding the question of using automated spray equipment for field applied joint coatings versus the traditional hand applied method. The automated spray technology has been available for over 10 years, and with continuous improvements to the equipment, it is being utilized more often in the North American Market. Although the equipment is readily available, the method of using paint rollers and paint brushes still dominates the Canadian Pipeline Industry.

As part of Denso North America's QA/QC Field Applied Coating Training/Certification program and general on-site involvement, we are continually either applying our epoxies ourselves or observing Pipeline Contractors apply them. What is a common misconception, unfortunately for the Pipeline Industry, is that properly applying epoxies in the field is easy and anyone can do it. This is absolutely wrong.

Denso Protal 7200 being applied to a welded joint.

The art of properly hand applying a product like Protal 7200 is a learned profession not unlike the work that the welder does prior to the pipe being coated. Uniformly applying (within microns) a holiday free joint coating, many times in unfavorable weather conditions, and continuously meeting stringent pipeline owner specifications, plus completing this task at high levels of production is something that takes a high level of skill.

The highly skilled crew from Ledcor with a recently completed a Protal 7200 protected joint.



Project Summary

Product type:
Buried Steel Coating

Country:	Canada
Location:	Unspecified
Object:	Pipeline
Problem:	Corrosion prevention
Product solution:	Denso Protal 7200

Field applied joint coatings have a much higher visibility in the industry due to the obvious concerns of pipeline failures if the coatings application is done incorrectly. There is much more visibility than there was even 10 years ago. With this higher interest level, QA/QC in the field has increased dramatically, and with proper coating inspection by qualified inspectors being executed, superior application skill levels are being achieved and also a higher demand for precision automated equipment to apply these epoxies.

Additionally, organizations such as NACE (National Association of Corrosion Engineers) are developing intensive training programs that focus strictly on the proper application of hand applied pipeline coatings to further the cause.

The debate of hand applied joint coatings versus the use of automated spray applied equipment has many comparisons, such as cost of production, quality issues, climate conditions, pipe diameter variances, technology vs. traditional labour, etc, etc.

What we have generally observed in Canada is that a well seasoned coatings crew is comparable both in production and quality to the current equipment that is on the market. Take for example the coatings crews of Ledcor Pipelines which we have worked with for years, supplying epoxies for joint coatings on large diameter, long distance pipelines.
One crew in particular we have observed over the years is truly impressive, this team has applied literally hundreds of thousands of joint coatings and they themselves look and operate like a well oiled machine.

As the debate continues, one thing for certain is that Denso Coatings in the field are being applied with higher and higher levels of quality which is to everyone's benefit.

LEADERS IN CORROSION PREVENTION & SEALING TECHNOLOGY

Automatic Spray Ring Applies Protal 7200 to Girth Welds

On a recent 36″ pipeline construction project in Louisiana, Michels Pipeline Construction utilized the services of Pipeline Induction Heat (PIH) to apply Denso's Protal 7200 to the mainline girth welds. This was the first project in the USA where an automated plural spray ring was utilized to apply the weld joint coating. In the past, the weld joints were always coated by brush or roller. The advantages over brush application were considered to be speed of application and a more uniform dry film thickness (DFT). Both expectations were achieved as PIH was able to coat an average of 160 weld joints/day with DFT's between 24 and 32 mils.

Project Summary	
Product type: Buried Steel Coating	
Country:	USA
Location:	Louisiana
Object:	Pipeline weld joints
Problem:	Corrosion prevention
Product solution:	Denso Protal 7200

PROTAL

Automatic Spray Ring clamped and ready to apply Protal 7200 to blasted girth.

LEADERS IN CORROSION PREVENTION & SEALING TECHNOLOGY

Automatic Spray Ring moving to the next joint.

First, the 36″ weld joint was blasted to a near-white finish, SSPC-SP 10/NACE No. 2, while achieving a 4.0 mil anchor profile. Then, the surface area was preheated with an induction coil to 180F. Finally, PIH's automatic spray ring was able to coat the weld joint in about 35 seconds with 5 rotations (approx. 6 mils per pass) of the spray tip. All 3 steps of surface preparation, pre-heating and coating took approx. 4 minutes. In an 8 hour work day, they were able to coat up to 200 joints.

Protal 7200 is a two-part, 100% solids epoxy coating that can be applied in one coat up to 50 mils. The product exhibits outstanding adhesion to steel and FBE, as well excellent resistance to cathodic disbondment. It has high impact and abrasion resistance for directional drill applications. Furthermore, the extremely fast cure makes it ideal for tie-ins, bore joints and holiday repairs.

Above: Protal 7200 applied at 24 to 32 mils DFT.

Denso Protal Protects Gas Manifolds

Bryan Donkin RMG Gas Controls of Chesterfield has recently completed the manufacture of a pair of 24" diameter carbon steel gas manifolds. These are the first of four underground manifolds to be supplied for the National Gas Grid Windsor Street project in Birmingham.

To protect the manifolds, National Gas specified a Denso Protal brush coating which was applied by J M Shotblasting also of Chesterfield, following shotblasting to SA2½ standard. Two coats of the Denso Protal were applied to give a total thickness of 1500 microns with a gramaphone finish which will give zero gas leakage when connected to a gas main. J M Shotblasting also ensured that prior to coating, all flange ends and bolt holes were cleaned out and protected.

Denso Protal coatings provide an effective anti-corrosion coating for metals. They do so by forming a firmly bound corrosion inhibiting film on the metal surface which creates a thick effective physical barrier against air and moisture and remains permanently flexible. A grade is also available for application by plural Hydrocat spray.

Project Summary	
Product type: Buried Steel Coating	
Country:	United Kingdom
Location:	Birmingham
Object:	Gas manifold
Problem:	Corrosion prevention
Product solution:	Denso Protal

One of the 24" gas manifolds coated with Denso Protal and awaiting installation.

LEADERS IN CORROSION PREVENTION & SEALING TECHNOLOGY

Water Pipeline Protected on the New Peterhead Quay

Westminster Dredging and RJ Mcleod were recently awarded the contract for a scheme with a value of £27.7m to form a new multi-purpose quay in Peterhead Harbour which will provide a 200 metre long, all weather, deepwater berth at the Smith Embankment.

As part of the scheme, new pipelines which will carry water to a range of vessels using the new quay, were required to be protected from the corrosive marine environment.

To provide the necessary protection Denso stockists, Burdens (of Aberdeen) supplied RJ Mcleod with Denso Paste S105, Denso Tape and due to the harsh environment, an outerwrap of Densoclad 50 Tape.

Denso Mastic Strips were also used to protect the bearings of the water pumps on top of the 14 piles that the new quay deck is sitting on.

Apart from the additional anti-corrosion protection, Densoclad 50 Tape's extremely tough pvc backing combined with polymer bitumen adhesive ensures resistance to impact and the mechanical abrasion likely to be experienced on a working quayside.

Project Summary

Product type:
Exposed Steel Coating

Country:	Scotland
Location:	Peterhead Harbour
Object:	Water pipeline
Problem:	Corrosion prevention
Product solution:	Denso Tape, & Denso Paste S105

The new Peterhead Quay showing the Densoclad 50 Tape protected water pipeline, running alongside it.

New Improved Densoclad Tape...

Densoclad Tape, normally used for the corrosion prevention of buried or immersed pipes and fittings is one of the company's most durable products and comes in a choice of thicknesses. The optimum application for Densoclad Tape recommends a 55% overlap of the tape and as a guide to achieve this correct overlap, every roll now features the product name and size printed down the centre of the tape. This gives a visual indication for the correct overlap (see image). Not only will this speed up the application, improve accuracy and reduce wastage, it will also allow customers to identify in future which Densoclad Tape variety they originally used.