CORROCOAT

An Engineering Concept

anti – corrosion technology

CORROCOAT FIGHTS BACK

Corrosion eats away not only at capital equipment but also at profits. Protection against corrosion is a vital issue in extending the working life of plant and equipment, reducing total life cycle costs.

Corrocoat has been winning the fight against corrosion for over 30 years, using innovative mechanical engineering combined with anti-corrosion technology to provide long term protection for both new and damaged equipment.

The company utilises specialist composite and structural coatings combined with engineering techniques to provide individually tailored solutions to corrosion problems:–

- Re-engineering damaged equipment (often already condemned as scrap)
- Assessing new components and structures at design stage for corrosion potential
- Putting forward tailored proposals to prevent corrosion damage
- Suggesting design modifications to minimise the problems of corrosion attack

Research and development play an important role in Corrocoat's day to day activities, with the introduction of new methods and materials giving the company the flexibility of approach to combat the complex and widely differing corrosion problems faced by all corners of industry.

Corrocoat solutions offer environmentally sound options capable of significantly extending the service life of major engineering components, making a very real contribution to preserving manmade resources. High solids coatings – in many cases approaching 100% – have an extremely low VOC content and therefore very little impact on the environment.

Focusing on quality, Corrocoat's refurbishment and protection techniques are a proven and cost effective weapon, allowing the company to win the war against corrosion.

With more than 30 branches across five continents, Corrocoat provides a worldwide service.

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TANKS AND VESSELS

– Long term protection

Over the years, materials developed by Corrocoat have been used extensively for the protection of a wide range of tanks and vessels for storage, treatment, process and even road, rail and sea transport applications.

As a result the company has developed expertise in the management of coating programmes for tankage and vessels used in environments as diverse as sewage treatment, activated carbon filtration, chemical and hydrocarbon storage and offshore oil processing. In many cases, these coatings have been in continuous service for up to 20 years without requiring further maintenance.

Typical applications include:-

- Acid pickling tanks
- Ballast tanks
- Effluent tanks
- Fresh water tanks
- Galvanisation dipping tanks
- Seawater holding tanks
- Settlement tanks
- Underground fuel storage tanks
- Water treatment tanks
- Deaerator vessels
- Degasser vessels
- Filter vessels
- Process vessels
- Road tanker vessels

In addition, the company has devised and implemented a unique and robust method for the repair of floors on large flat bottomed tanks, using advanced composite materials, without the need for overplating. These repairs can be affected without hotwork, creating either single or double skin solutions which can be monitored remotely in line with the performance levels demanded by these environments.

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PIPEWORK

– Internal and external protection

Corrocoat branches worldwide are instrumental in the protection of hundreds of kilometres of large and small bore pipework each year, using Corrocoat materials developed specifically for application to pipe internals and externals deployed in even the most arduous conditions.

- Corrocoat provides established solutions for both metallic and concrete substrates, offering protection for new lengths of pipe prior to and during installation as well as refurbishment options for existing pipework.

- The company has focused R&D investment on solving specific problems incurred when coating pipework, achieving correct dry film thickness and homogeneity throughout the length of the pipe spool.

- Corrocoat utilises a range of specialist application techniques, ranging from pipe rolling rigs through to advanced down-pipe blasting and coating equipment, offering high quality finishes combined with fast turnaround and reduced downtime.

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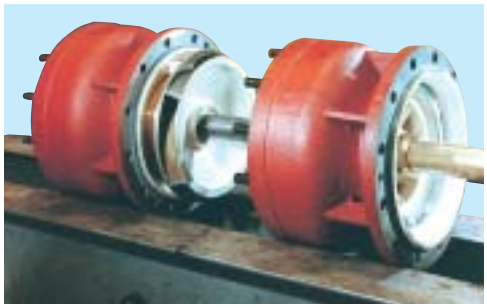
PUMP ENGINEERING

– The power to protect



The variety in nature of damage sustained by pumping equipment demands a comprehensive understanding of the design and operation of different pumps and systems in order to provide effective refurbishment and protection.

Corrocoat offers a comprehensive service for repair, refurbishment and protection, including specialist procedures for:-

- Severe corrosion/erosion damage in areas such as volutes, cutwaters and neck rings
- Reprofiling of water passages
- Making good deep pitting and porosity in pump casings
- Coating machined areas such as neck ring joints
- Returning coated components to original tolerances, facilitating the return of good pumping efficiency
- Sophisticated mechanical engineering capabilities including the re-manufacture of impellers and the manufacture of shafts
- Metal stitching and laminating techniques

Corrocoat pioneered the field of R&D into coatings designed to maximise the performance and efficiency of pumping installations with the development of the Fluiglide system, now used worldwide to achieve notable and sustained increases in efficiency levels.

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VALVE ENGINEERING

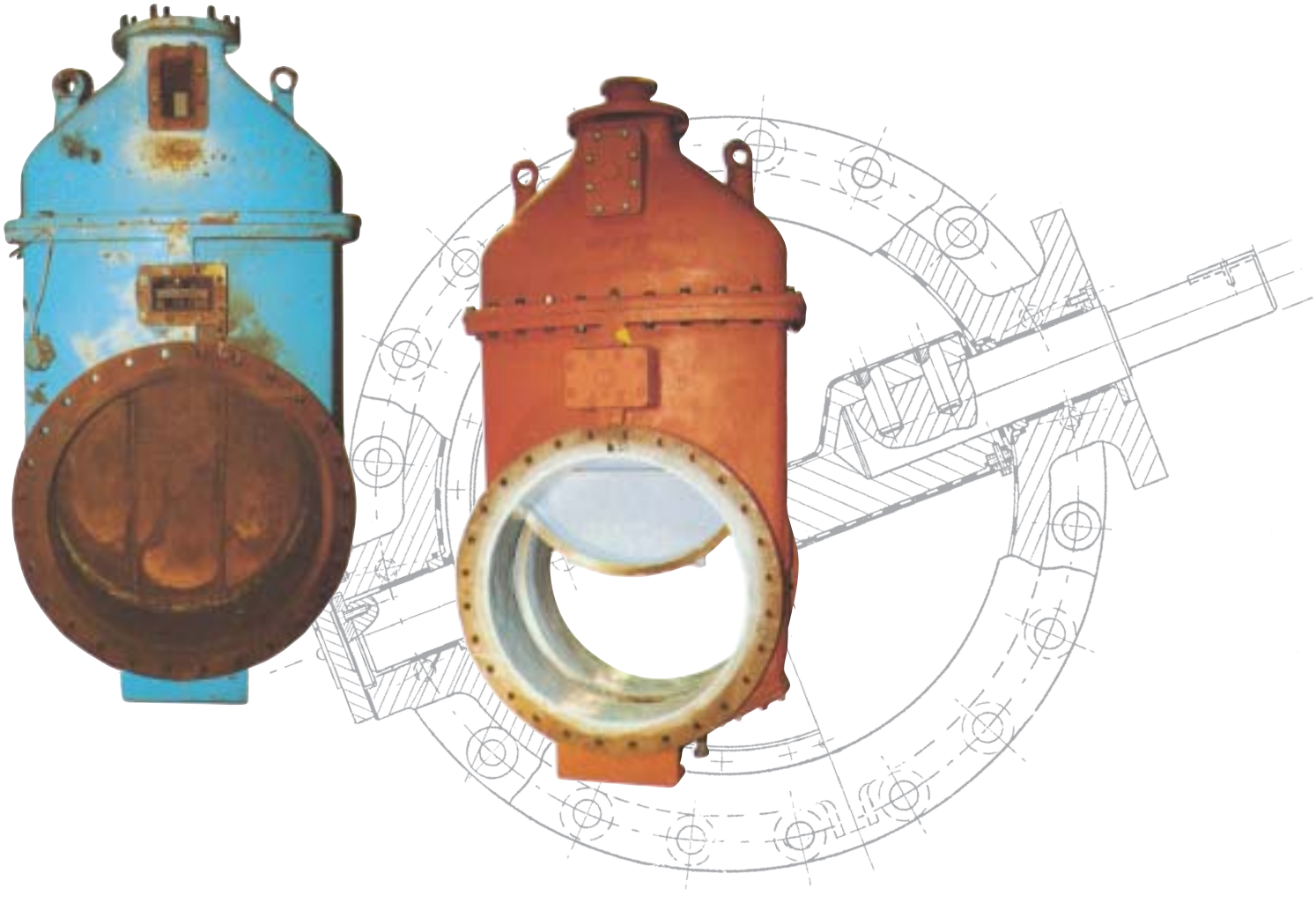
– Going with the flow

With the necessary engineering skills to manufacture spindles, bushes and mechanical seals for all valve designs, Corrocoat provides an expert refurbishment and protection service for all types of valve designs. The company also manufactures new valves using both steel and GRP.

Engineering design modifications developed in-house to repair damage caused by severe turbulence and erosion include:-

- Machining out unstable areas from the outside diameter of the blades to accept a stainless steel or other metallic support and clamping ring
- Machining the valve body itself to accept a new stainless steel sealing ring, where galvanic attack may have eaten away existing securing arrangements.

Using a range of materials developed to withstand even the most aggressive chemical environments, as well as products capable of handling substantial abrasion attack, Corrocoat has a purpose-designed solution for every application.



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STRUCTURAL STEEL PROTECTION

– Ship to shore and offshore

Corrocoat products and techniques have been used extensively for projects ranging from corrosion protection for newbuild structural steelwork through to turnkey bridge refurbishment schemes, bringing together both coating and engineering skills.

Typical projects include:-

- Solutions to CUI (corrosion under insulation) issues
- Protection against SRB and bacterial attack
- Solutions to accelerated low water corrosion issues (including protection for piling)
- Structural steelwork
- Tank externals
- Pipe and pipe support externals
- Pipe riser externals
- Support steelwork
- Flotation units
- Stairways in aggressive atmospheric conditions
- Footbridges (handrails and support structures)
- Railway bridges
- Pipe bridge refurbishment (riveted open lattice constructional/riveted 'N' girder construction)
- Bridge refurbishment (riveted solid side panel construction)
- Bridge refurbishment (cast/wrought iron/trussed girder configuration)

Corrocoat's bridge refurbishment expertise extends to mechanical repairs such as bearing refurbishment, secondary scaffolding, containment for work in environmentally sensitive areas and the use of polymer concrete materials and casting techniques to recreate architectural detail.

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COATING ON CONCRETE

Deterioration of concrete may be the result of many different factors, including carbonation, sulphation, re-bar attack, impact, erosion and cracking. Correctly formulated surface Coatings provide an effective barrier to corrosion, forming an impermeable layer over the surface of the concrete to prevent attack and deterioration.

Corrocoat has developed a range of coatings appropriate to differing surface environments, offering protection for both new and existing concrete structures. These materials include rebuilding compounds for the repair of areas subject to substantial material loss through corrosion/erosion attack.

Where concrete is already deteriorating, solutions are available for restoration, including crack injection, re-bar protection and replacement polymers.

Typical coating projects include:-

- Concrete pipework
- Flooring
- Bunds
- Tanks
- Masonry
- Specialist constructions

Additional capabilities include jointing concrete to steel, sealing pipe joints, injection and a full range of lamination and composite techniques developed to meet the needs of specific applications within industry worldwide.

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ANCILLARIES

– Cutting the cost of repair and refurbishment

Corrocoat's field of expertise extends to the repair and refurbishment of a wide range of ancillary components for a wide range of process applications.

Work undertaken ranges from ambitious projects for hydro-electric power stations through to equipment used in the extremely aggressive pulping processes of the paper industry.

Product innovations include Galvcoat – developed for application onto galvanised steel surfaces – and Di-Shield, specifically developed for use as a dielectric shield to protect areas immediately surrounding impressed current anodes.

With over 30 different coatings in everyday use – plus a growing number of these 'specials' developed and

tailored to combat corrosion / erosion / cavitation attack in very specific environments – Corrocoat offers solutions backed up by the technologies of polymer chemistry, metallurgy, corrosion science and solid engineering expertise.

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SITE SERVICES

– The one-stop solution for on-site repairs

Corrocoat's Contracting Division was established to handle the full spectrum of applications where removal to Corrocoat workshops for coating or engineering repair proved impractical, offering an individual service, fast turn around and total reliability.

Combining the resources of the established workshops with the flexibility of site operations driven by proven management, Corrocoat teams oversee multi-trade co-operation effectively and professionally, providing problem-free, cost-effective solutions for corrosion-related problems.

Fully integrated packages cover:-

- Initial assessment and recommendations
- Manufacture and supply of materials
- Application
- Quality assurance
- Managed under a safety overview
- Comprehensive reporting systems guaranteeing total control over performance, quality and safety at all stages
- Inspection by NACE qualified personnel

Corrocoat's Contracting Division teams benefit from the extensive technical support provided by the company's in-house R&D laboratories and qualified engineering staff.

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ENGINEERING FOR EFFICIENCY

Corrocoat's Engineering Division provides a professional repair and reconditioning service for pumps, valves and ancillary components of all makes and sizes.

Operating from purpose-built workshops, contracts carried out by the Engineering Division cover:-

- All aspects of pump and valve repair
- Reverse engineering of ancillaries (including complete reverse engineering of full assemblies such as butterfly valves)
- Shaft reclamation and dynamic balancing of rotating components
- Extensive range of design modifications to improve equipment performance in line with customers' changing requirements.

Considerable investment in machine tools enables Corrocoat to offer high quality mechanical maintenance services, with the in-house capacity to handle even the largest components. Examples of large plant overhauled in the workshops include 132 inch nominal bore butterfly valves and 54 inch main cooling water pumps.

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