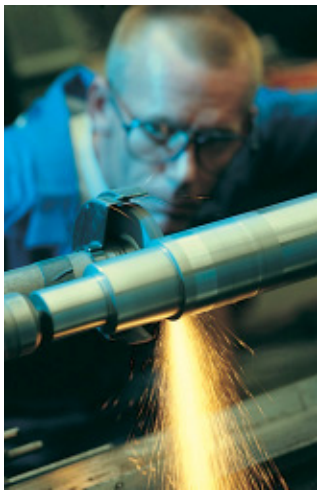
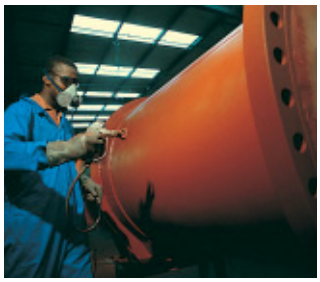
CORROCOAT

An Engineering Concept

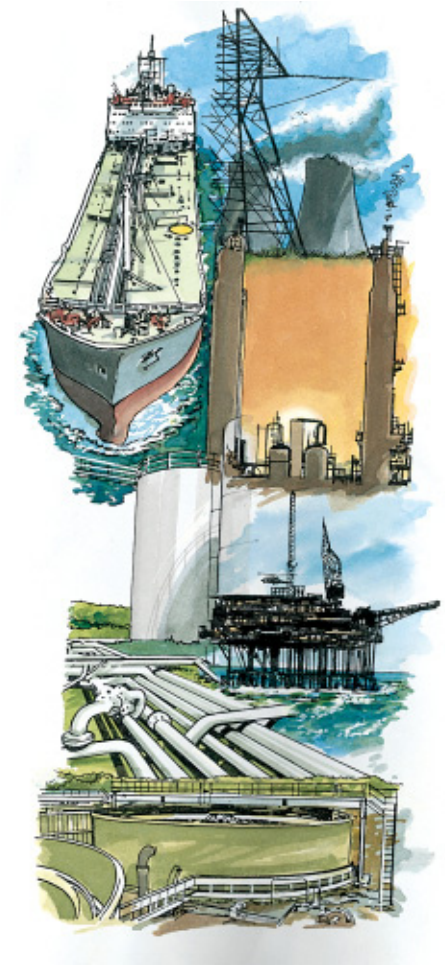




anti – corrosion technology

CORROCOAT

– Leading the field



Corrocoat was first established in 1975 with a focus on corrosion engineering and consultancy. The company's key objective was problem solving, dovetailing the very separate technologies of anti-corrosion and mechanical engineering. The goal was to provide effective refurbishment and protection for capital equipment operating in arduous and corrosive environments.

Today, the Corrocoat name is firmly established across the globe in the fight against corrosion. With more than forty branches on five continents, the company provides a unique service worldwide, with the ability to offer fast and reliable solutions to meet the needs of differing industries and operational environments.

At the company's modern, purpose-built factory in Leeds, England, Corrocoat manufactures and applies a proven range of specialist composite and structural coatings, including flake glass and epoxy-based materials. Developed for the reclamation of damaged components at a fraction of the replacement cost, these materials have proved effective in a range of environments over more than twenty years.

Combining these advanced materials with innovation and engineering expertise built up over more than two decades, Corrocoat solutions often involve an overview of design and modification to overcome more serious corrosion/erosion problems. Corrocoat has established a reputation for excellence of quality and service, using highly trained and skilled staff alongside innovative techniques and materials.

A significant part of the company's total budget is allocated to research into and development of new materials and methods, giving Corrocoat the flexibility of approach necessary to combat the many different corrosion problems faced by modern industry.

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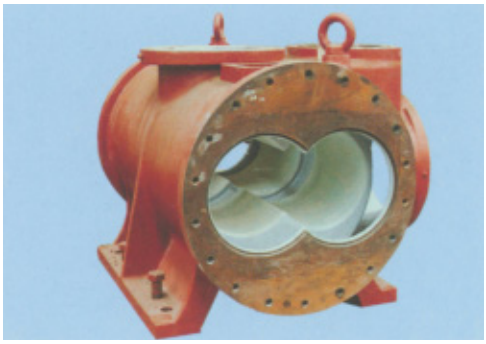
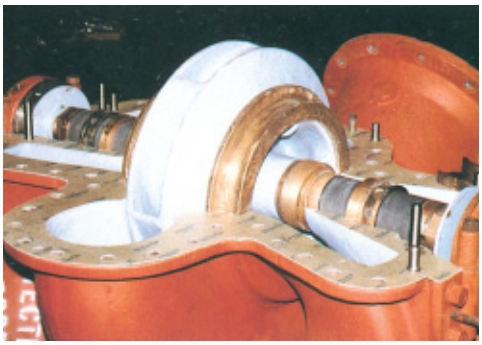
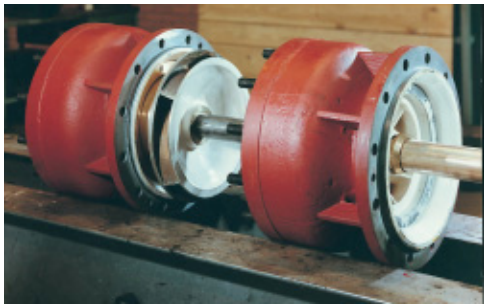
PUMP ENGINEERING

– The power to protect







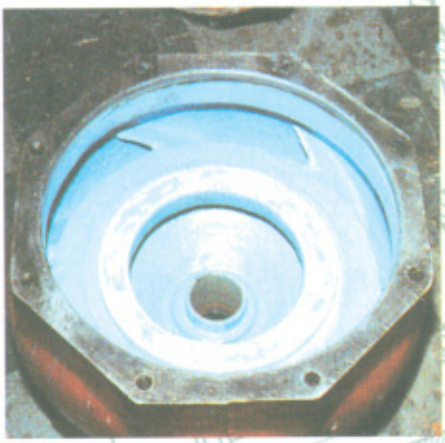
The variety in nature of damage sustained by pumping equipment demands a comprehensive understanding of the design and operation of different pumps and systems in order to provide effective refurbishment and protection.

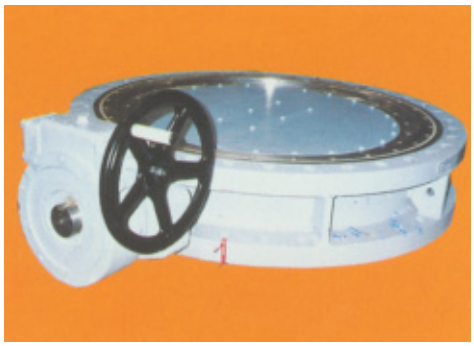
At Corrocoat, specialist repair procedures have been developed to manage severe corrosion/erosion damage in areas such as volutes, cutwaters and neck rings. Using specialist materials which may be applied to almost any thickness, Corrocoat is able to completely reprofile water passages, making good deep pitting and porosity in pump casings and coating machined areas such as neck ring lands.

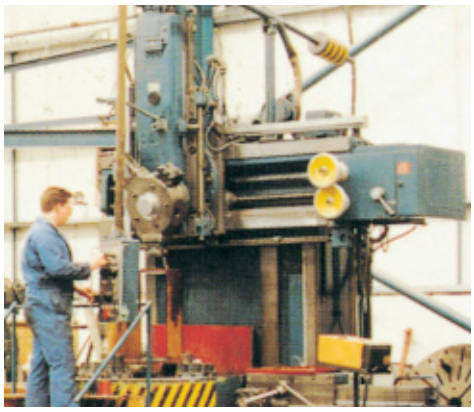
The machineability of Corrocoat's structural materials means that coated components can be returned to original tolerances, facilitating the return of good pumping efficiency. Even the very close tolerances essential for the repair of vacuum maintaining pumps are readily achievable.

In 1985, Corrocoat pioneered the field of R&D into coatings designed to maximise the performance and efficiency of pumping installations. The company was responsible for the development of the Fluiglide system, which is now used worldwide. Fluiglide effectively reduces fluid friction to achieve notable and sustained increases in efficiency levels, resulting in considerable cost savings and short payback periods.

With the in-house facilities and expertise to carry out sophisticated mechanical engineering, such as the re-manufacture of impellers and the manufacture of shafts including dynamic balancing, Corrocoat offers a comprehensive service for repair, refurbishment and protection.







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VALVE ENGINEERING

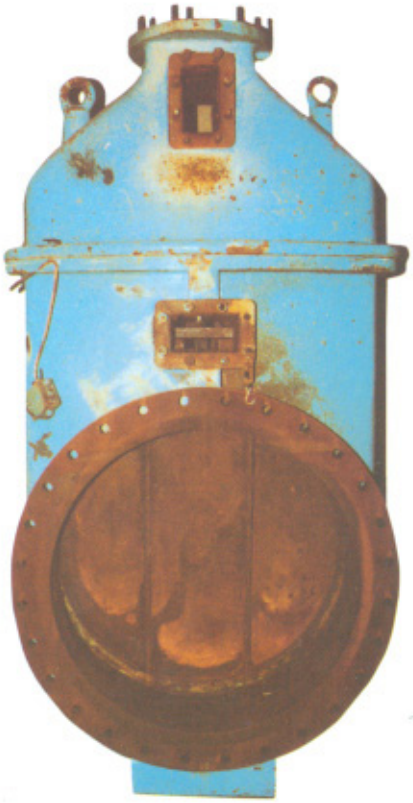
– Going with the flow

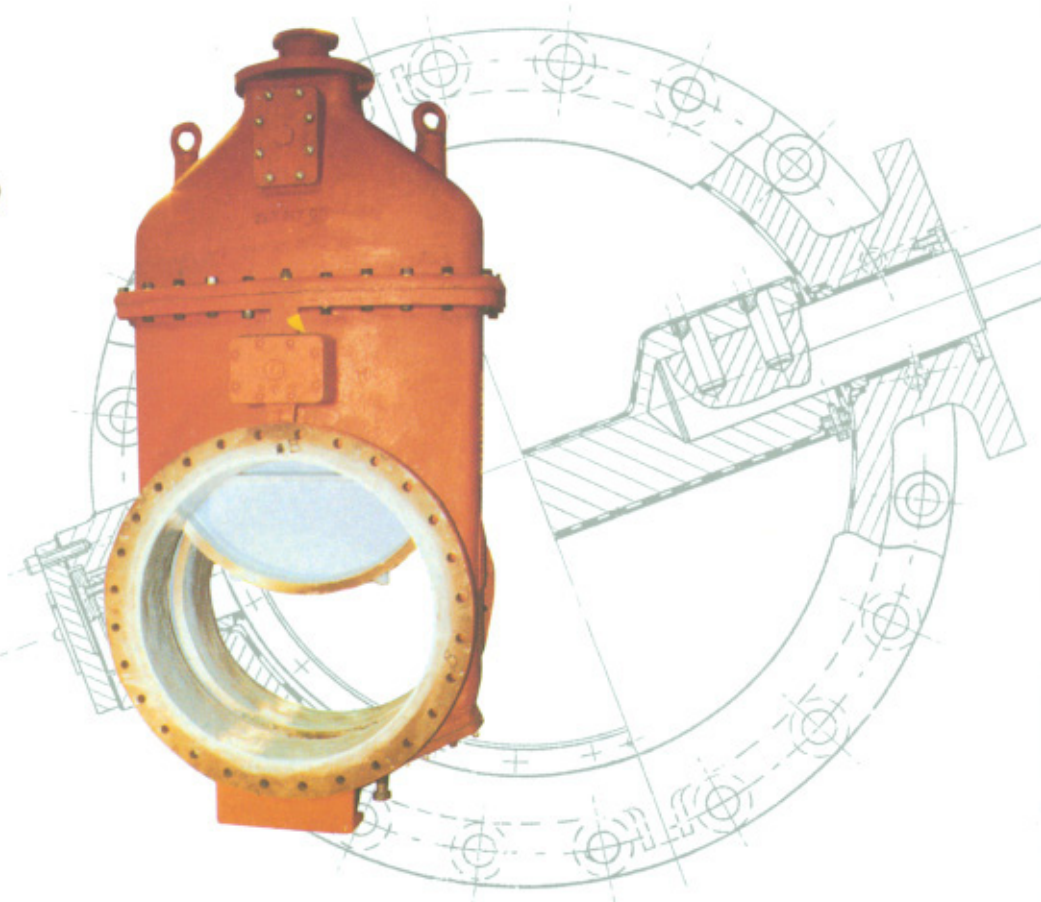
Over twenty years of experience in the refurbishment and modification of all types of valves - including the coating of new units for enhanced life expectancy - places Corrocoat at the forefront of this market.

Large butterfly valves are often subject to rapid deterioration, especially in the critical flap, seal support and housing areas, often caused by severe turbulence and erosion. Here, Corrocoat leads the field with the implementation of engineering design modifications developed to reduce these problems.

Valves which suffer this type of damage often have their seal lands completely destroyed, leaving large annular gaps, The Corrocoat solution involves machining out the unstable areas from the outside diameter of the flaps to accept a stainless steel or other metallic support and clamping ring. Similarly, the valve body itself may be machined to accept a new stainless steel sealing ring, where galvanic attack may have eaten away existing securing arrangements.

With the necessary engineering skills to manufacture spindles, bushes and mechanical seals for all valve designs - as well as the manufacture of new valves using both steel and GRP - Corrocoat provides an expert refurbishment and protection service. 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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PIPEWORK

– Internal and external protection

Specific problems incurred when coating pipework in achieving correct dry film thickness and homogeneity throughout the length of the pipe spool have been the subject of sustained research and development at Corrocoat.

As a result, the company has developed and implemented a range of specialist application techniques, ranging from pipe rolling rigs through to advanced down-pipe blasting and coating equipment which offers high quality finishes combined with fast turnaround and reduced downtime.

Today, Corrocoat branches worldwide are instrumental in the protection of hundreds of kilometres of large and small bore pipework each year, including lengths containing bends and branches. Corrocoat materials developed specifically for application to pipe internals and suitable for many arduous environments are utilised to full effect at competitive prices.

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.

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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 used in storage, treatment and process 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, road tanker barrels and offshore oil processing.

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 effected without hotwork, creating either single or double skin solutions which can be monitored remotely, in line with the performance levels demanded by such environments.

The differing properties of Corrocoat's wide range of materials enable the company to offer tailored and proven solutions for many applications and environments, providing long term protection against corrosion attack.

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THE MARINE ENVIRONMENT

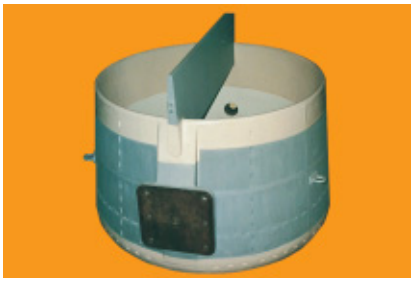
– Ship to shore and offshore

Contact with seawater and a salt-laden atmosphere can greatly reduce the life expectancy of equipment operating in this aggressive environment.

Corrocoat materials are used extensively on and around hulls to protect where corrosion/erosion presents major problems. On high erosion areas such as rudders, 'A' frames and bow thrust tunnels, time intervals before the need for further remedial action have been extended significantly, and the requirement for cathodic protection negated or reduced substantially. In other areas, particularly the wind/water interface, Corrocoat's range of spray applied coatings - sometimes applied as single coats - provide a fast and reliable solution.

Installations operating cooling systems using seawater, such as coastal power stations, have been using Corrocoat products and services for many years to protect equipment including pumps, valves, strainers and pipework. Corrocoat combines coating expertise and engineering skills to carry out even the most complex refurbishment project, achieving significant savings over replacement costs.

Offshore, Corrocoat materials have proved particularly successful for the refurbishment and protection of oil/water separators, splash zones, legs, decks and critical pipework such as fire main risers. Coupled with the experience of Corrocoat's on-site contracting division, the company can provide a comprehensive turnkey solution.



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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, from waterboxes and cooler covers through to industry-specific components for different 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.

Past contracts include turnkey projects for the engineering refurbishment and protection of pipe bridges - including the replacement of damaged structural sections involving multi-trade cooperation - and highly innovative initiatives such as specialised refurbishment and protection for railway rolling stock and brake cylinders.

With over 30 different coatings in everyday use - plus a growing number of '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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COATING ON CONCRETE

Deterioration of concrete may be the result of many different factors, including carbonation, sulphation, re-bar attack, impact, erosion and cracking. The end result is often problematical, requiring sophisticated and costly repair techniques.

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 with properties appropriate to differing service 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 and 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.

CORROCOAT

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 turnaround 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 cooperation effectively and professionally, providing problem-free, cost-effective solutions for corrosion-related problems.

The service covers initial assessment and recommendations, manufacture and supply of materials, application and quality assurance, all managed under a safety overview. Work is carried out by the company's own highly skilled and experienced personnel, providing fully integrated packages. Comprehensive reporting systems guarantee total control over performance, quality and safety at all stages.

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. With both construction and civil engineers employed by the company, Corrocoat has the ability to carry out design modification work as well as the sourcing and installation of replacement sections to ensure that all refurbishment work meets the highest performance standards.

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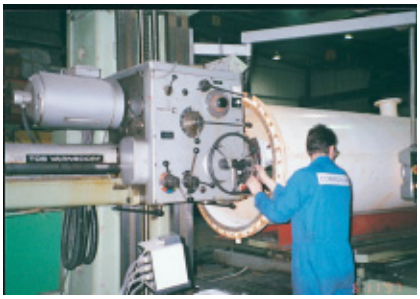
ENGINEERING FOR EFFICIENCY



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 the complete reverse engineering of full assemblies such as butterfly valves - is an in-house skill. Shaft reclamation and dynamic balancing of rotating components are also carried out within the workshops, and Corrocoat's specialist teams frequently undertake design modification work to improve equipment performance and meet customers' latest requirements.

Considerable investment in machine tools enables Corrocoat to offer a high quality mechanical maintenance service, 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 from power stations.

The depth of expertise offered by Corrocoat's Engineering Division has led to major contracts and ongoing maintenance work, including pump testing, for some of the world's foremost organisations in the fields of power generation, petrochemicals, offshore production, marine and water treatment.

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