
SpiralWeld LIMITED
FIRST IN
RECOVERY TECHNOLOGY
Re-engineering with Advanced Recovery Technology
UKAS
MANAGEMENT SYSTEMS

"As New or Better Performance"

Spiral Weld brings you the benefit of major maintenance cost and time savings through component reclamation in our works or on your site.

Spiral Weld specialise in developing unique solutions, using our proven technology, to solve your toughest maintenance problems. In addition we will reduce the cost of your replacement parts, plant downtime and spares stockholding.

We will carefully select an appropriate material for reclamation to "as new" performance; or where required, upgrade for significant enhancement to original specification, where hostile, corrosive or abrasive conditions cause maintenance service life problems.

Our special techniques will selectively bond both parent metal and performance enhancing alloys to worn, damaged or new components. Minimal effect on the parent metal structure is achieved through this carefully controlled low energy input process, which balances stresses and avoids distortion.

Our quality Management System, accredited to BS EN ISO 9001:2000, helps to provide the highest standard of customer service including all of the technical, quality and planning documentation required to meet your needs, whilst ensuring the quality of finished products.

THE FIRST NAME IN RECOVERY TECHNOLOGY

Total Service
We offer a total service designed to solve your maintenance and repair problems by providing a highly cost-effective alternative which includes: Visit site to assess problem; Discuss repair options and improvement possibilities; Develop repair procedures; Collect, repair and deliver back; Produce all required documentation.

Process
Spiral Weld will restore worn and damaged equipment, whilst maintaining or improving the mechanical strength of the components. Dimensional changes can be incorporated for non-standard applications.

Resistant Overlays
Our process will successfully weld a wide range of alloys to most parent metals. These alloys include alloy steels, stainless steels, including duplex and super duplex types, Inconnel 625, Monel, cobalt alloys and bronzes.

Homogeneous Bond
The overlay forms a metallurgical bond to the parent metal and will not separate or break up. No interface laminations or areas of excessive hardness result from our process.

Low Metallurgical Change
Because the process uses low energy input, it has minimal effect on the material microstructure below a depth of 3mm. Where Martensite is produced in the dilution layer, post weld heat treatment thoroughly tempers the metal, removing the remote risk of stress corrosion cracking.

No Distortion
By balancing residual stresses, our process avoids distortion problems associated with other weld repair methods.

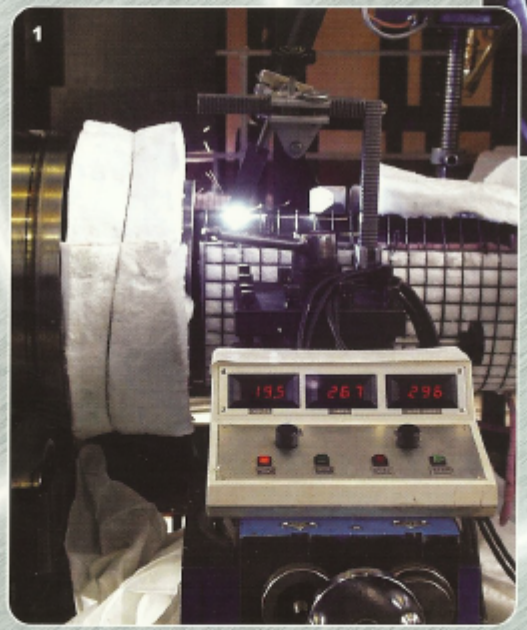
Technical, Quality and Safety Standards
The process for each job is individually designed and developed to meet or exceed any relevant industry technical, quality and safety standards.

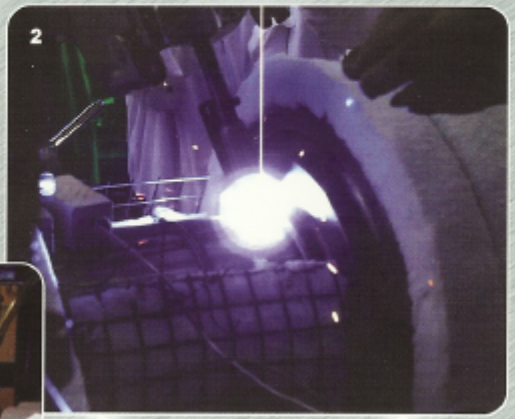
Replacement Parts
Where components cannot be repaired we offer an extensive re-engineering parts service.
Our Quality Management System ensures that all parts are properly engineered to perform as well or better than the original component. This process includes the determination of material chemical analysis and condition. (E.g. normalised, hardened and tempered etc.) Existing surface treatments (e.g. Nitriding etc) are also determined. Our finished product records ensure full traceability and demonstrate compliance with all necessary and agreed standards.

Suppliers to :
Power Generation, Nuclear Power, Petro-chemical, Plastic Industry, Shipping, Ship Repairers, Water Companies, Sewage Treatment, Paper Industry, Pump Manufacturers, MoD, Steel Industry and others....

NUCLEAR POWER

...Advanced Technology





1-3 On-site recovery of a low level irradiated AGR gas circulator rotor with a replacement value in excess of £500,000. Job included recovery of:

- Bearing journals
- Pressure Boundary gas seal faces
- Bent rotor shaft

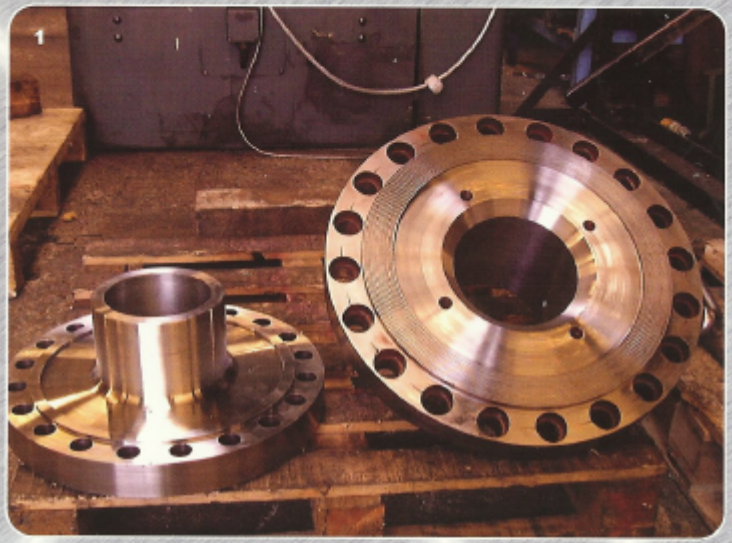
This work was carried out to the exceptional technical, quality and regulatory standards of the British Nuclear Industry.

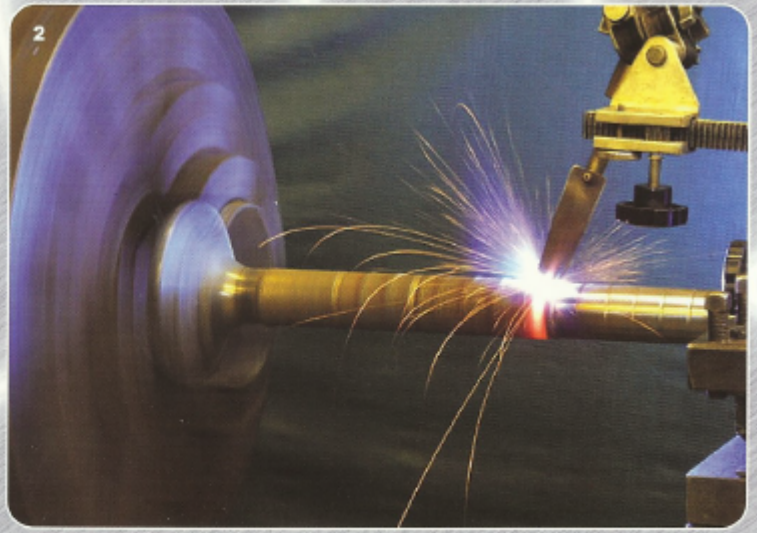
ALL POWER GENERATION

...Precision Engineering

1. Recovery of worn contact areas of a main boiler feed pump and start standby boiler feed pump balance assembly.

Damaged areas are machined to sound/clean parent material, rebuilt using the Spiral Weld process and finished machined to original or customer required dimensions.



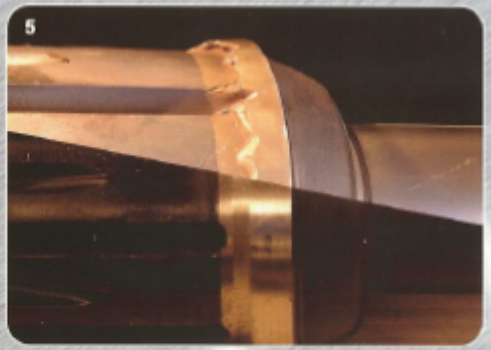


2. Valve spindle undergoing Spiral Weld repair to the main spindle length. Components can be recovered in parent material or up-graded materials to give better service performance and life expectancy.

Recovery of the hard faced seat areas on spindles is a common repair to many types of spindles.

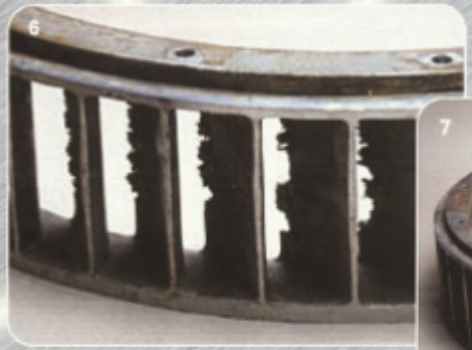
3-4. Start Standby boiler feed pump shaft undergoing initial inspection to damaged impeller location diameters and lip seal areas prior to Spiral Weld repair.

Following Spiral Welding, feed pump shaft is suspended vertically for post weld heat treatment of weld repaired shaft.



5. Control valve spindle showing eroded seat area in top half of picture and recovered seat in the bottom half. The seat was recovered with a cobalt based alloy to give the seat better wear resistance compared to the original design in parent material.

6-8. Worn rotary air pump vaned wheel showing damage to vane tips caused by in-service running hours. A specially developed weld solution was created to recover the vane tips back to serviceable condition.



MARINE

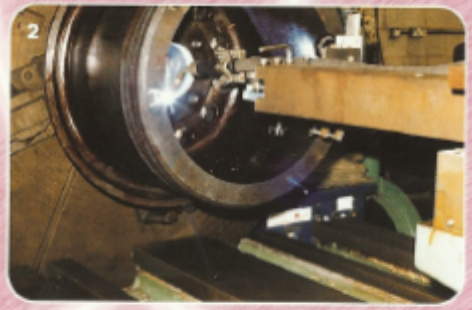
OFFSHORE

...Unique Solutions

1. 900mm diameter tail shaft liner undergoing dimensional checks. Liner material is 316 stainless steel with a spiral weld overlay of Inconel 625 along the outer diameter to increase wear resistance against the seal arrangement and prolong in-service life expectancy of the liner.

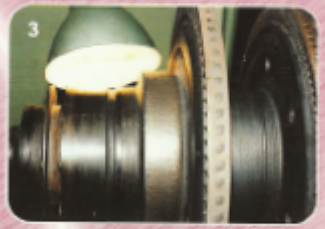
2. Prop shafts awaiting despatch following recovery of worn bearing and gland areas. We have extensive expertise in recovering carbon steels and more exotic materials such as Monel and Aquamet 22. Dissimilar overlays for improved performance are often used for the recovery using materials such as Inconel 625, Nitronic 50 and cobalt based alloys.

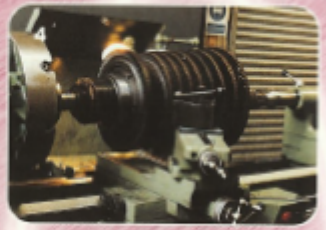
PETROCHEMICAL ...Proven Technology



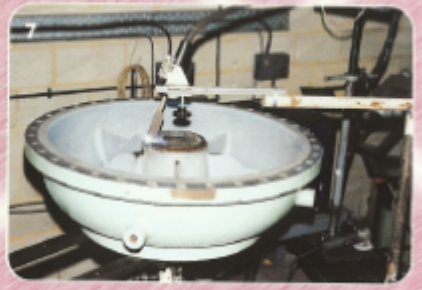
1-2. Recovery of an internal location diameter on a damaged valve head. Our low heat input process allows us to recover components with the minimum of distortion to surrounding features.

3-6. Repair to steam turbine rotor seal area. This recovery provides a major cost and time saving over replacement and is a permanent repair, often with improved service life.





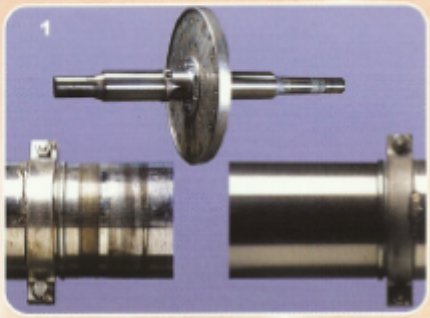
7. Carbon steel contactor head having the internal bore and seal area recovered with Hastelloy C22 to prevent corrosive attack from the process chemical.

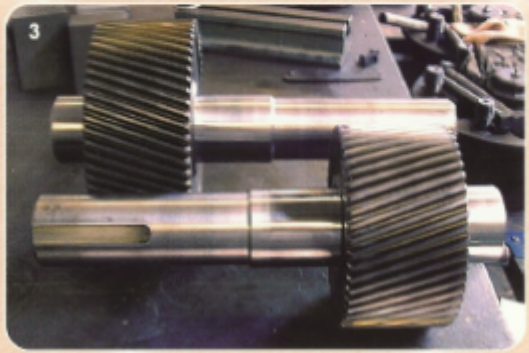


PAPER

...Quality Service

1. Process rotor following recovery of worn gland areas. Left side of the picture shows gland area prior to repair, right side of picture shows gland area following repair.





3. Typical gear wheels have had worn bearing diameters recovered either side of the gear hubs.

2. Process roller from a paper mill having the damaged bearing areas recovered at either end of the roller.

These areas were recovered without the need to remove the stub shafts from the roller body.

WATER

...As Good as New or Better

Typical centrifugal pump impeller

1. shows worn and corroded impeller on arrival at our service centre. The impeller required recovery of the neck ring diameter, hub and bore diameters and vane tip leading edges.

2. shows impeller following full recovery to as new condition.

5. & 6. Increasing the diameter of a new pump impeller to meet client's need for enhanced performance.

3. Cooling water pump stainless steel cone seal rings with worn sealing faces prior to repair.

4. Fully recovered seal rings with wear faces overlaid with Inconel 625 to increase in-service wear resistance.

ALL SECTORS

...Re-engineered replacement parts

1-2. Hastelloy pump casing with location spigot and gasket face eroded and corroded by the chemical being pumped. Spiral Weld repaired using Hastelloy alloys to recover the worn location spigot and gasket face.

3. Major rotor shaft recovery

4-5 Worn control valve spray nozzle eroded by high pressure/high temperature water. Component has a cobalt alloy insert bush for increased wear resistance in the spindle guide area. Spiral Weld will either recover these nozzles by welding, or manufacture a new component, including overlaying the guide bush area with a cobalt alloy.

The First Name in Advanced Recovery Technology

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