

Specialist Metallurgical Coatings and Engineering Solutions



IRs

Surfacing Technologies Ltd

THE BRITISH
ASSESSMENT
BUREAU
ISO9001

A photograph of an industrial facility at night, featuring several tall, cylindrical distillation columns. The columns are illuminated by bright, warm lights, creating a strong contrast with the dark blue sky. The lighting produces prominent starburst effects. Various pipes, ladders, and structural elements are visible on and around the columns. In the background, other industrial structures and more lights are visible, suggesting a large-scale operation.

Your
problem
Our
Solution !

A photograph of an industrial refinery at night. The scene is filled with tall distillation columns, large pipes, and complex piping systems. Numerous bright lights illuminate the structures, creating a high-contrast scene against the dark blue night sky. The lights produce a starburst effect. The overall impression is one of a large-scale industrial operation.

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Company Profile

IRS Surfacing Technologies Ltd was founded in 1989 by John Berry our Managing Director.

His objective was to put together a high technological facility specifically embracing the modern concept of cost efficiency, this objective meant bringing together a specialist group of like-minded quality conscious individuals, driven by the common will to succeed.

It meant heavy investment in the very latest fringe technology, requiring the building and moulding of a dedicated team of engineering and technical professionals. It also meant substantial investment into many DTI R&D initiatives, collaborating with world respected materials and research centre's of excellence. Complimented with direct access to O.E.M. consumable chemistries, **IRS Surfacing Technologies Ltd** offer a virtually unrivaled service in overhaul, reclamation, specialist overlay and reverse engineering fields.

Operating out of 11,000 sq. ft, we employ a complete spectrum of high energy thermal spray and overlay systems ranging from liquid fuel H.V.O.F. through Plasma, P.T.A., Hypersonic Arc and Computerised Spiral Welding facilities. The recent addition of 8 axis robotics ensure consistency and repeatability.

Moreover, complete peace of mind involving the processing of critical components.

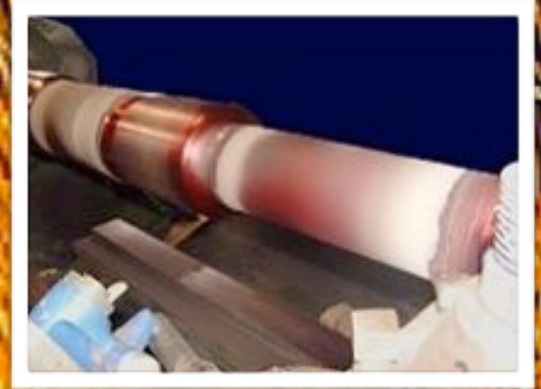
Goods processed by IRS now stretch fully around the Globe. IRS really do have a 'can do - can help' attitude with both our much valued army of supporters and new clients alike.


On site procedural and chemistry assistance and technical support is available without obligation.

Our Mission

To be our customers and our employees first choice. To offer a complete range of in-house thermal fringe technology and to provide high quality cost-effective solutions to premature and severe wear problems in the Aerospace, Off-shore, Chemical and Manufacturing Industries.

"Can Do - Can Help"





Journey into IRS

IRS Thermal Spraying and Processes

Mechanical Services and Support

Our Supporting Network

Our Glossary



IRS Thermal Spraying Systems and Processes

HVOF Metallurgical & Ceramic Chemistries

For high quality repeatability coatings of low porosity and excellent bond strengths. Tungsten + Chrome carbides - full Ceramic ranges up to 1450 Hv. Chemical and, heat and wear resistant coatings of less than 0.5% porosity. Chemical resistant G30, C22, C276, Ultimet alloys and Titanium available.

High Energy Liquid Fuel - ABB 8 Axis Robotics & Integrated Turntable.

For highest quality, dense and high build deposits of soft alloy, anti corrosive and wear resistant materials. Tungsten Carbide ranges in excess of 1699Hv.

Extremely low porosity deposits in excess of 3.0mm thickness. Inconel 625, Hastelloy C276, Ultimet and most corrosion resistant alloys. Soft aluminium bearing alloys, full Tungsten, Chrome and Titanium Carbide ranges in standard or proprietary matrices. Pure Titanium available. Proprietary analysis to meet special requirements. Incorporating fully co-ordinated 8 axis robotics and software support.

Plasma ARC (N.T.A.)

Full Ceramic wear resistant, chemical resistant & thermal barrier ranges including Chrome Oxide, Pure Alumina, Alumina Titania Dioxide & Zirconia Ytria. Tungsten & Chrome Carbide wear resistance.

Plasma Bore spray (NTA)

Above coatings to inside diameters and bores.

Plasma Arc (P.T.A.)

Hard, porosity free coatings molecular bonded. All alloys, Tungsten, Chrome, Titanium & Nickel Carbides. High Nickel Alloys & Bronzes etc.

Stellite, Hastelloy, Inconel, Monel etc. Also oscillator controlled spiral-welded deposits with low dilution levels.

Plasma Bore spray (PTA)

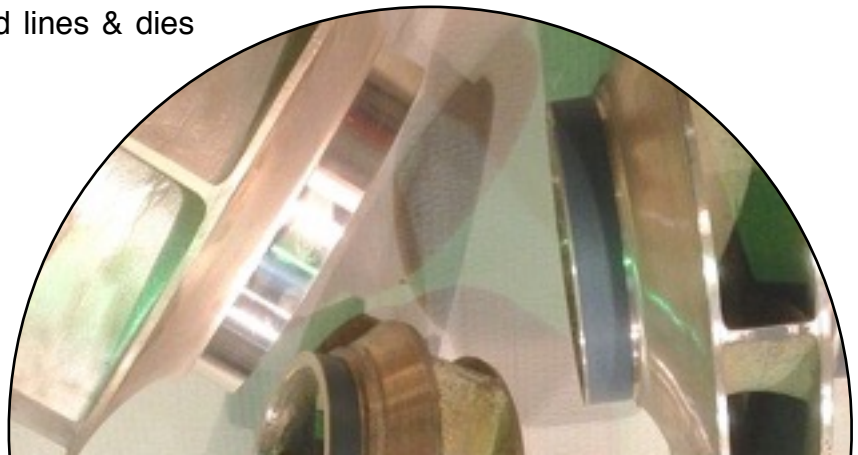
Above coatings to bores, barrels, feed lines & dies etc.

Plasma Bore spray (PTA)

Above coatings to bores, barrels, feed lines & dies etc.

Plasma Bore-spray (PTA)

Above coatings to bores, barrels, feed lines & dies etc.





Twin Reel Hypersonic Arc-Spray

Chrome alloys, Aluminium Magnesium, Bronzes, Stainless & Carbon Alloys, Hastelloy & Tungsten Carbides, also reclamation of component parts, bearing. journals & roller coatings etc. Offshore & chemical anti-corrosive coating. Chrome Alloy and pseudo metal coatings for Capstan Bull blocks & wire handling pulleys. Hastelloy C22 & G30 Alloys.

Techni-Chorde

Full range of hard facing alloys plus mid ceramic facilities. Rocdur ranges in chordes. Nickel Alloys plus many more specific analysis.

High Velocity Arc-Spray

High Velocity Arc-spray deposits utilising high density higher bonded deposits in all consumables. Considerably better integrity and smaller particle structure than standard arc-spray deposits.

ArcSpray Bore-spray

Full carbon steel, nickel and bronze alloy ranges.

Flame-spray

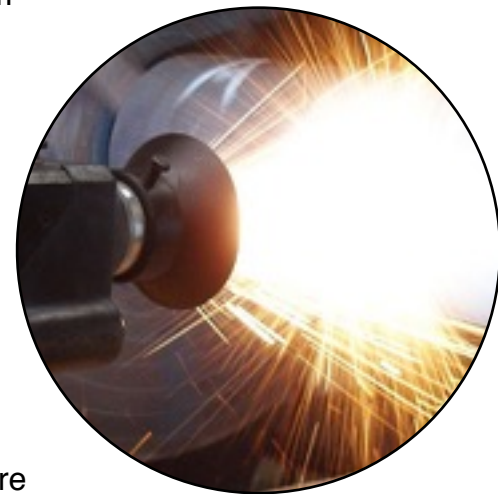
Standard flame-spray facilities for fluxing alloys. Most mainstream Systems in operation.

Fusion

Full range of fusion processes incorporating all leading manufacturers systems. Rebuilding press tooling and dies. Hard, dense virtually porosity free molecularly fused deposits where heat input to substrate is not a prohibitive problem.

Rokide/Norton Ceramics.

We are the only UK equipped & approved Rokide/Norton applications centre. The Rokide spray system is patented & unique in that it projects only fully molten particles on to the substrate as against plasma of flame-spray processes. Results are much improved anti-cavitation resistance particularly on point contact pressure applications such as wire drawing cones & assoc. wire drawing tooling



Nylon & Plastics Spray

Anti-corrosion, chemical resistant and low friction coatings to pulleys, chutes and components needing to resist acid attack in low temperature non abrasive duties where a relatively cheap solution is required.

Also good for decorative enhancement in most colours. Nylon 1 and EVA Plastic.

New! 80 Rc Tungsten Carbide on Tool Steel

Molecular bonded. Won't chip or detach!!! Can be applied to injection moulding screws, rotary valve components & guillotine blades etc.



Turning

Light, medium and heavy turning facilities of 6 ft bed & up to 25 ft between centre's.

Taper turning & hydraulic copying.

Specialist built heavy twin tool-post machines with c/w hydraulic copy to both tool-posts.

D S & G. Herbert, Colchester, Ward, Ajax etc.

Super- Finishing

Super-Finishing by GEM. All grades of diamond impregnated continuous belts as well as more standard systems.

Drilling and Milling

Light, medium and heavy drilling and milling.

Universal milling and vertical c/w DRO.

N.D.T Testing

Magna-Flux electronic N.D.T crack detection

Grinding

Heavy and light cylindrical grinding, universal grinding, bore grinding, crankshaft grinding and surface grinding. Both reciprocating and heavy Lumsden grinding. All fully diamond and specialist tooled.

Boring

Horizontal and vertical boring. 5 ft dia twin ram vertical boring. Kearns Richards 4ft table horizontal boring. Kearns and Richards toolroom horizontal boring.

Slotting

14" & 10" vertical slotting plus power broaching.

Mechanical Services & Support





Welding and Overlaying Processes



PTA (Plasma Transferred Arc)

Plasma transferred arc c/w bore-spray
Automatic applied
Manually applied
Light and heavy guns

Synergic Mig

Synergetic Mig
Standard heavy cored Mig

Sub arc Welding

Heavy submerged arc deposition

Spiro-Welding

Spiro-welding
Utilising PTA
Auto-Synergic Tig
Auto-Synergic Mig

Synergic Tig

Synergic Tig
Standard heavy Tig

MMA

Manual metal arc welding
Manual metal arc gouging

Powered Manipulation

3 Tonne fully powered manipulation
Ultra -precise digital controlled

Micro Processor Control

Digital micro-controlled step over
Oscillation, dwell and Linear speed

Magna Flux NDT

Magna Flux Electronic Non Destructive Testing

Materials Deposited

Pure Titanium
Technodur - Ultimet - Super Alloys - Duplex Alloys
Full Stellite Ranges including F12
Hastelloy C276 - C22 - G30 etc
Bronzes - Aluminium - Tool-steel's
S.G Iron - Grey Cast Iron - High Tensile Steels.
Complete Hastelloy range including B2 & 625

Fully Printed Weld and Overlay Procedure on Request



PUMP COMPONENTS

With a wide range of pump components now being reversed engineered **IRS** have along with their customers consultation and trials have built up a range of technological coatings with the main aim to provide enhanced wear life, suitability for their environment and cost efficiency. **IRS** facilities on a daily basis are providing this service on impellers, seal glands, balance pistons, housings and volutes, neck rings, shafts and associated components and equipment.

COMPRESSOR PART REPAIRS

IRS have over the the years built up a reputation of service and quality repairs in the compressor industry with leading manufacturers repair facilities. From the refurbishment of screws, screw tips, end frames, housings, crankshafts, con -rods vac pump rotors and tips to name a few.

With the ever increasing need for efficiency, reliability and cost effectiveness **IRS** have a well proven track record.



PLANT AND MACHINERY

Sourcing parts and with the ever increasing need for parts to be available now **IRS** have been able to reverse engineer existing parts in less time then new parts being available . This service has proven to be invaluable to our customers reducing “down time” and also being extremely cost effective. In many instances components are also upgraded with more advanced coatings and overlays to withstand their aggressive environment with a significant improvement to their working life.

Various components such as wheel hubs, axles and stub axles, winch drums, housings, rope sheaves, drive shafts and many more have been refurbished by **IRS**.



AUTOMOTIVE

Automotive part repairs offered by **IRS** spread across all modes of road transport and on site vehicles from small shafts on motorcycles to axle bearing repairs on container forklifts. We offer a range of services to get you moving, axle repairs, wheel hubs, brake drum, bearing shaft, bearing housings, seal diameters, brake disc and clutch grinding as well as crankshaft repairs. **IRS** have also been involved with anti-corrosive coatings on exhaust manifolds and related components on all forms of vehicles including military.

IRS have also provided an invaluable source of help to the classic car and restoration enthusiast as being able to repair obsolete components back to original condition and get their pride and joy back on the road.

WIRE DRAWING



Throughout the history of **IRS** we have provided a second to none service to the Wire drawing industry across the UK and backed up with the knowledge, experience and co-operation of our customers in this field **IRS** have excelled in the refurbishment and quality expected by our customers.

With the advancement of technological coatings over the years we have been able to enhance our coatings to suit our customers needs where they have gained on product quality and production hours.

The use of Ceramics, Chrome Oxides and Tungsten Carbides have now moved into wire drawing and with the knowledge gained we have been able to pin point their uses to our customers satisfaction.

Improvements to drawing block coatings

have greatly reduced common problems as slip and anti galling properties.

Refurbished components are many but to name a few, MRB, Eurodraw, Stripper and hi-draw blocks etc as well as pulleys, cones and seal sleeves.



ROLLING STOCK

Over recent years **IRS** become an invaluable partner in the reverse engineering of parts for this industry and with our Safety Critical Status in place we provide a excellent support service to major companies in this field with the repairs to the wide range of rotors and armatures seals, bearings, deflector diameters, end shields and various other rolling stock components.

Not just have **IRS** been involved with the keeping of our railway network up and running but we have also been delighted to provide our services to various railway museums the latest being Preston Steam Railway who keep our history going.

ELECTRICAL MOTOR PART REFURBISHMENT

IRS have worked hand in hand with electrical motor repair centers across the UK providing a fast and reliable response to this industry. A wide range of services offered are repairs to seals, bearings, drive journals, end casings and weld repairs.



PETRO & AGRI - CHEMICAL INDUSTRY

With the use of all IRS services, coatings, materials, welding applications, technical advice and ongoing research and development IRS are well proven in their support to these industries.

Technological advances are being made in this field and IRS are at the forefront of providing these advancements to these industries with coatings and overlays to seals, shafts and major parts to increase the efficiency and life of critical components.

INDUSTRIAL HARD FACING

IRS have with the help of suppliers, customers and our internal research and development team are able to offer various coatings and overlays to suit our customer's requirements to withstand chemical or environmental attack to abrasive and corrosive conditions.

The input of our R & D Team in developing one of our proprietary overlays are to be congratulated as **IRS SUPERHARD** which is already in extensive use in the UK and Internationally providing excellent results has put **IRS** at the forefront in this field.

Components with these applied processes have been mixing impeller's, shredders, impeller castings, blades, screw and ribbon conveyors, plastic moulding components, industrial and commercial plant and machinery to name just a few and with the ongoing development and advances in coatings and overlays **IRS** intend to supply our customers with the best available!



“THE PROBLEMS OUR
CUSTOMERS HAVE ARE OUR
PROBLEMS”

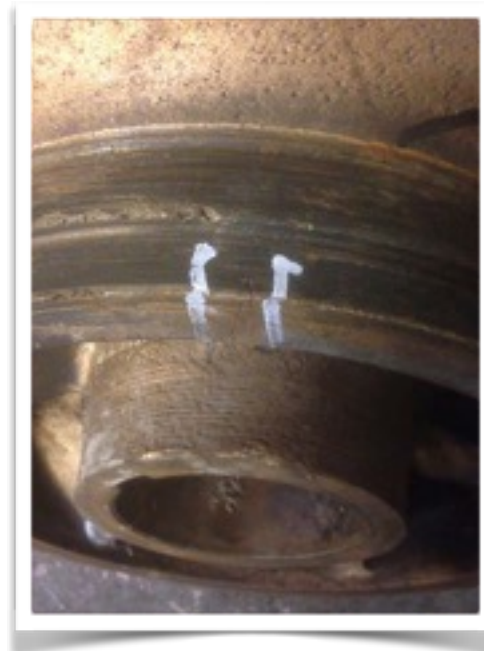
“THE SOLUTIONS WE PROVIDE
ARE THEIR SOLUTIONS.”

“TAKE A LOOK
AT
OUR JOINT SUCCESS”



OUR GALLERY !

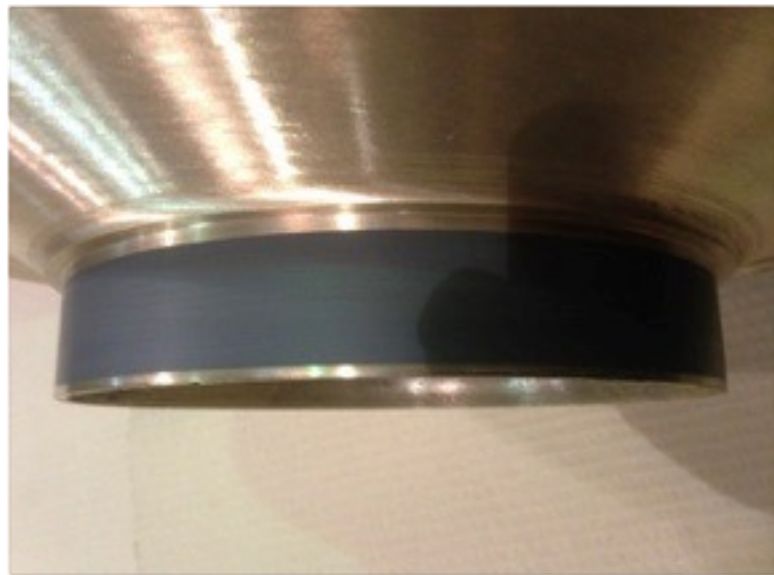
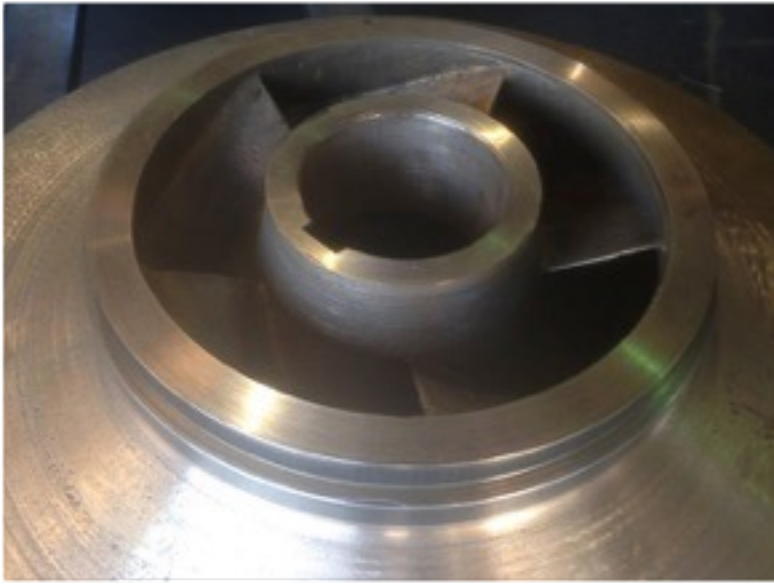
Impeller Refurbishment



IRS have always had the philosophy with customers “never say never” and as you can see from some of these photo’s of impellers they are seriously damaged. After consultation and material analysis a repair procedure was put in place and presented to our customer who gave us the go ahead. After further N.D.T and prep work undertaken IRS continued with welding dressing and machining of the components.



Impeller Refurbishment



With welding procedures finished ,proof machined and N.D.T all finished final coating was applied.

Customer requirements for impellers differ as to there working environment and operation, on these impellers chrome oxide and aluminium bronze was the desired coating. You would not believe these were the same impellers!!!!

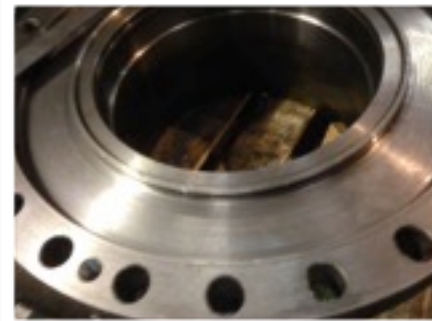


Plant Part Refurbishment



Customer.
G. Stewart (NW)Ltd

A major refurbishment required here on a Fantuzzi fdc 500 axle assembly. Main bearing diameter's and seals on axle stubs badly damaged due to breakdown of bearings and impregnation into diameter. All dias reclaimed and returned to recommended dimensions on both ends. Job done !!!



The hub bores, bearing, seal ring areas and damage to faces on this component is severe. Re-welding and Arc spraying of relative areas have saved thousands and downtime. Is that the same job Yes !!!



.Brake drive Housing also badly damaged as you can imagine due to the collapse of the bearings, Prepped and Arc-sprayed and returned to original dimensions. No photo taken of refurbished part due to it being returned so quick. Missed it !!!

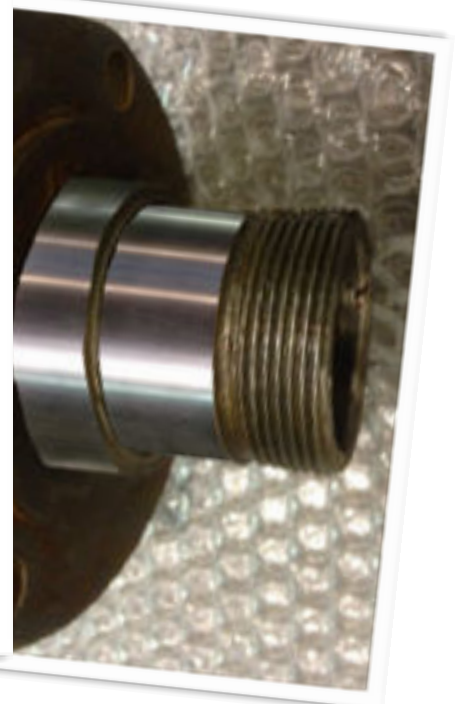


Automotive Part Refurbishment

The clamping area for the split housings where damaged on this rear axle banjo on a Riley Mentone 1933. We skimmed the bushes and built up the location area and set the distance from the flange face, Job Done!!!



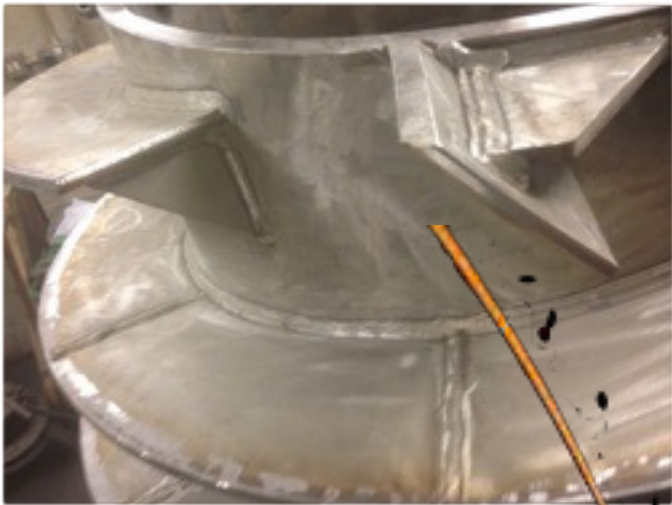
A proud owner of his 1935 MG roadster similar to this asked if we could repair the bearing and seal diameter's on his drive axle, YES we can !!!



Hard Facing

Alan the manager of a local company required a hard coating on the internal surface of this pump casing due to the aggressive nature of the product being used by his customer.

With previous research and development carried out by IRS on similar abrasives a hard facing developed at IRS was applied and tested. Result !!!



Hard-facing can be applied by different processes, various degrees of hardness and be fit for purpose contact are Technical Team for advice!!

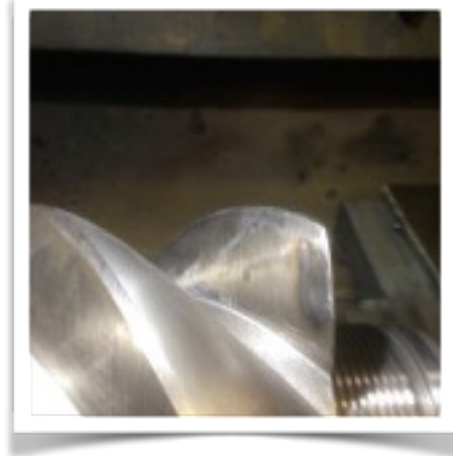


Hard Facing

With the need to improve performance and reduce replacement costs we were able to provide this brake lining manufacturer a significant improvement to there mixing blade impeller by hard-facing. After successful trials the “upgrade” was applied to all impellers and a long standing relationship has been formed!!!



Step by Step Air End Rotor Repair

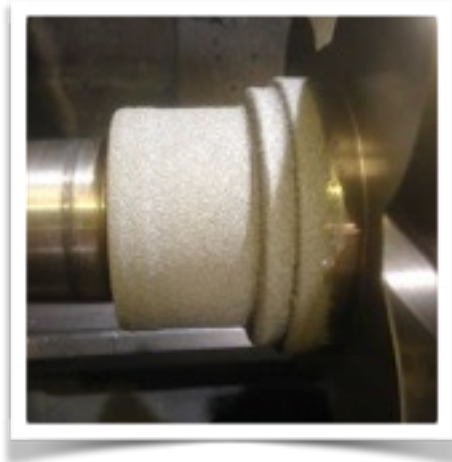


An emergency repair was needed on a compressor air end rotor for a ship in port.

Damage.

Severe wear to main bearing diameters due to bearing collapse.

Rotor tip contact damage which will increase working tolerances reducing power.

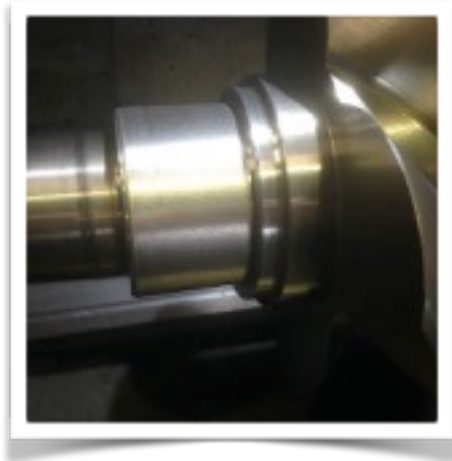


Adjacent areas to bearings protected.
Pre machine damaged areas to clean and prep.

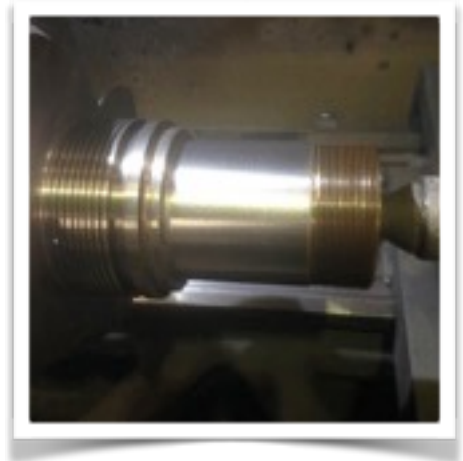
Shot blast area.

Bond coat.

Top Coat to plus 1mm above size min.
Remove protection of surrounding areas.



Machine reclaimed diameters to leave .5mm
for grinding process and seal.





Rotor tips welded up and ready for first stage of cylindrical grinding.

The diameter of the rotor is ground to plus .30mm above finished size and final dressing of the tips and screw are carried out.



Final cylindrical grinding carried out on all reclaimed areas to recommended tolerances.



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IRS Surfacing Technologies Ltd

Unit 8

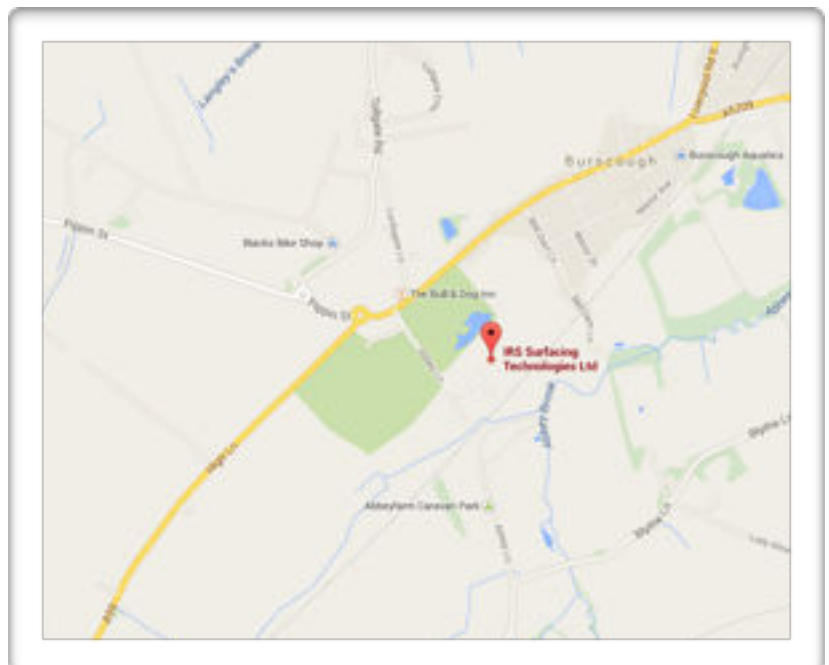
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IRS_Surfacing



**THE
FUTURE
OF
ENGINEERING
SOLUTIONS
TODAY**



SURFACING TECHNOLOGIES LTD