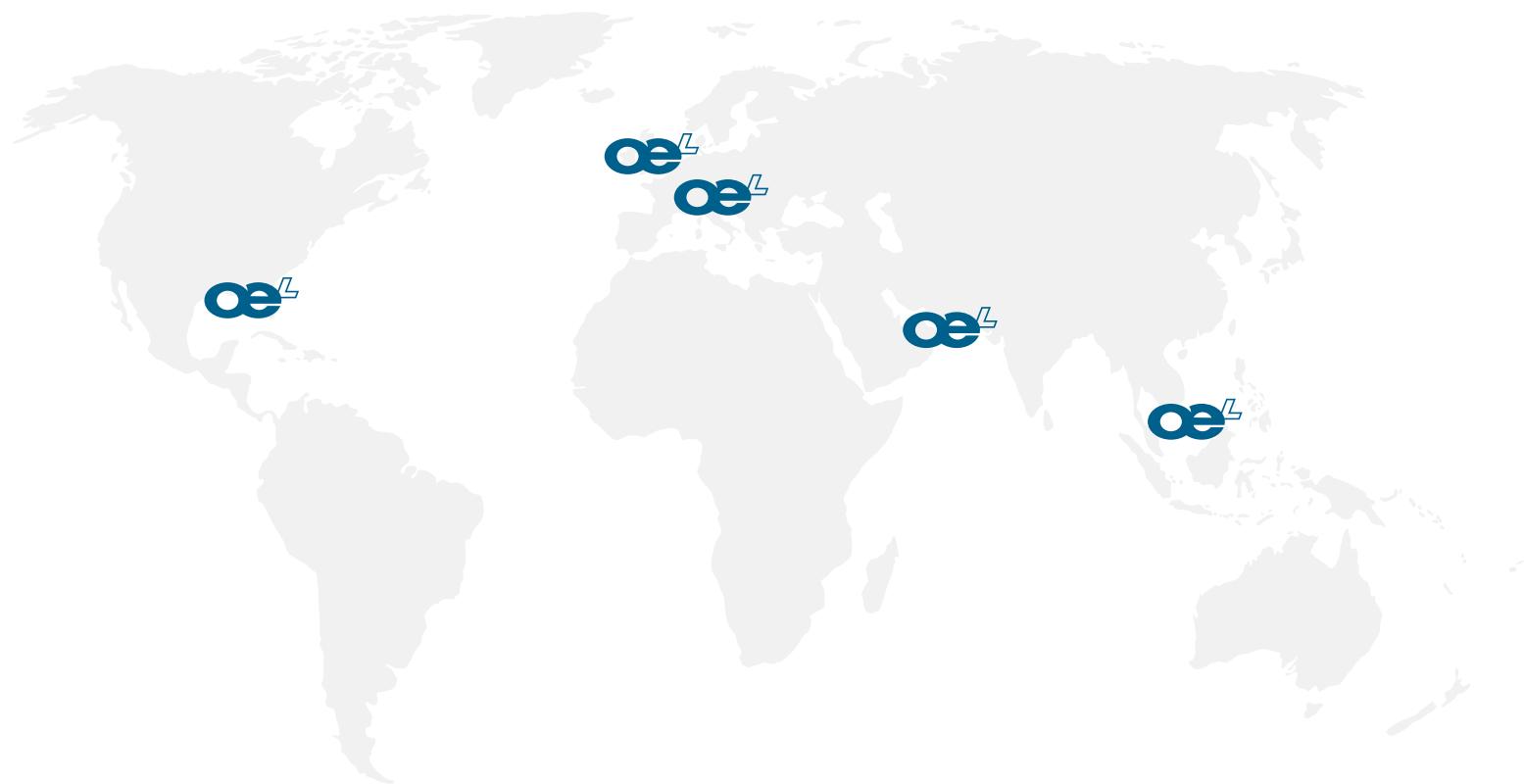




# Osborne Bearings



Discover a world of excellence



# Introduction



Founded in 1984, Osborne Engineering Limited (OEL) is part of the OEL Group, specialising in the repair and manufacture of white metal bearings, seals, deflectors, vertical thrust and guide bearings, rotating equipment components and overhaul of gas turbine fuel systems & compressors. OEL Group can also offer comprehensive industry specific training courses, tailored to meet the individual needs of its customers.

With facilities located in the UK, Poland, UAE and US, OEL operates successfully on a global scale. Working with major Original Equipment Manufacturers, Service companies and end users in the Oil and Gas, Petrochemical and Power Generation industries.

OEL facilities include a specialist design and engineering department, extensive CNC machine shop, dedicated service and repair cell and state of the art training facilities. We also have dedicated localised repair cells, so that our customers know help is never too far away when they need it most.

OEL have obtained and maintained a reputation for assisting clients by meeting urgent demands for services, arising from plant breakdown and other unplanned outages.

- State of the Art facilities located in the UAE, UK, USA and Poland
- Over 35 Years of Expertise
- Manufacturing and Refurbishment of Bearings, Deflectors Seal etc.
- Aftermarket support of All active/obsolete P/Ns
- Fast Lead time with Excellent quality services
- Bearing Modification and Improvements
- Reverse Engineering Services
- Emergency Support during Shutdown



# OEL Bearings

## A one stop Solution for all your white metal Bearing needs

OEL Bearing Technology support rotating equipment manufacturers and end users, providing complete life cycle management for hydrodynamic bearings. Our in house design expertise coupled with flexible manufacturing approach allows OEL to respond to urgent and routine requirements with equal levels of excellence, ensuring critical rotating equipment is available when needed.

## UK Manufacturing and Engineering Services

At the UK site in Cramlington, OEL operate a state of the art CNC manufacturing facility, fully supported by a specialist design and engineering team. OEL engineers are able to analyse and predict hydrostatic bearing performance to ensure that our products always perform at their best during service and to enable us to suggest possible bearing upgrades where necessary to extend bearing life and minimise down time.

OEL are also able to offer a comprehensive reverse engineering service to offer continued support to both OEMs and end users where components may be obsolete or require remanufacture. Using state of the art laser scanning technology OEL engineers are able to digitally capture and manipulate large amounts of data in a short time compared to traditional reverse engineering techniques.

## Dedicated European Manufacturing Base

To supplement the UK manufacturing base and to help better support our European customers, OEL operate a fully functioning manufacturing facility in Wroclaw, Poland. This manufacturing facility has its own dedicated quality and sales teams to assist customers when required. With a direct link to UK engineering resources our Poland facility is a major part of our strategy moving forward.

## Manufacturing and Training Services in the Middle East

Our facilities in Dubai and Abu Dhabi are ideally placed to serve the oil fields of the Middle East and beyond with dedicated manufacturing and training services.

We are able to offer localised

repair and manufacture of a variety of rotating equipment, including bearings, seals and other gas

turbine components. All fully supported by our specialist teams in the UK.



# Bearing Manufacture



Equipped with the largest Centrifugal Casting Machine in the MENA region, OEL Dubai has a capacity to centrifugally cast Large Bearings up to a Diameter of 1.5M/2.5 TON

Our white metal bearing manufacturing facilities are fully supported by a spectrum of engineering services, from assisting OEM bearing manufacturers with new designs, to supporting the end users in the field with existing equipment. We also offer a make-to-print service. Dedicated engineering teams have access to the latest 3D CAD systems, bearing prediction software, conditioning monitoring equipment and state of the art laser scanning technology. This ensures that our manufactured products always perform at their optimum during service and enable us to suggest possible bearing upgrades where necessary to extend bearing life and minimize down time.

## BEARING SOLUTIONS FOR A RANGE OF ROTATING EQUIPMENTS

- Gas Turbines
- Steam Turbines
- Generators
- Hydro Turbines
- Pumps and Motors
- Ball Mills
- Compressors
- Gearboxes

## Extensive Product Range

- Vertical bearing assemblies
- Combined thrust and guide bearing assemblies
- Vertical guide bearing assemblies
- Fixed profile journal bearings
- Tilting pad thrust and journal bearings
- Combined thrust and journal bearings
- Equalised or non-equalised
- Compact or traditional designs
- Flooded or direct lubrication designs
- Labyrinth seals
- Oil deflectors



# Service and Repair

With 30 years experience in the industry OEL originally specialised in the repair and manufacture of all types of whitemetal bearings. Following considerable investment we can now offer much more than the standard rebabbing service.



At OEL we are devoted to providing excellent aftermarket service and optimising the performance of our clients machines. Our fast and reliable refurbishment services reduces downtime in the event of unscheduled maintenance or unavailability of spare parts.

If required we can offer complete equipment support kits, consisting of bearings, seals and any other associated components. Supported by our specialised engineering team and experienced trainers we can help facilitate machine performance upgrades and identify and eliminate common causes of machine and bearing failure.

## Support and Upgrades



- Ultrasonic, dye penetrant and magnetic particle inspection
- Retrofitting of high pressure oil lift systems
- Cooling system upgrades
- Failure analysis reports
- Sealing upgrades

- 24 Hour emergency re-lining available for unplanned shutdowns
- Spare bearings repaired or recertified ahead of scheduled outages
- 24 Hour engineering assistance
- Dedicated repair teams in the UK, Poland and UAE
- Rapid diagnosis and repair in Aberdeen UK to serve the North Sea oil platforms



# Engineering Services

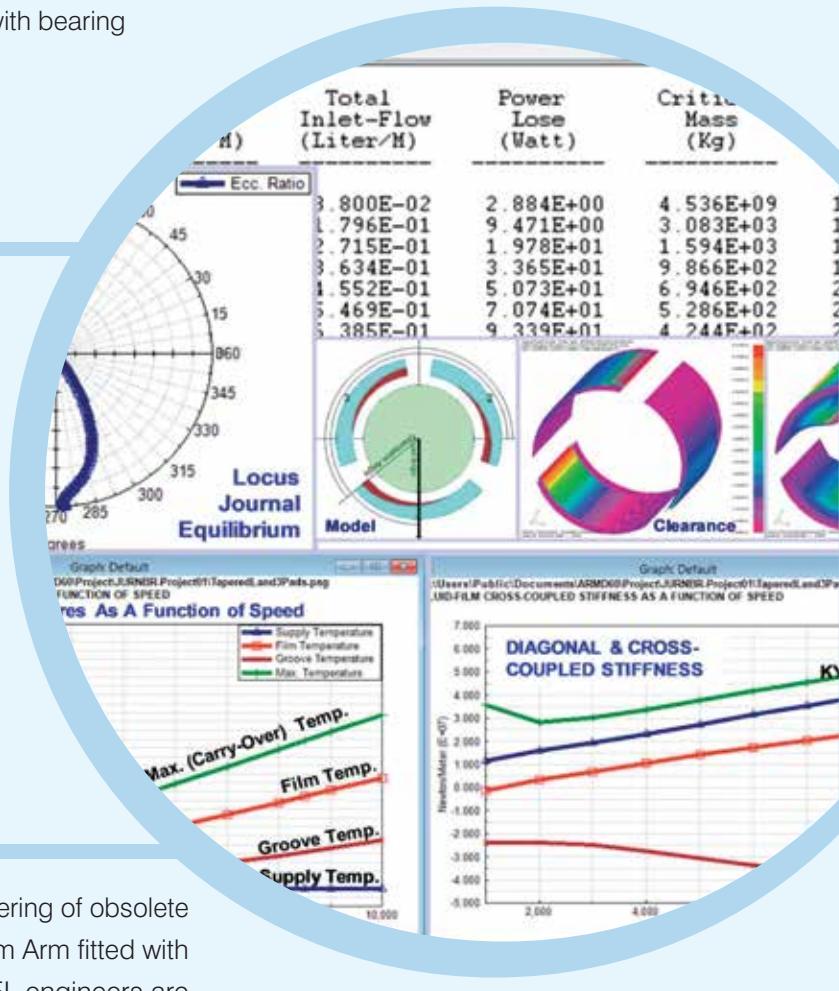


## Bearing Performance Prediction

Using specialist bearing performance prediction software, OEL engineers can perform comprehensive evaluations of all types of hydrodynamically lubricated fluid film bearings, including fixed profile bearings and tilting pad assemblies, to determine how each bearing shall operate at various loads and speeds. These results are used on a daily basis throughout the design stages, this not only allows OEL to analyse both new and existing designs, but also assists with bearing failure analysis and general troubleshooting.

### Simulation results include

- Minimum film thickness
- Bearing power loss
- Bearing eccentricity
- Maximum pressure
- Maximum operating temperature
- Lubricant viscosity
- Lubricant flow rate
- Sommerteld number
- Reynolds number
- Stiffness and damping co-efficient

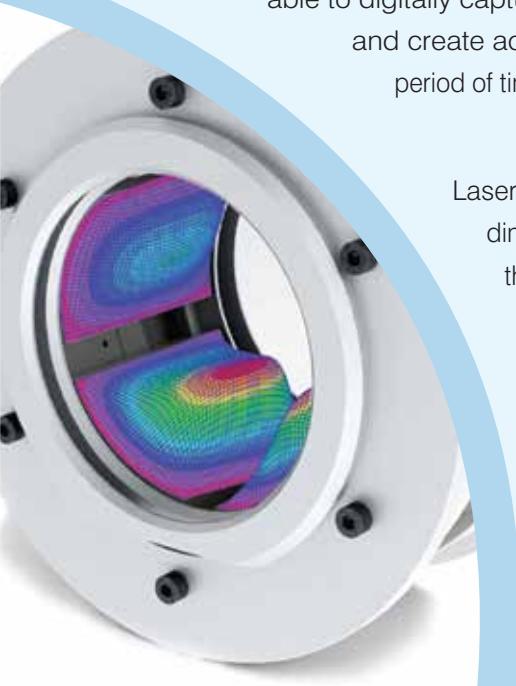


### Reverse Engineering

OEL offer 3D laser scanning solutions for reverse engineering of obsolete components and inspection. Using a FARO Platinum Arm fitted with an additional non contact laser line probe, OEL engineers are able to digitally capture complex freeform components and create accurate models in a relatively short period of time compared to traditional techniques

Laser scan data can be compared back to CAD data using Geomagic Qualify to verify the dimensional accuracy of manufactured parts and quickly identify any areas of concern via the use of customisable automated reporting techniques, including GD&T evaluation. This helps reduce the need for human interaction during the inspection process, decreasing measurement time and improving efficiency

With a combined accuracy of  $\pm 0.060\text{mm}$  over its 4 metre working envelope the FARO Platinum arm and laser scanner provides all the functionality of a traditional CMM, whilst remaining totally portable. Allowing OEL engineers to carry out precise measurement and analysis on site if required.



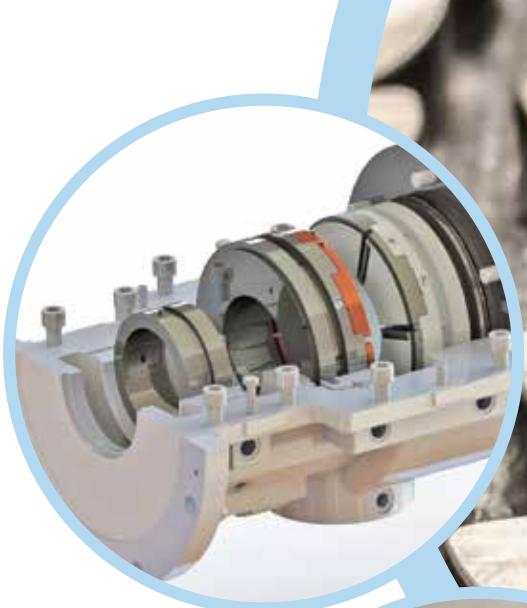


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## BEARING INSPECTIONS

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# Quality

It is the policy of OEL Group to manufacture and supply products that are fit for purpose and consistent with customer specified requirements by an active and co-ordinated programme of defect prevention and quality improvement using the relevant quality standards.

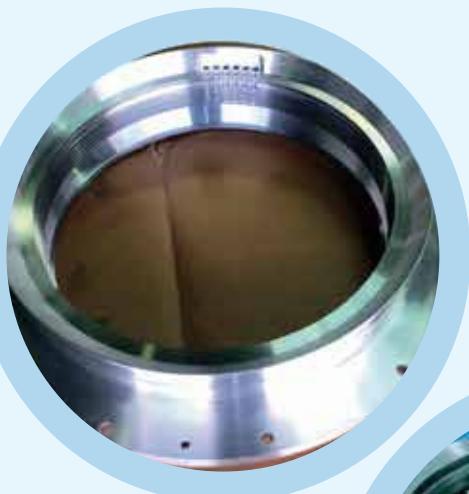
Procedures and improvements are cascaded throughout the Group to ensure the same level of service is available on a global scale

## ISO 9001:2015 Multi-site Certification

Quality has always formed the cornerstone of our company policies and procedures. In 1986 OEL were one of the very first engineering companies in the UK to achieve ISO 9000 certification. In 2015 OEL successfully made the transition to ISO 9001:2015 certified by a reputable UKAS accredited third party. The UK Headquarters hold a multi-site scheme certificate which encapsulates the rest of the Group. All of the satellite sites and facilities work to the same ISO certification and certification body.



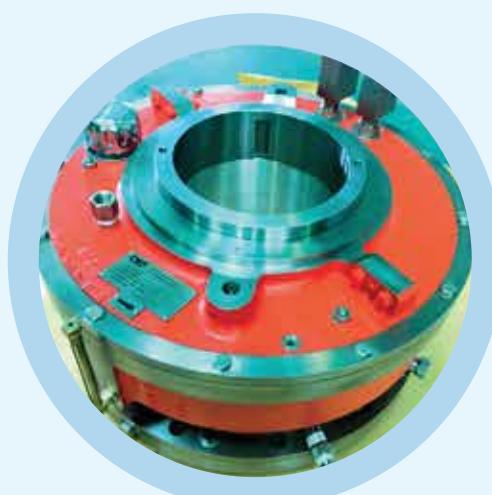
Quality objectives are integral to our business objectives and are cascaded down through all levels of the organisation. Daily production meetings allow us to identify any issues early on in the manufacture process and provide any updates to our customers without delay. Our dedicated business support teams remain in contact with our customers and continuously monitor orders to give our customers confidence and build a rapport with the people who matter to us most.



## Inspection

We pride ourselves in carrying out 100% inspection prior to dispatch to ensure that any goods shipped to customers meets both specification and expectation. Custom test plans and procedures can be incorporated to meet the most exacting of standards.

OEL have a wide range of measuring equipment which can measure accurately within microns. This includes two CNC co-ordinate measuring machines (CMM) up to 1200 x 1500 x 1000mm and FARO arm with non contacting laser line probe for portable measurement.





## Discover a world of excellence

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