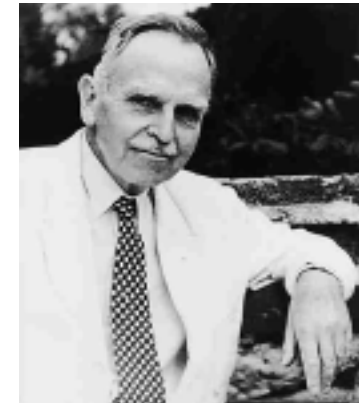


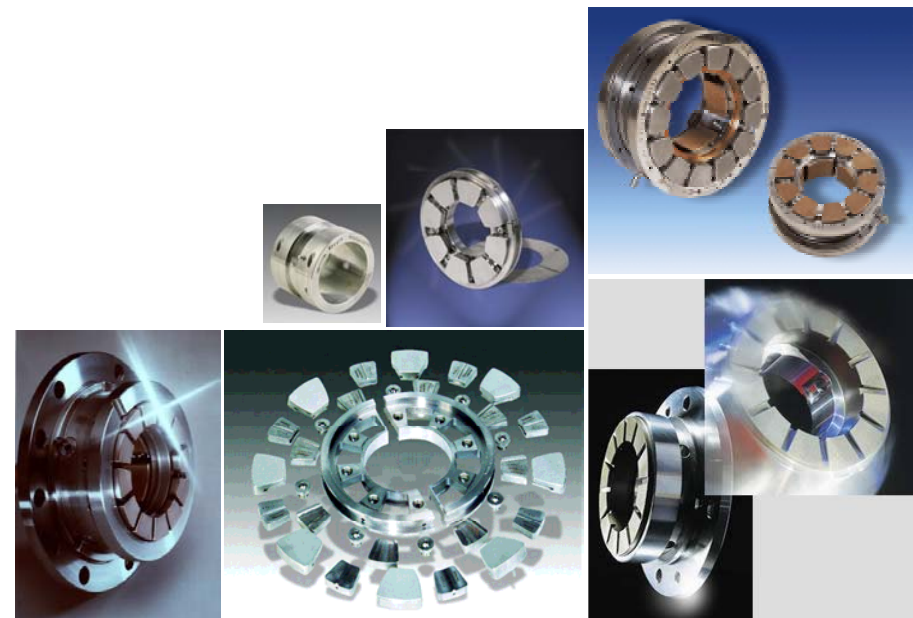
John Crane Bearing Technology



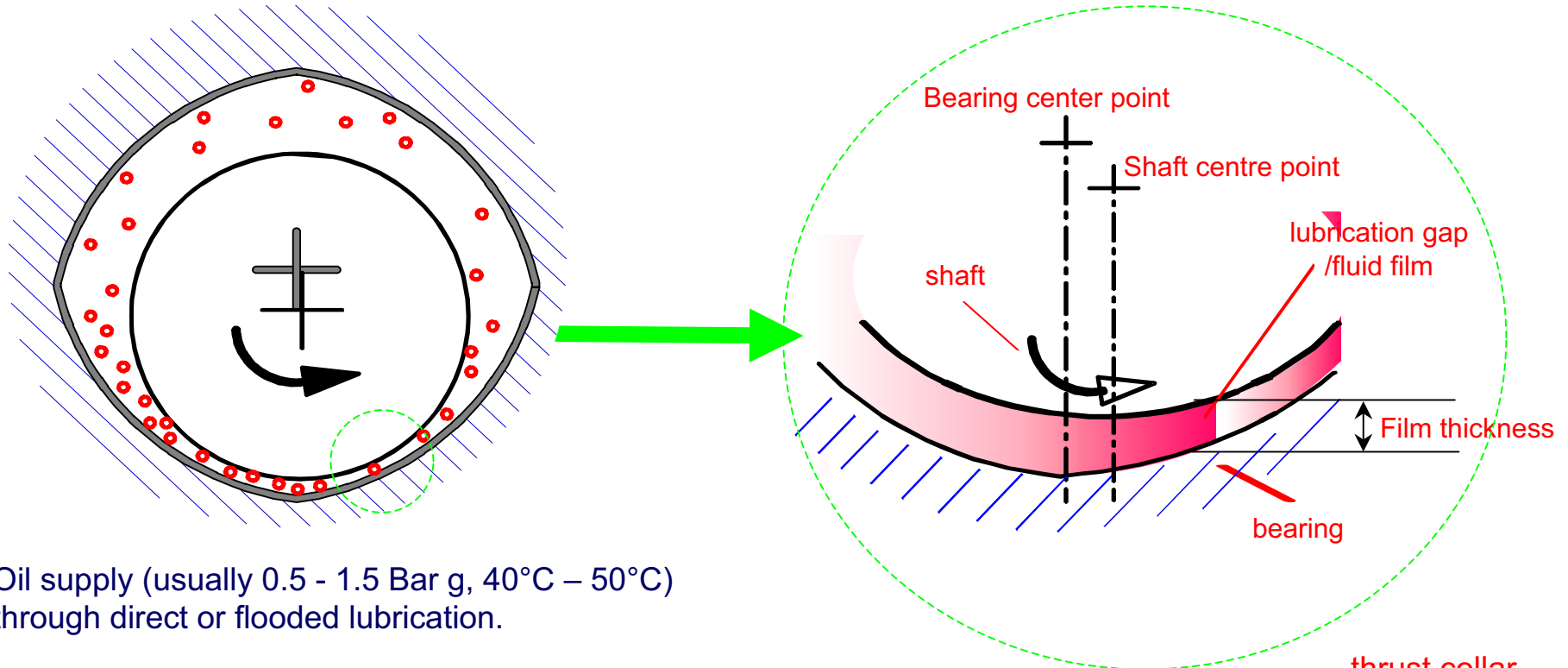
- Established in 1948
- Global reputation for precision engineered products, quality materials and manufacture:
 - DIN EN ISO 9001:2000 Certified
 - DIN EN ISO 14001 Certified
- Active member of the FVV (German Association of Combustion Engines)
- Strong academic R & D links:
 - Prof. Dr.-Ing. J. Glienicke
 - University of Clausthal
 - University of Bochum
- Acquired by John Crane in November 2007



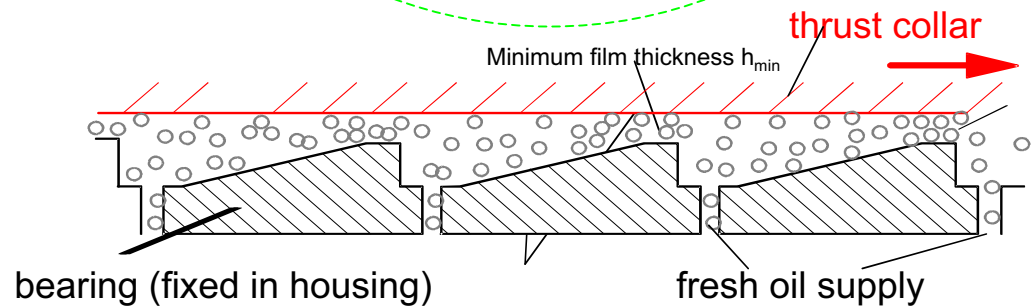
1948 - Otto Hahn
Chemist; Nobel-Award 1944



Hydrodynamic Bearing Principles



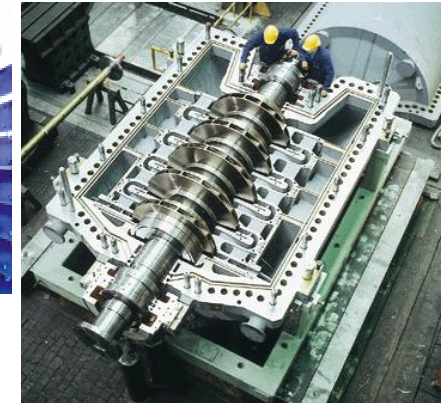
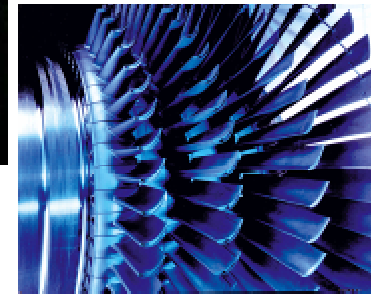
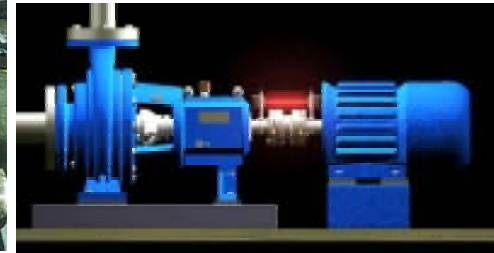
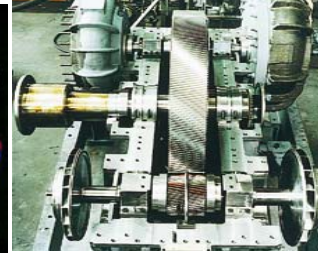
- Oil supply (usually 0.5 - 1.5 Bar g, 40°C – 50°C) through direct or flooded lubrication.
- Oil adhesion to rotating shaft or thrust collar carried over into the bearing „wedge“ and thus suppression and carryover effects, lead to load capacity, damping and stiffness.



Areas of Application



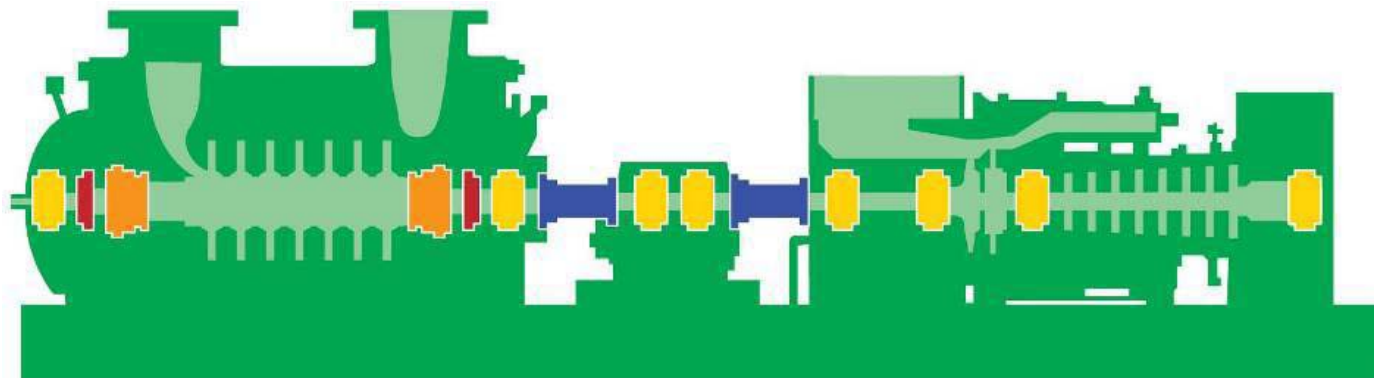
- Industrial Gas and Steam Turbines
- Turbo Gearboxes
- Turbo Compressors
- Exhaust Gas Turbochargers
- Booster Feed Pumps
- Electric Generators
- Refrigeration Turbines
- Machine Tools
- Centrifugal / Noise Test Rigs



COMPRESSOR

GEAR BOX

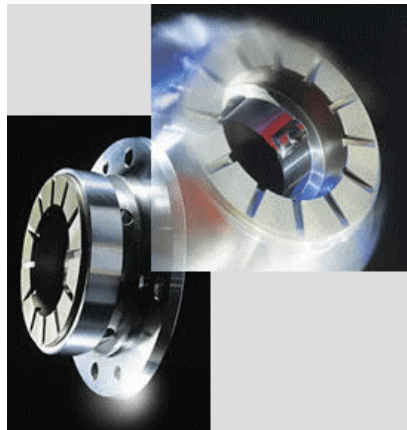
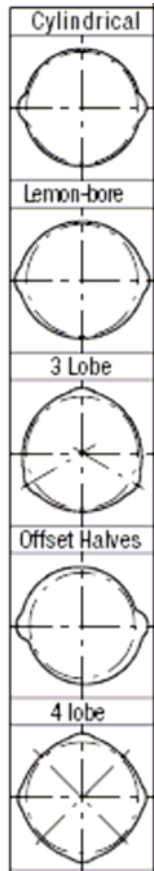
DRIVER



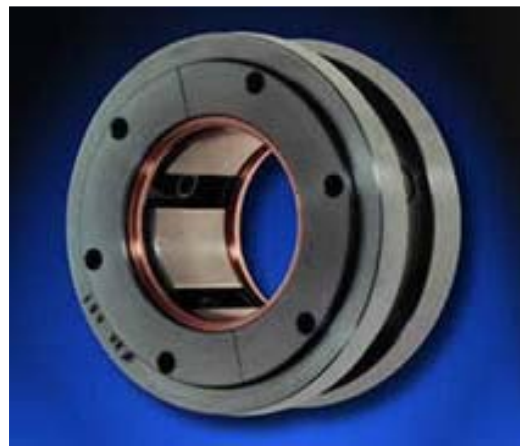
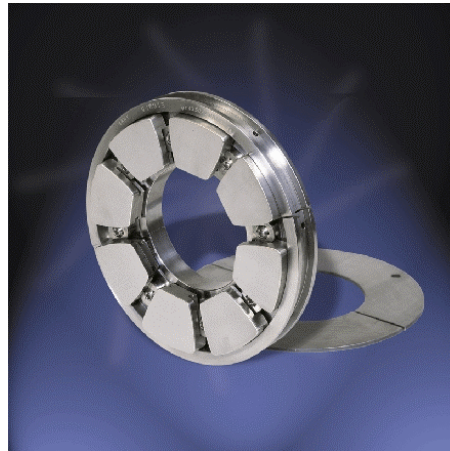
Bearing Types



Multilobe Bearings (MGF)



Tilting Pad Bearings



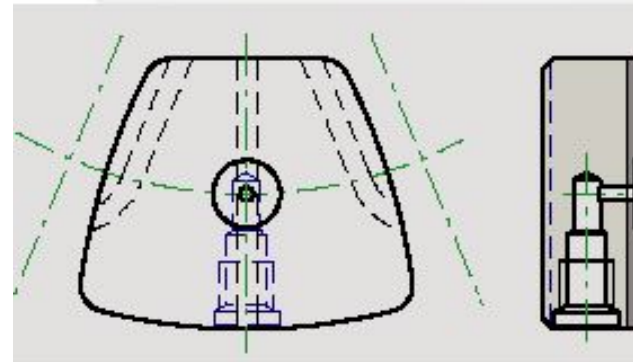
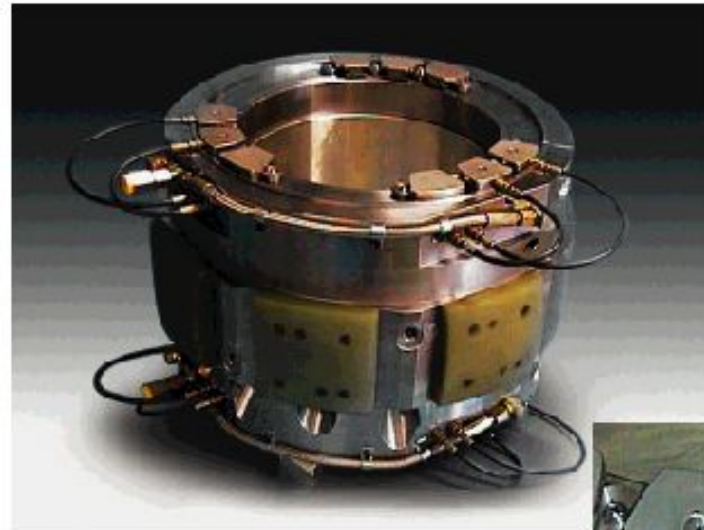
Combined Bearings



Tailored Solutions - Torque



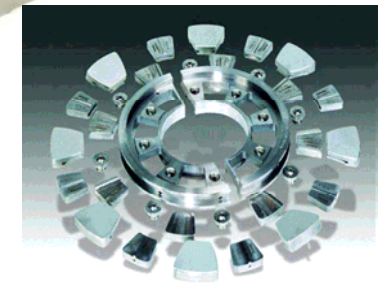
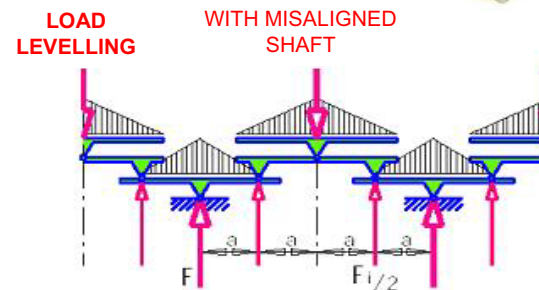
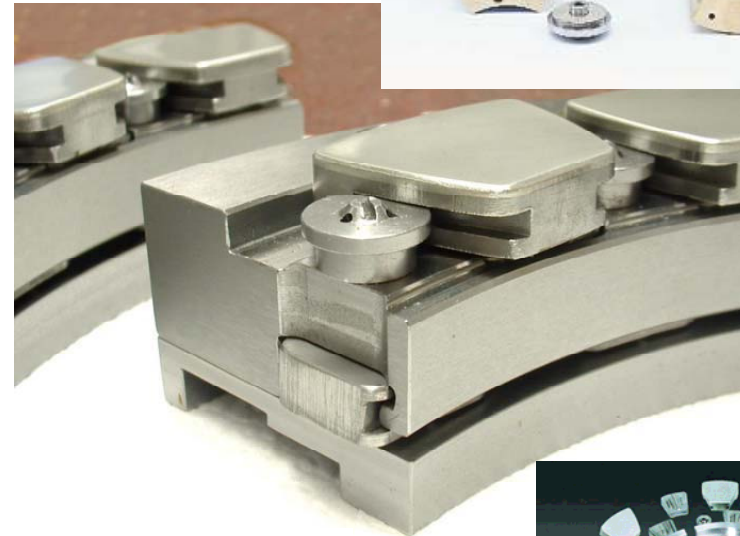
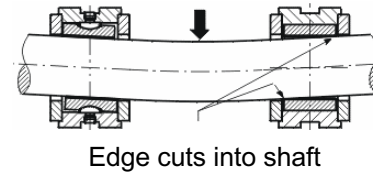
- Tailored solutions to meet the most demanding applications.
- Highly specialised technical support facility.
- Thrust and Journal hydrostatic jacking systems.
 - Shaft is lifted away from bearing pad for low speed operation at high loads.
 - Reduced start-up torque/ power consumption.
 - Lower risk of rotor-stator contact



Tailored Solutions-Rotor Alignment



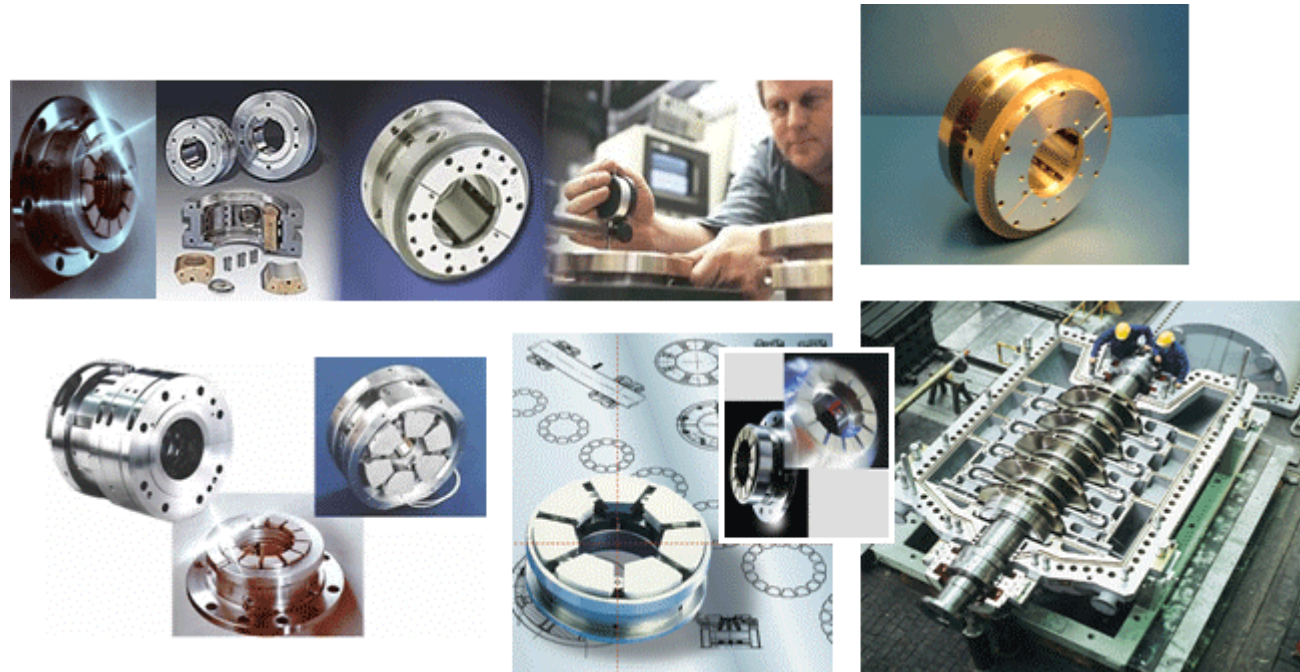
- Eccentric bearing bores for off centre rotor positioning
- Thrust and journal levelling shims can be included to ease rotor and bearing alignment
- For more challenging applications, JCBT offers a number of design solutions
 - Self equalising thrust pads- distribute evenly the load around the pads to reduce point loading
 - Spherical pad support – accommodate shaft sag and prevents pad edge wear
- Longer operational life through consideration of individual application characteristics



Customers



John Crane Bearing Technologies



- **Precision** High-Tech made in Germany
- **Competence** Individual complete solutions: Development, Design & Production
- **Confidence** International and years of experience
- **Service** Reliability: From the start you are in good hands!