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Tailor-made solutions for Aerospace

The Drive & Control Company



Partnership with us makes your technology take flight

The Aerospace Industry is highly competitive. The number of projects is vast, the technology involved is of an intensely high nature and diverse, as every customer has their own set of specific requirements. In order to be competitive in this market, you need a partner with extensive knowledge and a capacity to support you from conception through to installation ... and further.

Whether your solutions require industrial hydraulics, pneumatics, electric controls, linear concepts, industrial safety guarding or even mobile vehicle components, at Rexroth we offer you solutions from a single source.



Experience and competence

Rexroth boasts extensive experience in drive technology. Our knowledge, combined with the market-leading technology and project competence of Rexroth, makes us a desirable partner for any aerospace solution. This is accomplished through Rexroth's wide range of technologies and first class components.

With a customer base already including some important names within the aerospace industry such as Airbus, BAE Systems and Lockheed Martin, Rexroth has a proven track history of expertise in providing solutions for specialist aerospace applications.

So far Rexroth has served the industry via the provision of design services, hydraulic cylinders, pumps, motors, valves, hydraulic power units, motion systems for flight simulators, factory automation products, industrial guarding, pneumatics and welding equipment. We have been involved in such high-profile projects such as the Airbus A380 and the A400M wing manufacturing facilities and a motion control system for BAE Systems.

Long-term reliability

It pays to make the best choice for each component. The knowledge and innovative capabilities in engineering, production and testing within Rexroth protects you from unfavourable downtimes and ensures quality of solutions. Systems and components undergo rigorous testing in their 3D design in order to obtain optimised performance levels.

Rexroth is quality certified to ISO 9001:2000 standards and the high standards we set ourselves are also imposed on our suppliers. We use only exclusive high-quality materials from reputable manufacturers. We convert and machine them using only the most modern of equipment. Control of our procedures and processes makes sure that we achieve the product quality that our customers expect from us.

The continuous development, improvement and innovation undertaken by Rexroth ensures best-in-class performance. Be it working with our products or with our associates, the benefits are reaped by our customers.

Market-leading Industrial Hydraulics

For over 40 years, hydraulics from Rexroth has been the premier name within the hydraulics industry. We have achieved consistent high levels of design expertise and service.

Based in St Neots, Cambridgeshire we are the largest suppliers of hydraulic equipment in the UK. We have over 250 dedicated hydraulics personnel, including 30 professional engineers who have years of expertise in the design, manufacture and sale of hydraulic solutions.

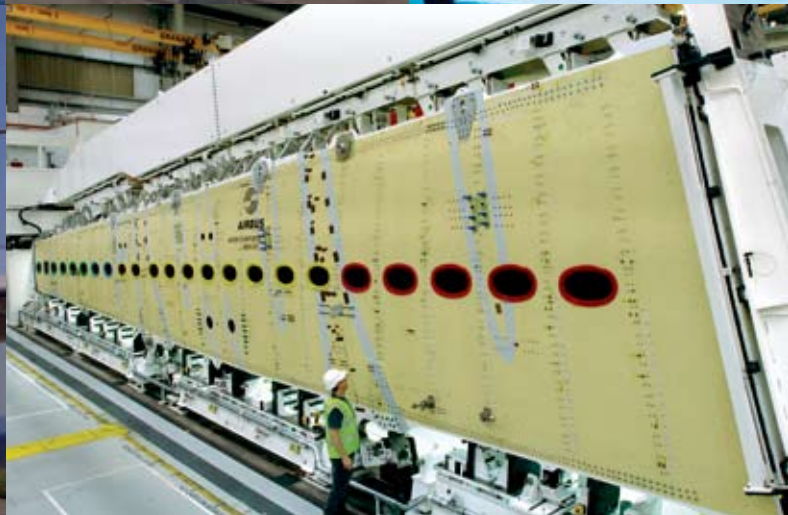
Extensive engineering facilities in Germany and the UK enable us to develop new products and solutions while supporting existing products. We have specialist sales and project managers who can convert your ideas into working hydraulic solutions. Our capabilities include:

- 3D modelling
- Hydraulic and Mechanical Simulation
- Finite element analysis
- Static and Dynamic Motion Analysis
- Hydraulic/Electrical Circuits
- 2D Design
- Electronic Circuits

Systems and Engineering

We offer first-class customer service at all stages of a contract. This and our vast experience in project management provides you with superior service and ultimately a tailor-made solution to suit your exact needs. Our projects range from hydraulic power units to complex turn key solutions and system providers.

Our products and solutions are planned with installation in mind. With correct designing, commissioning and professional installation, we are able to ensure optimum operating conditions whilst keeping maintenance costs to a minimum. Our engineers work closely with you on all aspect of your project to ensure the ultimate goal is reached, as well as providing an after sales service support function. Project management offered by Rexroth can make the entire experience a lot easier.



Experience and understanding of your applications



Airbus A380 Wing Jigs - the biggest Rexroth Aerospace project to date and a milestone in aviation history - were realised with the support of Rexroth designers, engineers, fitters and Drive and Control Technology.

Our brand-wide technology is used at various stages of wing production for the A380. The scope of the challenge was enormous. The world's largest commercial aircraft would be both labour and automation intensive as well as being designed using new generation engineering, taking into consideration efficiency, safety, cost-effectiveness and quality.

In collaboration with the customer, Bosch Rexroth developed systems for five separate assembly processes. These were developed with the aim of reducing the manual labour involved and increasing the accuracy, and therefore the quality levels.

These processes included the wing-panel assembly production line, wing assembly jigs incorporating the access platforms, panel loaders,

goods lift system and the Huck high pressure remote tooling stations for cold working metal and fastener installation.

Each of the four giant wing assembly jigs at the Airbus manufacturing facility in Broughton, North Wales, holds a port and starboard wing of the A380 twin-deck aircraft. One wing assembly jig measures approximately 60m long by 30m wide by 12m high. Rexroth designed, manufactured and installed the hydraulic system that operates the 170 hydraulic platforms. These retractable floors are attached along the full length of each of the four levels allowing work on various parts of the wing. Each floor has two pivot points and is pushed 90 degrees by purpose-designed Rexroth hydraulic cylinders. Retraction of these floors is vital to the operation of the jig to enable the free movement of not only the CNC drilling machines but also the removal of the completed wing box.

Fluid power for each jig is provided by a centralised pumping system consisting of a hydraulic power unit and a fluid reservoir assembly. The hydraulic pressurised fluid is then distributed throughout the



jig structure via a huge pipework ring main system to the numerous valve control panels and manifolds located around the four levels of the wing assembly jig.

The innovative A380 wing assembly jigs incorporate automated drilling machines for Skin-to-spar and Skin-to-rib drilling which are carried on goods elevators. Each jig is equipped with four 4-storey and four 2-storey goods lifts and Rexroth was responsible for the hydraulic system up to and including the safety isolation hydraulic control manifolds. These manifolds safely set the velocity of the lifts at a constant speed, irrespective of the loading of up to 10 tonnes in the lift.

There are also twenty-two panel loader stations which lift/lower the aluminium panels between levels and present them to the wing. The panel loader system, devised by Electroimpact and Bosch Rexroth, comprises of six coordinated servo hydraulic arms to manoeuvre and present a panel to the wing assembly. The complete handling system for the upper and lower, port and starboard panels has 22 arms and utilises the Rexroth HNC100 digital controller to synchronise their axis, control force and provide overall closed loop control.

Bosch Rexroth Linear Motion Technologies also equipped all of the in-jig wing assembly tooling from wing root to tip. Tooling requirements that required accuracy and precision were met and exceeded by Rexroth's range of linear motion products.

Thanks to the high level of automation technologies provided by Bosch Rexroth, the Broughton plant can produce four pairs of wings a month, making it the largest and most productive, wing assembly plant in the world and aviation history.

Other aerospace projects Rexroth has been involved in include:

- Airbus A380 TLD Towing Vehicle
- Airbus A380 Ground Support Systems
- Airbus A400M Wing Manufacturing Facility
- Airbus A320 Panel Assembly Line
- Airbus A340 Cabin Crew Emergency Trainer
- BAE Systems JSF Hydraulic Test Rig
- BAE Typhoon Ground Support Equipment
- Boeing 787 Flight Simulator Hydraulic Power Units
- EADS Multi Actuator Test Bench
- Lockheed Martin Motion Control System

In addition to our competent performance in hydraulics, we can offer the following:

Electric Drives and Controls



The latest microelectronics have made hydraulics even more powerful. Rexroth motion systems create the illusion of reality by combining high fidelity hydraulic and/or electric motion systems

Linear Motion and Assembly Technologies



The combination of Rexroth Hydraulics, Linear Guides and Ball Screws allowed a high level of accuracy on newly devised automated process flow production processes on the new A380, but the Linear Motion and Assembly Technologies from Rexroth not only add new, robust dimensions to the production process itself, they also provide even the industrial health and safety guarding so vital in modern production environments.

Pneumatics



Rexroth pneumatics provide both necessary as well as unique functions within any pneumatic system. Not only do our products perform traditional functions such as regulating and cleaning air using low cost but high quality products like the AS2, technologically advanced products like the LS04, a miniature valve, produce a greater flow output.

Even the Rexroth Easy-to-Combine automation system incorporates cross-technology know-how and components for linear, rotary movements, as well as gripping functions, by connecting pneumatic and linear products within one solution. Therefore, whether you require modular products or the whole system, Rexroth can tailor the solution to your exact requirements.

Bosch Rexroth, servicing your every need



For the complete customer service, you need excellent support, availability and rapid solutions on as well as off-site that span technological boundaries.

Our service engineers are qualified to deal with your requirements. Service support strategies are developed alongside your projects to ensure that we can provide you with premium customer service.

We benefit from a network of service centres and sales partners, allowing for rapid response times. As well as localised, we also provide a global network of competent, efficient field service technicians.

Part of an all-encompassing service is offering support and we endeavour to do that to the best of our capabilities. As well as service engineers, we offer tailor-made training courses to suit your needs. Our training courses are up-to-date and of the highest standards. Effective training in the usage of our products is a prerequisite for productive work and job satisfaction. Enhancing the customer's knowledge and skill-base can avoid downtime or stoppages that would usually occur through lack of basic or specific product knowledge.

With our expansion into localised service units, our focus on providing the best possible service to our customers is enhanced. Improving accessibility, visibility and functionality means that we can provide you with fast and effective servicing whilst also reducing costs by remaining local and only using quality, Rexroth parts. Quality parts that produce real power result in less downtime and reduced risk than using below-standard replacement parts would allow.

