



Comar Engineering Services Limited



CONTROL SYSTEMS & TEST RIGS



Comar Control Systems & Test Rigs

Comar provide engineering and turnkey design solutions for specialised test facilities and associated systems for the aerospace, industrial and automotive industries, our client base contains many of the leading companies in these fields.

Selecting Comar as your chosen supplier ensures:

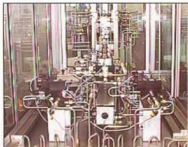
- ◆ Minimised risk
- ◆ On-time deliveries
- ◆ Quality Equipment
- ◆ Support Services

Hydraulic Test Rigs

For the testing of Thrust Reverser Actuators, Flap, Slat, Spoiler and Airbrake Units. High-Pressure (50,000psi), Pressure Impulse and Environmental Test Rigs. Flow, loading, torque, high frequency test rigs. Full instrumentation, calibration, installation and commissioning. Safety abort systems. Comar combines the technologies of PC control systems with hydraulics for test rig applications.

Electro-Mechanical Test Rigs

Fatigue and endurance rigs, torque and load with representative stiffness and compliance. Electric drive systems are sometimes preferred to hydraulic for better frequency response, ease of installation, low energy and less infrastructure. Comar use a variety of actuation systems on their rigs interfacing with diagnostic, control and monitoring software.



Hydraulic Supply Packs

Designed to operate with a variety of fluids, Phosphate Ester based fluids (Skydrol & Hyjet), "Red Oils" (MIL-H-5606, MIL-H-83282, MIL-H-6083, MIL-H-87257), Mineral based oils, Water-Glycols and Kerosene. Open or closed loop supplies, electric motor or diesel driven units, rugged construction manufactured from aluminium, stainless steel or mild steel, with a variety of coatings available. Compact design, ease of operation with supportable widely available components utilised. 0.18kw to 90kw units, single or three phase supplies.

Fluid Conditioning Rigs

Total Fluid Management (TFM), for hydraulic and lubrication systems. To operate efficiently and reliably it is imperative that the operating fluids are in perfect condition; 70-80% of hydraulic breakdowns are caused by contamination. TFM utilises offline systems with integral on-line measuring in accordance with NAS 1638 and ISO 4406.

- ◆ Offline Fine Filters
- ◆ In-line Pressure and Return Filters
- ◆ Electrostatic Oil Cleaning
- ◆ Mobile Filtration Systems
- ◆ Static Filtration Systems
- ◆ Fluid Analysis
- ◆ Fluid Transfer Equipment
- ◆ Fluid Monitoring Systems





Servo Control Systems

Aircraft actuator test rigs under servo control, including Engine Thrust Reverser Actuation Systems, Flap, Slat, Spoiler and Air Brake Actuator Systems.

Software Design

Using design tools such as National Instruments LabWindows/CVI and LabVIEW Graphical Programming, resulting in modular, maintainable systems with user-friendly interfaces.

Data Acquisition Systems

General purpose PC based data acquisition, using National Instruments LabVIEW. Sample rates of upto 1.25MHz across 16 analogue channels. Real time display, high-speed data logging, spectral analysis, waveform generator output, off-line playback and charting.

PLC and Custom Control Systems

For control systems requiring Programmable Logic Controllers, support is offered for all major PLC systems. Design and Development of hardware and software, embedded micro controllers, SCADA, and Custom interfaces.

Control Systems

Bespoke system design, from high level, man-machine sequencing, to low-level time critical closed-loop control. Optimum solutions to meet customers specifications. High speed 16 bit digital controllers, sequencing, alarm monitoring, standard cards for transducer conditioning and servo valve interfacing, analogue and digital PID Controller cards for servo applications.



Services

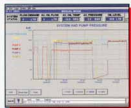
- ◆ Complete engineering (conceptual design, detail design, procurement, assembly, installation, commissioning and documentation)
- ◆ Design studies (Analytical, feasibility, and productivity)
- ◆ Total project management
- ◆ On-site support services
- ◆ Troubleshooting
- ◆ Repairs
- ◆ Product Sales (representatives of leading brands).



Hydraulic Components

We supply only quality components from respected manufacturers supported by our own service team accredited to BS EN ISO 9002.

- ◆ Filtration – Fairey Arlon, Hydac, CC Jensen and Kleentek
- ◆ Hydraulic Pumps – Kawasaki, Vickers, Eaton, Salami, Marzocchi and Dynex.
- ◆ Hydraulic Valves – Kawasaki, Vickers
- ◆ Hydraulic Drives – Kawasaki-Saffa, Vickers, Char-Lynn, Rollstar
- ◆ Hydraulic Accumulators – FCH
- ◆ Hydraulic Cylinders and Accessories



Instrumentation We supply as part of our systems and test rigs the following

- ◆ Load Cells
- ◆ Torque Transducers
- ◆ Pressure Transducers
- ◆ Velocity/Position transducers
- ◆ Encoders, LVDT's, Linear and Rotary Potentiometers
- ◆ Flow Meters
- ◆ Temperature Transmitters and Controllers

VICKERS



rollstar

sajamj

FCM

EATON

Char-Lynn®



KLEENTEK

Staffa

MAPZDCCI



BFPDA

Some Test Rig Applications

- ◆ NH-90 Helicopter Hydraulic Test Rig
- ◆ A340-600 PAT Thrust Reverser Test Rig
- ◆ A340-600 TRAS Test Rig
- ◆ EFA Airbrake PAT Test Rig
- ◆ EFA PDU PAT Test Rig
- ◆ CRJ-700 Thrust Reverser TRAS Test Rig
- ◆ General Purpose Skydrol/MIL-H-83282 50,000psi Test Rig
- ◆ General Purpose Skydrol Proof Pressure Impulse Rigs
- ◆ JSF Actuator Test Rig
- ◆ Kerosene Pressure Test Rig
- ◆ Hydraulic Motor Performance Test Rigs
- ◆ Tensile and Compressive Actuator Rig
- ◆ CRJ700 Cowl Lock Test Stand
- ◆ TVA Thrust Vector Actuator Control Rig
- ◆ Electric Actuator Test Rigs
- ◆ Dynamometer Test Rigs
- ◆ Tail Plane Trim Actuator Test Rig
- ◆ Tornado HI-Lift Actuator Test Rig
- ◆ Tornado Pressure Impulse Cabinets
- ◆ Tornado Re-life Endurance Rigs
- ◆ General Purpose Torsional Fatigue Rigs
- ◆ General Purpose Seal Evaluation Rigs
- ◆ Transducer Differential Pressure Test Rig
- ◆ AS907 Skydrol Supply Rig
- ◆ A320 Actuator Test Rig
- ◆ A310 Flap/Jackhead Test Rig
- ◆ High Temperature Aeroshell Supply Rig

Why use COMAR test equipment? ...

- ◆ Our test equipment is easy to use, high performance, user friendly and quality equipment!
- ◆ Our equipment is reliable, keeping down the cost of downtime and rig components!
- ◆ Maintenance is the key to reliability; our rigs are easy to maintain, supported by our on-site services and "Total Fluid Management" programme.
- ◆ Our equipment is designed to be compatible with a variety of fluids, flows, temperatures and pressures.
- ◆ Our test rigs are designed to operate with the latest control technology, PC or PLC, digital or analogue systems.



Unit D, Key Industrial Park,
Planetary Road, Wednesfield, Wolverhampton, West Midlands, WV13 3YA, England

Tel: +44 (0) 1902 383000 Fax: +44 (0) 1902 739430

E-mail: sales.comar@btconnect.com