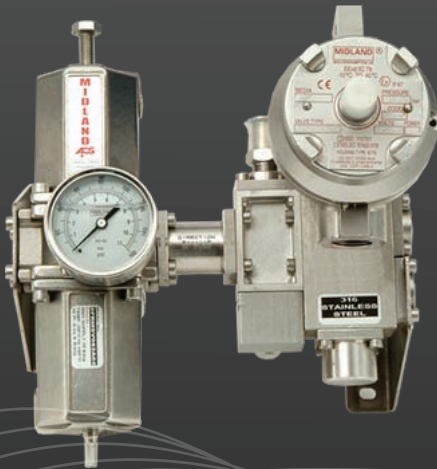


MIDLAND-ACS

Severe & Hazardous Area Experts

IMPACT 2000™



International **M**odular **P**neumatic **A**ctuator **C**ontrol **T**echnology 2000

- Save Time
- Save up to 25% on Weight
- Improved Integrity



ITT

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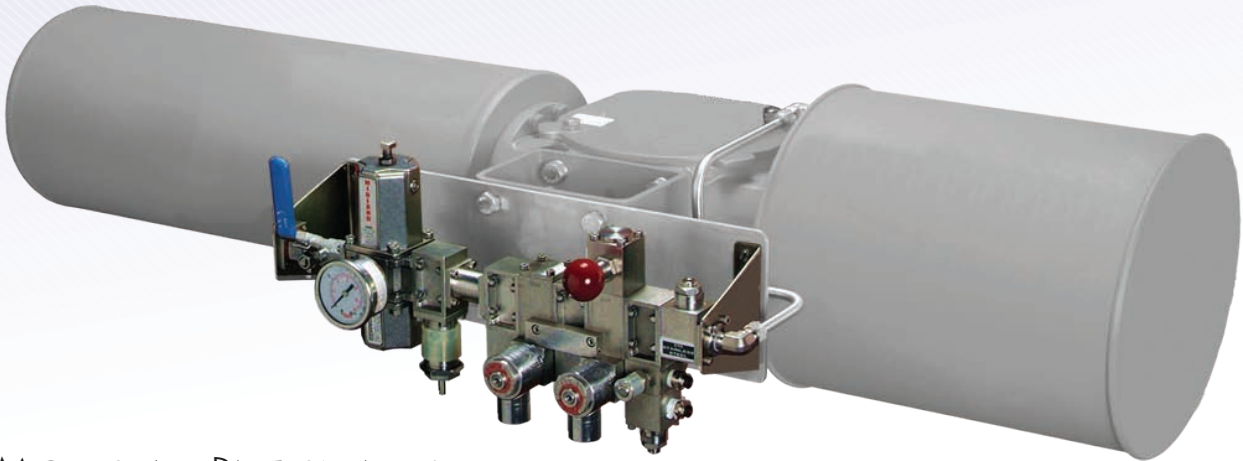
MIDLAND-ACS



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Known Internationally for over 50 years *Midland-ACS* has been a specialist designer, manufacturer and supplier of 316 Stainless Steel Control Equipment for use in even the most arduous and extreme of environments.

Through continual innovation, research & development we have become the worlds pre-eminent supplier of modular air units, currently shipping over 4,000 year. With our aim to exceed customer expectations, we have proven and still are proving that we can create innovative bespoke solutions, covering design, engineering, build and testing all backed up by our technical assistance and service.

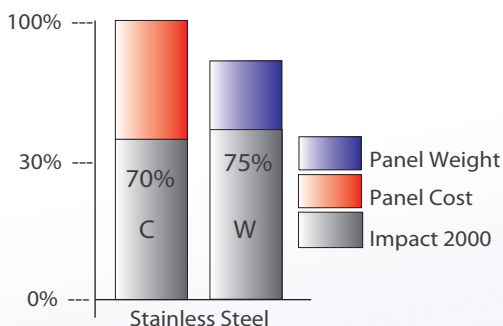


MODULAR PNEUMATIC CONTROLS

IMPACT 2000™ (International **M**odular **P**neumatic **A**ctuator **C**ontrol **T**echnology) is a high integrity modular pneumatic actuator control assembly in 316 Stainless Steel, used for the control and sequencing of process valve actuators on oil and gas platforms/pipelines.

Using field proven components, valves, spool, poppet or direct acting, and filter regulators are connected in series using a universally compatible interface block and mounted directly onto the valve actuator, combining all the components of a common circuit, into one integrated assembly. Whether it be a standard shutoff circuit or an intricate control system, IMPACT 2000™ can be tailored to meet the requirements of your project.

In order to accommodate specific solenoid operator requirements we work with a number of renowned solenoid manufacturers, thus allowing the manifold solution to be tailored to both valve control system construction and client solenoid specification requirements.



Certification Options Available



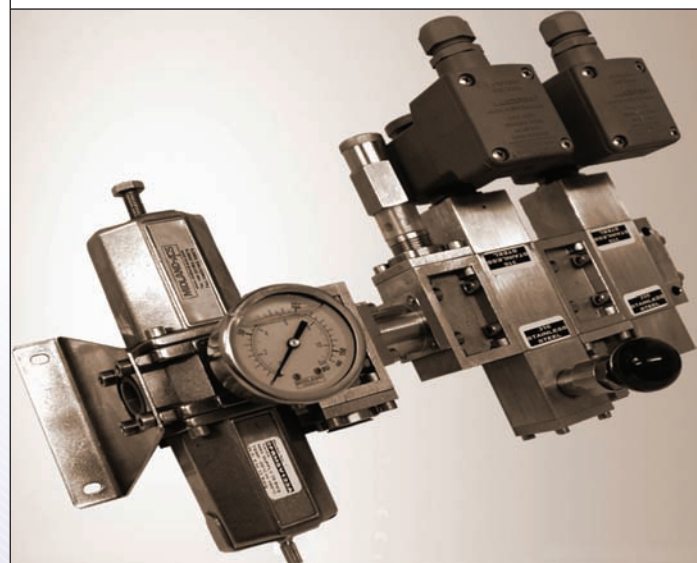
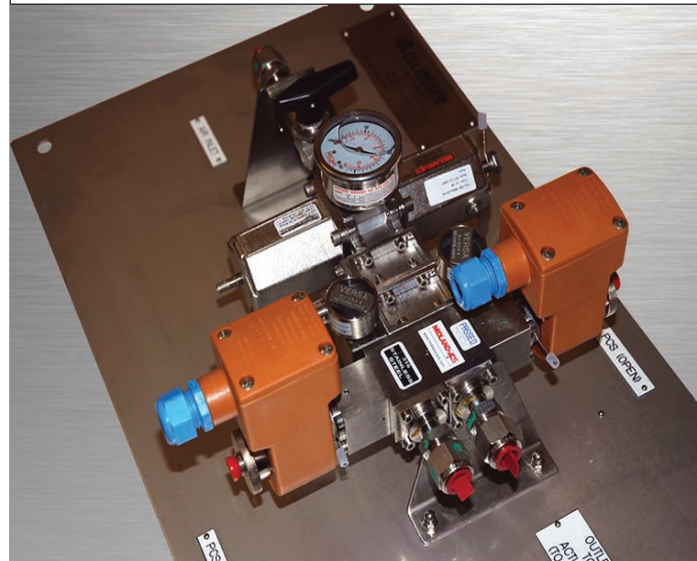
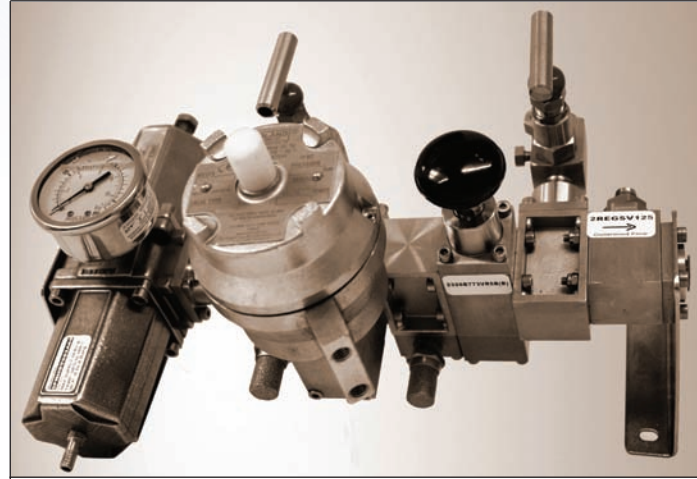
- Severe service valve actuation
- Available ATEX compliant to category 2
- Will interface with all global pneumatic actuators
- Valve automation control circuit optimisation
- Ideal for both hazardous area and industrial use
- Lighter, stronger and eliminates interconnecting pipework and fittings to save space
- Reduction in total installed cost in both CAPEX and OPEX over panel mounted assemblies

ADDITIONAL FEATURES AND MANIFOLD EXAMPLES

Each unit is supplied assembled and tested, ready to fit and operate. No design work is required from the contractor and all components are kept in stock, resulting in short lead times. Should it be needed, manifolds can be designed to individual customer requirements. IMPACT 2000™ components are ideal for both hazardous area and industrial use, with ATEX, NEMA, UL and CSA approvals. Units will interface with all global pneumatic actuators.

- 316 stainless steel or brass body
- Direct acting, Spool or Poppet valves
- Available in ¼" (Cv 1.00) and ½" (Cv 3.50)
- Can be integrated in larger valve circuits ¾" (Cv 10) + 1" (Cv 14) (see page 3 image example)
- Allows any combination of components
- All units are non lube
- Units allow for a wide range of pilots to be fitted - project depending

Certification Options Available



ELECTRO-PNEUMATIC VALVE ACTUATION

We are a specialist manufacturer of electro-pneumatic actuation equipment, offering comprehensive purpose designed, engineered and manufactured solution. Designed for service in safety shutdown and control applications electro-pneumatics offer the speed, accuracy & repeatability of electric actuators but with the force capability of pneumatics.

Electro-pneumatic control configurations dependent on your need include:

- **Double acting** (air-to-open, air-to-close) - adaptable to any type of gate valve and have cylinder sizes ranging from 100mm bore through 710mm bore.
- **Spring-return** (air energised, spring to fail position closed or open).

All configurations incorporate a non rotating split rod coupling.

As part of the customisation process actuation accessories can also be added which include:

- Solenoids
- Positioners,
- Position switches
- Hand wheel overrides – side or end mounted

Certification Options Available



CASE STUDY - VALHALL PLATFORM RE-DEVELOPMENT WITH BP NORWAY

BP Norway's vision for the re-development of Valhall is to provide "Safe, Intelligent, Maintenance-Free and Remotely Operated Facilities". Fitting in with *BP Norway's* vision, commissioned through our long-term Norwegian partner *Haakon Ellingsen*, we were tasked with designing and engineering a number of different configurations of pneumatic manifold solutions incorporating specific solenoid operators for the re-developed facility.

As the appointed Pneumatic Actuation Manifold provider we assumed responsibility for engineering, procurement co-ordination, fabrication and assembly, as well as the testing of the assembled systems. In order to add further value all of the required design work was completed by our engineering team saving customer resource and reducing the project lead-time considerably.

To withstand the environmental conditions that would be present on the Valhall site both the ¼" and ½" NPT versions of the manifolds were elected to be made from 316 Stainless steel. With the air temperature on Valhall varying from -8.2°C to +24.5°C (100 year design), the manifolds were designed and engineered to withstand temperatures as low as -20°C and as high as +80°C at a rated maximum inlet pressure of 17 bar.

With safety being a key element in *BP Norway's* vision for the re-developed Valhall platform, we designed safety features and fail safes into each configuration of manifold. Designed and manufactured in accordance to NORSOK standards, as well as BP's additional technical requirements to NORSOK (BPN specifications) the Air Filter Regulators and the Relief Valves were pre-set to operate at the specified system operating parameters. As part of the design a 1.25 bar differential was maintained between the required actuator working pressure and the specified relief pressure.

In order to accommodate specific solenoid operator requirements Midland-ACS work with a number of renowned solenoid manufacturers, thus allowing the manifold solution to be tailored to both valve control system construction and client solenoid specification requirements. For this re-development project they partnered up with valve manufacturer *Parker* and their *Lucifer* range of solenoids. Adhering to the EU 94/9/EC ATEX directive and EU 73/23/EEC European Union Electromagnetic Compatibility directives and the EExme and EExia approvals, the field instruments, dependent on the manifold configuration it was being attached to, were supplied in 3/2 and 5/2 forms.

CASE STUDY - VALHALL PLATFORM RE-DEVELOPMENT WITH BP NORWAY CONTINUED...

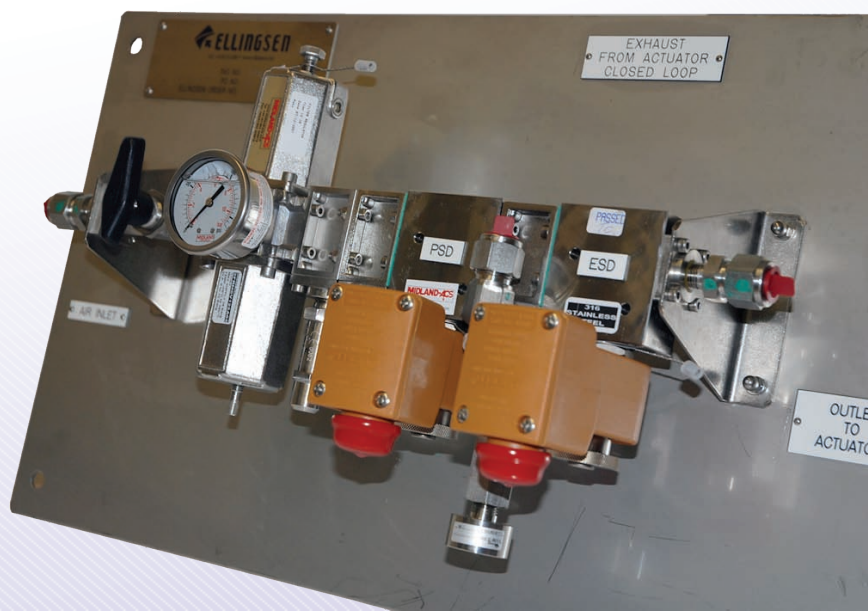
Each of the manifolds were individually tagged and mounted on back plates with specific Traffolyte legend plates. As part of the overall design the need for external pipe work was reduced significantly. In removing the bulk of the external pipe work the overall integrity of the circuit was increased, as the number of potential leak paths were reduced.

With the manifold panels simply requiring mounting directly onto the valve actuators cost savings were maximised and is often the preferred option on large process valve piloting operations. This represents a significant reduction in lead-time, man hours, material cost, and weight, whilst delivering the afore mentioned improvement in integrity of design and reliability.

Each configuration of manifold was subject to a rigorous test processes in accordance to Quality Assurance standards, FMEA tool deployed to drive control plans and internal audit schedules prior to despatch. Testing included electronics, pressure and full sequence leak testing ensuring that every potential leak path is duly eliminated to ensure longevity of the system. Each configuration of manifold was then supplied with test reports and full documentation packs. By being responsible for the production of the actuator control panels we could ensure the quality of all components and materials selected for inclusion.

The expected re-development completion date of the new platform is 2010, where the Valhall field will almost certainly continue to be on stream until 2050. The field is likely to have an oil production capacity of 120 mbopd, a gas handling capacity of 143 mmscf/d with a total liquid capacity of 200 mbpd (oil and water).

One of the panel configurations



QUALITY ASSURANCE

The quality assurance team has been challenged to maintain and develop the key processes that help the organisation surpass customer expectations, achieve its business goals and maintain compliance with ISO 9001:2000. Alongside management's intent is to apply, develop and promote key principles throughout the organisation, as well as continually improve the effectiveness of the Quality Management System, it also support industry standards including ATEX and PED.

Investments in skills and technology, such as a Faro Gauge has ensured progress in terms of customer focus. Key performance indicators and related information is analysed to determine what action is necessary to achieve planned results.

Dedicated quality resource is available to provide real time customer support and all issues are managed to ensure a timely and accurate response. A recent process audit visit from Haakon Ellingsen & Emerson Process Management have shown that the changes have been worthwhile with the company receiving very positive responses from both parties.



ENGINEERING AND MANUFACTURING CAPABILITIES

From our UK base we are well equipped to provide a comprehensive range of engineering and manufacturing. With a high portion of our staff being highly skilled engineers, they utilise up to date technology and methods, to design and engineer bespoke solutions for a wide range of applications which are then manufactured with quality and longevity in mind.



Product testing

- Cryogenic to elevated temperatures
- Pressure - 0 to 210 bar (gas)
0 to 1000 bar (15,000 psi) (fluid)
- Data logged cycle testing
- SIL (Safety Integrity Level) Analysis
- Certification – ATEX (non-electrical)
PED (certification)

Engineering

- 3D solid modelling using Solidworks
- 2D draughting
- Auto CAD
- Fast CAD

Manufacturing

- CNC milling & turning
- 2 tonnes crane/lifting capacity
- Product assembly
- Digital lead testing
- Solenoid Performance testing
- Faro Arm - multi position inspection

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