



Fig. 1 - Off-shore drilling platform

Electrohydraulics systems for Oil & Gas

Ex-proof solutions for hazardous applications

Electrohydraulics is the most widespread motion control technology in Oil & Gas applications such as top drives; skidding and chain jack hydraulic systems for offshore drilling platforms; hydraulic stabbing arms for drill string mating (Fig. 1).

These applications demand advanced automation, high performances, steady reliability and operational cost reductions; in addition they have to provide high level of safety in any classified hazardous areas according to International safety prescriptions.

The **whole range of Atos electrohydraulics** components is available in **ex-proof execution**, certified to ATEX Directive 94/9/CE, Group II for surface applications, including ISO 6020-2 cylinders and fixed vane and variable displacement axial piston pumps (Fig. 2).

Ex-proof valves ensure the best force/stroke performances with only 8 or 12 watt power supply and they are available in on-off and in proportional executions suitable for directional, pressure and flow control valves. They are multi-certified according to ATEX, IECEx and EAC standard or cULus and SIL 2 / SIL 3 in compliance to IEC 61508 (Fig. 4). On-off directional valves with ex-proof solenoid certified according to PESO by Government of India and MA Chinese mining, integrate the comprehensive Atos product range for hazardous applications.

Low temperature version is specifically designed to withstand ambient temperature down to -60°C , that is considered the extreme borderline of outdoor hydraulic applications in arctic areas.

Thanks to wide experience and know-how in the oil & gas market, Atos system division, designs and realizes modern hydraulic power units **tailored to the specific application** and equipped with proper solutions to withstand **aggressive environment**, such as insulated cabinets, **zero leakage connections** and special painting treatments, homologated for **naval and offshore applications** (Fig. 3).

Power units and systems are supplied with technical handbook, including the declaration of incorporation and assembly instructions plus ex-proof certifications i.e. all the documents needed by the operator to speed up the commissioning procedures.

A prominent example of successful modern electrohydraulic application is the top drives drilling operation in the oil derrick. They are equipped with stabbing arms that automatically mate the drill string chain. These advanced automations are performed by the new Atos' servoproportionals equipped with ex-proof on board electronics (Fig. 5).

The **integration** of digital electronics to the ex-proof valves allows to **operate standing alone closed loop controls** and to **limit the remote communication** with the central control unit for command signals and diagnostic only, through CANopen or PROFIBUS interfaces.

For further information look at www.atos.com



Fig. 2 - Atex vane and piston pumps



Fig. 3 - Oil & Gas power pack



Fig. 4 - Ex-proof valves



Fig. 5 - Closed loop directional controls



Closed loop directional controls

Electrohydraulics for Oil & Gas

Modern Oil & Gas installations more & more require advanced automation based on motion control technology with high safety level for every classified hazardous areas, according to International safety prescriptions.

The comprehensive line of Atos ex-proof electrohydraulics consists of:

- ISO 6020-2 square heads cylinders and fixed vane and variable displacement piston pumps certified to ATEX
- on-off and proportional valves - directional, pressure and flow control - they are multi-certified according to ATEX, IECEx and EAC standard or cULus and SIL 2 / SIL 3 in compliance to IEC 61508. On-off directional valves with ex-proof solenoid certified according to PESO by Government of India and MA Chinese mining, integrate the comprehensive Atos product range for hazardous applications.
- ex-proof digital proportionals with on-board ex-proof electronics for standing alone closed loop controls with CANopen or PROFIBUS interfaces
- modern hydraulic power units tailored to the Oil & Gas requirements and to the naval and offshore environments.

Ex-proof valves in low temperature execution withstand "artic" temperatures lower then -60°C.

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