

Coretech

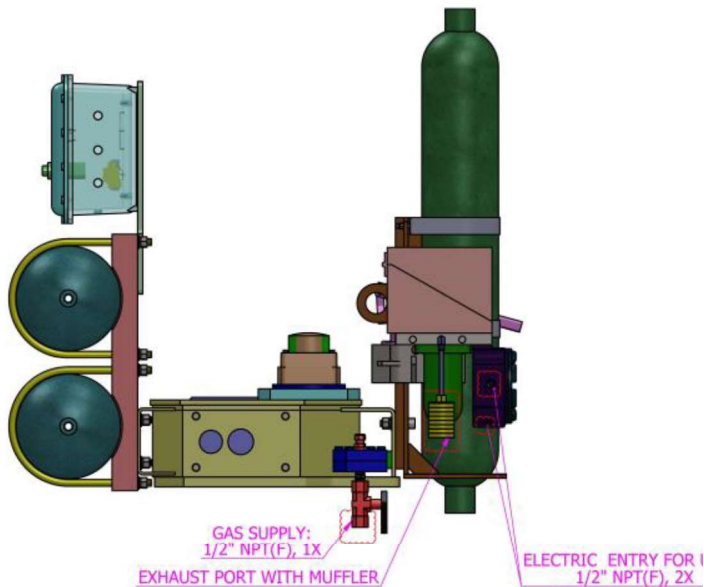


HP Series High Pressure Actuator



Coretech Flow America Inc

High Pressure Pipeline Actuators

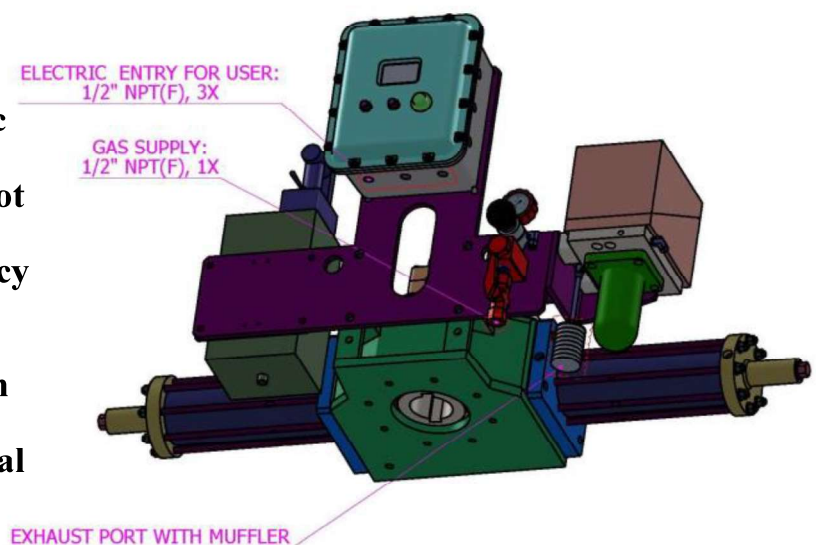


Gas Over Oil

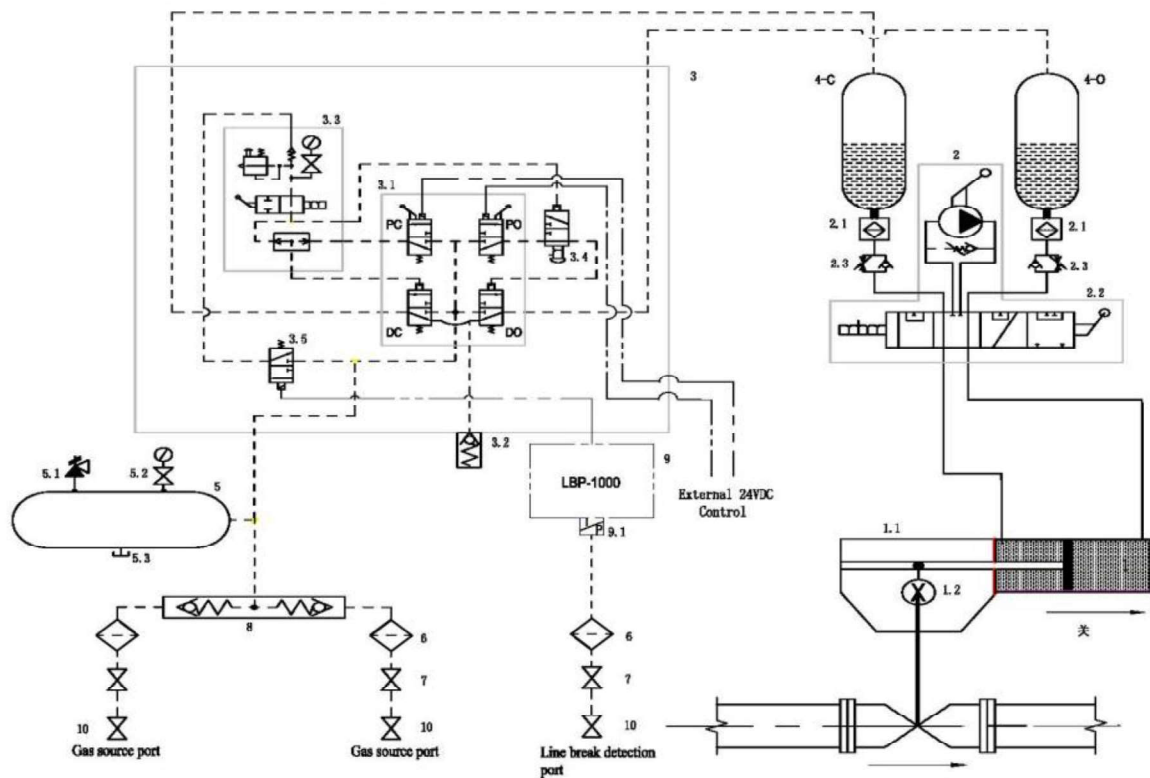
- Gas Over Oil uses natural gas or nitrogen gas as the actuator power source and hydraulic oil as the medium to actuate a pipeline valve to the fully open or fully closed position.
- The popular control functions include: local hydraulic operation, line break protection, remote control, and emergency shutdown
- With gas storage tank, emergency shutdown function can be achieved
- Fast stroke time for quick action in emergency situation

Direct Gas

- Direct gas configuration utilizing high pressure natural gas in the transmission pipeline or other source
- Simple design without hydraulic reservoirs
- Compact actuator with small foot print
- With gas storage tank, emergency shutdown function can be achieved
- Fast stroke time for quick action in emergency situation
- Hydraulic manual pump for local operation



Gas Over Oil Actuator



Applications

- Pipeline emergency shutdown valve
- Station blowdown valve
- River-crossing valve
- Station bypass valve
- Replacement of large torque pneumatic actuator
- Pipeline line break projection
- Pipeline high/low pressure automatic projection
- Station inlet/ outlet protection
- Compressor loading /unloading protection

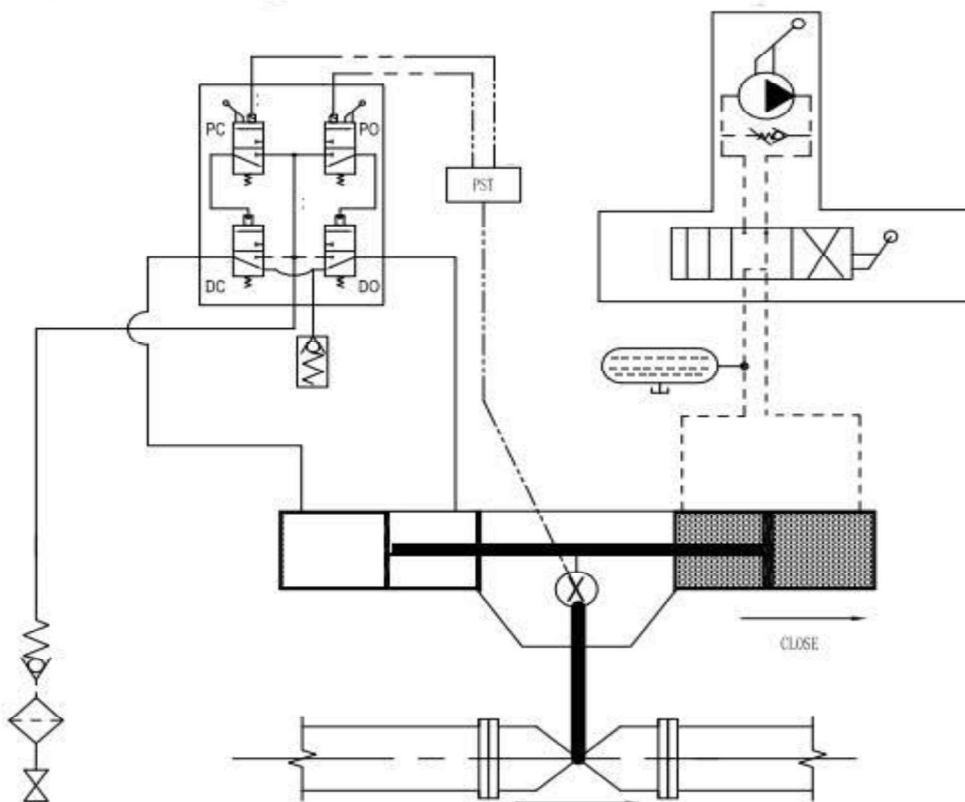


Direct Gas Actuator



Standard Features

- Gas cylinder dedicated to generating torque and hydraulic cylinder dedicated to smooth speed control and manual override with hand pump
- Torque outputs to 4,000,000 in-lb (450,000 Nm)
- Scotch yoke mechanism generates powerful opening and closing torque outputs
- Steel fabricated frame provides rugged foundation of modular assemblies
- Quarter turn stroke : -5 0 to 95° adjustable
- Both symmetric and canted yokes are available to satisfy various valve torques



Scotch Yoke Actuator

Actuator Design

HP Series high pressure actuators utilizes scotch yoke mechanism to deliver versatility and reliability for pipeline valve automation.

HP Series Actuator Features

The HP Series actuators offers following features:

- Double acting as the standard, spring return optional
- Fabricated drive module housing for durability
- Torque range up to 450,000 Nm / 4,000,000 Lb-In
- Working pressure: up to 3,000 PSI
- Low temperature to -67°F or -55°C
- Open and closed positions can be adjusted ± 5 degrees
- The oil cylinder has a tandem sealing structure of superior performance
- A set bolt is used to limit its stroke in fully open/closed positions for easy adjustment
- The output torque changes along a parabolic curve, matching the requirement of the ball valve, and realizing a stable open/close process
- The structure of the scotch-yoke makes maintenance easier, ensuring the valve operates online
- The valve position indication can be used to find the local valve position or to control the opening or closing of the valve to provide electrical contact.
- The scotch-yoke has symmetrical and eccentric structure to meet the requirements of various specifications



Control Features



Control Block

- The control block have bubble tight zero gas leakage over 24-hour in the pressure range of 70 to 2,175 psi (0.5-15 Mpa), suitable for nitrogen
- Solenoid has explosion-proof/ protection level : Ex d IIC T6/IP65, Power: 2.64W, Voltage: 15-30 VDC, SIL certified.
- The exhaust port is equipped with a silencer to reduce the noise emitted

Programmable Line Break Protection (LBP)

- Electric line break detection and protection system for real-time pipeline pressure high, low and extreme high pressure drop rate
- LBP with pressure transducers and control circuit can record online high-pressure, low-pressure, and pressure drop rates, providing a basis for line break protection and pipeline pressure diagnostics.
- If pipeline breaks, LBP will automatically trigger a command to execute emergency shutdown function of the main line ESD valve closest to the line break point
- LBP has a static low power assumption of 0.18W, applicable for solar or 24VDC power supplies
- OLED display technology supports a low temperature display as low as -40 F
- Local communication: USB and PC software; remote communication: RS485, with standard MODBUS-RTU protocol

Partial Stroke Test (PST)

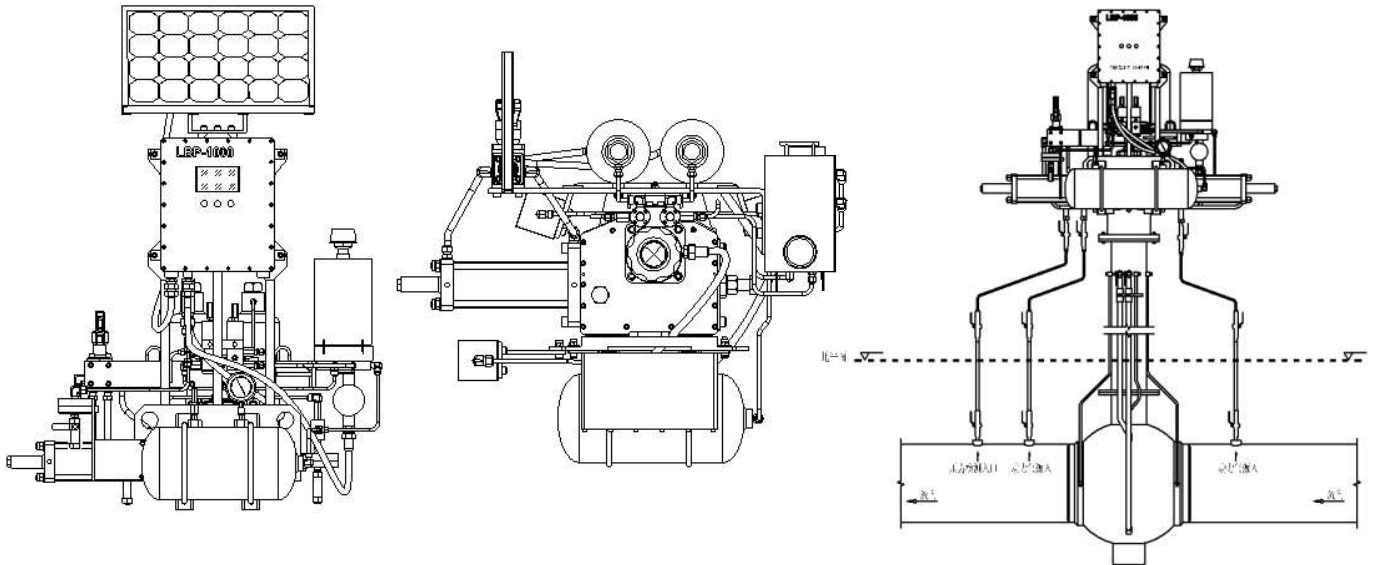
The critical ESD valve equipped with HP high pressure actuator along with PST function, could close 10 to 15 degrees and then automatically return to fully open position, without interrupting pipeline gas transmission to validate ESD integrity. This prevents potential risks of ESD malfunction and improves the safety of the pipeline. Programmable PST offers automatic PST based on pre-setting, timer, easy to adjust, alarm and diagnostics. Uses low power consumption, suitable for solar power. PST is independent of other control systems.

Quality Control

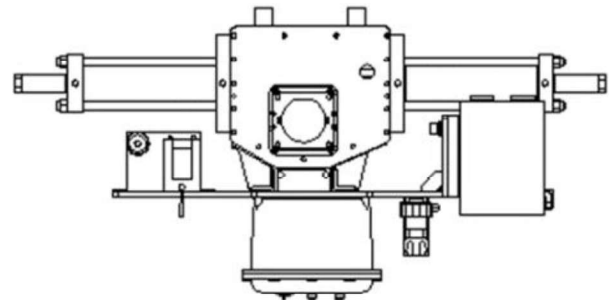
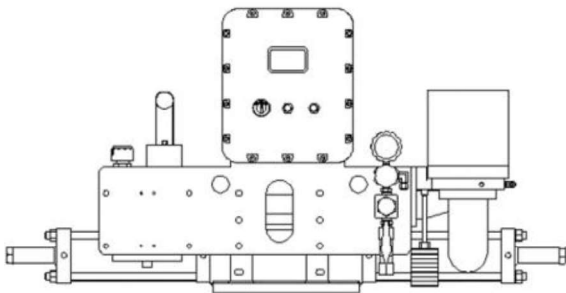
- ⇒ All manufacturing is conducted under ISO 9001/API Q1 certified quality management system
- ⇒ East actuator is torque tested before shipment to validate the committed torques provided
- ⇒ Products are stringently manufactured in accordance with applicable industry standards and to specific Design Specifications.
- ⇒ Material Test Reports per EN 10204-1991 3.1.B & EN10204 3.1 available for each actuator
- ⇒ Full pressure torque and hydro test for the automated valve packages could be conducted at factory



Project Engineering & Consulting



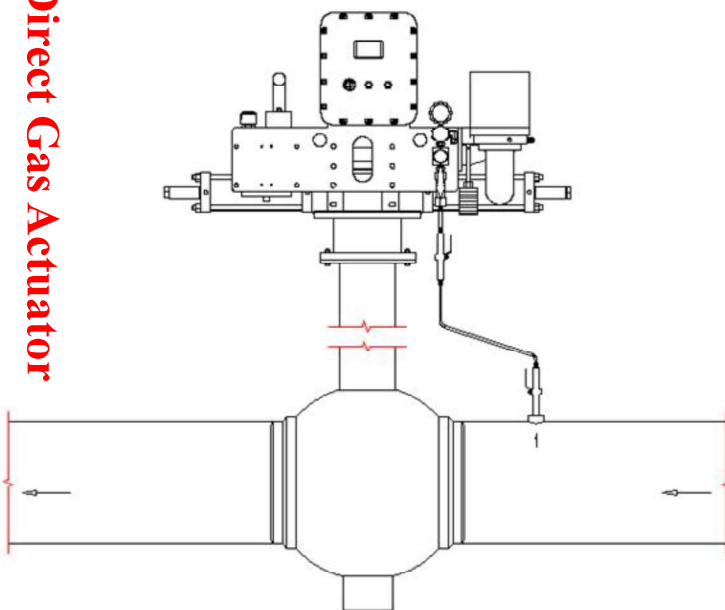
Gas Over Oil Actuator



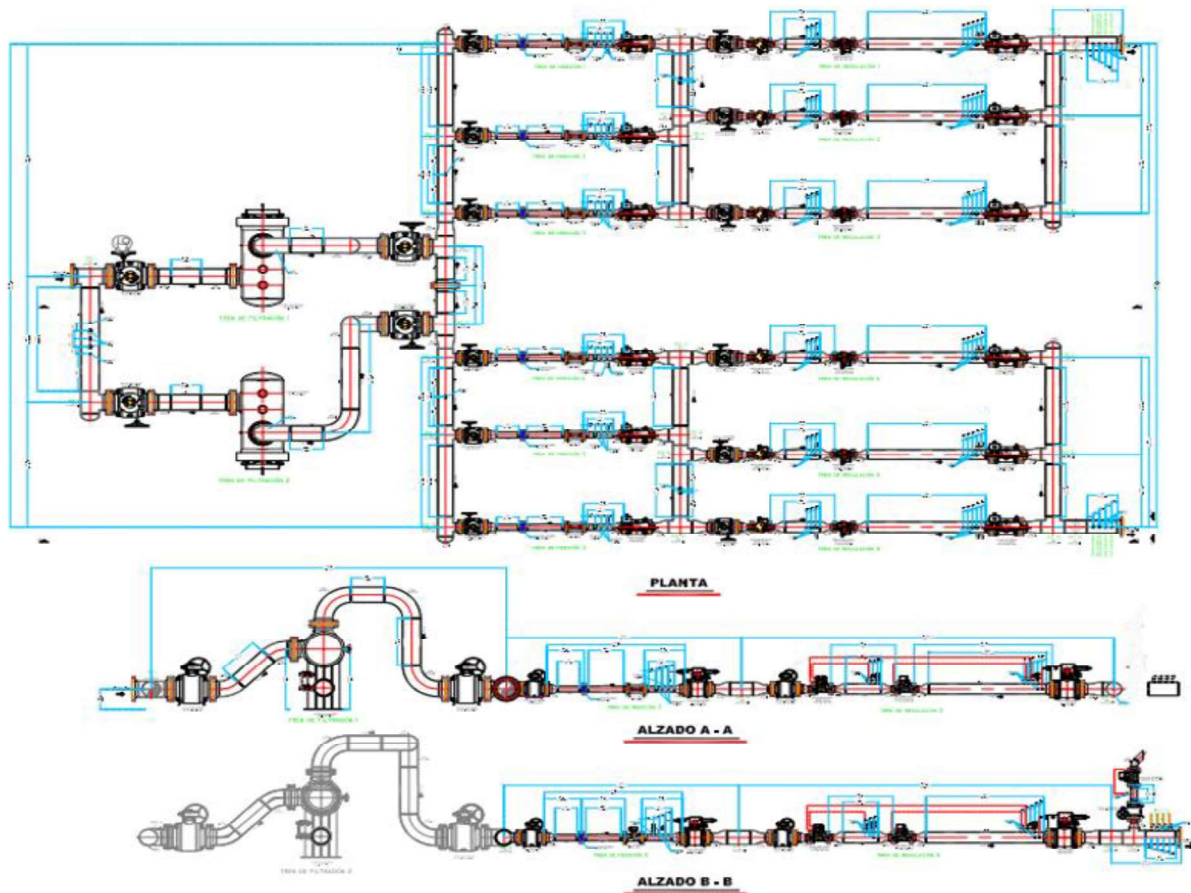
Project Engineering Support

- Actuator technology selection based on pipeline pressure range for best cost and technology fit for the application
- 3D drawing and dimension data provided in FEED stage for best space utilization

Direct Gas Actuator

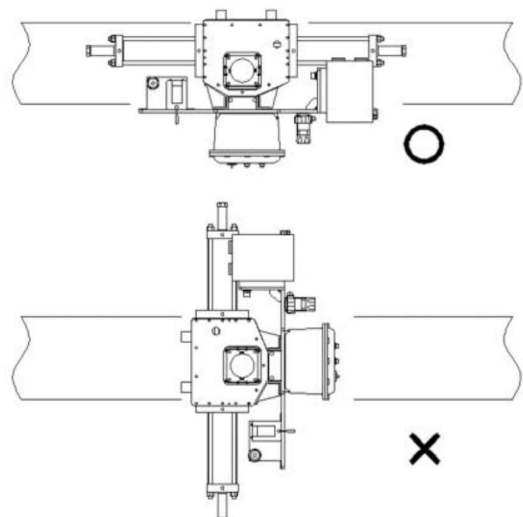


Project Engineering & Consulting



Project Engineering Support

- Actuator orientation to the pipeline
- Valve+actuator GA drawing
- Control selection for partial stroke test, fail safe mode, line break protection based on applications' criticality and customer budgets
- Draft actuation datasheets for engineering



ESD Orientation

Field Installation & Commission



- On site survey before valve and actuation installation
- On site commissioning support
- Field installation issue diagnostics
- Retrofit/upgrade high pressure actuator automated ESD valves

- Service oriented support team for your projects
- Be your project execution partner from the beginning to the end
- One stop service for both valve, actuation and controls



Coretech

Other Actuation Products



Low Pressure SP Series Scotch Yoke Actuator



RT Series Rack Pinion Actuator



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