

PowerChokes®

Electric Choke Actuator

An alternative to hydraulic and manual actuated chokes, Expro's compact electric choke actuator is designed to fit directly with Expro's PowerChokes to support Managed Pressure Drilling (MPD), well control and other choke operations. It can be retrofit on existing chokes, with rapid install in the field, and has no requirement for specialised tools.

The electric choke can achieve stroke speeds of less than 8 seconds and with precision better than 0.1%. The electric choke actuation eliminates the need for an Human Power Unit (HPU) allowing a smaller footprint on the rig and less maintenance compared to the hydraulic alternative.

Other major features include: high accuracy choke positions; immediate transitions between open and close with no delays, manual override; higher duty cycle; adaptability to manual or automated control systems: operating thrust to provide positive shut off.

In extreme cold weather conditions, where hydraulic choke actuation may not be feasible, the electric choke is an ideal solution. Its versatile design allows pressure ratings of 5K, 10K and 15K psi, whilst classified for use in hazardous areas around the world.



Applications

- Managed Pressure Drilling (MPD) Application
 - Automatic Back Pressure control
- Well Control – Monogrammed API 16C
- Flow back, coil tube drilling, production (high erosion) and well test snubbing
- Environment (expected)
- Hazardous area: ATEX Zone 1, IECEx Zone 1, US and Canada Class 1, Division 1
- Ingress progression: NEMA 4X, IP65 or better
- Ambient temperature: -20°C to +40°C or better (optional Tamb available upon request)

Features and Benefits

- Small footprint; compact design, inline or right angle motor mounting available in different orientation
- Application Programme Interface (API) 6A & 16C monogrammed. ABS & DNV type approval
- Ethernet communication protocol adds to monitor and controlling capabilities for a Programmable Logic Controller (PLC) while reducing cabling. Other communication protocols available on request
- Stroke time less than 8 seconds
- Interchangeable spares which can be used on both hydraulic and manual choke valves
- Field proven choke valve design with robust field proven electric motor provides a robust and reliable actuator

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Technical specifications	
Electric requirements model	460VAC, 3-phase, or 230VAC 3-phase
Electric choke assembly rating	API 6A/ 16C, Material class: EE-NL, Performance requirements (PR): 2, Product specification level: 1-4 and 3G, NACE MR0175
Pressure (psi)	Application Programme Interface (API) 5,000, 10,000, 15,000 Drop tight seal
Accuracy	Less than $\pm 0.1\%$ choke position control
Stroke time	Less than 8 seconds
Choke speed control	With industry standard 4-20mA signal; optional protocols will be available upon request. Absolute encoder available for choke position from motor
Change in direction between open and close line size	Immediate (0.5 seconds or less)
Failure mode	Stays in place upon loss of power. Hand wheel manual override
Safety	In built torque limits, overload protection with alarms; local/ remote panel available; HMI/PLC monitoring
Trim size	1", 1.5", 2", 3" and 4"
Electric actuator controls	A servo drive is required and fully certified enclosures are available in zone 1 and safe area with options for singular or multiple drives. This can be provided with a blind or redundant push button controls
Hazardous area	ATEX Zone 1, IECEx Zone 1, US & Canada Class 1 Division 1
Other Expro offerings	Electric control panels (Human Machine Interface (HMI) / PLC controls or button/joystick controls), Pressure Relief Valve (PRV) system, Automatic Back Pressure (ABP) and Managed Pressure Drilling (MPD) controls solution

Note: Other sizes, configurations and pressure ratings are available to meet most applications, for more information contact your local Expro representative or email expro.powerchokes@exprogroup.com