# AMP™ All-Electric Interval Control Valve

Controls production, or injection, precisely and selectively to unlock peak production performance

## Applications

- Oil production, water injection, and carbon-storage wells
- Multizone and multi-lateral completions
- Land and offshore platforms
- Cased-hole and openhole operations

## Features and Benefits

- Eliminates virtually all downhole electronics associated with conventional all-electric interval control valves (ICVs)
- Moves between choke positions in minutes
- Supports up to six to eight custom choke positions to provide precise flow control
- Overcomes scale and debris buildup with high shifting forces delivered by dual DC motors with ball-screw actuators
- Provides pressure and temperature monitoring of downhole conditions through integrated gauges
- Reduces platform space with a compact surface control panel capable of controlling multiple AMP e-ICVs across multiple wells
- Allows installation in remote locations that solely reply on solar power, thanks to its low power consumption

## Tool Description

The Weatherford AMP all-electric interval control valve (e-ICV) delivers the ability to control production from, and injection into, isolated zones within a wellbore precisely and selectively. The AMP e-ICV offers the precision of up to six choke positions, with tungsten-carbide nozzles to give high resistance to erosion.

Unlike conventional hydraulically actuated ICVs, which can take between 30 minutes and 12 hours to change position, the AMP e-ICV can move between choke positions in minutes.

The AMP e-ICV is designed to be debris-tolerant. Its dual-motor ball-screw actuator allows for high shifting forces to overcome scale and debris buildup.

The compact surface control panel substantially reduces required platform space, while controlling multiple AMP e-ICVs across multiple wells. With no need for hydraulic support systems, the AMP valve's control panel has reduced power consumption and features the option to be solar powered, making it ideal for installations in remote locations.

The Weatherford AMP e-ICV allows operators to have the simplicity and speed of an electric ICV and the robustness of a hydraulically actuated valve.

Weatherford®

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## Specifications

### Mechanical

| | |
|---|---|
| Size | 3.5 in. (88.9 mm) |
| Maximum OD | 5.870 in. (149.1 mm) |
| Minimum ID | 2.750 and 2.812 in.<br>(69.9 and 71.4mm) |
| Differential working pressure* | 7,500 psi (51.7 MPa) |
| Max. hydrostatic pressure | 20,000 psi (137.9 MPa) |
| Max. differential flowing pressure | 1,500 psi (10.3 MPa) |
| Max. differential opening pressure | 3,000 psi (20.7 MPa) |
| Temperature range** | Ambient to 275°F (135°C) |
| Tensile rating | Per tubing thread connections |
| Max. dogleg severity | 7°/100-ft run in hole<br>4°/100-ft operating |

* 10,000 psi (68.9 MPa) under development
** 302°F (150°C) under development

### Integral Pressure and Temperature Gauges

| | |
|---|---|
| Configuration | 1x tubing and 1x annulus |
| Maximum pressure | 20,000 psi (137.9 MPa) |
| Maximum temperature | 302°F (150°C) |
| Temperature drift | 0.18 °F/year (0.1 °C/year) |
| Pressure drift | 0.5 psi/year (3.45 kPa/year) |
| Temperature accuracy | 0.18°F (0.1°C) |
| Pressure accuracy | 0.01% of full scale |
| Sample rate | 1 per second |