

Main Distributing Valves

Regulate Large Oil Flows

Up to 750 Gallons Per Minute



Overview

Emerson's main distributing valve series are dual-stage hydraulic valve systems that offer precise flow control through a high-response proportional valve pilot stage and match-ground main stage bushings and plungers. Dual pilot stage oil filtration protects the close tolerance pilot stage, extending the life of this critical component.

Features

- Oil flows from 150 to 750 gal/min
- Fail-safe closure on loss of signal
- Independent opening and closing rate limits, mechanically adjustable
- On-board pilot stage filtration with dirty filter indication
- Flanged pipe connections
- Exceptionally long life
- Contamination-resistant

Description

Designed specifically for hydroelectric powerplants, Emerson's main distributing valve can replace any OEM distributing valve and is compatible with all digital governor types. It utilizes a high-response, closed-loop proportional valve pilot stage for precise positioning of the distributing valve plunger that features LVDT position feedback. Other proportional valve features include:

- 4-20 mA input command signal
- Integrated spool position feedback
- Redundant pilot stage (optional)

The safe operation of a hydraulic turbine requires fixed flow rate limits on opening and closing times, and fail-safe closure in the event of a loss of command signal. Emerson's main distributing valve accomplishes these requirements via independently adjustable mechanical rate limits. Other fail-safe features include:

- Unique fourth position on pilot spool causes servo to close in the event loss of power or command signal,
- Vertical orientation of main distributing valve plunger utilizes gravity to assist in moving the spool to the **full-close** position in the event of loss of power or command signal.

Our main distributing valves offer precise flow control through match-ground bushings and plungers. The dual pilot stage oil filtration assembly provides visual dirty filter indication as well as contact outputs to alert maintenance personnel. Filter replacement can be performed while the unit is on-line.

Flow Range

Five standard main distributing valves are available:

- A3 (3" spool diameter)
- A4 (4" spool diameter)
- A5 (5" spool diameter)
- A6 (6" spool diameter)
- A8 (8" spool diameter)

Maintenance

Emerson's main distributing valves are designed for exceptionally long life and trouble-free service. There is no regular maintenance required other than annual* pilot filter replacement. Our plungers and bushings are chrome-plated to resist abrasion and will continue to perform adequately even with moderate scoring. Replacement plunger/bushing sets are available. Typical replacement interval* is once every 50 years.

Our main distributing valves are compatible with all PLC-based governor systems and most other governor/unit control systems.

Certain proprietary OEM governor systems may require an electronic interface, also available from Emerson's hydropower solutions.

Note:

**Replacement interval varies, depending on the level of contaminants present. A kidney loop filtration system is highly recommended to maintain sump oil cleanliness in the sump, which will extend these intervals.*

Summary

Replacement of legacy distributing valves is seldom required and only needed when a crack or other defect develops in the casting body. Governor performance will never be degraded by a worn distributing valve. In the case of worn internal parts, Emerson offers replacement plunger and bushing sets for all OEM main distributing valves, extending their life nearly indefinitely.

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