MICRO SERVOVALVE

E024

Low Weight and Small Size: The E024 Servovalve is significantly reduced in size and weight compared to the E030 series, making it ideal for motorsport applications where weight and size are critical factors.

High Performance: Despite its reduced size, the E024 Servovalve retains a high flow capability of up to 7.5 l/min (1.98 USg/min), meeting the requirements of the vast majority of motorsport applications.

Proven Design: The E024 Servovalve was developed from the proven E030 series aerospace servovalve, which is widely used for flight control in civil and military aircraft. This ensures its reliability and effectiveness.

Robust Construction: The E024 Servovalve retains the robust two-stage nozzle flapper construction of the 30/50 Series Valve, ensuring it can meet the extreme performance and environmental demands of the motorsport industry.

Wide Application: While it is designed to meet the unique challenges of motorsport, particularly Formula 1, the E024 Servovalve's features also make it suitable for other high-performance applications.

Available in two basic versions

High Performance: Designed for use in applications involving position, pressure and force, where rapid response and pinpoint accuracy are of the utmost importance.

High Efficiency: Designed to achieve high dynamics with low parasitic losses.

BENEFITS

+ Ultra light-weight **95gm (3.35 oz)**
+ Compact package
+ High power density
+ Low input signal **(10mA)**
+ Compatible with F1 ECU
+ Fast response to command inputs
+ Excellent energy efficiency
+ High peak flow capability
+ Precise, repeatable characteristic control

TYPICAL APPLICATIONS

- Formula 1 (Throttle actuation, differential control, gearbox actuation, power assisted steering, clutch control, waste-gate control)
- Medical prosthetics
- Subsea equipment
- Special effects in film and theatre
- Mobile robotics

FIA APPROVED ELECTRONICS

All Moog electro-hydraulic products used in Formula 1 are homologated by the FIA, indicating they are approved for use with the mandated Formula 1 Electronic Control Unit (ECU).

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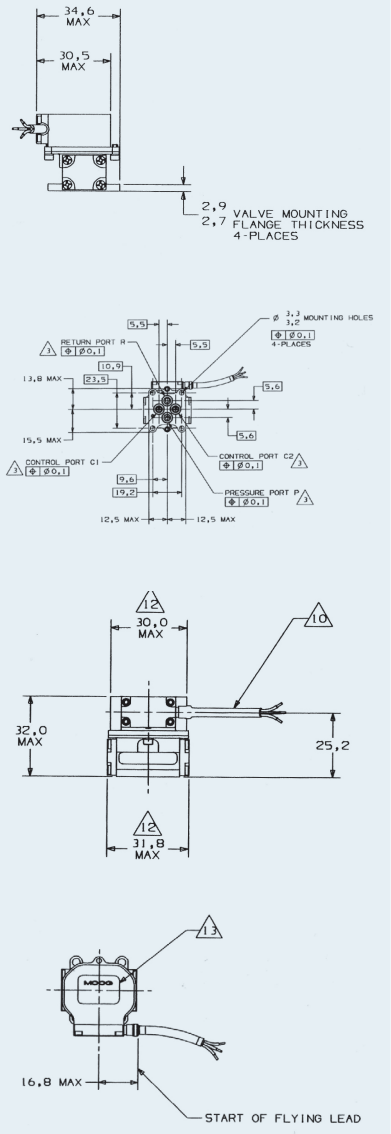
SPECIFICATIONS

TECHNICAL DATA E024 MIRCO SERVO VALVES

	High Response	High Efficiency
Maximum Supply Pressure:	280 Bar (4061 PSi)	
Valve Function:	Axis-cut linear flow control. Axis-cut flow control with dual gain [Ratio 1.2:5]. Contact Moog for slightly over-lapped variants.	
Rated Flow: **@ 70 Bar (1015 PSi)** **Valve Pressure Drop**	Axis-cut valves: 0.4, 1.0, 1.5, 2.0, 3.8, 5.0, 7.5 l/m. (0.1, 0.3, 0.4, 0.5, 1.0, 1.3, 2.0 USg/min). NB Flow Tolerance +/-10%.	Option: Dual Gain Flow Rate 3.8, 7.0 l/min (1.0, 1.8 USg/min). NB: Flow tolerance +/-10%.
Main Stage Pilot Leakage Flow:	Pilot stage flow: < 0.30 l/min (0.08 USg/min) (std version). Spool leakage at null: < 5% of rated flow (Axis-cut versions).	Pilot stage flow: < 0.20 l/min (0.05 USg/min).
Electrical Input Signal: (coils in parallel)	+/- 10mA into a 360 ohm. Inductance 1.4 Henry.	
Dynamic Performance:	25% signal @ 210 Bar (3045 PSi) & 40°C (104°F) 90° phase lag > 250 Hz -3dB attenuation > 250 Hz. 100% slew response <1.8 s	25% signal @ 210 Bar (3045 PSi) & 40°C (104°F) 90° phase lag > 250 Hz -3dB attenuation > 150 Hz. 100% slew response <2.6 s
Null Shift:	With supply pressure: < 3% of full signal over the range of 124 Bar (1798 PSi) -228 Bar (3307 PSi). With fluid temperature < 5% of full signal over a range of 35-135 °C (95°F-275°F).	
Accuracy of Flow Control:	Hysteresis < 3%. Threshold < 0.5%.	Hysteresis < 3% Threshold < 1%
Environmental Survivability Limits:	-40°C (-40°F) to +165°C (329°F) & 50G shock in any direction.	
Mass:	95g (3.35 oz).	

ENVIRONMENTAL OPERATING ENVELOPE FOR ALL E024 SERVO VALVES

Pressure Supply:	140 (2030 PSi) - 280 bar (4061 PSi).
Return Line Pressure:	2 (29 PSi) – 5 Bar (72 PSi).
Temperature Range:	-20°C (-4°F) – 135 °C (0 - 275°F).
Fluids Viscosity:	> 4 CSt.
Filtration:	NAS 1638 CLASS 3 / ISO 4406 14/12/9 or better. It may be possible to operate the valve in certain applications outside of these design limits, but this must be checked and validated by the customer.
Operation of Valves in Close Proximity:	Valves mounted in close proximity may experience magnetic interaction. The degree of interaction depends on the installation and may be minimized by the use of external shielding.



For full installation information see drawing number C24539

For further information, visit:
www.moog.com/miniature

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