

E242 (200 series) SUB MINIATURE CARTRIDGE DDV HYDRAULIC PROPORTIONAL VALVE

A fast and precise proportional valve with high contamination resistance, for use in challenging environments



Motorsport, subsea exploration and automotive testing often involves extreme and challenging environments, where there is a need for high resistance to hydraulic contamination. These needs are addressed by Moog's proportional Direct Drive Valve (DDV) technology, which uses a linear motor to directly actuate the flow control spool.

This technology combines the robust functionality of a proportional valve with the speed and accuracy of a servo valve. The compact cartridge construction lends itself to multi-axis applications utilizing a single manifold.

The E242-200 Series version is a development of the well proven 100 Series Motorsport design. Improvements based on feedback from our customers include:

- An increase in operating pressure capability (up to 280 bar)
- Improved levels of control accuracy & repeatability
- Higher linear motor force for even higher levels of reliability

The valve range can accommodate rated flows of between 0.6 and 18 l/min, meeting the requirements of the majority of motorsport applications.



TWO BASIC VERSIONS OF THE E242 PROPORTIONAL VALVE ARE AVAILABLE:

- 1 An axis-cut (Q) version for use in position, pressure and force control applications
- 2 A special sequential gear box actuation (S) version for control of ratchet drum indexing mechanisms

ADVANTAGES OF THE E242 VALVE

- Excellent peak flow capability of up to 18 l/min
- High operating force of linear motor
- Compact package suited to multi-axis systems
- High reliability due to hydraulic contamination resistance
- Suitable for challenging and extreme environments

INDUSTRY APPLICATIONS

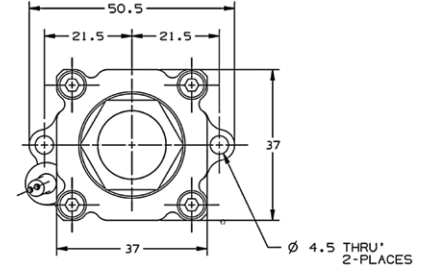
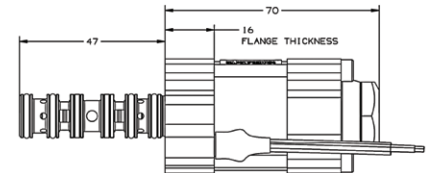
- Rally cars
- Automotive damper test
- Subsea (thrusters)
- LMP sports-racing cars
- Specialist road cars
- Oil & gas exploration
- Racing Yachts
- Autonomous Robotics

SPECIFICATIONS

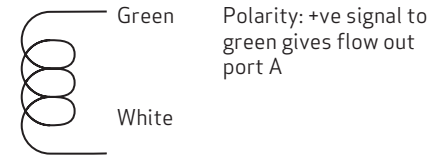
TECHNICAL DATA E242 CARTRIDGE DDV PROPORTIONAL VALVE

Max Supply Pressure:	280 Bar
Rated Flow (Q_r): (See below tabulated data for standard flow rates)	Rated flow Q _r is specified at 70 bar supply pressure and 4-port connected. Consult Moog for details of flow rates at other pressures and operating modes
Leakage Flow (Q_l): @ 140 Bar with 25 cSt Fluid	P>R port spool null leakages at 140 bar supply is typically < 1.0% of Q _r
Operating Fluids:	Mineral oil. Consult Moog for other fluid types
Electrical Input Signal:	+/- 1.0 A into a 6.4 Ohm, 0.01H load
Dynamic Performance at 25% signal:	-3 dB (bandwidth) 200 Hz, 90° phase lag 350 Hz (typical) Mechanical natural frequency of linear motor: 400 Hz, (Damping ratio 0.25)
Accuracy of Flow Control:	Full amplitude Hysteresis <120 mA Threshold <50 mA
Operational/Environmental Survivability Limits:	Thermal and Shock: 120 °C & 25 G shock load (Any axis) Corrosion Resistance: 240 hours to ASTM B117 Salt Spray Test.
Connector Type:	Flying lead: PTFE insulated 24 AWG copper wire Lead length 350 mm
Mass:	429 gm

GENERAL INSTALLATION INFORMATION



Electrical connections:



For full installation information see drawing number CA33262

FLOW CONTROL VALVE STANDARD MODEL NUMBERS

Bias: (spool offset with no input)	Standard range of E242-200 Series, Flow Control Axis Cut Valves Rated flow (l/min) @ 70 bar, in 4-port configuration.							
	0.6	1.0	2.0	4.0	6.0	8.0	11.0	18.0
None 0 %	E242-208	E242-218	E242-219	E242-232	E242-201	E242-220	E242-205	E242-200
P>A 15%	E242-234	E242-222	E242-223	E242-207	E242-216	E242-229	E242-227	E242-206
P>B 15%	E242-235	E242-233	E242-215	E242-213	E242-231	E242-230	E242-228	E242-212

SHIFT VALVE STANDARD MODEL NUMBERS

Bias	Standard range of E242-200 Series, Switching Valves Rated flow (l/min) @ 70 bar 4-port configuration				Note:
	A- 30% OLP, 30% ULR		B- 30% OLP, 60% ULR		
None 0 %	11.0	16.0	13.0	17.0	Option A has both return lands open until 30% signal and the pressure lands closing at 30% signal. Option B has both return lands open until 60% signal and the pressure land closing at 30% signal.
	E242-203	E242-202	E242-236	E242-204	

Moog has offices around the world. For further information, or the office nearest you, contact us online.

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www.moog.com/motorsport

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