MICRO DDV PROPORTIONAL CARTRIDGE VALVE

E245

Designed for Extreme Environments: We deliver Race Winning Motion Control technology, not just to F1 but other high-performance applications which often involve extreme, challenging environments and specifications.

Efficiency and Speed: The E245-100 is designed for precision, efficiency, and durability. It offers resistance to hydraulic contamination, crucial in high-performance applications.

Lightweight and Compact: The E245-100 is a compact design that offers a 42% reduction in weight compared to the E242, while still delivering a flow of up to 10 l/min.

Advanced Technology: The E245-100 features Moog's proportional Direct Drive Valve (DDV) technology, which uses a compact and powerful linear force motor to precisely actuate the flow control spool. This technology combines the robust functionality of a proportional valve with the speed and accuracy of a servo valve.

Optimized Design: The compact cartridge construction allows for neat integration within a manifold or actuator assembly , particularly within multi-axis systems.

Power Density: With a compact and lightweight design, the E245-100 continues to deliver power density where it matters the most.

BENEFITS

+ Rated flow** range from **0.5 lpm** up to **8.5 lpm** meeting the demands of miniature hydraulic applications
+ High flow capability up to **10 l/min***
+ Low weight – **185 gm**
+ High bandwidth for fast accurate control
+ Custom cartridge design for integration into compact manifold
+ Highly resistant to hydraulic contamination
+ Withstands challenging and extreme environments
+ High hydraulic system efficiency. Internal leakage **< 0.05 l/min**
+ Highly precise linear flow characteristics
+ Withstands high vibration survivability up to 50G

TYPICAL APPLICATIONS

- Motorsport
- High performance automotive
- Oil & gas exploration
- Medical - prosthetics
- High performance marine (including racing yachts)

The new E245-100 has just 42% of the mass of the E242.

* With Δp 210 bar

** With Δp 70 bar

MOOG

Shaping the way our world moves™

SPECIFICATIONS

TYPICAL TECHNICAL DATA E245-100 CARTRIDGE DDV PROPORTIONAL VALVE

Max Supply Pressure:	280 Bar
Rated Flow (Qr): (See below tabulated data for standard flow rates)	Rated flow Qr 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 (Ql): @ 140 Bar with 25 cSt Fluid	P>R port spool null leakages at 140 bar supply (for all models apart from 0.5 lpm rated flow models) is <0.05 lpm. For 0.5 lpm rated flow models leakage at 140 bar supply pressure is <0.025 lpm
Operating Fluids:	Mineral oil. Consult Moog for other fluid types
Electrical Input Signal:	+/- 1.0A into a 5.7 Ohm, 0.04H load
Dynamic Performance at 25% signal:	-1.5 dB (bandwidth) 150Hz, 90° phase lag 400 Hz (typical) Mechanical natural frequency and damping ratio 540Hz, 0.2 (typical)
Accuracy of Flow Control:	Full amplitude Hysteresis <180 mA Threshold <80 mA
Operational/Environmental Survivability Limits:	Thermal and Shock: 120 °C (248 °F)[TBC] & 50 G shock load (Any axis) [TBC] Corrosion Resistance: 240 hours to ASTM B117 Salt Spray Test.
Connector Type:	Flying lead: PTFE insulated 24 AWG copper wire Lead length min 350 mm
Mass:	185 gm

TWO BASIC VERSIONS OF THE E245 PROPORTIONAL VALVE ARE AVAILABLE:

V1 An axis-cut (Q) version for use in position, pressure and force control applications

V2 A switching version which is designed for applications that require fast directional control such as gear shift actuation.

FLOW CONTROL VALVE STANDARD MODEL NUMBERS

Bias (%)	**E245-100 Series, Flow Control Standard Axis Cut Valves Rated flow @ 70 bar, 4 port connected (l/min)**				
	0.5	1.5	2.5	5.5	8.5
None 0 %	E245-101	E245-102	E245-103	E245-104	E245-105
P>A 15%	E245-106	E245-107	E245-108	E245-109	E245-110
P>B 15%	E245-111	E245-112	E245-113	E245-114	E245-115

SHIFT VALVE STANDARD MODEL NUMBERS

Bias (%)	**E245-100 Series, Switching Standard Valves Rated flow rates @ 70 bar, 4 port connected (l/min)**			
	A- 30% OLP, 30% ULR		B- 30% OLP, 60% ULR	
None 0 %	4.5	7.0	4.5	7.0
	E245-116	E245-117	E245-118	E245-119

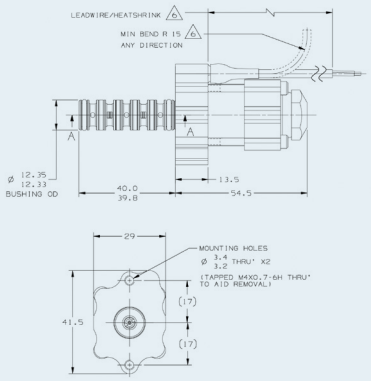
Note

Both Option A & B shift valves have control ports which are connected to return pressure at zero signal.

Option A has both return lands open until 30% signal and the pressure lands closing until 30% signal.

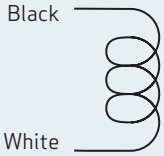
Option B has both return lands open until 60% signal and the pressure land closing at 30% signal.

TYPICAL GENERAL INSTALLATION INFORMATION



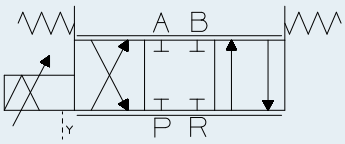
Electrical connections:

Polarity:
+ve signal to White lead gives flow out of port A



For full installation information see drawing number CD25658

Hydraulic Schematic:



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

MOOG

SHAPING THE WAY OUR WORLD MOVES ™

Moog Industrial Group.
Ashchurch Parkway, Tewkesbury,
Glos. GL20 8TU UK
Tel: +44 (0)1684 858000