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 57% 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.

Integrated Position Sensing Options: LVDT or Hall Effect available providing precise closed-loop control for the E245.

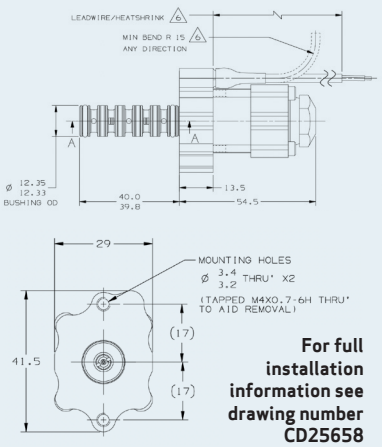
BENEFITS

+ High flow capability up to **10 l/min***
+ Low weight – **185 g**
+ High hydraulic system efficiency.** Internal leakage **< 0.05 l/min**
+ High bandwidth for fast accurate control
+ Withstands extreme conditions and high-vibration environments, proven to survive up to 50 G
+ LVDT or Hall Effect Spool Position Sensor options available

TYPICAL APPLICATIONS

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

INSTALLATION DRAWING



For full installation information see drawing number CD25658

The E245-100 has a 57% weight saving, compared to the E242.



E245-100 **E242**

* With Δp 210 bar

** With Δp 140 bar

MOOG

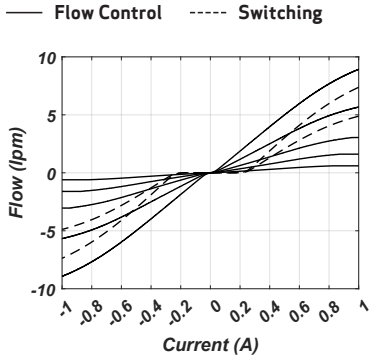
Shaping the way our world moves™

SPECIFICATIONS

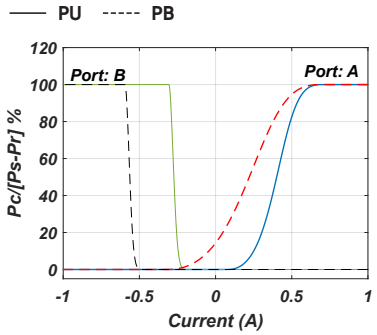
TYPICAL TECHNICAL DATA E245-100 CARTRIDGE DDV PROPORTIONAL VALVE

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:	+/- 1.0 A into a 5.7 Ohm, 0.007 H load
Dynamic Performance at 25% signal:	-1.5 dB (bandwidth) 150 Hz, 90° phase lag 400 Hz (typical) Mechanical natural frequency and damping ratio 540 Hz, 0.2 (typical)
Accuracy:	Flow Control: Hysteresis <140 mA, Threshold <80 mA
	Pressure Control: Hysteresis <180 mA, Threshold <120 mA
Environmental Limits:	Operating Temperature Range: -20 °C to 120 °C Survivable Shock: 50 G Any Axis 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 g

Q VALVE OPTIONS



P VALVE OPTIONS



FLOW CONTROL (Q) VALVE STANDARD MODEL NUMBERS

Bias (%)	Standard Rated Flow @70 Bar, 4 Port Connected (lpm)					Shift Valve A-30% OLP, 30% ULR*	
	0.6	1.5	3.0	5.0	8.0	4.5	7.0
None 0 %	E245-101	E245-102	E245-103	E245-104	E245-105	E245-116	E245-117
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		

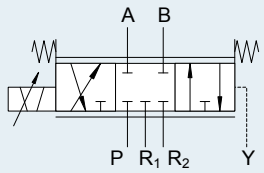
Pressure Control (P) Valves**	Uni-Polar		Bi-polar	
	E245-159	E245-161	E245-120	E245-162
Peak leakage @ 210 bar (lpm)	0.42	0.65	0.7	1
Max fill flow @ 210 bar (lpm)	1.2	1.8	2	2.8

*Designed to index a gearbox drum, this 4-way valve option has both control ports connected to return until 30% signal and the pressure ports closed until 30% signal.

**Valves configured for 3-Way pressure control using port C1. Uni-polar version fails-safe to zero pressure for Brake control. Bi-polar version fails to circa 15% of supply pressure for torque split differential applications.

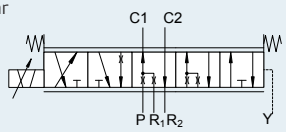
Hydraulic Schematics:

Flow Control

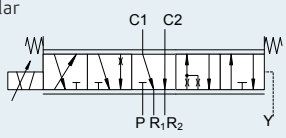


Pressure Control

Bi-Polar

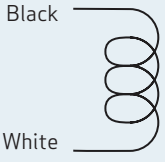


Uni-Polar



Electrical connections

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



For full installation information see drawing number CD25658

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

This technical data is based on current available information and is subject to change at anytime by Moog. Performance for specific systems or applications may vary.

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