

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.

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 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
- + 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)

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



* With Δp 210 bar

** With Δp 70 bar

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Shaping the way our world moves™

SPECIFICATIONS

TYPICAL TECHNICAL DATA E245-100 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 (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

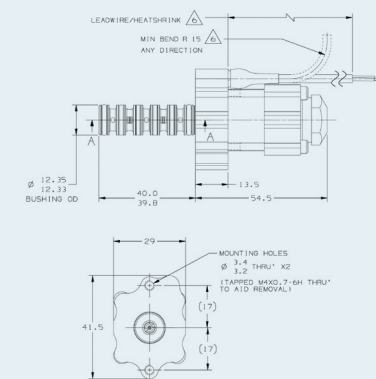
| | | | |
|----------|---|----------|---|
| Bias (%) | E245-100 Series, Switching Standard Valves Rated flow rates @ 70 bar, 4 port connected (l/min) | | Note Shift valve have control ports which are connected to return pressure at zero signal. |
| | A- 30% OLP, 30% ULR | | |
| None 0 % | 4.5 | 7.0 | The option given has both return lands open until 30% signal and the pressure lands closing until 30% signal. |
| | E245-116 | E245-117 | |

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.

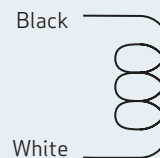
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TYPICAL GENERAL INSTALLATION INFORMATION



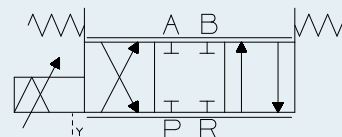
Electrical connections:

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



For full installation information
see drawing number CD25658

Hydraulic Schematic:



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