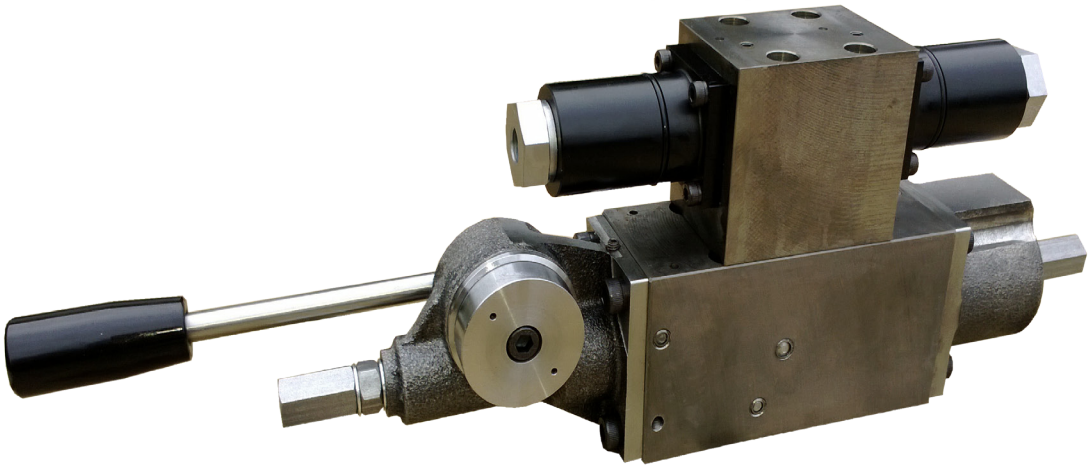
PROPORTIONAL DIRECTIONAL CONTROL VALVE Series MPV
Pneumaticly operated



DESCRIPTION
The AMCA proportional directional control valves are pressure compensated and achieve an ideal control of force, speed, acceleration and deceleration, independent of the load and increased demands.
The pressure compensator could be a pressure relief valve (MUV) or a pressure reducing valve (MDM), together with the throttling function of one or more directional control valve spools. The shape of the proportional directional control valve spool differs from the conventional ones.
The result is a progressive flow curve. To make optimal use of the maximum stroke of the spool, the flow angles of the A and/or B port can be defined for different flows. For a constant flow, the pressure-drop over the orifice of the spool remains constant, independent of the load pressure.

FEATURES
- The load independent output flow is proportional to the input signal (pneumatic control pressure).
- The pump pressure always corresponds to the user pressure, +3,6,8 or 12 bar (43, 86, 114 or 172 psi) Δp compensator.
- The built-in pump-unloading valve results in:
  - very low power turned into heat;
  - minimum loading of the prime mover.
- User speed is precisely controlled under all load conditions.
- Progressive regulating curve; no pressure peaks when switching; sensitive control even for alternating pressures.
- Constant working speed of differential cylinders at the different regulating flow to the valve by grinding angle.
- Constant recirculation pressure independent of the number of units.
- Any limiting of flow for every user port.
- Proportional directional control valves also available as:
  - Manual proportional series MHV,
  - Electrical proportional series MEV and
  - Hydraulical proportional series MOV.
- Any combination of these control options is possible.
- The subplate system allows a construction up to 8 control valves.

Electrical pressure cut off at port A, B or A and B, available on request.

TECHNICAL DATA

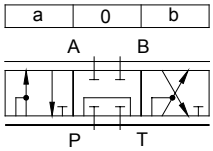
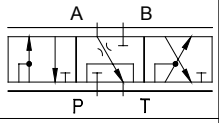
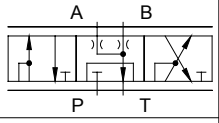
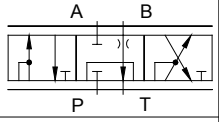
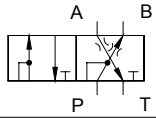
Assembly system	Subplate design
Operating pressure (P,A,B)	...350 bar (5000 psi)
Maximum return pressure (T)	30 bar (428 psi)
Δp compensator	3; 6; 8 or 12 bar (43; 86; 114 or 172 psi)
Pressure setting range	5...350 bar (72...5000 psi)
Flow range	...800 l/min (...211 USgpm)- with 32 cSt at 40°C
Fluid	Mineral oil according to DIN 51524/51525
Fluid temperature range	-35...+80°C (-31°...+176°F)
Viscosity range	2,8...380 cSt, optimal 30 cSt
Contamination level max.	According to NAS 1638 Class 9 or ISO 18/15
Mounting position	optional
Control characteristics	3 – 6 bar (43 - 86 psi)
Size working ports:	See MEV documentation

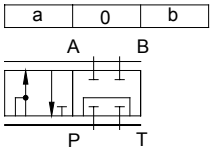
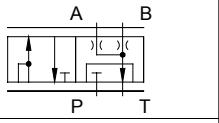
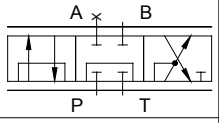
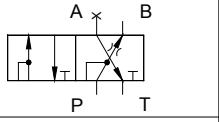
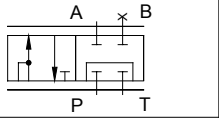
Table 1: Max. flow in l/min. (USgpm) related to the Δp in bar (psi) over the compensator, per nominal bore:

	Δp compensator bar (psi)			
Size	3 (43)	6 (86)	8 (114)	12 (172) [1]
MPV-12	50 (13)	80 (21)	90 (24)	100 (26)
MPV-16	100 (26)	140 (37)	155 (41)	180 (47)
MPV-20	160 (42)	225 (59)	250 (66)	300 (79)
MPV-25	250 (66)	350 (92)	390 (103)	500 (132)
MPV-32	400 (106)	500 (132)	550 (145)	800 (211)

[1]) Due to loss of pressure c.q. energy conversion into heat, we recommend the next largest size related to a lower Δp compensator.

Tabel 2: Directional control valve: spooltypes and symbols:

Spool types	Symbols	Operation Characteristic
A 4/3 way		In neutral position all ports blocked [2])
B 4/3 way		In neutral position, A - T, 20% of nominal bore [2])
C 4/3 way		In neutral position, A+B - T, 20% of nominal bore [2])
D 4/3 way		In neutral position, B - T, 20% of nominal bore [2])
E 4/2 way		P - B and A - T, 70% of nominal bore

Spool types	Symbols	Operation Characteristic
F 4/2 way		In neutral position all ports blocked [2])
G 4/2 way		In neutral position, A+B - T, 20% of nominal bore [2])
K 3/3 way		Port A out of function position a additional [2])
M 3/2 way		Port A out of function P-B, 70% of nominal bore
O 3/2 way		Port B out of function port T leakage flow [2])

[2]) recirculation at low pressure only with MUV

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