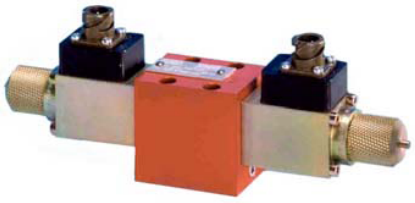
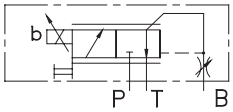
MDM PROPORTIONAL PRESSURE-REDUCING VALVE

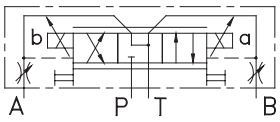
Electrical operation

Size 5

Series MDM-5







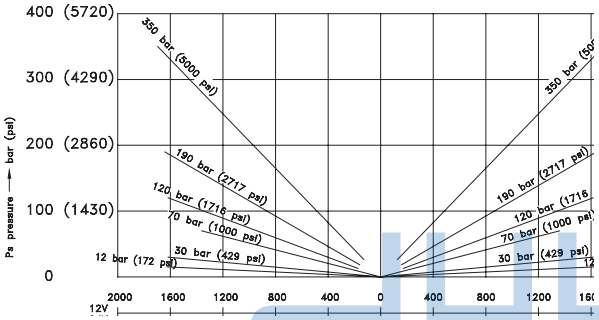
FEATURES

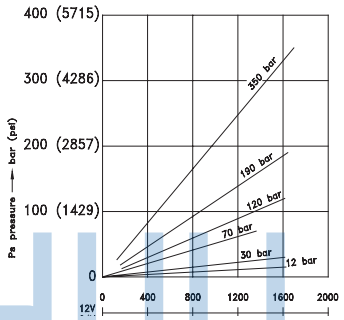
* Pressure reducing over the whole range independent of the supply pressure.
* Several sub-plates available.
* Conversion to ISO/CETOP mounting surface.
* Several control pressure ranges available.
* Different pressure ranges for the two pilot lines possible.
* Proportional solenoids with longer life for the armature in the oil.
* Several types of proportional solenoids, such as explosion proof “II 2 G EEx m II T4” and IP67.
* Adjustable valve response time.

TECHNICAL DATA

- maximum operating pressure conn. P	350 bar (5000 psi)
- maximum return pressure conn. T	15 bar (215 psi)
- pressure range conn. A and B	0 - 12 bar (0- 172 psi) or 0 - 30 bar (0- 429 psi) 0 - 70 bar (0-1000 psi) or 0 - 120 bar (0-1716 psi) 0 - 190 bar (0-2717 psi) or 0 - 350 bar (0-5000 psi)
- flow range	6 l/min (1.6 USgpm) with 32 cSt and Δp = 30 bar (429 psi)
- viscosity range	2,8 - 380 cSt
- contamination level max.	NAS 1638 class 9 or ISO 18/15
- ambient temperature	-35°C to +80°C (-31°F to 176°F)
- mounting position	any
- fluid	mineral oil; other media on request
- mounting surface roughness	N6 (0,8 μm) according to ISO 468 and ISO 1302.
- mounting surface flatness	0,01 mm over a distance of 100 mm according to ISO 1101.
- nominal voltage	12 V DC, 24 V DC
- nominal current	see diagrams Fig. 1 and 2
- valve response time	adjustable: ± 0,08 - 10 seconds
- hysteresis	< 3% (with dither)
- resolution	< 0,5% (with dither)
- continuous operation	100%
- seals	std. BUNA-N, optional Viton
- recommended dither frequency	100 Hz

DIAGRAMS





ORDERING CODE

MDM 5

MDM - 5 - 70 - 190 - B / Viton

SERIES
MDM-5

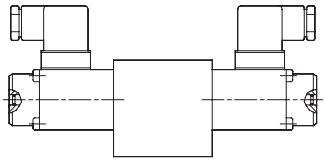
CONTROL PRESSURE RANGE, DUAL TYPE:
Port A in bar *: 12, **30**, **70**, **120**, **190** or **350** bar

CONTROL PRESSURE RANGE,
Port B in bar: 12, **30**, **70**, **120**, **190** or **350** bar

SOLENOID TYPE
A = 12V DC IP65 with emergency control by pin
B = 24V DC IP65 with emergency control by pin
E = 12V DC IP65 with emergency control by button
F = 24V DC IP65 with emergency control by button
H = 24V DC IP57 II 2 G EEx m II T4 (Explosion Proof)
J = 24V DC IP67, without female connector

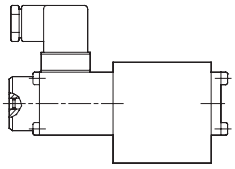
OPTIONS
Viton = With Viton seals

DUAL TYPE



Example: MDM-5-70-70/B
* only in code for dual type

SINGLE TYPE



Example: MDM-5-350/B

SUB-PLATE

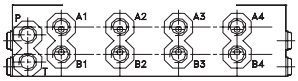
A-5-DM - 3 / Viton

SERIES
A-5-DM = Sub-plate

NUMBER
1-8 = choose number of MDM-5 valve which
has to be mounted on one subplate (up to 8)

OPTIONS
SAE = S.A.E. straight thread 'O'RING BOSS
Viton = With Viton seals

SUBPLATE



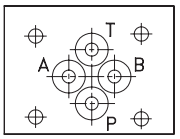
CONVERSION PLATE

A-5-PS / Viton

SERIES
A-5-PS = Conversion to ISO/CETOP 3 model

OPTIONS
Viton = With Viton seals

CONVERSION PLATE



RECOMMENDED SPARE PARTS

R - .. - 016

R SPARE KIT

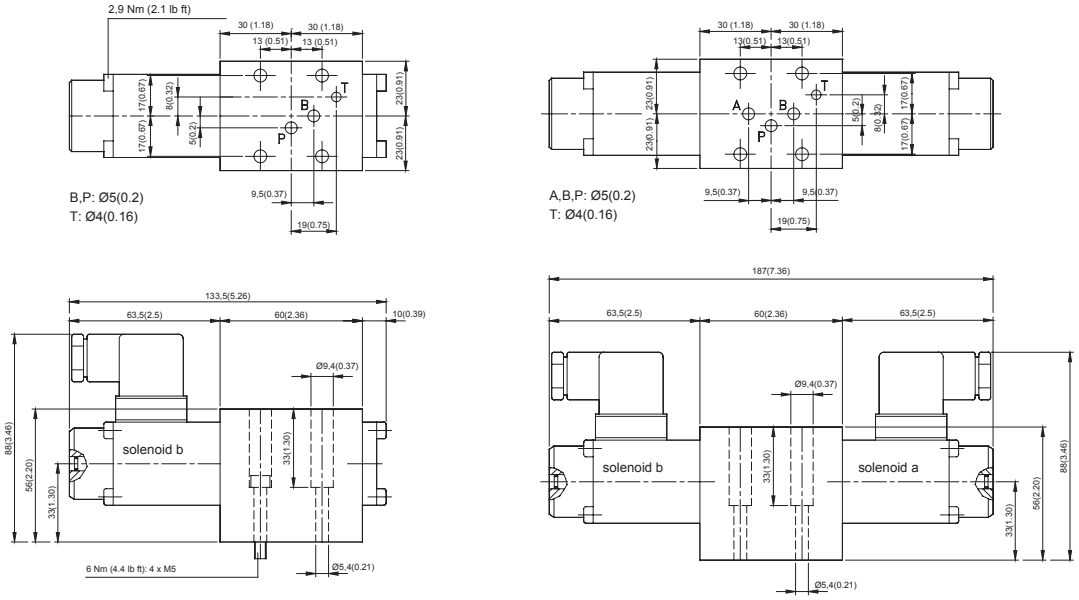
01 SEALS (BUNA-N)
06 ASSEMBLY KIT:SEALS (BUNA-N) AND SCREWS
11 SEALS (VITON)
16 ASSEMBLY KIT:SEALS (VITON) AND SCREWS

SOLENOID, incl. bolts and seal
8WX-2170-002 = 12V DC IP65 with emergency control by pin
8WX-2170-001 = 24V DC IP65 with emergency control by pin
8WX-2170-012 = 12V DC IP65 with emergency control by button
8WX-2170-011 = 24V DC IP65 with emergency control by button
8WX-2270-051 = 24V DC IP57 II 2 G EEx m II T4 (Explosion Proof)
8WX-2270-041 = 24V DC IP67, without female connector

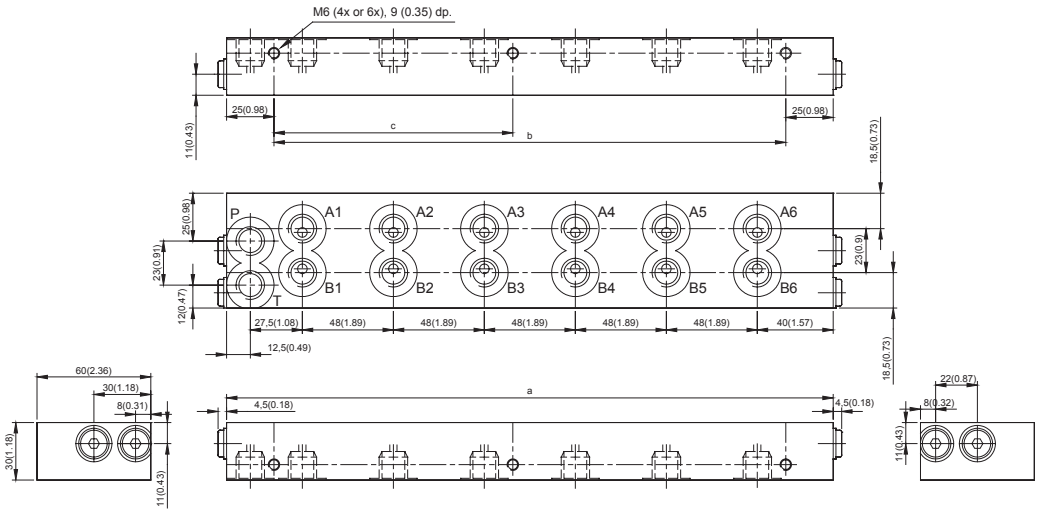
DIMENSIONS / TIGHTENING TORQUES

dimensions in millimeters (inches)

MDM-5 **Single Type** **Dual Type**



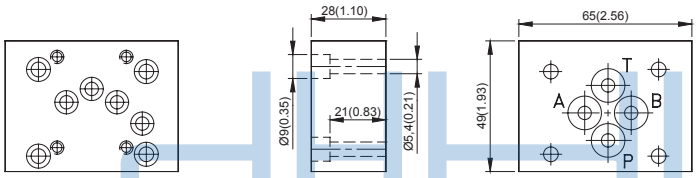
SUBPLATE: A-5-DM



	a	b	c
A-5-DM-1:	80(3.14)	30 (1,18)	-
A-5-DM-2:	128(5.04)	78 (3,07)	-
A-5-DM-3:	176(6.96)	126 (4.96)	-
A-5-DM-4:	224(8.82)	174 (6.85)	-
A-5-DM-5:	272(10.71)	222 (8.74)	126 (4.96)
A-5-DM-6:	320(12.6)	270 (10.63)	126 (4.96)

Connecting threads: P,T,A,B
in BSP: 1/4" (standard)
in SAE: SIZE 6 (optional)

CONVERSION PLATE: A-5-PS



MAINTENANCE DATA

Mounting procedure
- AMCA-valves shall not be mounted by overtightening of mounting bolts, causing mechanical distortion and thus spool lock.
- Mounting on flat surface, flatness 0,01/100.
- Don't use conical thread for port-fittings.
- For sealing purposes, use O-rings.
- Check the voltage and current of the solenoids, before operation.
- Avoid ingression of contaminants during mounting.

Start-up procedure
- Check the valve-function and the tightness of fittings etc.
- Bleed by repeated energizing of solenoid(s).
- Run the system to raise the fluid temperature. Rebleed to remove the dissolved air.

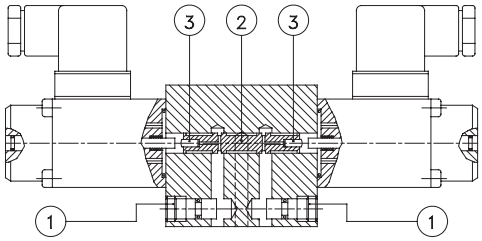
Adjustment procedure

Valve response time:
The valve response time is adjustable from ± 0,08 - 10 seconds.
Adjustment screws (damping throttles) are on the MDM-5 valve below the solenoids , fig 12 (1).
- Turn the adjustment screws clockwise to enlarge valve response time.
- Turn the adjustment screws anti-clockwise to shorten valve response time.

Fluid maintenance

Due to the construction, these AMCA-valves, are not highly susceptible to particulate (silt type) lock, nor to contaminant wear. Therefore the contaminant sensitivity is very low.
- Use mineral oil (recommended ISO/VG-32). Other fluids on request.
- Keep the contamination level better or equal NAS 1638 class 9 or ISO 18/15.

TROUBLE SHOOTING



1) Damping throttle
2) Spool
3) Pistons

FIG. 12

A. Valve operates erratically
1) Check the current on the solenoid plug.
2) Air in system: Bleed by repeated energizing of solenoid(s). Run the system to raise the fluid temperature. Rebleed to remove the dissolved air.
3) Check the resistance of the solenoid coil:
   - 24 VDC at 20 °C (68 °F) = 25 Ohm, at 60 °C (140 °F) = 30 Ohm
   - 12 VDC at 20 °C (68 °F) = 6,5 Ohm, at 60 °C (140 °F) = 7,5 Ohm

B. Max. reducing pressure too low
1) Maximum current is faulty: check max. current.
2) Supply pressure is too low: Check system pressure.
3) Spool, pistons or solenoids are dirty: Remove solenoids or cover and clean solenoids' bore and spool (take care of the small pistons (3) in the spool (2) if placed, see fig.12).

C. System is too slow
1) Damping throttles are closed too much: open up the throttles.
2) Electrical fault (ramp generator): check and reset.
3) Damping throttle or spool are dirty: Remove the parts, 1, 2 and 3, clean everything and replace.

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