Prop. 3-Way Pressure-Reducing Cart., Size 5 / SAE 08

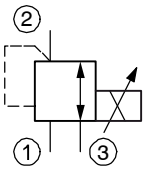
Q_{max} = 15 l/min (4 gpm), p_{max} = 250 bar (3600 psi)
Direct acting, electrically operated
Series DRDSA-7MQ…

- Compact construction
  for cavity type AM – 3/4-16 UNF
- Operated by a proportional solenoid
- 2 pressure ranges available
- Excellent stability over the whole pressure and flow range
- All exposed parts with zinc-nickel plating
- High pressure wet-armature solenoids
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- Various plug-connector systems and voltages are available
- Can be fitted in a line-mounting body

1 Description

Series DRDSA-7MQ… proportional 3-way pressure-reducing cartridges are size 5 / SAE 08, high performance screw-in cartridges with an 3/4-16 UNF mounting thread. They reduce the outlet pressure in 2 as a function of the control current signal and independently of the inlet pressure in 1. In the initial position (solenoid de-energised) the inlet of the 3-way pressure-reducing cartridge is shut off and the outlet is connected to tank (port 2 → 3). In control mode, the connection 1 → 2 opens until the pressure in port 2 reaches the preset level. If the pressure rises above the preset level, the control spool opens the 2 → 3 connection until balance is attained. Two pressure ranges are available, with maximum operating pressure (inlet pressure) p_{max} 250 bar. These 3-way pressure-reducing cartridges are predominantly used for reducing a system pressure in mobile and industrial applications. Thanks to the special terminal assignment, a proportional function can be achieved in manifold control blocks featuring WK32 ... valves by using these valves in a way that does not require any redesign of the block. All external parts of the cartridge are zinc-nickel plated to DIN 50 979 and are thus suitable for use in the harshest operating environments. If you intend to manufacture your own cavities or are designing a line-mounting installation, please refer to the section “Related data sheets”.

2 Symbol



3 Technical data

General characteristics	Description, value, unit
Designation	proportional 3-way pressure-reducing cartridge
Design	direct acting, electrically operated
Mounting method	screw-in cartridges 3/4-16 UNF
Tightening torque	40 Nm ± 10 % (30 ft-lbs ± 10 %)
Size	nominal size 5 / SAE 08, cavity type AM
Weight	0.4 kg (0.9 lbs)
Mounting attitude	unrestricted (preferably vertical, coil down)
Ambient temperature range	-25 °C … +50 °C (-13 °F … +122 °F)

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Hydraulic characteristics	Description, value, unit
Maximum operating pressure	250 bar (3600 psi)
Maximum flow rate	15 l/min (4 gpm)
Nominal pressure ranges	45 bar, 70 bar [1] (640 psi, 1000 psi) [1]
Flow direction	see symbols
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-25 °C … +70 °C (-13 °F … +158 °F)
Viscosity range	15…380 mm^2/s (cSt), recommended 20...130 mm^2/s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 18/16/13

IMPORTANT!

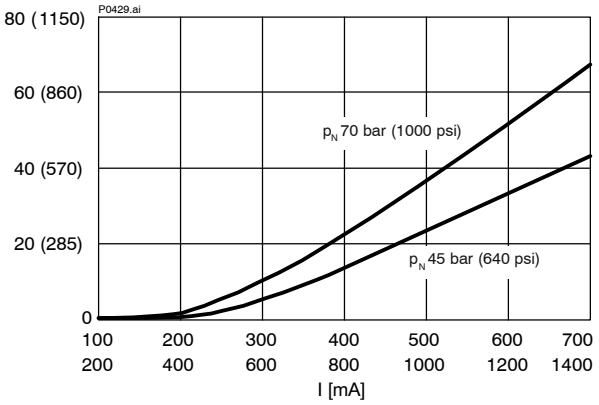
[1] For higher pressure to 100 bar (1400 psi) can be used the valve DRDTA-7MQ….

Electrical characteristics		Description, value, unit
Supply voltage		12 V DC, 24 V DC
Control current		12 V = 0…1400 mA, 24 V = 0…760 mA
Coil resistance R	- cold value at 20 °C - max. warm value	12 V = 5.8 Ω / 24 V = 20.9 Ω 12 V = 9.1 Ω / 24 V = 32.7 Ω
Recommended PWM frequency (dither)		200 Hz
Hysteresis with PWM		3…6 % I_N
Reversal error with PWM		3…6 % I_N
Sensitivity with PWM		< 2 % I_N
Reproducibility with PWM		< 3 % p_N
Switching time		see performance graphs
Relative duty cycle		100 %
Protection class to ISO 20 653 / EN 60 529		IP 65 / IP 67 / IP 69K, see “Ordering code” (with appropriate mating connector and proper fitting and sealing)
Electrical connection		DIN EN 175301-803, 3-pin 2 P+E (standard) for other connectors, see “Ordering code”

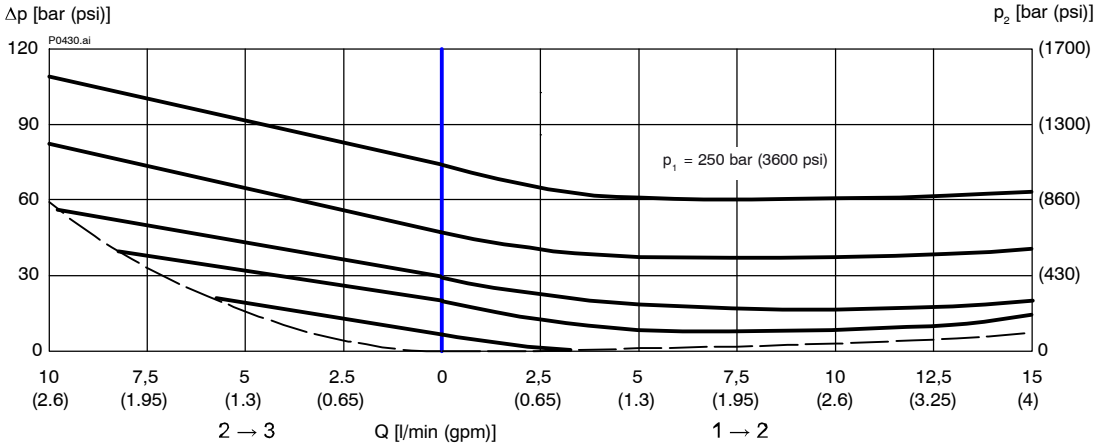
4 Performance graphs

measured with oil viscosity 33 mm²/s (cSt)

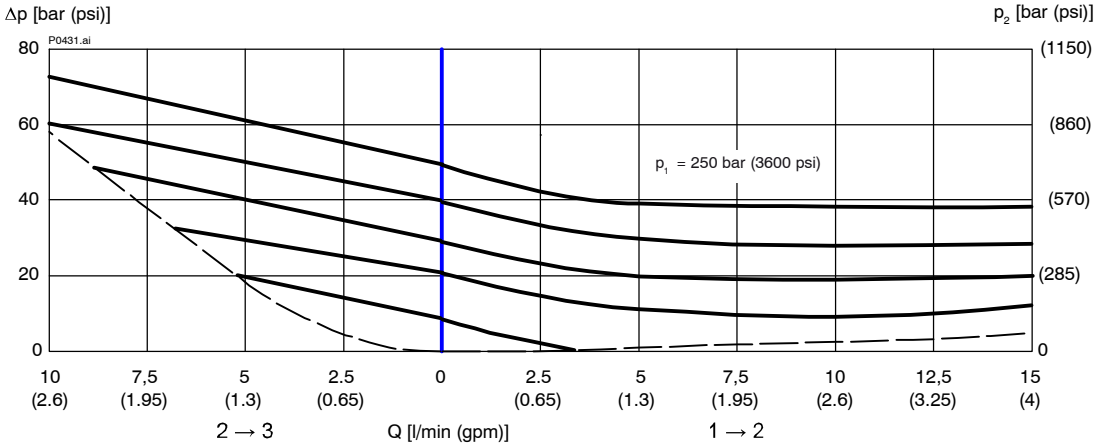
p = f (I) Pressure adjustment characteristic



p = f (Q) Pressure - Flow rate characteristic p_N = 70 bar



p = f (Q) Pressure - Flow rate characteristic p_N = 45 bar



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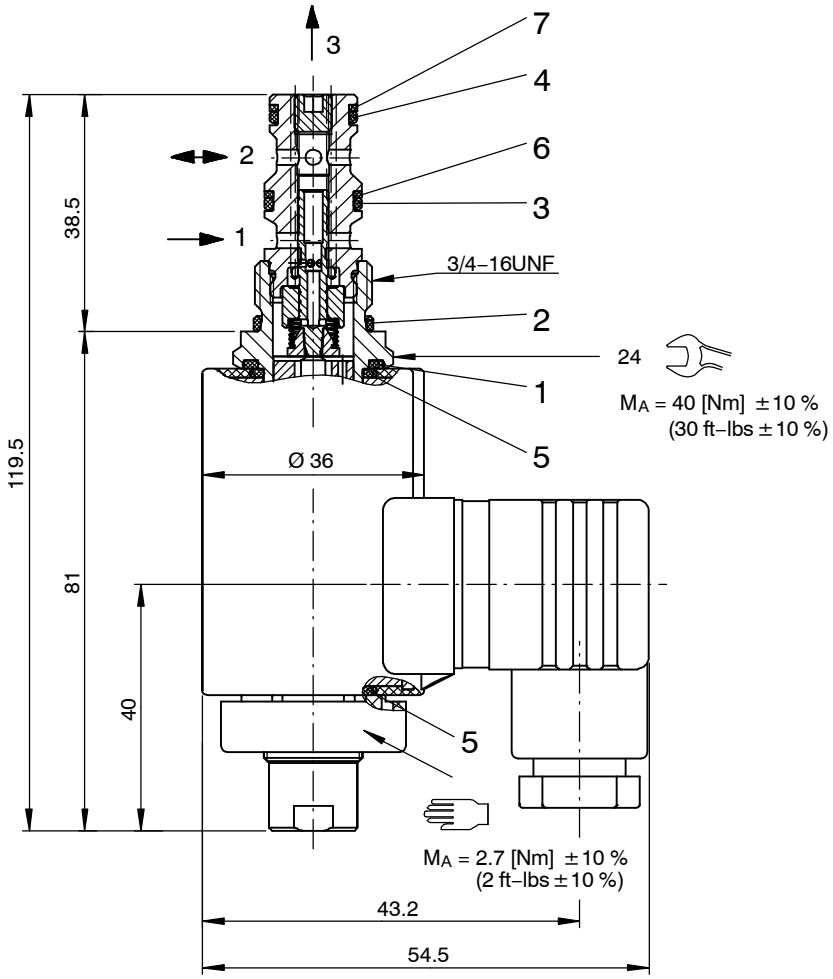
5 Dimensions & sectional view



6 Installation information

IMPORTANT!
To achieve the maximum performance rating, fit the solenoid coil as shown (with the plug pins at the bottom) and install the valve in a steel body. When fitting the cartridges, note the mounting attitude (preferably vertical, with coil down → automatic air bleed) and use the specified tightening torque. No adjustments are necessary, since the cartridges are set in the factory.

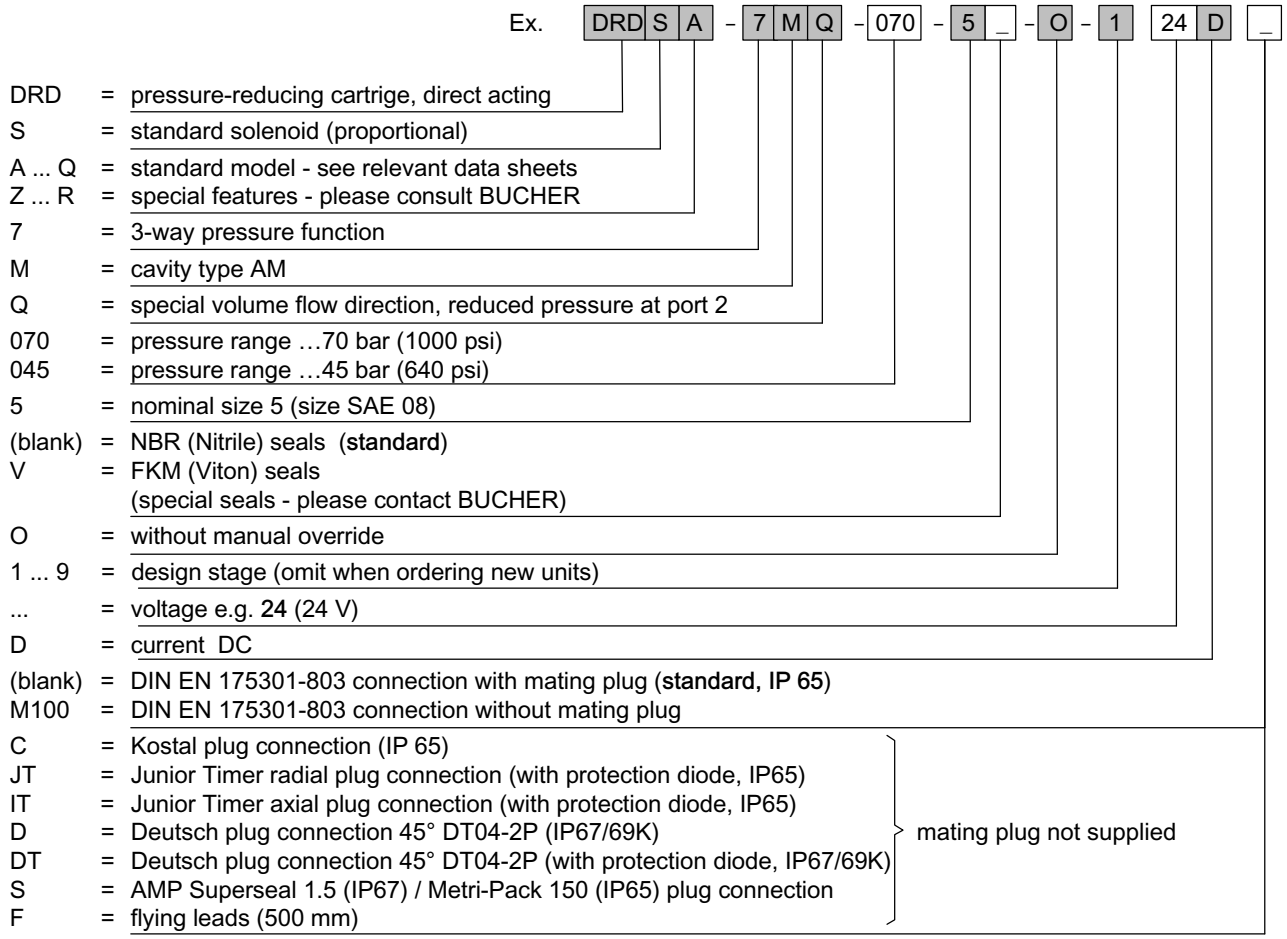
ATTENTION!
Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the seals. When changing seals, oil or grease the new seals thoroughly before fitting them.

Seal kit NBR no. DS-247-N [2)]

Item	Qty.	Description			
1	1	O-ring		∅ 18,00 x 2,00	FKM
2	1	O-ring	no. 017	∅ 17,17 x 1,78	N90
3	1	O-ring	no. 014	∅ 12,42 x 1,78	N90
4	1	O-ring	no. 013	∅ 10,82 x 1,78	N90
5	2	O-ring		∅ 16,00 x 2,00	FKM
6	2	Backup ring		∅ 10.70 x 1.45 x 1.40	FI0751
7	2	Backup ring		∅ 09.40 x 1.45 x 1.00	FI0751

IMPORTANT!
2) Seal kit with FKM (Viton) seals no. DS-247-V

7 Ordering code



8 Related data sheets

Reference	(Old no.)	Description
400-P-040011	(i-32)	The form-tool hire programme
400-P-040181	(i-33.11)	Cavity type AM
400-P-120110	(W-2.141)	Coils for solenoid valves, series D36
400-P-510101		Amplifier unit for proportional valves (1-channel) PBS - 3A
400-P-720111	(G-4.20)	Line-mounting body, type GAMA (G 3/8")

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Classification: 430.305.305.305.305.310