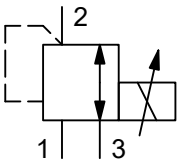
BUCHER hydraulics

Pressure valve
Reducing function

Q_{max} = 3.75 gpm, p_{max} = 3600 psi
Direct acting, spool type, proportional solenoid
Type series: DRDSA-7MQ-_-5...

- Screw-in cartridge valve for cavity AM
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type GAMA
- Excellent stability over the whole pressure and flow range
- 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
- High pressure wet-armature solenoids

Symbol



Description

The proportional pressure-reducing valves, series DRDSA-7MQ... , are size 5, pilot-operated, high performance screw-in valves with a 3/4-16 UNF-2A mounting thread. They are designed on the proven sliding-spool principle. These cartridges reduce the output pressure in proportion to the control flow, regardless of the input pressure. The required secondary pressure is controlled to the value set independently of the inlet pressure. If the specified pressure is exceeded, connection opens to restore the balance. To obtain a reliable pressure setting over the entire pressure range, the overall pressure range is divided into different pressure levels. These valves are mainly used in certain mobile and industrial applications to reduce the system pressure. The pressure is set by means of an adjusting spindle. All external parts of the screw-in valves are zinc-nickel plated and are thus suitable for use in the harshest operating environments. For installation and further information, please refer to the section related data sheets.

Technical data

General characteristics	Description, value, unit
Function group	pressure valve
Function	reducing function
Design	screw-in cartridge valve
Controls	proportional solenoid
Characteristic	direct acting, spool type
Construction size	NG 5
Thread size	3/4-16 UNF-2A
Mounting attitude	unrestricted (preferably vertical, coil down)
Weight	0.90 lb
Cavity acc. factory standard	AM
Tightening torque steel	30 ft·lb
Tightening torque aluminium	30 ft·lb
Tightening torque tolerance	± 10 %
Minimum ambient temperature	- 22 °F
Maximum ambient temperature	+ 122 °F
Surface protection	all external parts with zinc-nickel plating according to DIN EN ISO 19598
Sealing material	see ordering code
Seal kit order number	NBR: DS-247-N / FKM: DS-247-V

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	3600 psi
Maximum flow rate	3.75 gpm
Flow direction	see symbol
Hydraulic fluid	HL and HLP mineral oil according to DIN 51 524; other fluids on request!
Minimum fluid temperature	- 22 °F
Maximum fluid temperature	+ 158 °F
Viscosity range	15 ... 380 mm^2/s (cSt)
Recommended viscosity range	20 ... 130 mm^2/s (cSt)
Minimum fluid cleanliness (cleanlineless class according to ISO 4406:1999)	class 18/16/13
Nominal pressure range	[1]) Pressure range 045 = ...650 psi Pressure range 070 = ...1000 psi

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

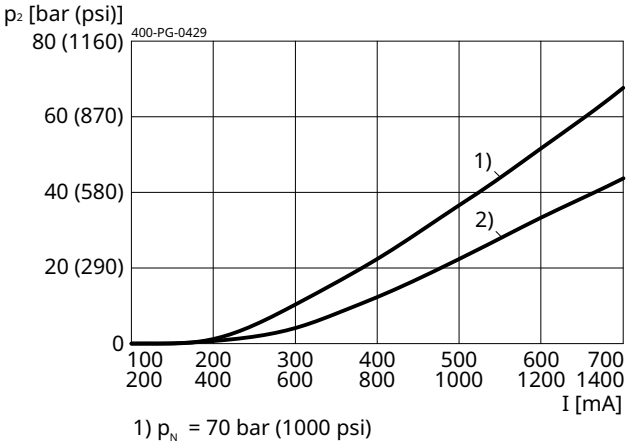
ATTENTION!
If there is pressure at the secondary connection, this is added to the set pressure value.

Electric characteristics	Description, value, unit
Actuator type	solenoid coil
Solenoid coils type	D36
Supply voltage DC	12/24 V DC
Supply voltage tolerance	± 10 %
Control current	12 V = 0...1400 mA / 24 V = 0...760 mA
Relative duty cycle	100 %
Coil resistance R	Cold value at 68°F - 12 V = 5.8 Ω / 24 V = 20.9 Ω / max. warm value - 12 V = 9.1 Ω / 24 V = 32.7 Ω
Response sensitivity with PWM	< 2 % I_N
Reproducibility with PWM	< 3 % p_N
Hysterese with PWM	3...6 % I_N
Reversal error with PWM	3...6 % I_N
Electrical connection coil	DIN EN 175301-803, 3-pole 2 P+E (IP 65)
Protection class solenoid coil 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)

Performance graphs

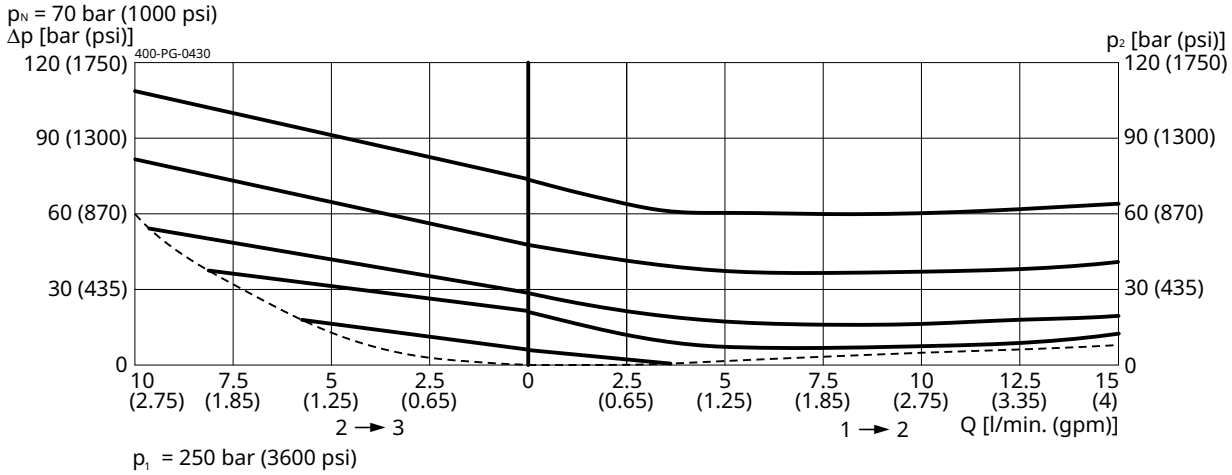
measured with oil viscosity 33.0 mm²/s (cSt)

p = f (I) Pressure adjustment

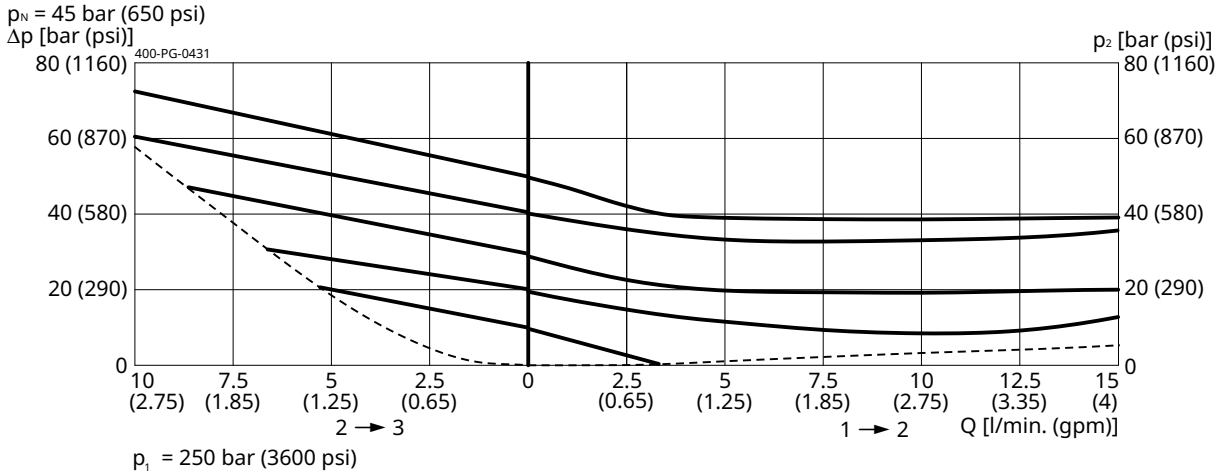


1) p_N = 70 bar (1000 psi)
2) p_N = 45 bar (650 psi)

p = f (Q) Pressure-flow rate



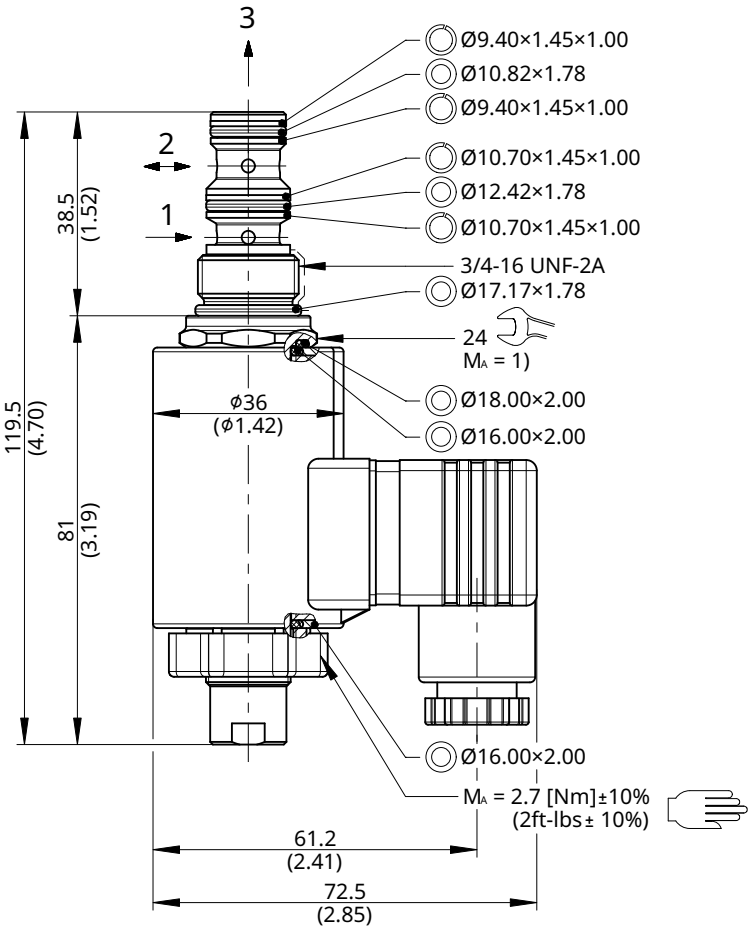
p = f (Q) Pressure-flow rate



Installation

Beispiel für die Masseinheit:
Exampel for the dimensional units:

0.79 = 0.79 mm millimeter
(.031) = 0.031" inch



NOTE!
1) When fitting the screw-in cartridge valve, use the specified tightening torque. The value can be found in the chapter "Technical data".

IMPORTANT!
To achieve the screw-in valve's maximum performance rating, fit the solenoid coil as shown (with the plug pins nearest the knurled nut). The valve must be installed in a steel body.

NOTE!
The seals are not available individually. The seal kit order number can be found in the chapter "Technical data".

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.

Ordering code

Ex. DR D S A - 7 M Q - 070 - 5 _ - O - 1 24 D _

DR	=	pressure reducing cartridge			
D	=	direct acting			
S	=	elect. operated, D36, 8 W, proportional			
A ... Q	=	standard model according to valid data sheet			
Z ... R	=	special model (on request)			
7	=	pressure-reducing with full-flow pressure relief			
M	=	cavity type AM			
Q	=	special volume flow direction, reduced pressure at port 2			
045	=	pressure range ...45 bar / ...650 psi			
070	=	pressure range ...70 bar / ...1000 psi			
5	=	nominal size 5			
(blank)	=	NBR (nitril-butadien-rubber / BUNA) seals **(standard)**			
V	=	FKM (fluorocarbon rubber / VITON) seals (special seals on request)			
O	=	without manual override			
1 ... 9	=	technical design no. (omit by ordering)			
...	=	voltage e.g. 24 (24 V)			
D	=	current DC			
(blank)	=	DIN EN 175301-803 connection	3-pole 2 P+E **(standard)**	(IP 65)	with mating plug
T	=	DIN EN 175301-803 connection	3-pole 2 P+E, with protection diode	(IP 65)	with mating plug
M100	=	DIN EN 175301-803 connection	3-pole 2 P+E	(IP 65)	mating plug not supplied
J	=	Junior Timer plug connection	2-pole radial	(IP 65)	
JT	=	Junior Timer plug connection	2-pole radial, with protection diode	(IP 65)	
I	=	Junior Timer plug connection	2-pole axial	(IP 65)	
IT	=	Junior Timer plug connection	2-pole axial, with protection diode	(IP 65)	
D	=	Deutsch plug connection DT04-2P	2-pole 45°	(IP 67/69K)	
DT	=	Deutsch plug connection DT04-2P	2-pole 45°, with protection diode	(IP 67/69K)	
		other plug-variants, please consult BUCHER.			

IMPORTANT!
Not every combination of voltage values, current type and plug connections vailable.

Related data sheets

Reference	Description
400-P-040011	form tools
400-P-040181	cavity AM
400-P-120110	solenoid coil D36
400-P-720111	threaded port body GAMA

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