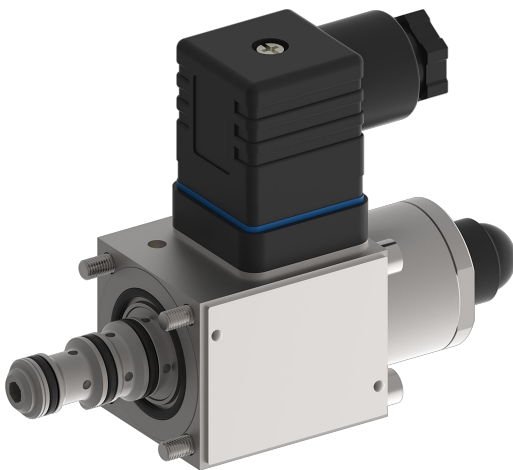


Pressure valve Reducing function

$Q_{\max} = 2.5 \text{ gpm}$, $p_{\max} = 3000 \text{ psi}$

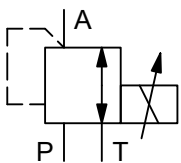
Direct acting, spool type, proportional solenoid

Type series: DRRZ-7-_-4...



- Slip-in cartridge valve for cavity AGS
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type GAAZ
- Excellent stability over the whole pressure and flow range
- Operated by a proportional solenoid
- High pressure wet-armature solenoids
- Various plug-connector systems and voltages are available

Symbol



Description

Series DRRZ-7... proportional 3-way pressure-reducing valves are direct acting, spool-type, push-in cartridges and are size 4. They reduce the outlet pressure in A as a function of the control current signal and independently of the inlet pressure in P. In the initial position (solenoid de-energized) the inlet of the 3-way pressure-reducing cartridge is shut off and the outlet is connected to tank (port A to T). In control mode, the connection P to A opens until the pressure in port A

reaches the preset level. If the pressure rises above the preset level, the control spool opens the A to T connection until balance is attained. Two pressure ranges are available. To accommodate a maximum operating pressure (inlet pressure) of $p_{\max} 210 \text{ bar}$, the "H" model must be used. With other models the maximum operating pressure is dependent on the pressure range. They are suitable for controlling larger directional valves, where they can be incorporated in the valve

body or directly in the end covers, for example, and for controlling pumps and motors. All external parts of the valves are zinc-nickel plated and are thus suitable for use in the harshest operating environments. These

valves are predominantly used for reducing a system pressure in mobile and industrial applications. For self-assembly, please refer to the section related data sheets.

Technical data

General characteristics	Description, value, unit
Function group	pressure valve
Function	reducing function
Design	slip-in cartridge valve
Controls	proportional solenoid
Characteristic	direct acting, spool type
MTTFd value	150 years
Construction size	NG 4
Mounting attitude	unrestricted (preferably vertical, coil down)
Weight	1.21 lb
Cavity acc. factory standard	AGS
Tightening torque steel	1.9 ft·lb
Tightening torque aluminium	1.9 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
Seal kit order number	NBR: DS-154-N / FKM: DS-154-V

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	3000 psi
Restriction of the operating pressure	model "H" 3000 psi, both pressure ranges
Maximum flow rate	2.5 gpm
Control flow range	2 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 (cleanliness class according to ISO 4406:1999)	class 18/16/13
Nominal pressure range	nominal pressure range 080: ...1160 psi nominal pressure range 110: ...1600 psi

Electric characteristics

Supply voltage DC	12/24 V DC
Control current	12 V = 0...1400 mA / 24 V = 0...800 mA
Nominal power consumption	max. 19 W
Relative duty cycle	100 %
Coil resistance R	cold value at 68 °F = 12 V = 6.4 Ω / 24 V = 17.2 Ω cold value at -13 °F = 12 V = 5.2 Ω / 24 V = 14.1 Ω max. warm value = 12 V = 10.0 Ω / 24 V = 27.0 Ω
Recommended PWM frequency	160 Hz
Response sensitivity with PWM	< 1 % I _N
Reproducibility with PWM	< 2 % p _N
Hysteresis with PWM	2...4 % I _N
Reversal error with PWM	2...4 % 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)

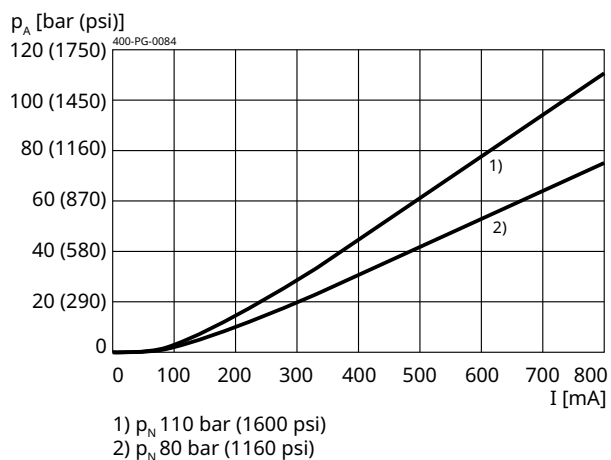
Description, value, unit

12/24 V DC
12 V = 0...1400 mA / 24 V = 0...800 mA
max. 19 W
100 %
cold value at 68 °F = 12 V = 6.4 Ω / 24 V = 17.2 Ω cold value at -13 °F = 12 V = 5.2 Ω / 24 V = 14.1 Ω max. warm value = 12 V = 10.0 Ω / 24 V = 27.0 Ω
160 Hz
< 1 % I _N
< 2 % p _N
2...4 % I _N
2...4 % I _N
DIN EN 175301-803, 3-pole 2 P+E (IP 65)
IP 65 / IP 67 / IP 69K, see "Ordering code" (with appropriate mating connector and proper fitting and sealing)

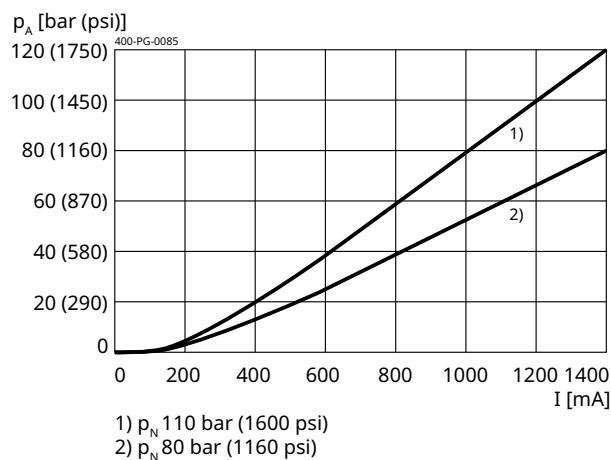
Performance graphs

measured with oil viscosity 33.0 mm²/s (cSt)

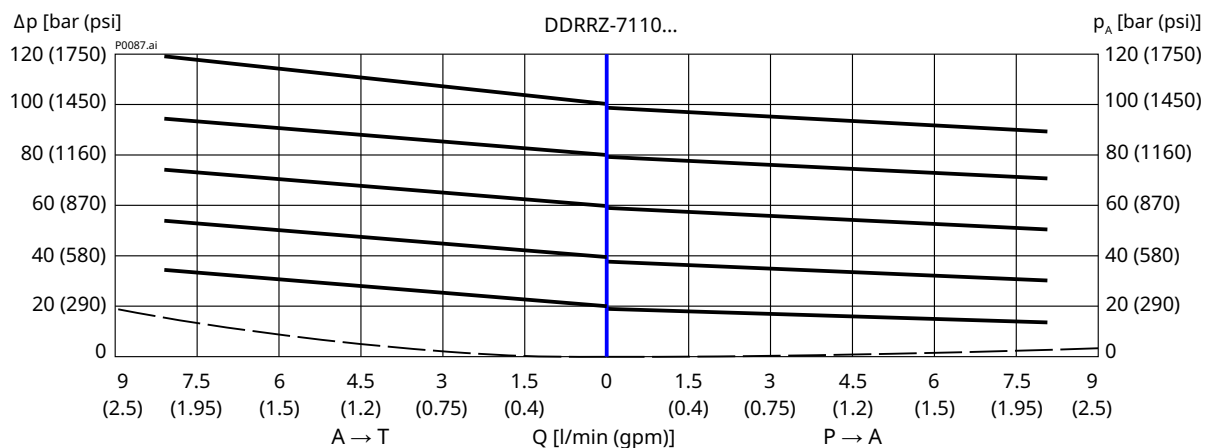
p = f (I) Pressure adjustment



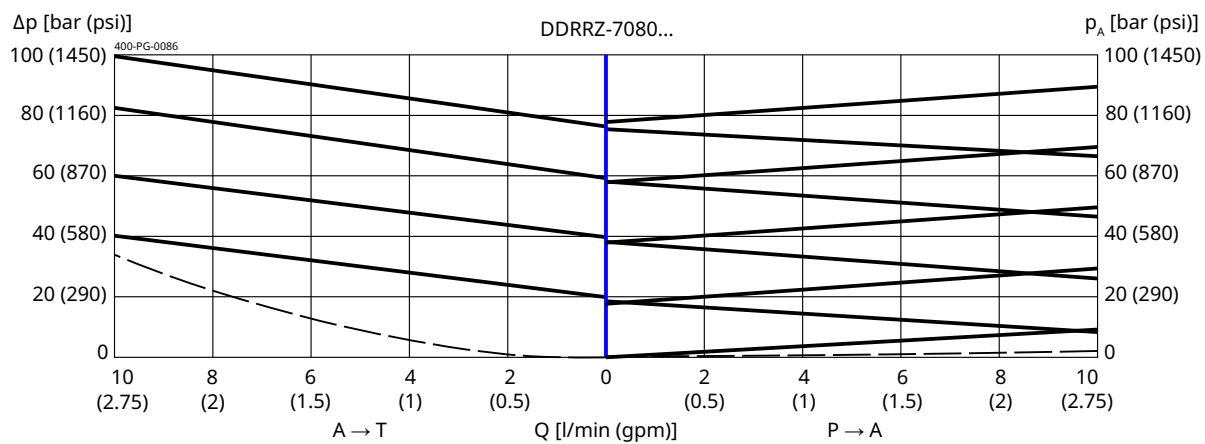
p = f (I) Pressure adjustment



$p = f(Q)$ Pressure-flow rate



$p = f(Q)$ Pressure-flow rate



Ordering code

Ex.

DDR	R	Z	-	7	080	-	4	-	-	-	2	24	D	-
-----	---	---	---	---	-----	---	---	---	---	---	---	----	---	---

DDR = pressure-reducing cartridge, direct acting

R = electrically operated, □36, proportional solenoid

A...Q = standard model according to valid data sheet

Y...R = special model (on request)

7 = 3-way pressure-reducing

080 = pressure range ... 80 bar

110 = pressure range ... 110 bar

4 = nominal size 4

(blank) = NBR (nitril-butadien-rubber / BUNA) seals **(standard)**

V = FKM (fluorocarbon rubber / VITON) seals
(special seals on request)

(blank) = armature without orifice **(standard)**

H = armature with orifice (for higher inlet pressure, p_{max} 210 bar)

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

M100 = DIN EN 175301-803 connection 3-pole 2 P+E (IP 65)

J = Junior Timer plug connection 2-pole radial (IP 65)

D = Deutsch plug connection DT04-2P 2-pole 45° (IP 67/69K)

other plug-variants, please consult BUCHER.

} mating plug
not supplied



IMPORTANT!

Not every combination of voltage values, current type and plug connections available.

Related data sheets

Reference	Description
400-P-040011	form tools
400-P-010101	MTTFd Values for Hydraulic Valves
400-P-040151	cavity AGS
400-P-712105	threaded port body GAAZ

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