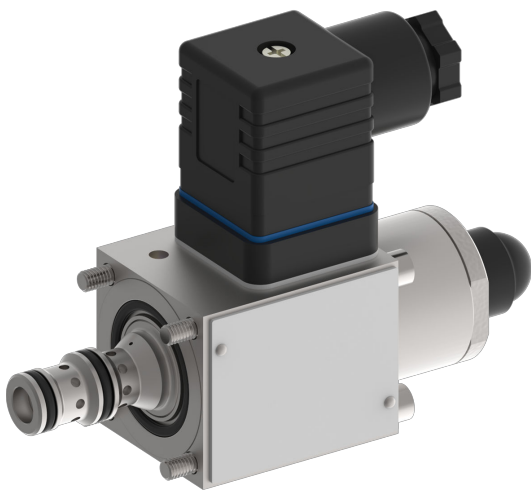


# Pressure valve Reducing function

$Q_{\max} = 5 \text{ gpm}$ ,  $p_{\max} = 3000 \text{ psi}$

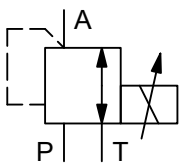
Direct acting, spool type, proportional solenoid

Type series: DDRRY-7...



- Slip-in cartridge valve for cavity AG
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type GAAA
- 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 DDRRY-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. Four pressure ranges are available, with maximum operating pressure (inlet pressure)  $p_{\max} 210 \text{ bar}$ . All external parts of the cartridge are zinc-nickel plated and are thus suitable for use in the harshest operating environments. These 3-way pressure-reducing valves are predominantly used for reducing a system pressure in mobile and industrial

applications. 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. 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	AG
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
<b>Hydraulic characteristics</b>	
Maximum operating pressure	3000 psi
Maximum flow rate	5 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 <sup>2</sup> /s (cSt)
Recommended viscosity range	20 ... 130 mm <sup>2</sup> /s (cSt)
Minimum fluid cleanliness (cleanliness class according to ISO 4406:1999)	class 18/16/13
Nominal pressure range	nominal pressure range 020: ...290 psi nominal pressure range 030: ...435 psi nominal pressure range 050: ...725 psi nominal pressure range 100: ...1450 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	200 Hz
Response sensitivity with PWM	< 1 % I <sub>N</sub>
Reproducibility with PWM	< 2 % p <sub>N</sub>
Hysteresis with PWM	2...4 % I <sub>N</sub>
Reversal error with PWM	2...4 % I <sub>N</sub>
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)

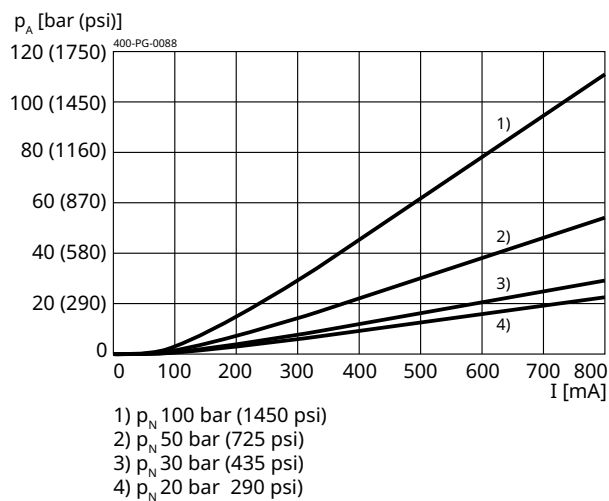
**Description, value, unit**

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
200 Hz
< 1 % I <sub>N</sub>
< 2 % p <sub>N</sub>
2...4 % I <sub>N</sub>
2...4 % I <sub>N</sub>
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)

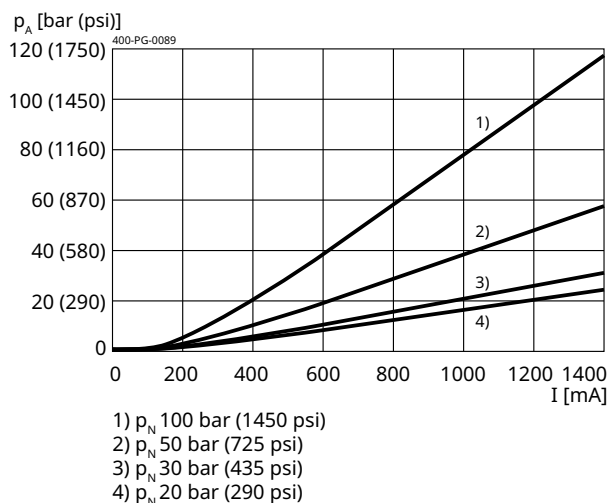
**Performance graphs**

measured with oil viscosity 33.0 mm<sup>2</sup>/s (cSt)

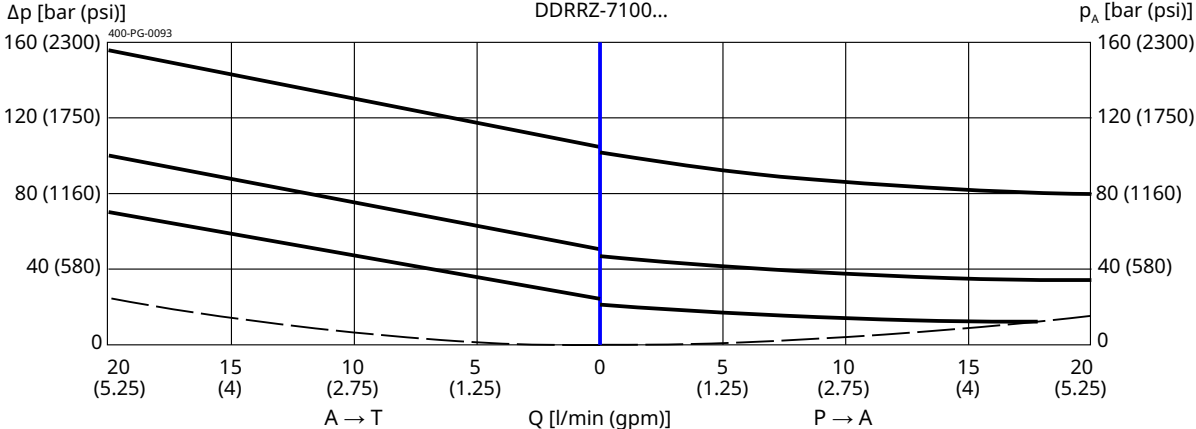
p = f (I) Pressure adjustment



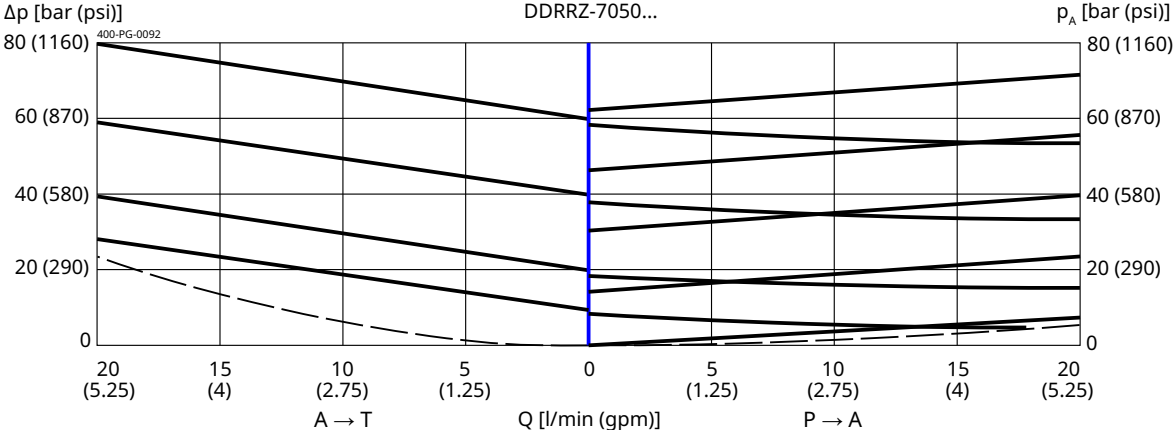
p = f (I) Pressure adjustment



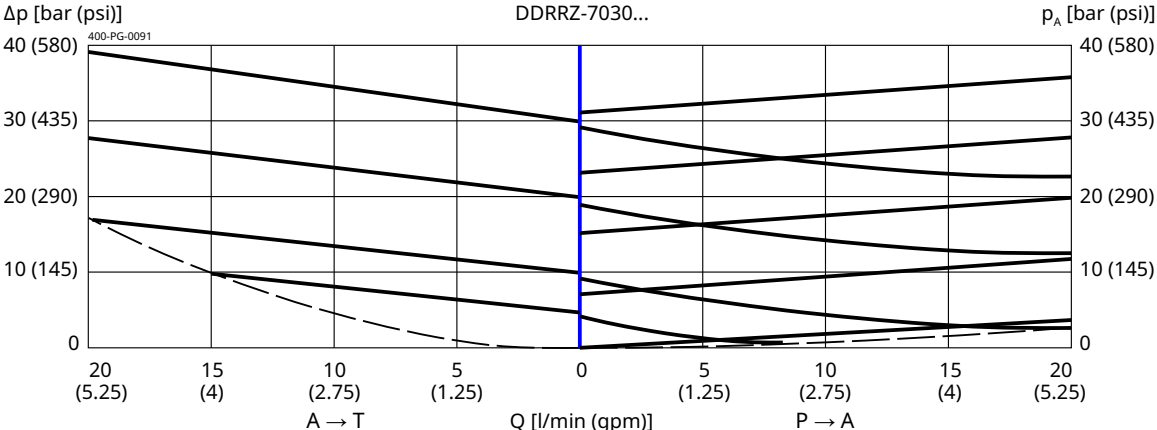
$p = f(Q)$  Pressure-flow rate



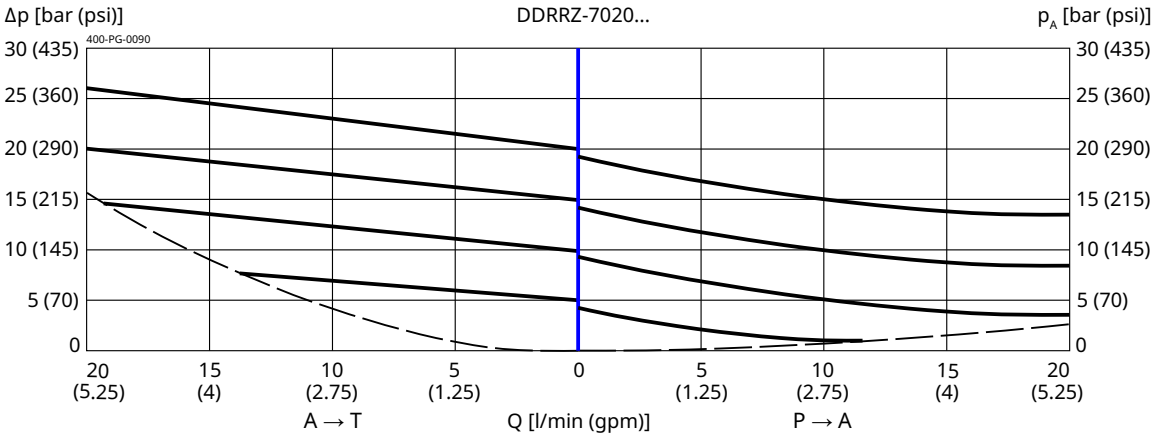
$p = f(Q)$  Pressure-flow rate



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

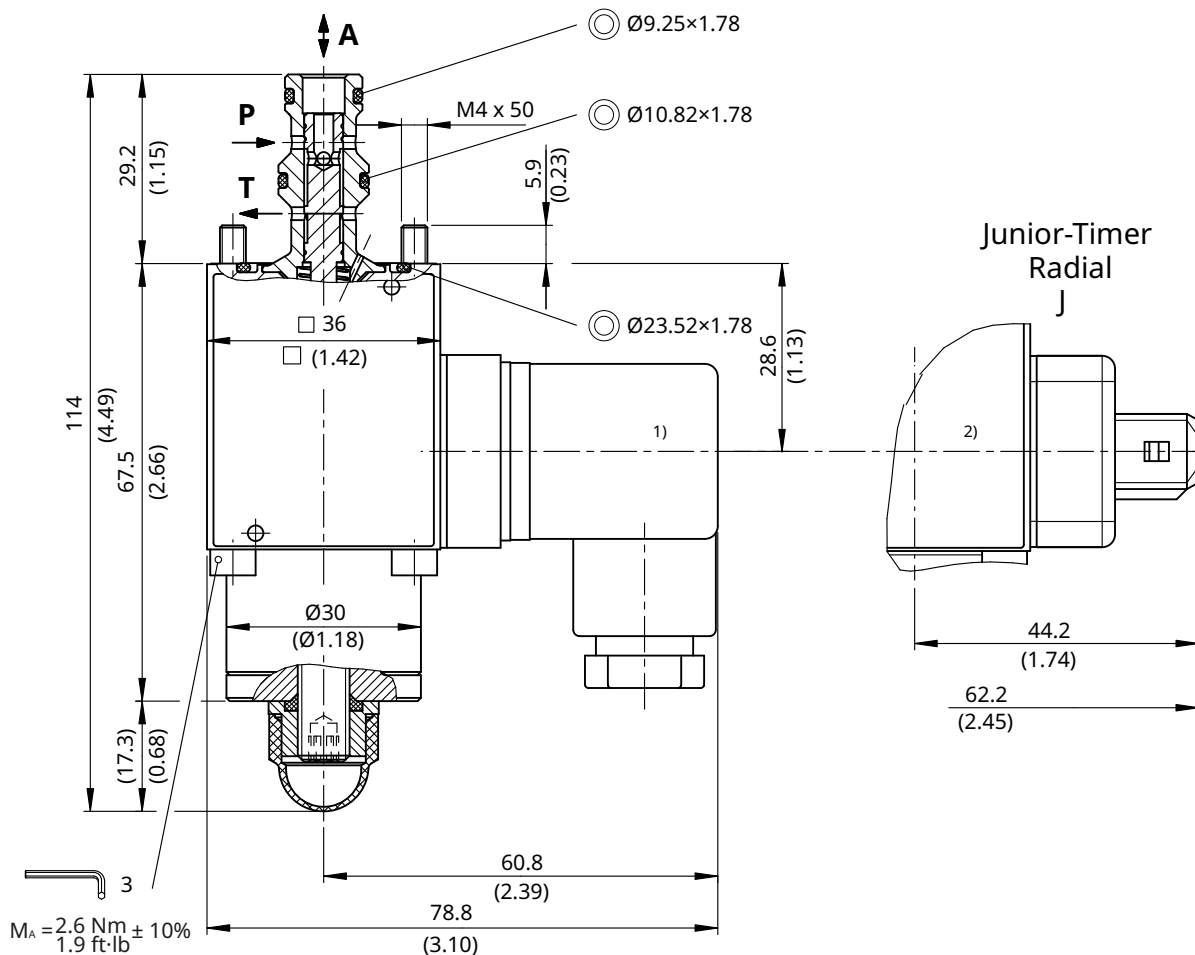


$p = f(Q)$  Pressure-flow rate



## Installation

Beispiel für die Masseinheit:  
Example for the dimensional units:  
0.79 = 0.79 mm millimeter  
(.031) = 0.031" inch



<sup>1)</sup> Gegenstecker nach ISO 4400 / DIN 43 650 / ISO 4400 / DIN 43 650 mating plug connection

<sup>2)</sup> Junior-Timer-Radialstecker-Anschluss / Junior Timer Radial plug connection

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

**i IMPORTANT!**  
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.

**i 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. 

DDR	R	Y	-	7	020	-	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  
020 = pressure range ... 11 bar  
030 = pressure range ... 20 bar  
050 = pressure range ... 30 bar  
100 = pressure range ... 40 bar  
4 = nominal size 4  
(blank) = NBR (nitril-butadien-rubber / BUNA) seals **(standard)**  
V = FKM (fluorocarbon rubber / VITON) seals (special seals on request)  
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 <b>(standard)</b>	(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

**i** **IMPORTANT!** Not every combination of voltage values, current type and plug connections available.

## Related data sheets

Reference	Description
<a href="#">400-P-040011</a>	form tools
<a href="#">400-P-010101</a>	MTTFd Values for Hydraulic Valves
<a href="#">400-P-040141</a>	cavity AG
<a href="#">400-P-712101</a>	threaded port body GAAA

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