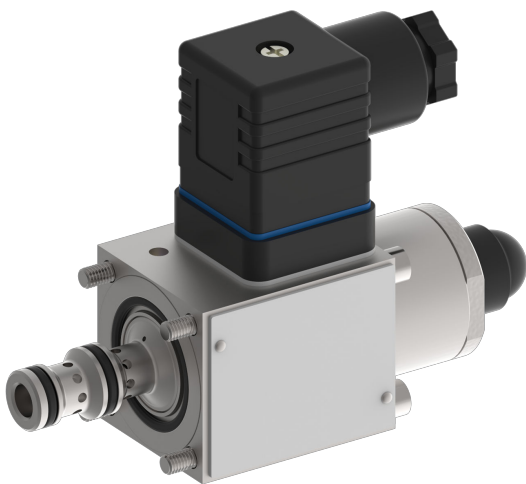


Pressure valve Reducing function

$Q_{\max} = 3.75 \text{ gpm}$, $p_{\max} = 1400 \text{ psi}$

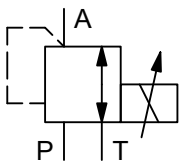
Direct acting, spool type, proportional solenoid

Type series: DRRZ-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 DRRZ-7... proportional 3-way pressure-reducing valves are direct acting, spool-type, push-in cartridges and are available in sizes 2...5. 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. Five pressure ranges are available. To accommodate a maximum operating pressure (inlet pressure) of $p_{\max} 100 \text{ bar}$, 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 cartridge are zinc-nickel plated and are thus suitable for use in the harshest operating envi-

ronments. 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 2 |
| 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-324-N / FKM: DS-324-V |

| Hydraulic characteristics | Description, value, unit |
|---|--|
| Maximum operating pressure | 1400 psi |
| Restriction of the operating pressure | model "H" 1400 psi. all pressure ranges |
| Maximum flow rate | 3.75 gpm |
| Control flow range | 0.8 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 |
| Definition of cracking pressure for relief valve | static, not controlling, p _{max} 700 psi / while controlling < 2 % p _N |
| Nominal pressure range | nominal pressure range 055: ...800 psi nominal pressure range 040: ...580 psi nominal pressure range 030: ...435 psi nominal pressure range 020: ...290 psi nominal pressure range 011: ...160 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 _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) |

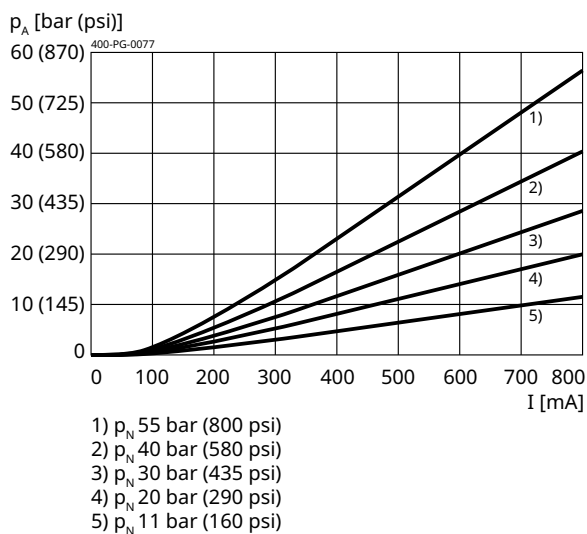
Description, value, unit

| |
|--|
| 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 |
| 200 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) |

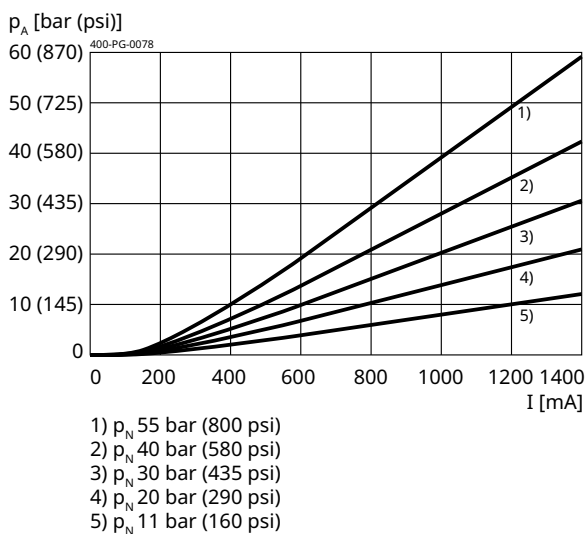
Performance graphs

measured with oil viscosity 33.0 mm²/s (cSt)

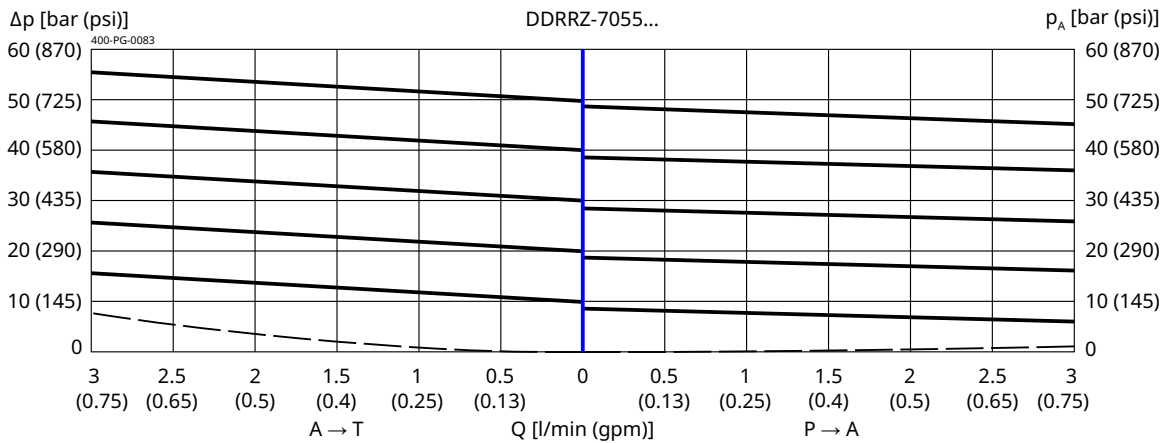
p = f (I) Pressure adjustment



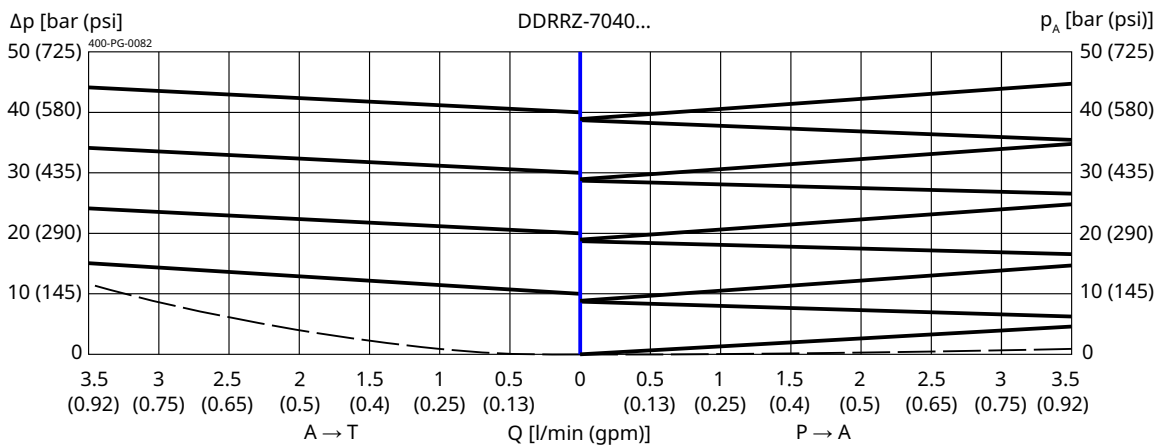
p = f (I) Pressure adjustment



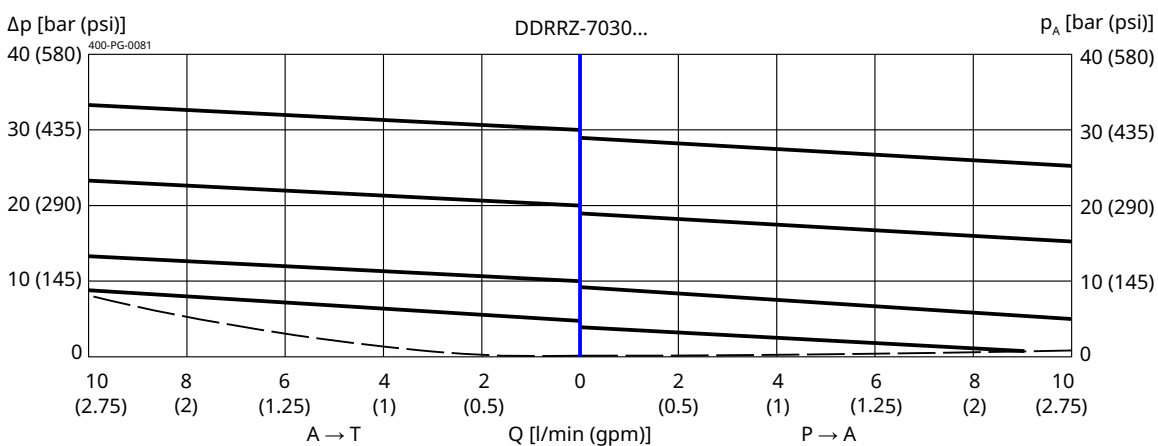
$p = f(Q)$ Pressure-flow rate



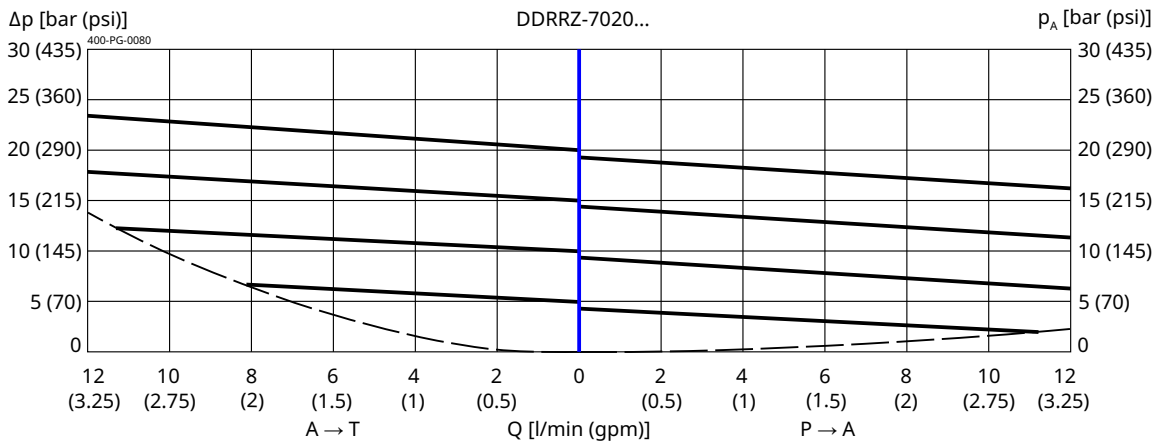
$p = f(Q)$ Pressure-flow rate



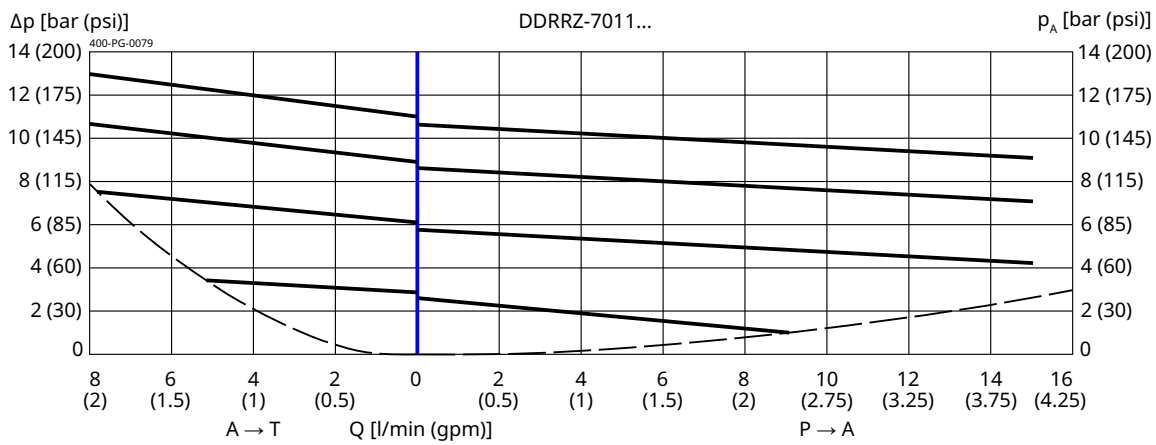
$p = f(Q)$ Pressure-flow rate



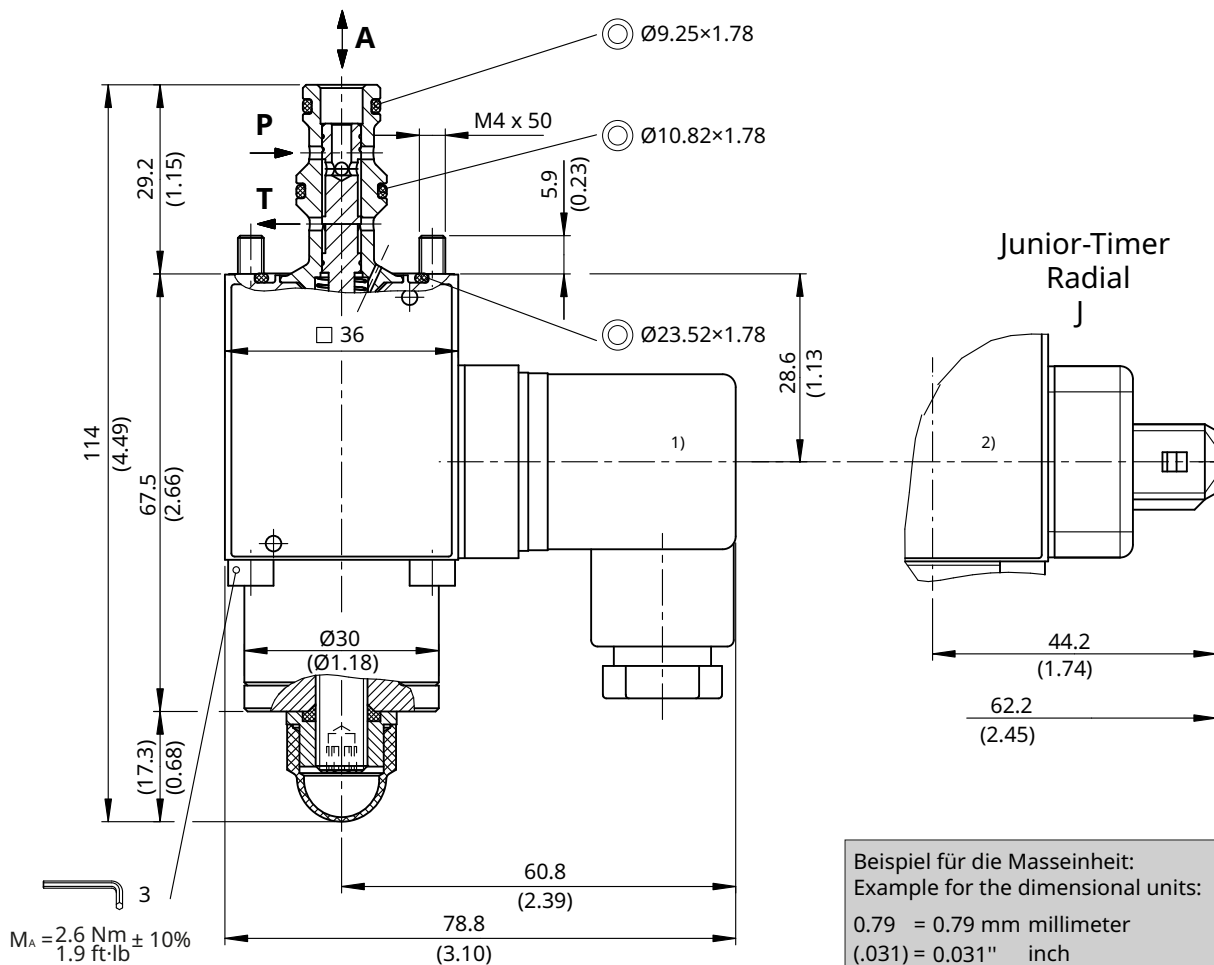
$p = f(Q)$ Pressure-flow rate



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



Installation



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 | Z | - | 7 | 011 | - | 2 | - | - | - | - | 2 | - | 24 | D | - |
|-----|---|---|---|---|-----|---|---|---|---|---|---|---|---|----|---|---|

| | | | |
|--|--|--|-----------------------------------|
| <p>DDR = pressure-reducing cartridge, direct acting</p> <p>R = electrically operated, □36, proportional solenoid</p> <p>A ...Q = standard model according to valid data sheet</p> <p>Y ...R = special model (on request)</p> <p>7 = 3-way pressure-reducing</p> <p>011 = pressure range ... 11 bar</p> <p>020 = pressure range ... 20 bar</p> <p>030 = pressure range ... 30 bar</p> <p>040 = pressure range ... 40 bar</p> <p>055 = pressure range ... 55 bar</p> <p>2 = nominal size 2 for pressure range 055</p> <p>2 = nominal size 2 for pressure range 040</p> <p>3 = nominal size 3 for pressure range 030</p> <p>4 = nominal size 4 for pressure range 020</p> <p>5 = nominal size 5 for pressure range 011</p> <p>(blank) = NBR (nitril-butadien-rubber / BUNA) seals (standard)</p> <p>V = FKM (fluorocarbon rubber / VITON) seals (special seals on request)</p> <p>(blank) = armature without orifice (standard)</p> <p>H = armature with orifice (for higher inlet pressure, p_{max} 100 bar)</p> <p>1...9 = technical design no. (omit by ordering)</p> <p>... = voltage e.g. 24 (24 V)</p> <p>D = current DC</p> | <p>(blank) = DIN EN 175301-803 connection 3-pole 2 P+E (standard)</p> <p>M100 = DIN EN 175301-803 connection 3-pole 2 P+E</p> <p>J = Junior Timer plug connection 2-pole radial</p> <p>D = Deutsch plug connection DT04-2P 2-pole 45° other plug-variants, please consult BUCHER.</p> | <p>(IP 65) with mating plug</p> <p>(IP 65)</p> <p>(IP 65)</p> <p>(IP 67/69K)</p> | <p>} mating plug not supplied</p> |
|--|--|--|-----------------------------------|



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-040141 | cavity AG |
| 400-P-712101 | threaded port body GAAA |

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