

Pressure valve

Relief function

$Q_{\max} = 92 \text{ gpm}$, $p_{\max} = 5000 \text{ psi}$
pilot operated, spool type, proportional solenoid
Type series: DVPSB-3B-_-16-...



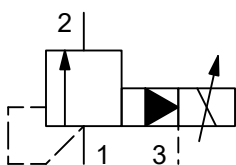
- Screw-in cartridge valve
- For cavity EB
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type GEBAA
- External pilot-oil drain
- Very stable operation
- Seated pilot stage
- Various plug-connector systems and voltages are available

Description

Series DVPS_-3B... are two-stage, spool-type proportional pressure-relief valves. They limit the inlet pressure in port 1 to a value that is proportional to the solenoid current. All external parts are chromited (Cr VI-free) and are thus suitable for use in the harshest operating environments. The core tube / slip-on coil design allows coils to be changed without opening the hydraulic envelope, even when the valve is under

pressure. Coils can be secured at any angle through 360° and can be supplied with the most common electrical connectors (see ordering code). For customers who manufacture their own manifold blocks, we offer form-tool sets for sale or hire. Use the GEBAA body with threaded ports (G 1") for line-mounting applications.

Symbol



Technical data

General characteristics	Description, value, unit
Function group	Pressure valve
Function	Relief function
Design	Screw-in cartridge valve
Controls	proportional solenoid
Characteristic	pilot operated, spool type
Construction size	NG 16
Thread size	M42×2
Mounting attitude	unrestricted (preferably vertical, coil down)
Weight	2.76 lb
Cavity size acc. ISO	fits into ISO 7789: 42-06-0-07
Cavity acc. factory standard	For cavity EB
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	main stage: NBR: DS-358-N / FKM: DS-358-V / pilot valve: NBR: DS-355-N / FKM: DS-355-V

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	5000 psi
Maximum flow rate	92 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 mm²/s (cSt)
Recommended viscosity range	20 ... 130 mm²/s (cSt)
Minimum fluid cleanliness (cleanliness class according to ISO 4406:1999)	class 18/16/13
Pressure adjustment range	pressure range ...580 psi pressure range ...1450 psi pressure range ...2300 psi pressure range 3600 psi pressure range ...5000 psi



NOTE!

1) Please note that any tank or return-line pressures acting at port 3 are additive to the pressure setting at port 1.

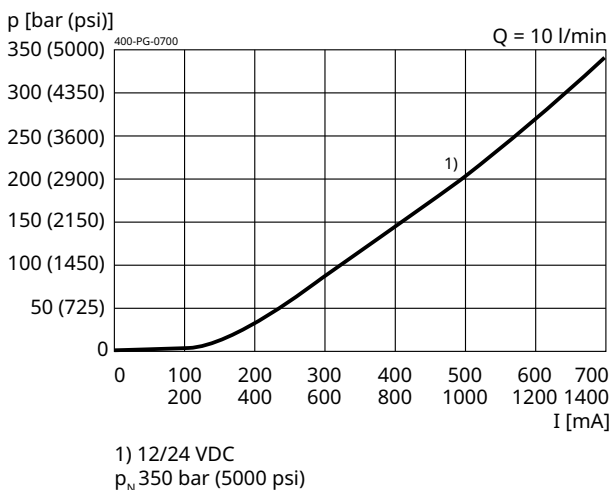
Electric characteristics	Description, value, unit
Actuator type	solenoid coil
Solenoid coils type	D36
Supply voltage DC	12/24 V DC

Electric characteristics	Description, value, unit
Control current	12 V = 0...1400 mA / 24 V = 0...750 mA
Relative duty cycle	100 %
Coil resistance R	12 VDC = 5,8 / 8,6 / 24 VDC = 21 / 32
Recommended PWM frequency	200 Hz
Response sensitivity with PWM	< 1 % I _N
Hysteresis with PWM	2...4 % I _N
Reversal error with PWM	2...5 % I _N
Electrical connection coil	ISO 4400 / DIN 43 650 connection, 3-pole (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)

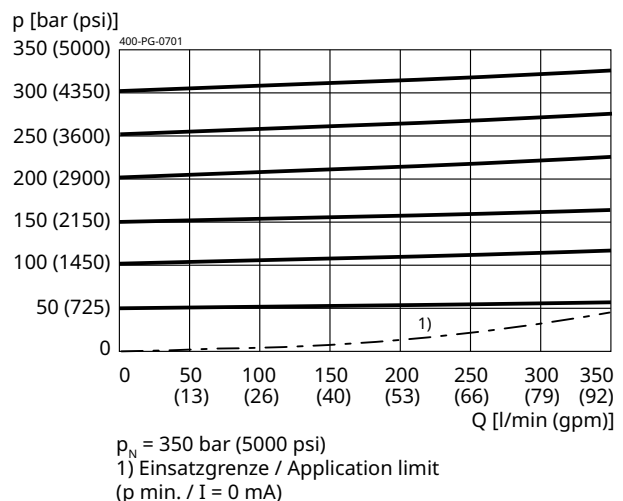
Performance graphs

measured with oil viscosity 33.0 mm²/s (cSt)

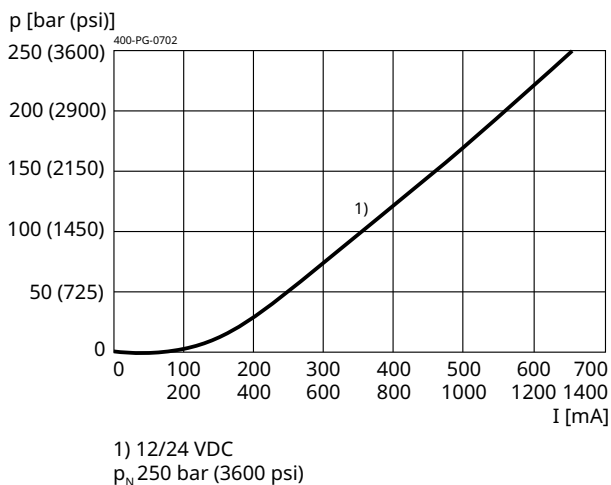
p = f(I) Pressure adjustment



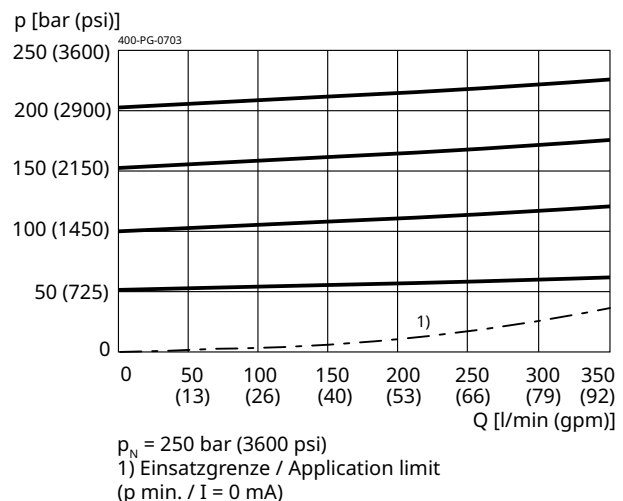
p = f(Q) Pressure-flow rate



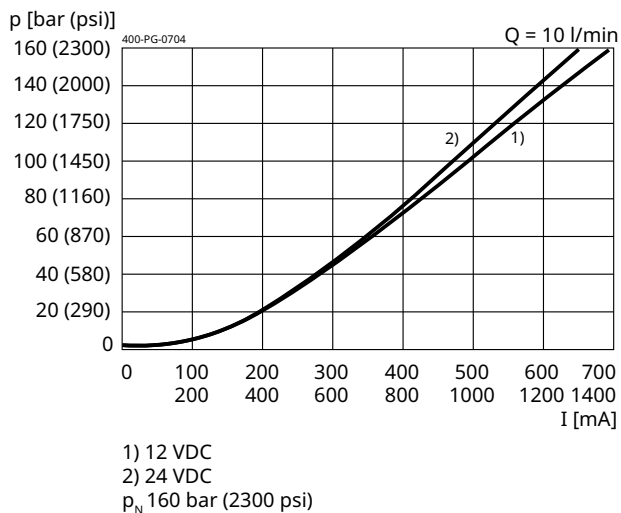
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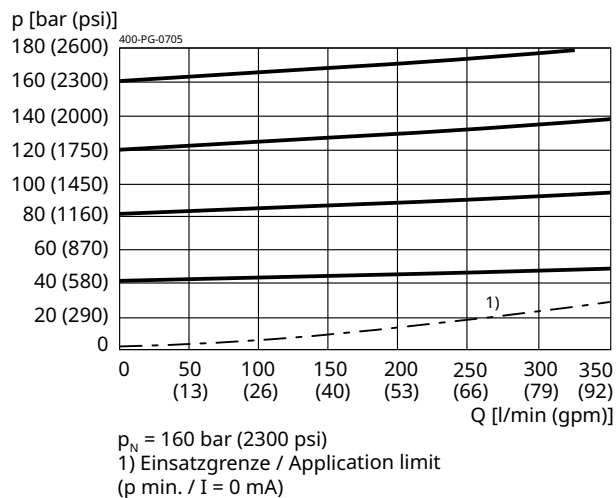
p = f(Q) Pressure-flow rate



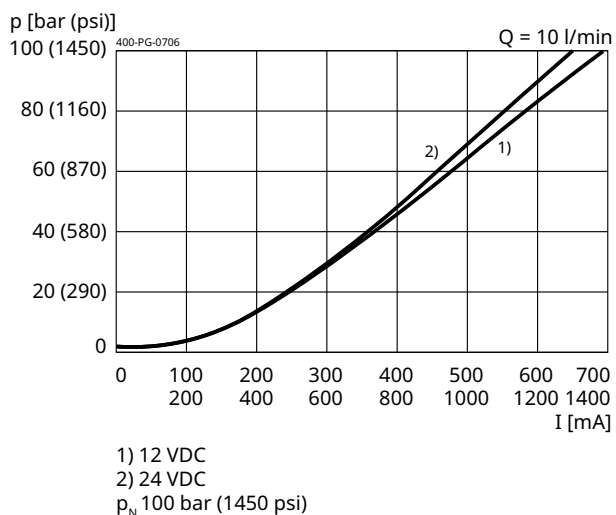
$p = f(I)$ Pressure adjustment



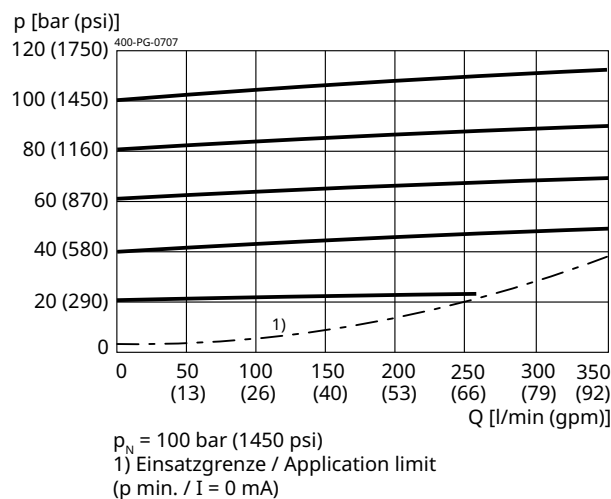
$p = f(Q)$ Pressure-flow rate



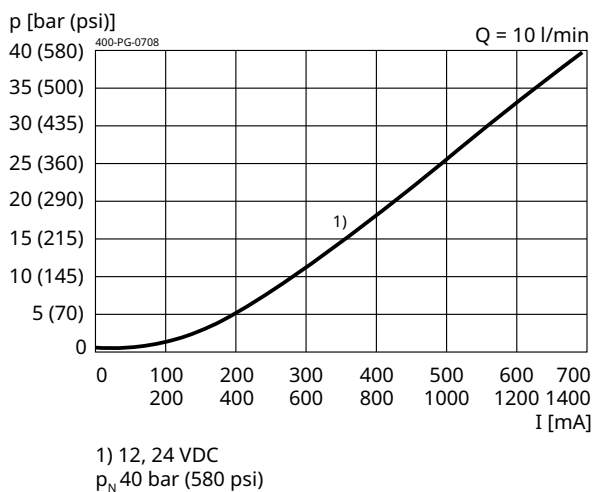
$p = f(I)$ Pressure adjustment



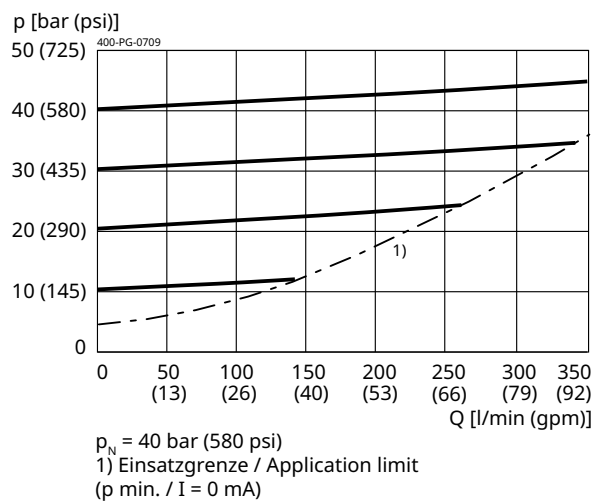
$p = f(Q)$ Pressure-flow rate



$p = f(I)$ Pressure adjustment

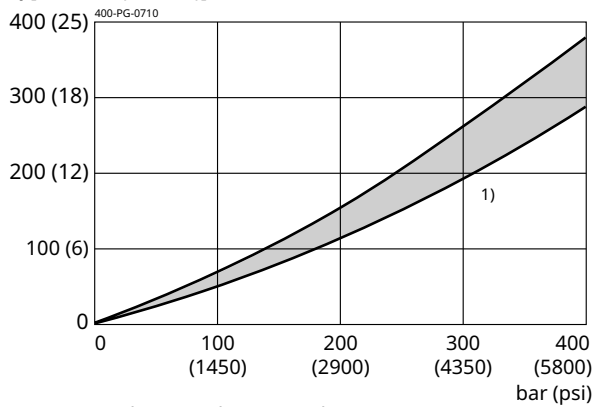


$p = f(Q)$ Pressure-flow rate



$QL = f(l; \Delta p)$ Leakage flow rate

Q [cm³/min (in³/min)]



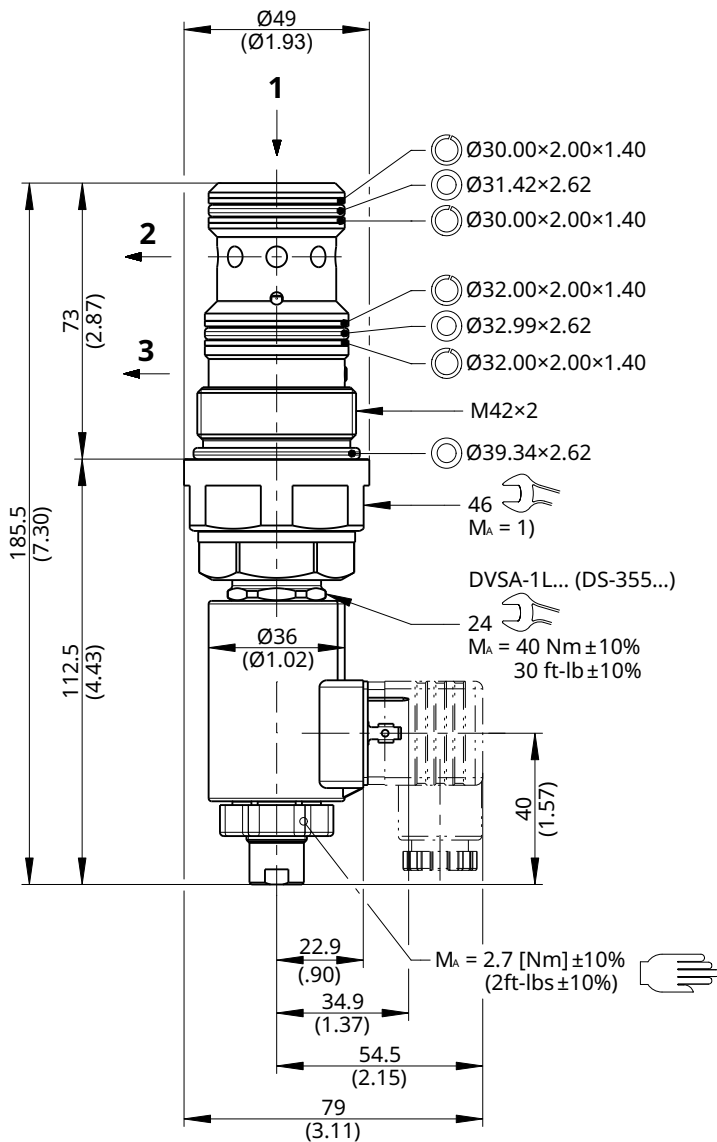
p1 [bar (psi)] bei p2 = 0 [bar (psi)]

Vorsteuerung geschlossen / pilot stage closed

1) = 1 → 2

Dimensions and sectional view

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



Installation information



NOTE!

To achieve the screw-in valve's maximum performance rating, fit the solenoid coil as shown (with the plug pins nearest the valve body).



NOTE!

1) When fitting the screw-in cartridge valve, use the specified tightening torque. The value 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.	D	V	P	S	B	-	3	B	-	040	-	16	-	1	-	24	D	-	-
D	=	pressure-control valve																		
V	=	pilot operated																		
P	=	proportional																		
S	=	electrically operated, D36																		
A ... Q	=	standard model according to valid data sheet																		
Z ... R	=	special model (on request)																		
3	=	pressure relief (with external control oil outlet)																		
B	=	cavity type EB																		
040	=	pressure range ... 40 bar / ... 580 psi																		
100	=	pressure range ...100 bar / ...1450 psi																		
160	=	pressure range ...160 bar / ...2300 psi																		
250	=	pressure range ...250 bar / ...3600 psi																		
350	=	pressure range ...350 bar / ...5000 psi																		
16	=	nominal size 16																		
(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																		
T	=	DIN EN 175301-803 connection																		
M100	=	DIN EN 175301-803 connection																		
J	=	Junior Timer plug connection																		
JT	=	Junior Timer plug connection																		
I	=	Junior Timer plug connection																		
IT	=	Junior Timer plug connection																		
D	=	Deutsch plug connection DT04-2P																		
DT	=	Deutsch plug connection DT04-2P																		
		other plug-variants, please consult BUCHER.																		



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-080111	Cavity EB
400-P-120110	Solenoid coil D36
400-P-750115	Threaded port body GEBAA

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