

Proportional Pressure-Relief Valve, Size 16 Series DVPSB-3B ...

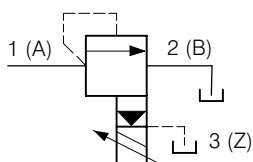


- 350 l/min, 350 bar
- External pilot drain to port 3, so the secondary side can be pressurised
- Surface protection:
Cartridge is chromited, Cr VI-free
- Very stable operation
- Coil can be changed without opening the hydraulic envelope
- Coils with DIN, Deutsch, Kostal or Junior Timer plug connections can be supplied
- Can be fitted in a line-mounting body
- Can be fitted in stack-mounting bodies

1. Description

Series DVPSB-3B... cartridges 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 thro' 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 (G1") for line-mounting applications.

2. Symbol



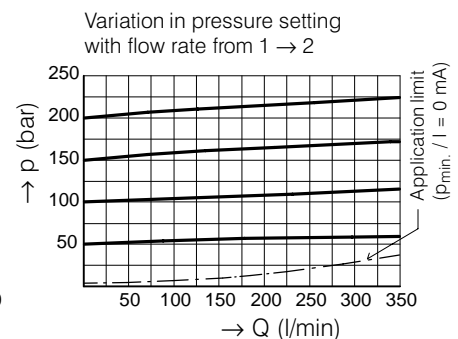
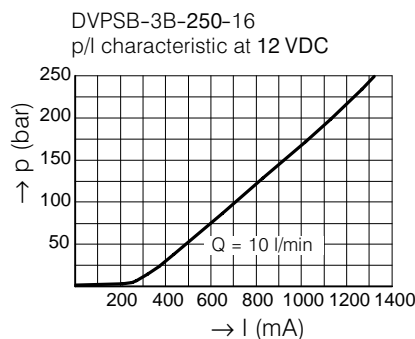
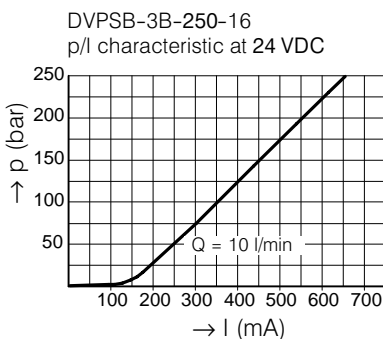
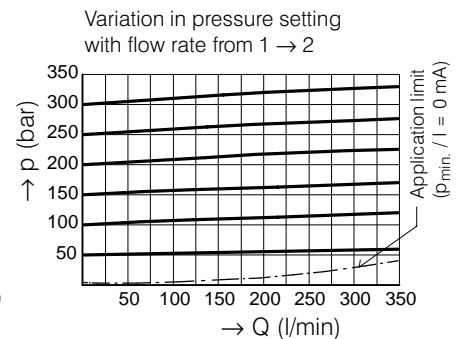
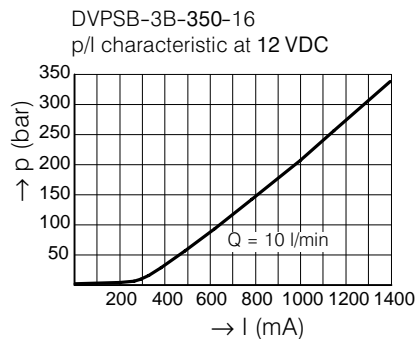
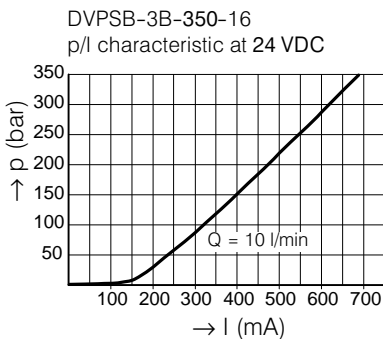
3. Main characteristics

Designation		proportional pressure-relief cartridge
Design		seated pilot stage, spool-type main stage with external pilot oil drain to 3
Mounting method		screw-in cartridge M42 x 2
Size		nominal size 16 mm, cavity type EB to ISO 7789-42-06-0-07
Weight	kg	1.25
Mounting attitude		unrestricted (preferably vertical, coil down)
Flow direction		1 → 2 (see symbol)
Operating pressure range in 1 and 2	bar	... 350
Back-pressure in 3 (Tank)	bar	no back-pressure
Pressure-setting range pN at IN	bar	pressure range 350 = ... 350 pressure range 250 = ... 250 pressure range 160 = ... 160 pressure range 100 = ... 100 pressure range 040 = ... 40
Minimum pressure setting		see performance graphs
Flow rate Q _{max.}	l/min	... 350, see performance graphs
Hydraulic fluid		HL and HLP hydraulic oils to DIN 51 524; for other fluids, please consult BUCHER

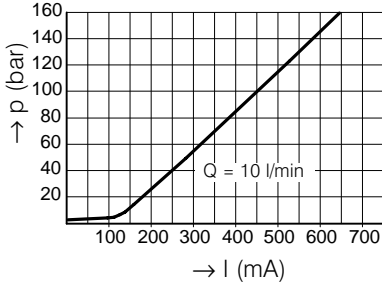
Fluid temperature range	°C	-25 ... +70
Ambient temperature	°C	-25 ... +50
Viscosity range	mm ² /s (cSt)	15 ... 380 recommended 20 ... 130
Minimum fluid cleanliness level		18/16/13 to ISO 4406: 1999
Nominal voltages	VDC	12, 24
Control current	mA	12 VDC = 1400, 24 VDC = 750
Nominal resistance R20 / R60	Ω	12 VDC = 5,8 / 8,6, 24 VDC = 21 / 32
Recommended PWM frequency (dither)	Hz	200
Hysteresis with PWM	% IN	2 ... 4
Reversal error with PWM	% IN	2 ... 5
Sensitivity with PWM dither	% IN	< 1
Repeatability with PWM	% pN	< 1.5
Relative duty cycle	%	100
Protection class to EN 60 529		IP 65 / IP 67, see "Ordering code" (when connector plugs are properly fitted)
Electrical connection		3-pin square plug to ISO 4400 / DIN 43 650 (standard) for other connectors, see "Ordering code"

4. Performance graphs

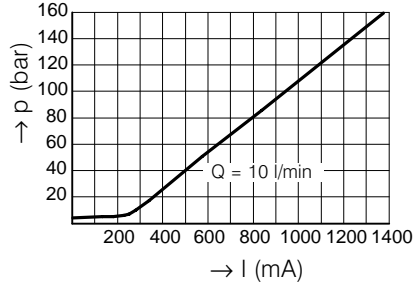
measured with oil viscosity 33 mm²/s (cSt)



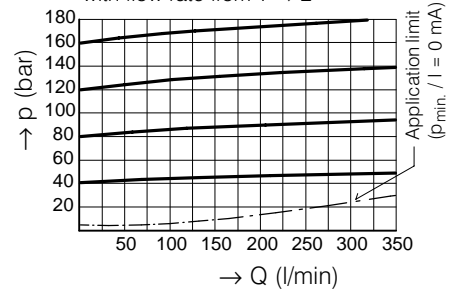
DVPSB-3B-160-16
p/l characteristic at 24 VDC



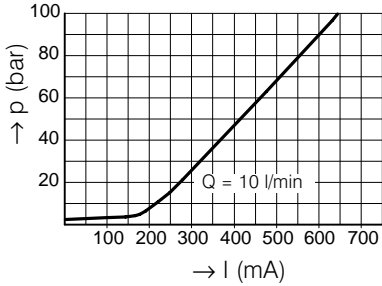
DVPSB-3B-160-16
p/l characteristic at 12 VDC



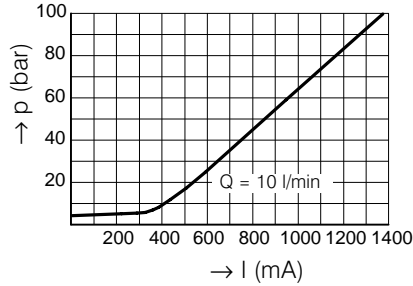
Variation in pressure setting
with flow rate from 1 → 2



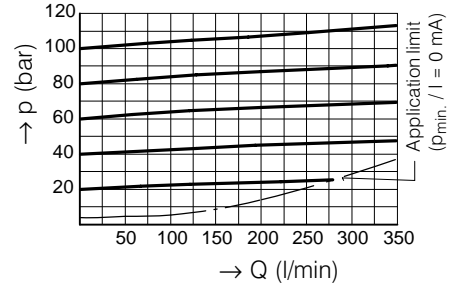
DVPSB-3B-100-16
p/l characteristic at 24 VDC



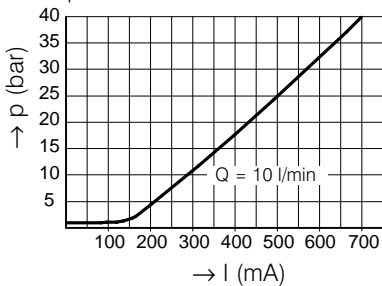
DVPSB-3B-100-16
p/l characteristic at 12 VDC



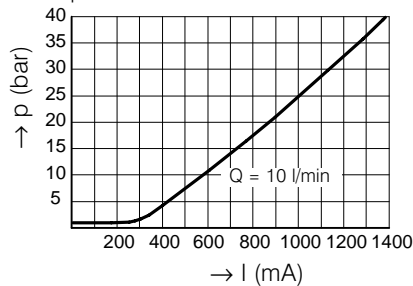
Variation in pressure setting
with flow rate from 1 → 2



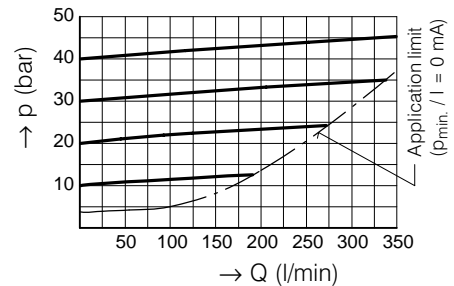
DVPSB-3B-040-16
p/l characteristic at 24 VDC



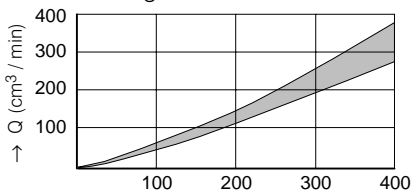
DVPSB-3B-040-16
p/l characteristic at 12 VDC



Variation in pressure setting
with flow rate from 1 → 2



Leakage from 1 to 2

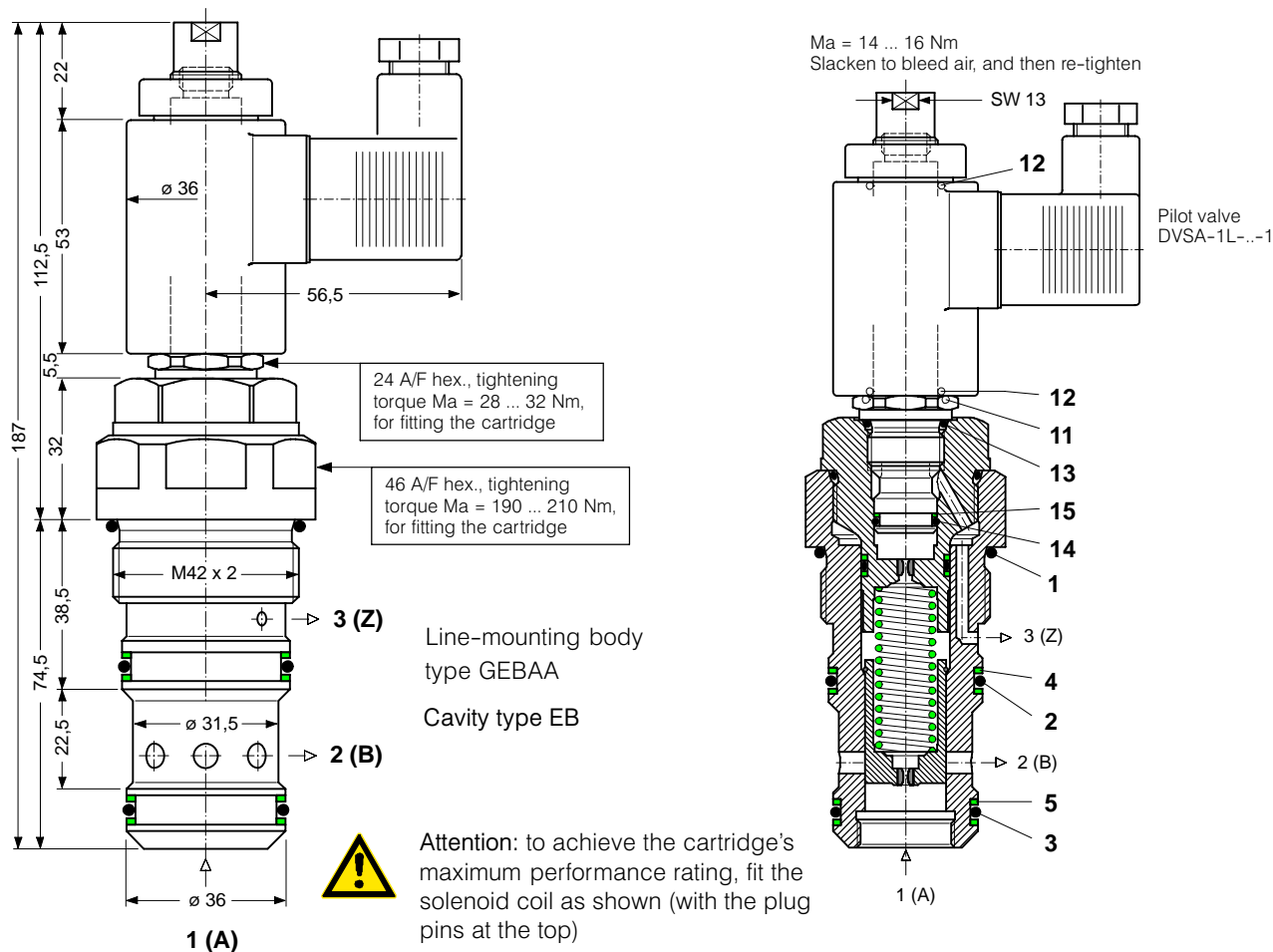


→ p1 (bar) at p2 = 0 bar
Pilot stage closed

Pilot oil consumption at port 3

DVPSB-3B- ... -16	150 ... 400 cm ³ / min
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5. Dimensions / Schematic section



Seal kit no. DS-358, (main stage) comprising:

lt.	Qty.	Description	Size
1	1	O-ring no. 129	$\varnothing 39.34 \times 2.62 \text{ N90}$
2	1	O-ring no. 125	$\varnothing 32.99 \times 2.62 \text{ N90}$
3	1	O-ring no. 124	$\varnothing 31.42 \times 2.62 \text{ N90}$
4	2	Backup ring	$\varnothing 32.0 \times 2.0 \times 1.4 \text{ FI0751}$
5	2	Backup ring	$\varnothing 30.0 \times 2.0 \times 1.4 \text{ FI0751}$

Seal kit no. DS-355, (pilot valve) comprising:

lt.	Qty.	Description	Size
11	1	O-ring	$\varnothing 18.00 \times 2.00 \text{ Viton}$
12	2	O-ring	$\varnothing 16.00 \times 2.00 \text{ Viton}$
13	1	O-ring no. 017	$\varnothing 17.17 \times 1.78 \text{ N90}$
14	1	O-ring no. 014	$\varnothing 12.42 \times 1.78 \text{ N90}$
15	1	Backup ring	$\varnothing 10.7 \times 1.45 \times 1.0 \text{ FI0751}$

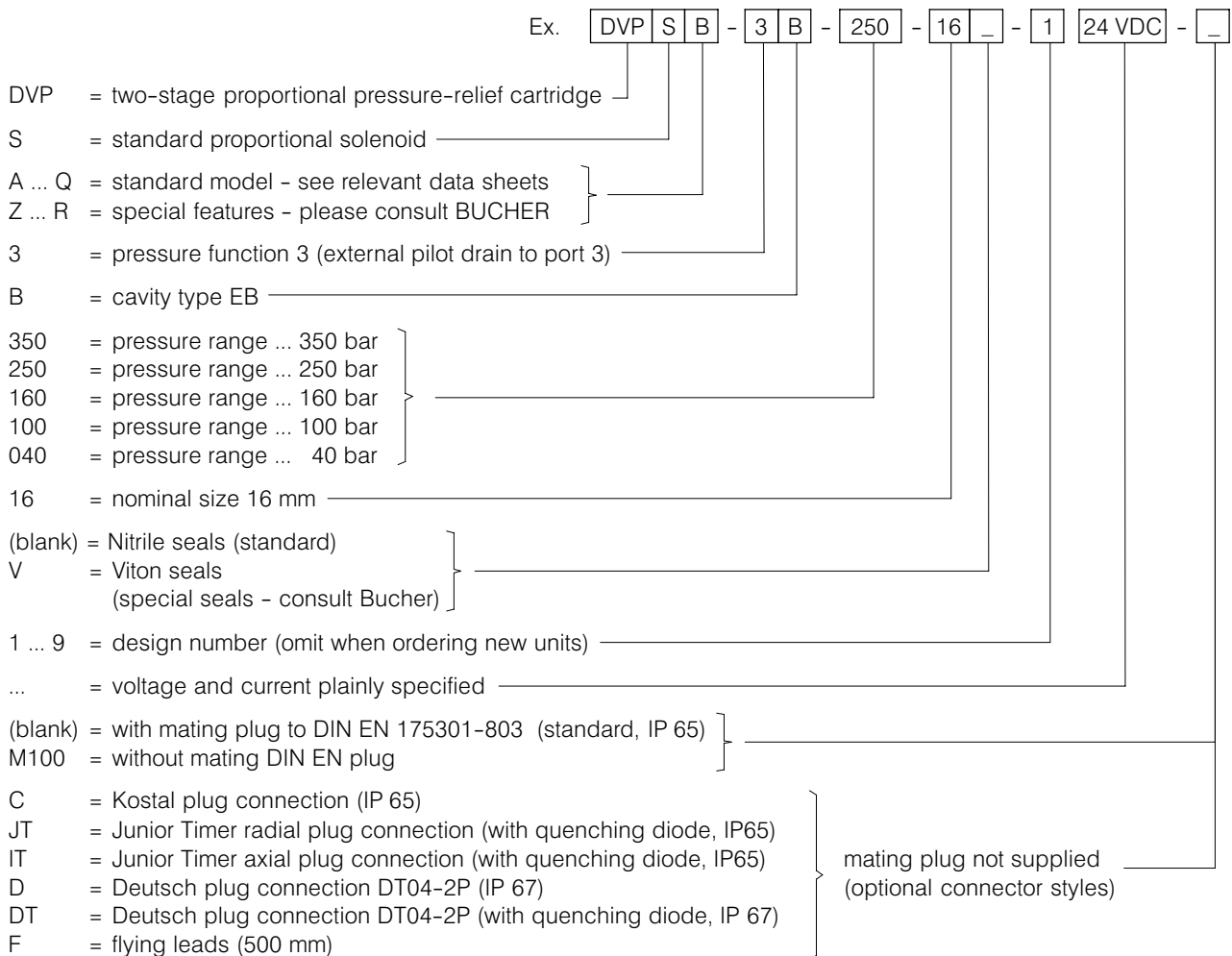
6. Installation and servicing

All work must be carried out with care and by qualified personnel only. When fitting the cartridge, ensure that the seals are oiled or greased and use the specified tightening torque. When

changing seals, oil or grease the new seals thoroughly before fitting them. The proportional pressure-relief cartridge is precision-set in the factory. To achieve the cartridge's maximum per-

formance rating, fit the solenoid coil as shown in "Dimensions". The 3 port must be piped separately to tank. Take steps to prevent the spring chamber from emptying by either gravity or suction.

7. Ordering code



8. Related data sheets

Old no.	New no.	
i-32	400-P-040011-E	The form-tool hire programme
i-55.2	400-P-080111-E	Cavity type EB to ISO 7789-42-06-0-07
W-2.141	400-P-120110-E	Coils for screw-in cartridge valves
	400-P-580101-E	Pilot valve DVSA-1L...
G-29.22	400-P-750115-E	Line-mounting body, type GEBAA (G1")