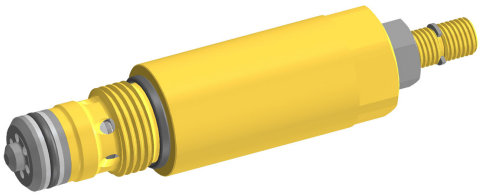
Pressure-Relief Cartridge Valve, Size 4

Q_{max} = 30 l/min, p_{max} = 420 bar
Seated design, direct acting, with mechanical operation
Series DDPC-1L…

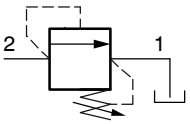


- Compact construction for cavity type AL – 3/4-16 UNF
- High flow rates
- 7 pressure ranges available
- High-pressure damping ensures very stable operation
- Also suitable for anti-shock function (cross-line relief)
- Available with hand-knob or tamper-proof cap
- All exposed parts with zinc-nickel plating
- Can be fitted in a line-mounting body

1 Description

Series DDPC-1L… cartridges are screw-in pressure-relief valves, nominal size 4 mm. They are direct-acting seat valves. The mounting thread is the 3/4“-16 UNF pattern. The straightforward design delivers an outstanding price/performance ratio and good pressure drop - flow rate characteristics. In order to obtain a good pressure adjustment over the entire pressure range, the total pressure range is subdivided into 7 pressure stages. A pressure stage corresponds to a certain spring for a settable maximum operating pressure. The cartridges can be fitted in the AL cavity and also in some 3/4“-16 UNF cavities from other valve manufacturers. The pressure is set by means of an adjusting screw or a hand-knob. To safeguard pressure settings, the adjusting screw can be sealed with a tamper-proof cap. These pressure-relief cartridges are used to limit the system pressure in mobile and industrial applications. All external parts of the cartridge are zinc-nickel plated to DIN 50 979 and are thus suitable for use in the harshest operating environments. If you intend to manufacture your own cavities or are designing a line-mounting installation, please refer to the section “Related data sheets”.

2 Symbol



3 Technical data

General characteristics	Description, value, unit
Designation	pressure-relief cartridge valve
Design	seated design, direct acting, with mechanical operation
Mounting method	screw-in cartridge 3/4-16 UNF
Tightening torque	30 ± 1.5 Nm
Size	nominal size 4 cavity type AL
Weight	0.19 kg
Mounting attitude	unrestricted
Ambient temperature range	-25 °C … +80 °C

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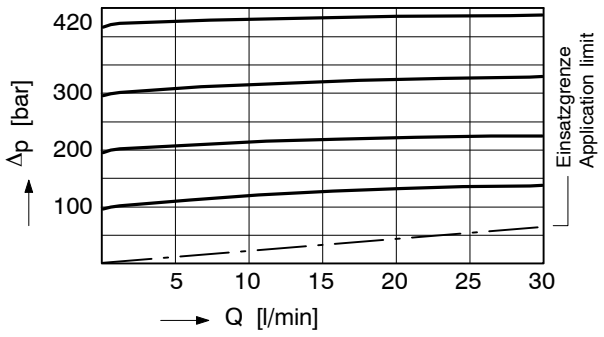
Hydraulic characteristics		Description, value, unit
Maximum operating pressure	- port 2 - port 1	420 bar 250 bar [1)]
Maximum flow rate		30 l/min
Nominal pressure ranges		20 bar, 40 bar, 100 bar, 160 bar, 250 bar, 350 bar, 420 bar
Pressure adjustment range		1 turn ≙ 80 bar = pressure range 420 bar 1 turn ≙ 70 bar = pressure range 350 bar 1 turn ≙ 51 bar = pressure range 250 bar 1 turn ≙ 32 bar = pressure range 160 bar 1 turn ≙ 21 bar = pressure range 100 bar 1 turn ≙ 8 bar = pressure range 40 bar 1 turn ≙ 4 bar = pressure range 20 bar
Flow direction		2 → 1, see symbols
Hydraulic fluid		HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range		-25 °C … +80 °C
Viscosity range		10…650 mm^2/s (cSt), recommended 15...250 mm^2/s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999		class 20/18/15

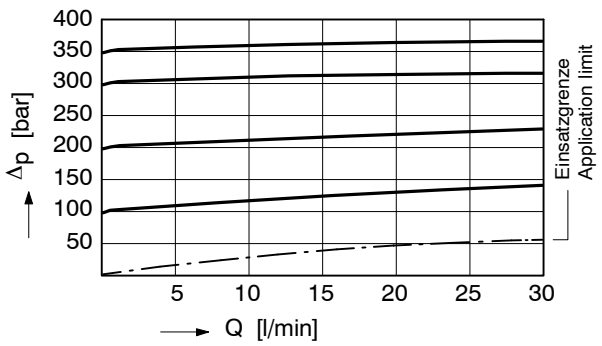
ATTENTION!
[1)] Any tank pressure acting at port 1 is additive to the pressure setting at the main port 2.

4 Performance graphs measured with oil viscosity 33 mm^2/s (cSt)

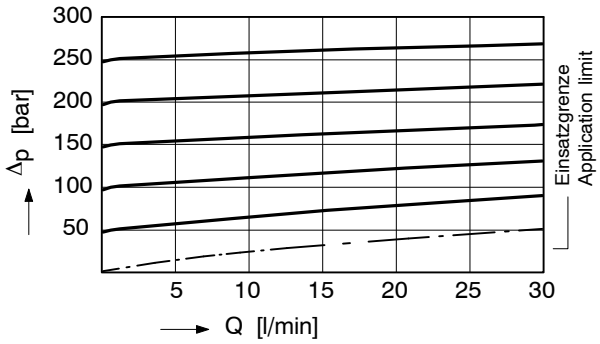
Δp = f (Q) Pressure drop - Flow rate characteristic
(p_N = 420 bar)



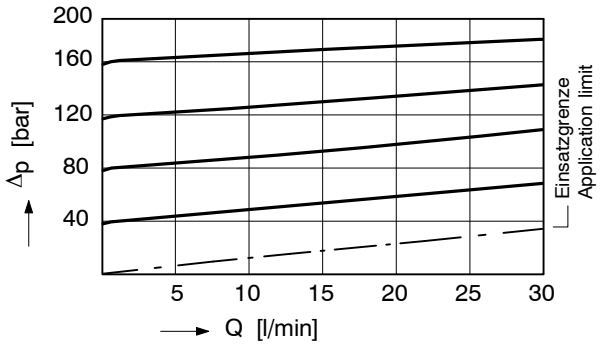
Δp = f (Q) Pressure drop - Flow rate characteristic
(p_N = 350 bar)



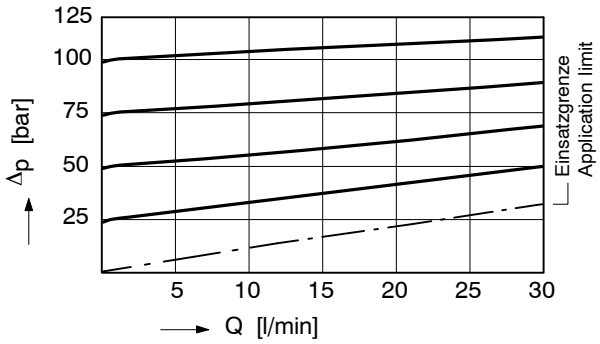
Δp = f (Q) Pressure drop - Flow rate characteristic
(p_N = 250 bar)



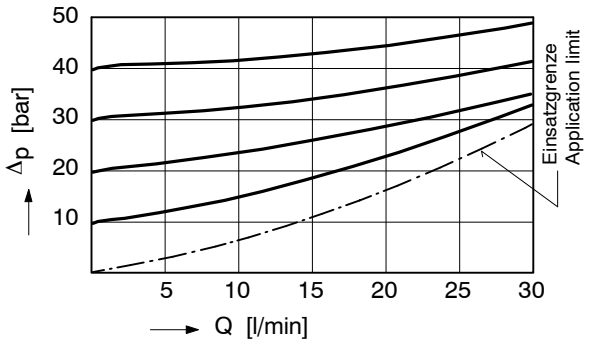
Δp = f (Q) Pressure drop - Flow rate characteristic
(p_N = 160 bar)



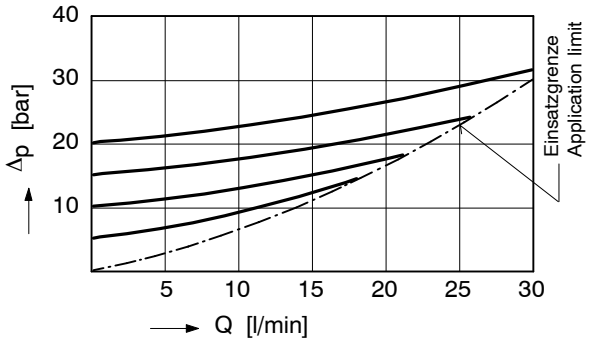
Δp = f (Q) Pressure drop - Flow rate characteristic
(p_N = 100 bar)



Δp = f (Q) Pressure drop - Flow rate characteristic
(p_N = 40 bar)



Δp = f (Q) Pressure drop - Flow rate characteristic
(p_N = 20 bar)



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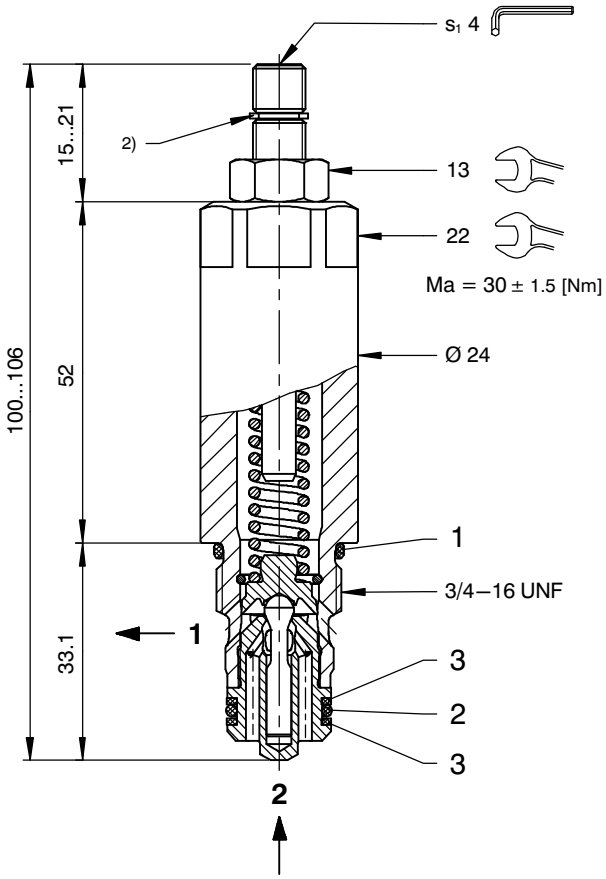
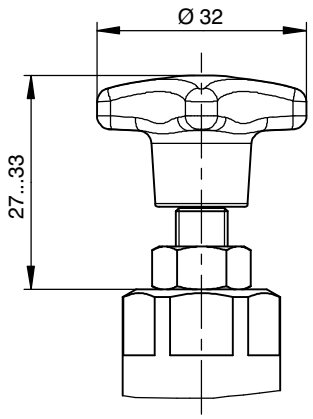
5 Dimensions & sectional view

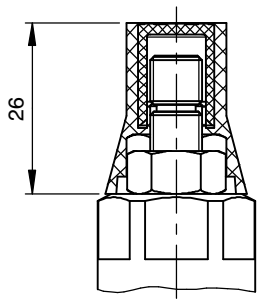
With adjusting screw “S”



With hand-knob adjuster “H”



Adjusting screw with tamper-proof cap
(order separately in plain language)



6 Installation information

IMPORTANT!
When fitting the cartridges, use the specified tightening torque. Set the required pressure with the adjusting screw (s_1). After you have set the valve, lock the adjusting screw with the lock nut.

ATTENTION!
The DDPC-1L-4… cartridge is also suitable for anti-shock service (cross-line relief). Note, however, that the pressure at port 1 must not exceed 250 bar.

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.

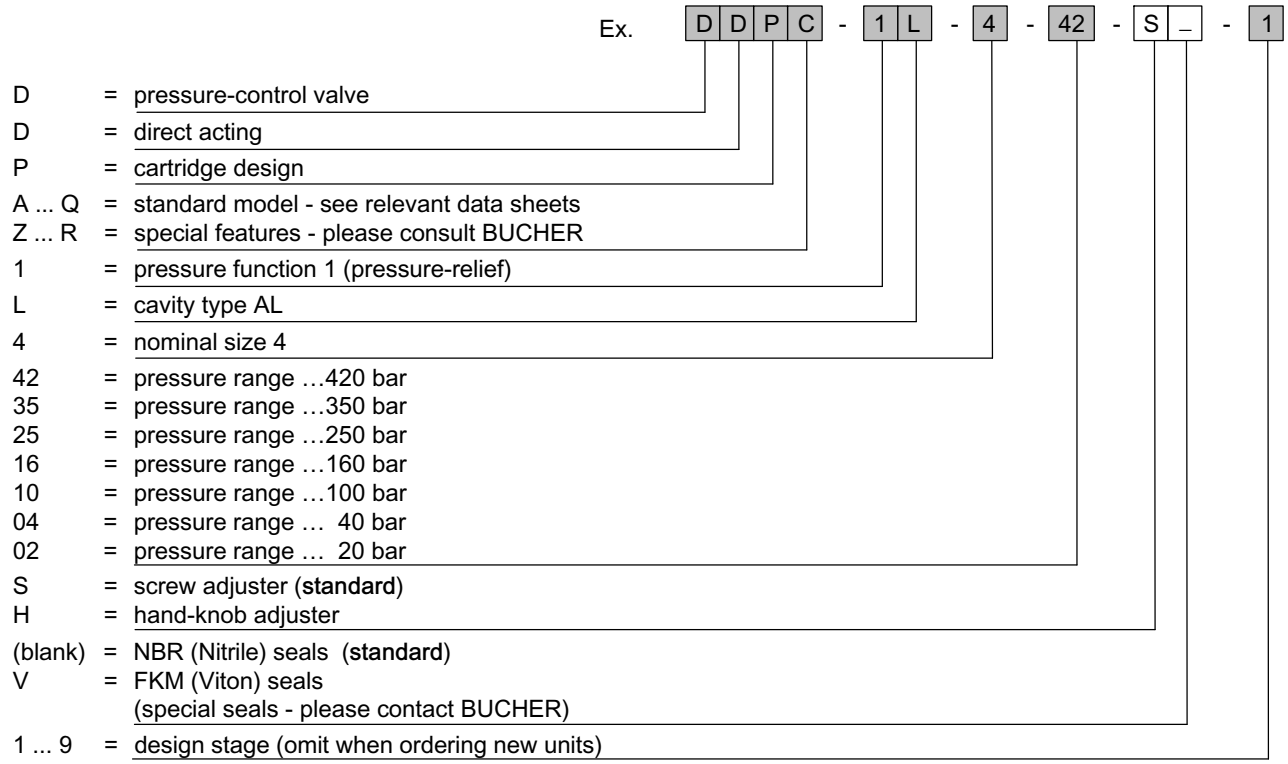
IMPORTANT!
Valve settings can be sealed by fitting the tamper-proof cap. To fit the cap, the snap ring 2) has to be removed. Subsequent adjustment is only possible by destroying the tamper-proof cap.

Seal kit NBR no. DS-350-N 3)

Item	Qty.	Description
1	1	O-ring no. 017 ∅ 17,17 x 1,78 N90
2	1	O-ring no. 014 ∅ 12,42 x 1,78 N90
3	2	Backup ring ∅ 10,70 x 1,45 x 1,00 FI0751

IMPORTANT!
3) Seal kit with FKM (Viton) seals, no. DS-350-V

7 Ordering code



IMPORTANT!
When required, the tamper-proof cap (the adjustment seal) must be ordered separately in plain language.

8 Related data sheets

Reference	(Old no.)	Description
400-P-040011	(i-32)	The form-tool hire programme
400-P-040171	(i-33.10)	Cavity type AL
400-P-720101	(G-4.10)	Line-mounting body, type GALA (G 3/8”)

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Classification: 430.305.300.305.305.355