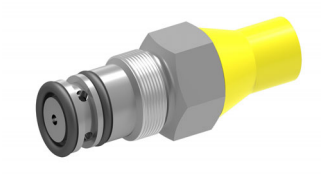
Pressure-Relief Cartridge Valve, Size 4

Q_{max} = 20 l/min (5.3 gpm), p_{max} = 500 bar (7100 psi)
Seated design, direct acting
Series UVP 4…



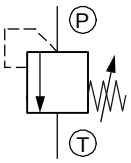
- Compact design for cavity type according to Bucher standard – M20x1.5
- 5 different nominal pressure ranges available
- Leak-free when closed
- Hardened, polished seat section and cone
- All exposed parts with zinc-nickel plating

1 Description

Series UVP 4… pressure-relief valves are size 4, high performance screw-in cartridges with an M20x1.5 mounting thread. They are direct-acting seat valves. 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 5 pressure stages.

A pressure stage corresponds to a certain spring for a settable maximum operating pressure. The cartridges can be fitted in the cavity M20x1.5 according to Bucher standard. The pressure is set by means of an adjusting screw. To safeguard pressure settings, the adjusting screw can be sealed with a safety cap. These pressure-relief cartridges are used to limit the system pressure in mobile and industrial applications.

2 Symbol



3 Technical data

General characteristics	Description, value, unit	
Designation	pressure-relief cartridge valve	
Design	seated design, direct acting	
Mounting method	screw-in cartridge – M20x1.5	
Tightening torque	40 Nm ± 10 %	(30 ft-lbs ± 10 %)
Size	size 4	
Weight	0.13 kg	(0.28 lbs)
Mounting attitude	unrestricted	
Ambient temperature range	-25 °C … +80 °C	(-13 °F … +176 °F)
Surface corrosion protection	all exposed parts with zinc-nickel plating	

BUCHER
hydraulics

Hydraulic characteristics		Description, value, unit	
Maximum operating pressure [1]		500 bar	(7100 psi)
Maximum flow rate			
	seat diameter Ø 4.0 mm	20 l/min	(5.3 gpm)
	seat diameter Ø 2.5 mm	10 l/min	(2.6 gpm)
Flow direction		P → T, see symbols	
Nominal pressure ranges	Ø 2.5	10…100 bar	(140…1450 psi)
	Ø 4.0	10…140 bar	(140…2030 psi)
	Ø 4.0	141…200 bar	(2045…2900 psi)
	Ø 2.5	201…350 bar	(2915…5076 psi)
	Ø 2.5	351…500 bar	(5090…7100 psi)
Adjustment change	Nominal pressure range 100	10…100 bar: 1 turn ≅ 30 bar	(435 psi)
	Nominal pressure range 140	10…140 bar: 1 turn ≅ 60 bar	(870 psi)
	Nominal pressure range 200	141…200 bar: 1 turn ≅ 95 bar	(1377 psi)
	Nominal pressure range 350	201…350 bar: 1 turn ≅ 150 bar	(2175 psi)
	Nominal pressure range 500	351…500 bar: 1 turn ≅ 240 bar	(3480 psi)
Opening pressure		opening pressure is set at a flow rate of 0.3 l/min setting tolerance: 0…14 bar	(0…200 psi)
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	(-13 °F … +176 °F)
Temperature rating of seals	NBR	-25 °C … +100 °C	(-13 °F … +212 °F)
	FKM	-20 °C … +200 °C	(-4 °F … +392 °F)
	MIL	-55 °C … +80 °C	(-67 °F … +176 °F)
Viscosity range		10…650 mm²/s (cSt), recommended 15...250 mm²/s (cSt)	
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999		class 20/18/15	

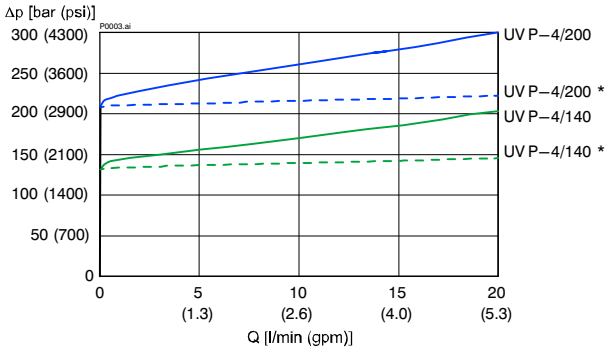
ATTENTION!
[1] Any tank pressure acting at port T is additive to the pressure setting at port P.

4 Performance graphs

measured with oil viscosity 33 mm²/s (cSt)

Seat diameter = Ø 4.0 mm

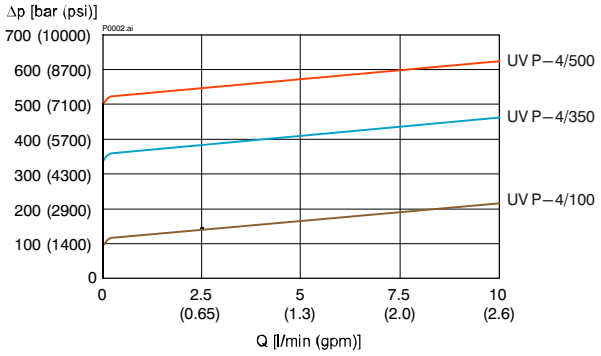
Δp = f (Q) Pressure drop - Flow rate characteristic



* = with opening disc for an improved characteristic curve.
(on request also available for seat diameter Ø2.5 mm)

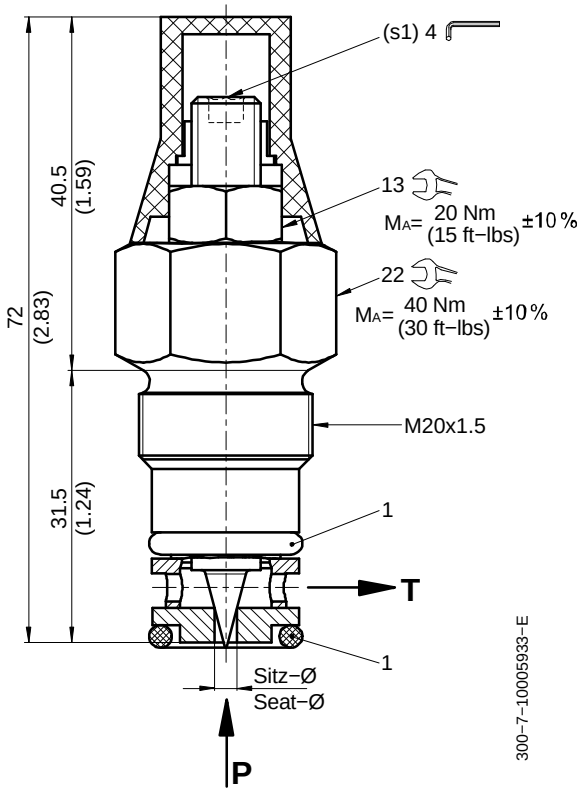
Seat diameter = Ø 2.5 mm

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



5 Dimensions & sectional view

Example for the dimensional units:
0.79 = 0.79 mm [millimeter]
(.031) = 0.031“ [inch]



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!
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 safety cap. If the cartridge is ordered with factory setting, it comes with an orange safety cap. Subsequent adjustment is only possible by destroying de security cap. The yellow safety cap, which is supplied loose, marks a client-side setting.

Item	Qty.	Description	
1	2	O-Ring	∅ 12.37 x 2.62

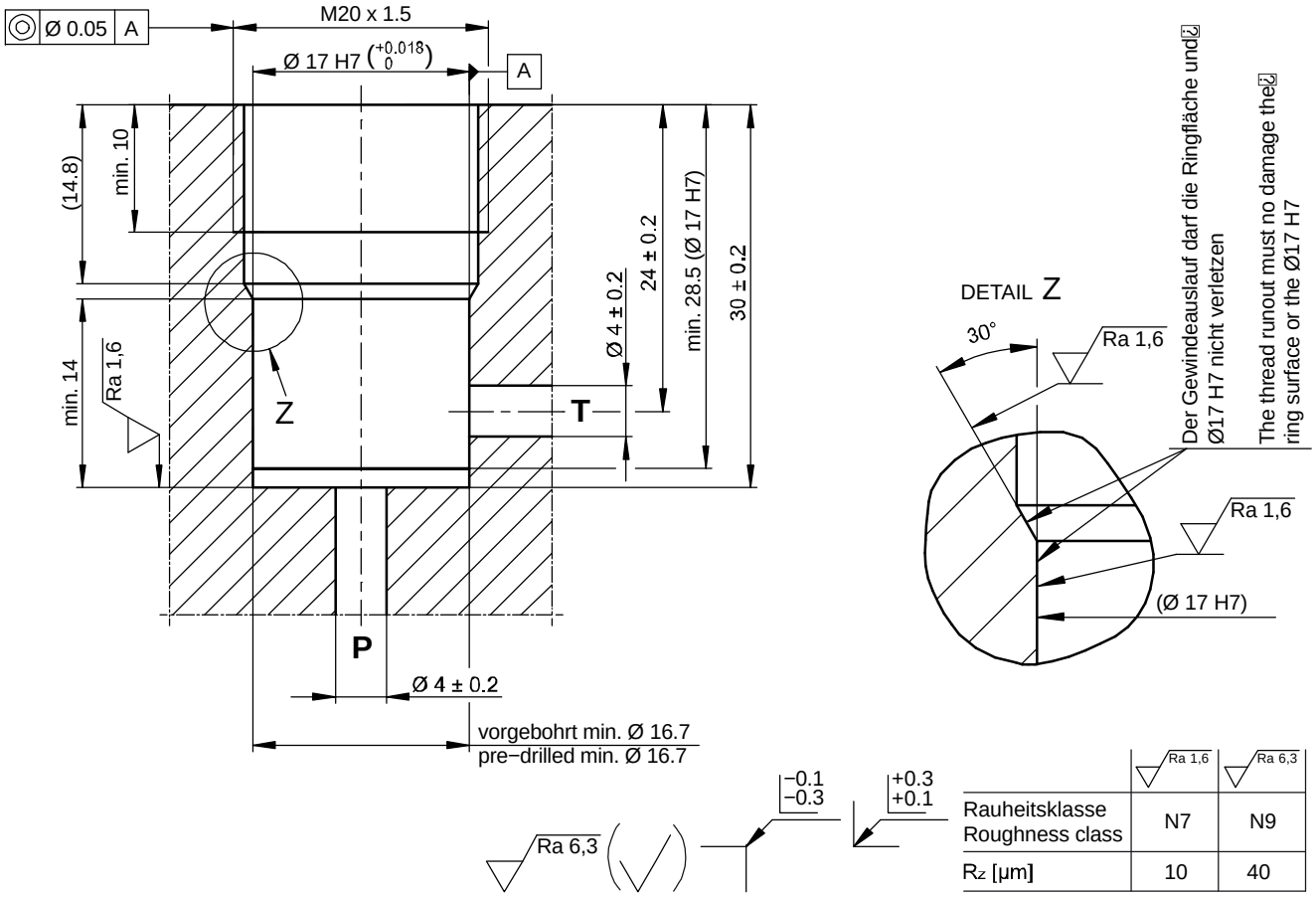
IMPORTANT!
Item No. 3000300447 = seal kit NBR (Nitril)
Item No. 3000300445 = seal kit FKM (Viton)
Item No. 3000307760 = seal kit MIL (low temp.)

7 Ordering code

Ex. UVP / 4 / 100 / N / 50 / _

UVP	=	pressure-relief cartridge valve
4	=	size 4
100	=	pressure range 10…100 bar (seat Ø2.5)
140	=	pressure range 10…140 bar (seat Ø4.0)
200	=	pressure range 141…200 bar (seat Ø4.0)
350	=	pressure range 201…350 bar (seat Ø2.5)
500	=	pressure range 351…500 bar (seat Ø2.5)
N	=	NBR (Nitrile) seals (**standard**)
V	=	FKM (Viton) seals
T	=	MIL (low temperature) seals (special seals - please contact BUCHER)
...	=	Factory pressure setting
O	=	without specific factory pressure setting
(blank)	=	without opening disc
S	=	with opening disc (only for seat diameter Ø4.0 mm)

8 Cartridge cavity



	Ra 1,6	Ra 6,3
Rauheitsklasse Roughness class	N7	N9
R_z [µm]	10	40

ATTENTION!
You must maintain the specified positional and diametral tolerances. To ensure trouble-free operation of the screw-in cartridges, we strongly recommend that pilot drilling, boring, reaming and cavity thread-cutting are always performed in one setup.

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Classification: 430.305.300.305.305