

Pressure-Relief Cartridge Valve, Size 20

$Q_{\max} = 330 \text{ l/min (87 gpm)}$, $p_{\max} = 450 \text{ bar (6400 psi)}$
 Seated design, direct acting
 Series DVP 20...



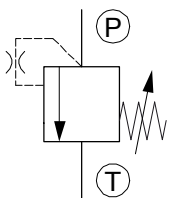
- Compact design for cavity type according to Bucher standard – M45x1.5
- Flat opening characteristic thanks 6 different nominal pressure ranges
- Leak-free when closed
- Low-noise operation thanks to integral damping piston
- High wear resistance because the cartridge case is nitrided and the piston is hardened

1 Description

Series DVP 20... pressure-relief valves are size 20, high performance screw-in cartridges with an M45x1.5 mounting thread. They are direct-acting seat valves. The straightforward design delivers an outstanding price/performance ratio and good pressure drop - flow rate characteristics. To cover the large pressure range and to realize a flat opening characteristic at the same time, 6 different nominal pressure

ranges are available. A pressure stage corresponds to a certain spring for a settable maximum operating pressure. The cartridges can be fitted in the cavity M45x1.5 according to Bucher standard. The pressure is set by means of an adjusting screw. 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 – M45x1.5	
Tightening torque	170 Nm ± 10 %	(125 ft-lbs ± 10 %)
Size	size 20	
Weight	0.99 kg	(2.18 lbs)
Mounting attitude	unrestricted	
Ambient temperature range	-25 °C ... +80 °C	(-13 °F ... +176 °F)
Surface corrosion protection	nitrided	

Hydraulic characteristics		Description, value, unit	
Maximum operating pressure ¹⁾		450 bar	(6400 psi)
Maximum flow rate		330 l/min	(87 gpm)
Flow direction		P → T, see symbols	
Nominal pressure ranges	025	20...30 bar	(290...435 psi)
	050	30...65 bar	(435...942 psi)
	100	65...150 bar	(942...2175 psi)
	200	140...250 bar	(2030...3625 psi)
	300	200...320 bar	(2900...4641 psi)
	400	300...450 bar	(4351...6400 psi)
Adjustment change	Nominal pressure range 025	20...30 bar: 1 turn ≙ 4.5 bar	(65 psi)
	Nominal pressure range 050	30...65 bar: 1 turn ≙ 9.5 bar	(137 psi)
	Nominal pressure range 100	65...150 bar: 1 turn ≙ 22 bar	(319 psi)
	Nominal pressure range 200	140...250 bar: 1 turn ≙ 45 bar	(652 psi)
	Nominal pressure range 300	200...320 bar: 1 turn ≙ 70 bar	(1015 psi)
	Nominal pressure range 400	300...450 bar: 1 turn ≙ 107 bar	(1551 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)
Viscosity range		10...650 mm ² /s (cSt), recommended 15...250 mm ² /s (cSt)	
Minimum fluid cleanliness		class 20/18/15	
Cleanliness class to ISO 4406 : 1999			



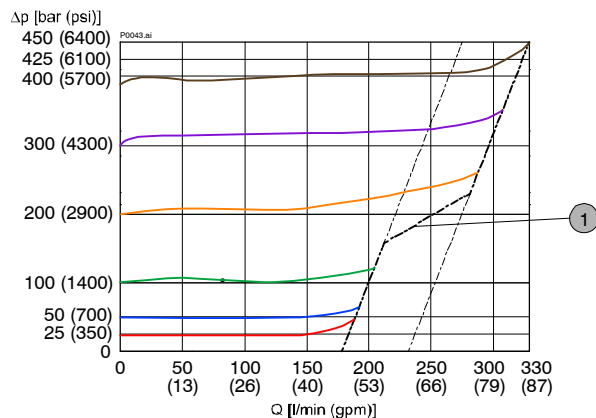
ATTENTION!

¹⁾ Any tank pressure acting at port T is additive to the pressure setting at the main port P.

4 Performance graphs

measured with oil viscosity 33 mm²/s (cSt)

$\Delta p = f(Q)$ Pressure drop - Flow rate characteristic



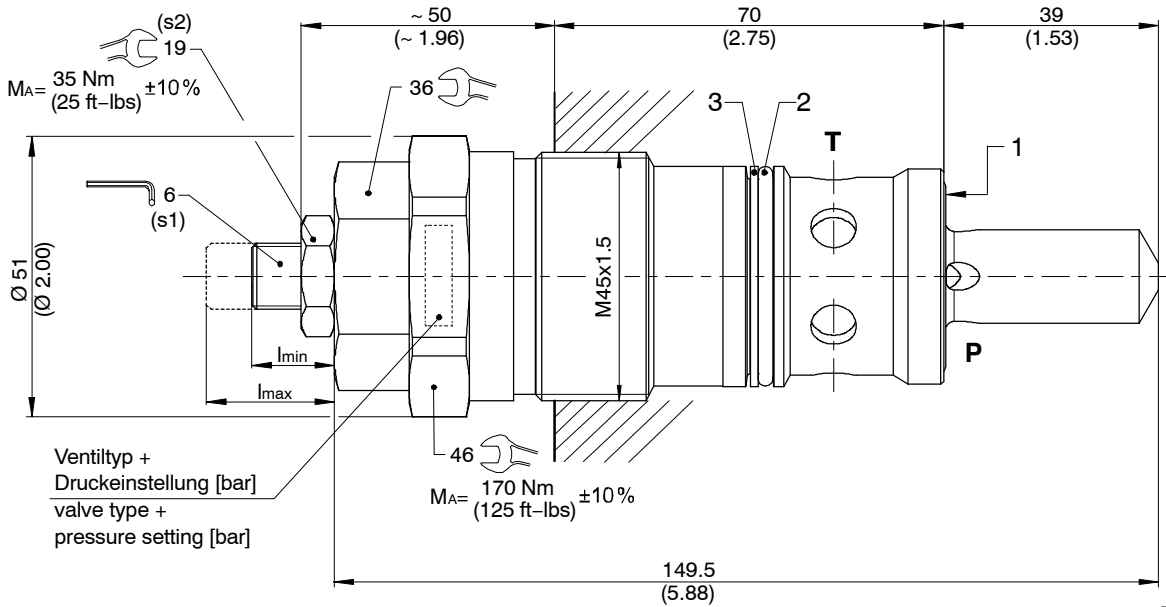
1	recommended max. flow
brown	DVP 20-B/400/...
lila	DVP 20-B/300/...
orange	DVP 20-B/200/...
green	DVP 20-B/100/...
blue	DVP 20-B/050/...
red	DVP 20-B/025/...

5 Dimensions & sectional view

Example for the dimensional units:

0.79 = 0.79 mm [millimeter]

(.031) = 0.031" [inch]



Type	l_{min}	l_{max}	max. turns
DVP 20-B / 025 / ...	12.2 mm	15 mm	~ 2.2
DVP 20-B / 050 / ...	10.5 mm	15 mm	~ 3.6
DVP 20-B / 100 / ...	10.25 mm	15 mm	~ 3.8
DVP 20-B / 200 / ...	12 mm	15 mm	~ 2.4
DVP 20-B / 300 / ...	13.3 mm	15 mm	~ 2.1
DVP 20-B / 400 / ...	13.2 mm	15 mm	~ 1.4

6 Installation information



IMPORTANT!

When fitting the cartridges, use the specified tightening torque. Set the required pressure with the adjusting screw (s1). 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.

Item	Qty.	Description
1	1	O-Ring $\varnothing 29.82 \times 2.62$
2	1	O-Ring $\varnothing 34.59 \times 2.62$
3	1	Backup ring $\varnothing 40.0 / 35.8 \times 1.3$



IMPORTANT!

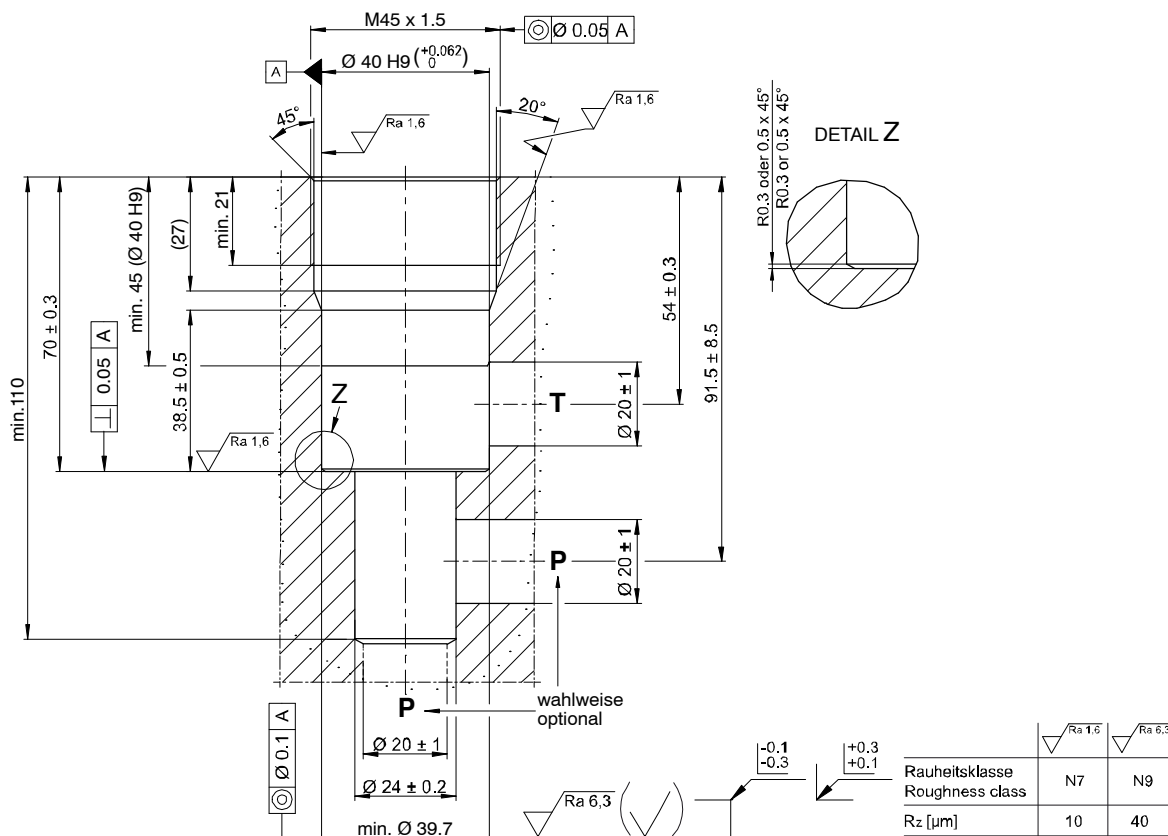
Item No. 3000300235 = seal kit NBR (Nitril)
Item No. 3000300234 = seal kit FKM (Viton)

7 Ordering code

Ex. DVP / 20 / B / 025 / N /

- DVP = pressure-relief cartridge valve
- 20 = size 20
- B = model / version
- 025 = pressure range 20...30 bar
- 050 = pressure range 30...65 bar
- 100 = pressure range 65...150 bar
- 200 = pressure range 140...250 bar
- 300 = pressure range 200...320 bar
- 400 = pressure range 300...450 bar
- N = NBR (Nitrile) seals (standard)
- V = FKM (Viton) seals
(special seals - please contact BUCHER)
- ... = factory-pressure setting

8 Cartridge cavity



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.

info.ch@bucherhydraulics.com

www.bucherhydraulics.com

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