BUCHER hydraulics

3-Way Priority Flow Control, 10 mm
Series MVR-3D-10 ...

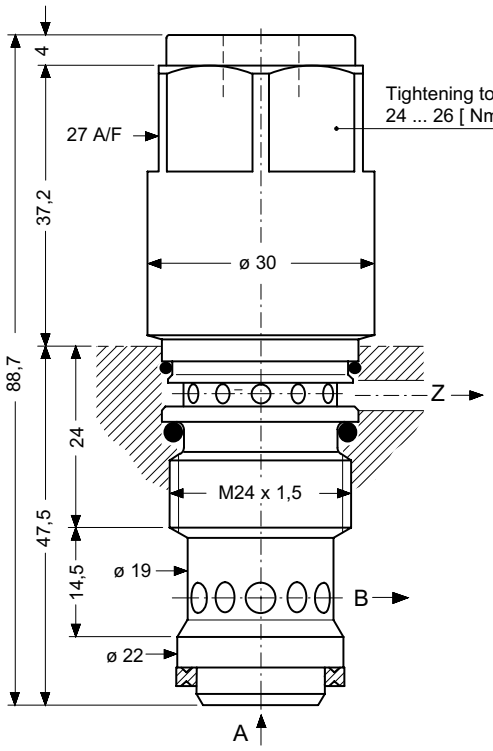
M-16.50

Issue 02.96

- Flow control cartridge for HTF cavity type MDD
- Priority flow control in 7 standard settings from 0,5 ... 19 l/min
- Line mounting body HCAA1 available (see page 3)

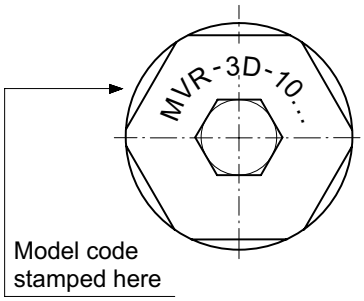
10 mm nom.
p max. 315 [bar]
Q_A max. 60 [l/min]
Q_Z max. 19 [l/min]

DIMENSIONS

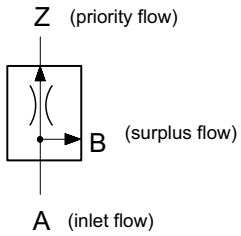


Cavity type MDD

see data sheet i -45.7



SYMBOL



MVR-3D-10...

DESCRIPTION

The MVR-3D-10 ... priority flow control valve uses all available incoming flow to give priority to the achievement of a fixed outflow at port Z.

Only when the inlet flow reaches, and then exceeds, this level is any excess made available at port B as surplus flow.

The outlet ports Z and B can be subjected to different pressures without affecting the priority flow control function.

The MVR-3D-10 ... priority flow control valve is a 3-way unit and is available with 7 fixed settings for the outlet flow at port Z (Q_Z) (see Model Code Key).

The controlled outflow at port Z is influenced by the pressure difference Δp (pB - pZ) and by the inlet flow at port A (Q_A) - see Performance Characteristics.

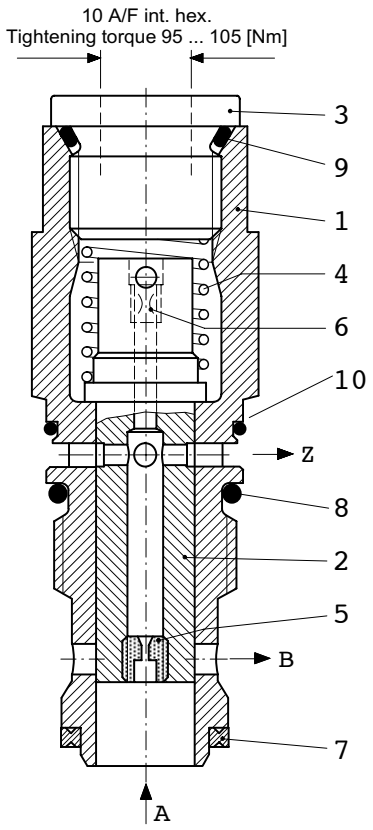
NOTE: If, for whatever reason, flow cannot leave from port Z, then the valve will also prevent flow from port B. If this possibility exists in the proposed application, port A must be protected by a pressure relief valve.

PRINCIPAL CHARACTERISTICS

Type	3-way priority flow control valve
Design	spool
Mounting method	screw-in cartridge
Size	10 mm nom. size, HTF cavity MDD
Mass	0,28 kg
Mounting attitude	unrestricted
Flow direction	A = inlet (supply flow) B = outlet (surplus flow) Z = controlled priority flow
Operating pressure	... 315 bar in A, B and Z

Fluids	hydraulic oils HL and HLP to DIN 51 524 other fluids - contact HTF
Minimum fluid cleanliness	18 / 14 to ISO 4406 / CETOP RP70H 8 ... 9 to NAS 1638
Fluid temperature range	- 20° ... +60° C
Viscosity range	10 ... 300 cSt
Flow rate Q_A max.	60 l/min
Flow rate Q_Z max.	19 l/min

SCHEMATIC SECTION



SERVICE PARTS

*) = part of seal kit no. DS-206
◢ = available as service part

It.	Qty.	Description	
1	1	Cartridge body	ø 30 x 84,7
2	1	Control spool	ø 16 x 56
3 ◢	1	Threaded plug	M20 x 1,5 DIN 908
4 ◢	1	Spring	1,6 x 17 x 43,3 iG = 7,5
5 ◢	1	Orifice plug	M6 / ø **)
6	1	Orifice plug	M4 / ø 0,3
◢	1	Seal kit no. DS-206, comprising *):	
7	1*)	Seal	ø 22,1 / 17,1 x 2,5
8	1*)	O-ring no. 117	ø 20,29 x 2,62 N90
9	1*)	O-ring no. 018	ø 18,77 x 1,78 N90
10	1*)	O-ring no. 020	ø 21,95 x 1,78 N90

**) Orifice ø - see Model Code Key

TO ORDER SERVICE PARTS, STATE:
- complete unit model code, including design number
- data sheet number, including issue date
- part item number from above list
- part description from above list
- quantity required

INSTALLATION AND SERVICING

MUST BE CARRIED OUT WITH CARE,
AND BY QUALIFIED PERSONNEL ONLY.

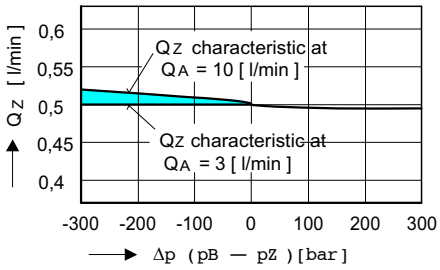
Use the correct tightening torque when fitting the cartridge.

When changing seals, the new seals must be thoroughly oiled or greased before fitting them to the valve.

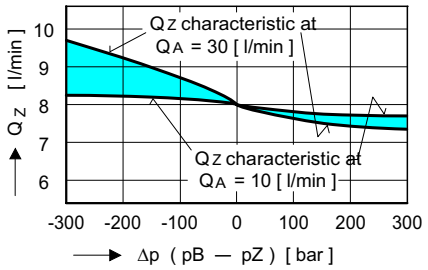
Use the correct tightening torque when refitting the threaded plug item 3, for example, after a seal change.

PERFORMANCE CHARACTERISTICS (oil viscosity 33 cSt)

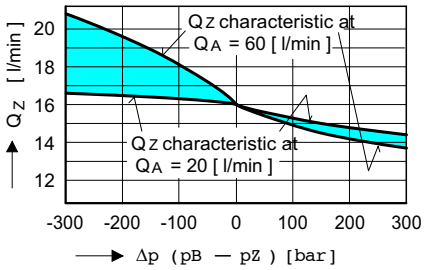
Priority flow Q_Z = 0,5 [l/min]



Priority flow Q_Z = 8 [l/min]



Priority flow Q_Z = 16 [l/min]



EXAMPLE: Priority flow = 8 l/min
Flow in at A (Q_A) = 30 l/min
Pressure at B (pB) = 200 bar
Pressure at Z (pZ) = 300 bar

ΔpB→Z = 200 bar - 300 bar = - 100 bar
Priority flow from Qz characteristic = 8,7 l/min

MODEL CODE KEY

z.B. MVR - 3 D - 10 - 80 - _ - 1

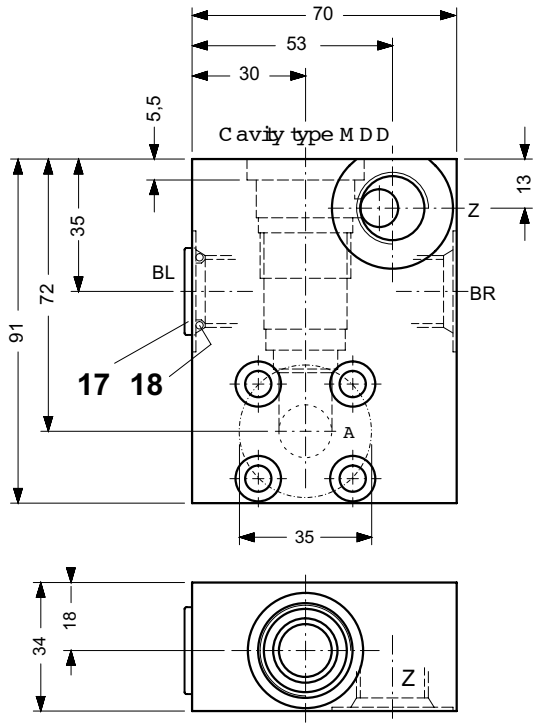
Priority flow control
3 = 3-way design
D = for HTF cavity type MDD
10 = nominal size 10 mm
05 = 0,5 l/min (orifice ø 0,6 mm)
20 = 2,0 l/min (orifice ø 1,2 mm)
50 = 5,0 l/min (orifice ø 1,7 mm)
80 = 8,0 l/min (orifice ø 2,1 mm)
120 = 12,0 l/min (orifice ø 2,4 mm)
160 = 16,0 l/min (orifice ø 2,7 mm)
190 = 19,0 l/min (orifice ø 3,0 mm)
Priority flow Q in Z (Qz) in 1/10 l/min (for other values, contact HTF)
(blank) = Nitrile seals (**standard**)
V = Viton seals
For special seals, contact HTF
1...9 = design number (omit when ordering)

Line- and Flange Mounting Body, 10 mm
Type HCAA1

BUCHER hydraulics

- Ports BL, BR and Z = 3/4"-16 UNF - 2B
- Material: steel
- Surface treatment: A3C to DIN / ISO 4042
- Mass: 1.30 kg

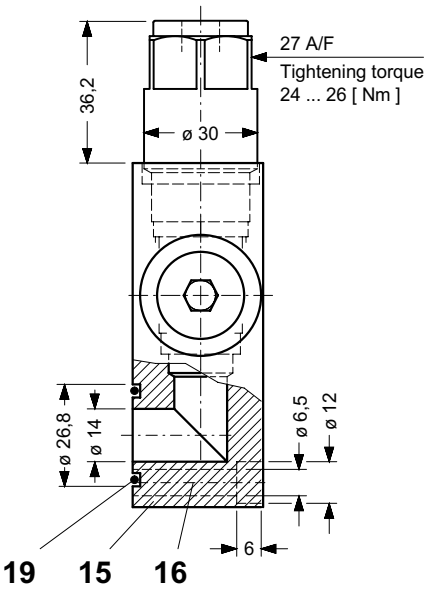
DIMENSIONS



Cavity type MDD

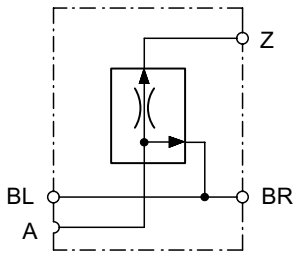
see data sheet i -45.7

shown with
3-way priority flow control
MVR-3D-10 ... assembled



Supplied complete with one
3/4"-16 UNF plug and O-ring
(items 17 and 18).
5/16" (7.9 mm) A/F internal hex.
Tightening torque Ma = 90 ... 110 Nm

SYMBOL



MVR-3D-10 ...
HCAA1

Supplied complete with
four M6 × 35 hex. skt.
cap hd. screws (it. 16).
Tightening torque
Ma = 8 ... 10 Nm

DESCRIPTION

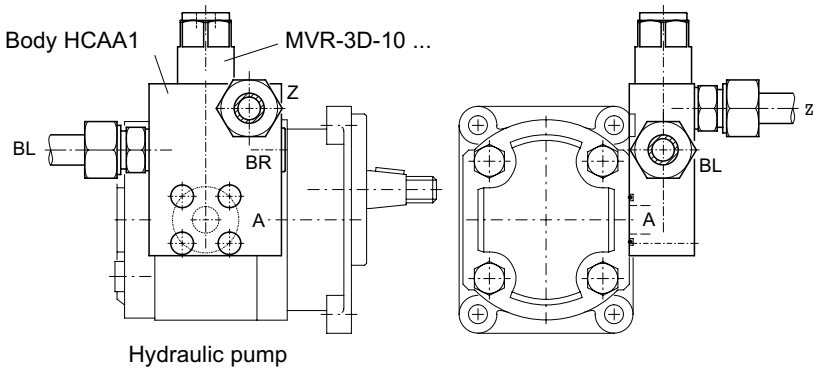
The HCAA1 line- and flange mounting body is intended for direct mounting on the outlet port of a hydraulic pump (see APPLICATION EXAMPLE).

Port Z is connected to the actuator requiring priority flow and surplus flow can be taken either from port BL or port BR.

SERVICE PARTS

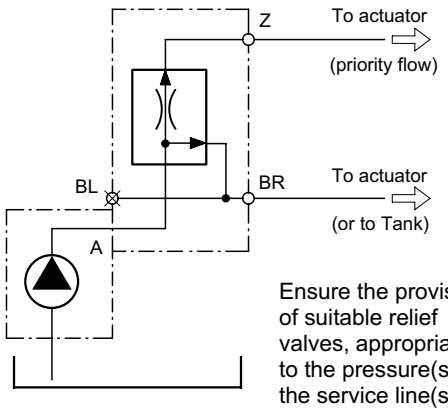
It.	Qty.	Description	◢ = available as service part		
15	1	Line- & flg. mtg. body	type HCAA1		
16	4	Hex. skt. cap hd. screw	M6 x 35	8.8	DIN 912
17 ◢	1	Plug	3/4"-16 UNF		
18 ◢	1	O-ring	ø 17 x 2		N90
19 ◢	1	O-ring no. 118	ø 21,89 x 2,62		N90

APPLICATION EXAMPLE



Hydraulic pump

Application suggestion: with steering pumps.
The provision of a priority flow in hydrostatic steering systems



Ensure the provision of suitable relief valves, appropriate to the pressure(s) in the service line(s).