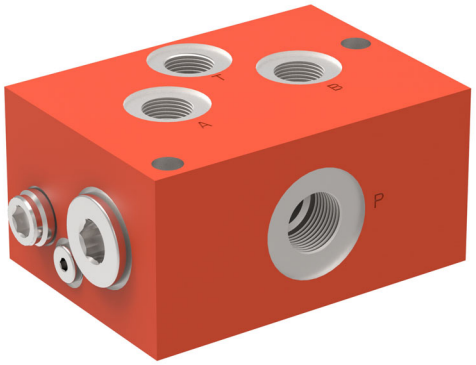
High Pressure Flow Divider

420 bar, 250 l/min
Series MTDA..HD



- these valves do not require maintenance.
- flows can be split or merged with accuracy (divide/combine functions).
- Functions: - decompression orifice
  - make-up valves
  - Crossline relief valve

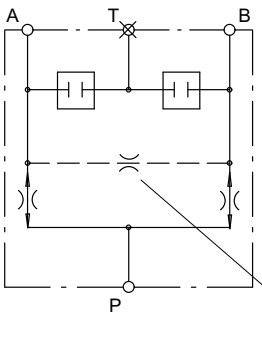
1 Description

Series MTDA..HD units are flow dividing valves that operate automatically. They are intended for use with hydraulic fluids. They divide a flow into two parts. When flow passes through a valve in the opposite direction, the two part-flows are combined into one single flow (added). The dividing and combining functions are largely independent of the pressures of the two divided flows and of the fluid viscosity.

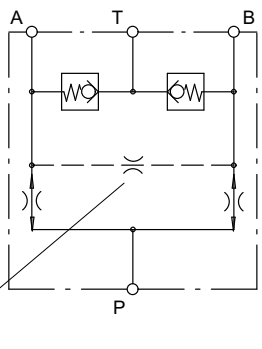
In order for the valve to work properly, a continuous flow is required at all ports. For example, if one actuator is no longer able to move, then the other part-flow will also be restricted. If the two actuators served by the flow divider operate at different pressures, then the pressure of the total flow entering the valve will correspond to the higher of the two actuator pressures.

2 Symbols

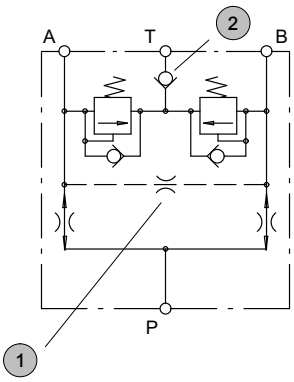
Standard Function “H”



Function “N” with anti - cavitation check valve



Funktion “P” with crossline relief valve



1	Decompression orifice (This option must be commanded in a separated text, see 6)

2	Check valves in T (only in connection wit “P”)

BUCHER
hydraulics

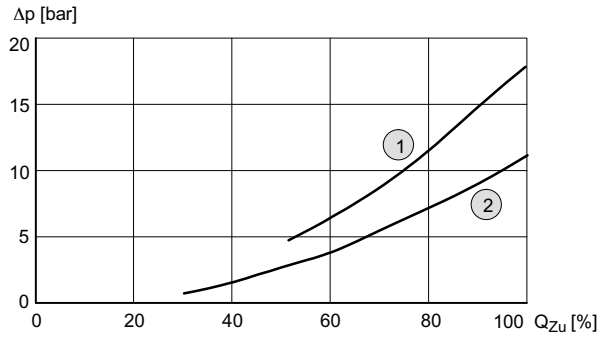
3 Technical data

General characteristics	Unit	Description, value
Maximum operating pressure	bar	420
Oil temperature range	°C	-20 ... +80
Viscosity range	mm^2/s	10 ... 300
Maximum admissible level of contamination of the hydraulic fluid		ISO 4406 class 20/18/15 achievable with a filter rating of $ß_{10} \geqq 75$
Nitrile seals		NBR

4 Characteristic curves

4.1 Pressure drop characteristics

Pressure drop v. flow rate with oil viscosity of 35 mm^2/s (Q_{Zu} 100% = Q_{Nenn})

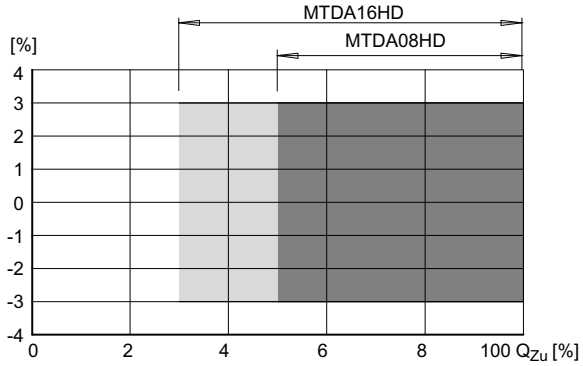


1	MTDA08HD
2	MTDA08HD

4.2 Division accuracy

(without Decompression orifice)

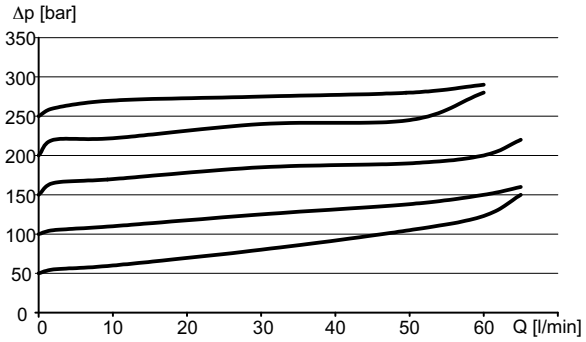
Division error v. flow rate with oil viscosity of 35 mm^2/s (Q_{Zu} 100% = Q_{Nenn})



IMPORTANT : Division accuracy ± 3 %of the maximal flow rate, based on nominal volume flow range of the respective flow divider (see example abs. 6.2). For higher division accuracy contact Bucher Hydraulics.

4.2.1 Anti-shock valve

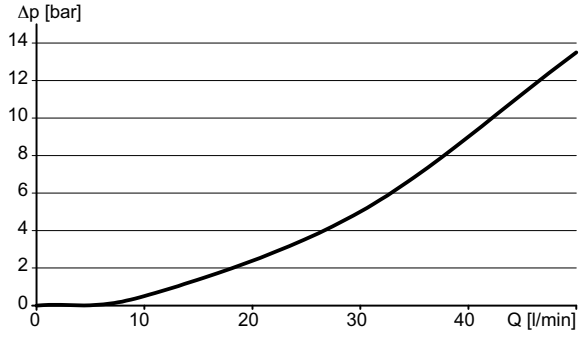
Q [l/min] = flow rate from actuator to tank
Δp [bar] = pressure difference from actuator to tank



For flow rates < 60 l/min contact Bucher Hydraulics

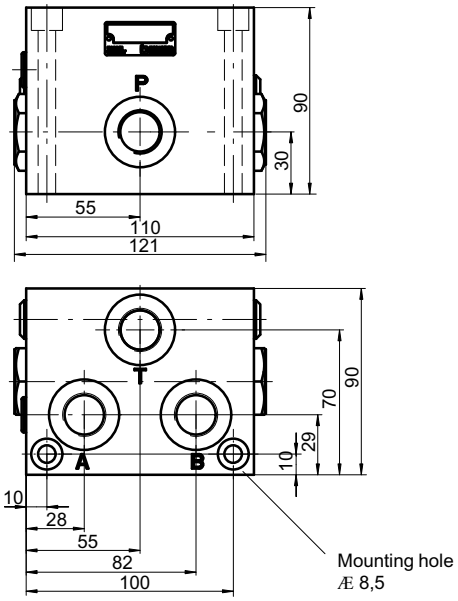
4.2.2 Make-up valve

Q [l/min] = flow rate from tank to actuator
Δp [bar] = pressure difference from tank to actuator

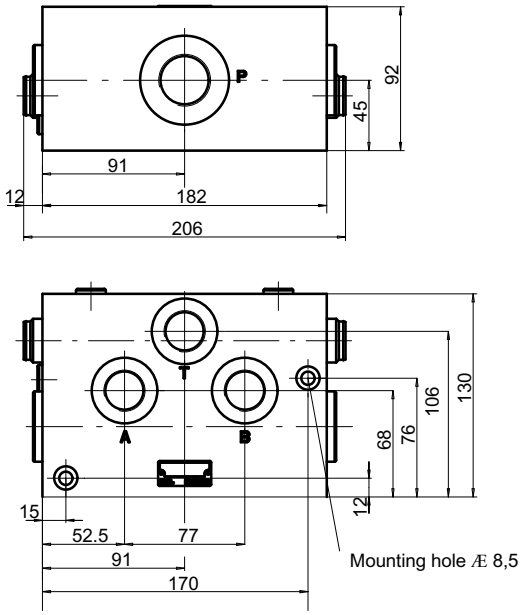


5 Dimensions

5.1 MTDA08HD



5.2 MTDA16HD



6 Ordering code

M	T	D	A		H	D	-		G		-		-		P=[2] D=[3]

Flow divider

Bi-directional

Threaded ports

Nominal size 08 or 16

High pressure

Flow range inlet flow ([/min]):

NG 08				NG 16	
004	= 2-4	025	= 12-25	100	= 35-100
006	= 3-6	032	= 16-32	120	= 40-120
008	= 4-8	050	= 25-50	160	= 50-160
012	= 6-12	075	= 37-75	200	= 60-200
016	= 8-16	100	= 50-100	250	= 75-250

Port threads	Size 08:	G 1/2”	= G 12
	Size 16:	A,B,T = G 3/4” / P = G 1”	= G 34

Options	Check valve in the T line	=	R [1]
	without	=	*

Functions	Standard	=	H
	with make-up check valve	=	N
	with crossline relief valve	=	P [2]

Division ratio, see section 6.1

1) Only valid for using with function P (crossline relief valve).

2) ·Pressure settings in bar available for the anti-shock valve (measured at 10 l/min test flow) 25, 32, 40, 50, 63, 80, 100, 125, 140, 160, 175, 190, 210, 230, 250, 280, 300, 330, 350, 380 (for other pressures, consult BUCHER)

3) State the diameter of the balancing orifice, if required (e.g. E 0.6 - D = 06)

6.1 Unequal division on enquiry

In the case of unequal division, the division ratio is shown in the flow divider model code:
e. g. 13 = 1:1,3; 20 = 1:2; 30 = 1:3
Ordering example:
Flow range: to 60 l/min with unequal division of 1 : 3
pressure setting: P < 190 bar
Flow divider: **MTDA08-075G12-P-30**
P =190
At an inlet flow rate of 60 l/min the unequal division prod. : 15 l/min at port A and 45 l/min at port B.

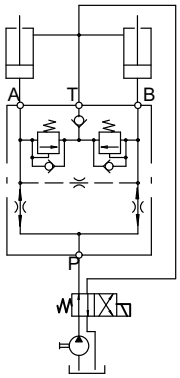
6.2 Example for division accuracy

Flow range: To 60 l/min, required division of Q_A/Q_B = 30 l/min (division 1 : 1)
Flow divider: **MTDA08-075G12*-P**
flow range 37...75 l/min
max. flow rate 75 l/min
max. allowable deviation = 75 l/min x ±3% = ±2,25 l/min
Resulting part- flow rate at Q_{Zu} 60 l/min:
Port A - Q_{min} = 27,75 l/min / Q_{max} = 32,25
Port B - Q_{min} = 27,75 l/min / Q_{max} = 32,25

7 Installation attitude and mounting

To prevent the weight of the spool causing division inaccuracies, the valve must be installed so that the spool axis is horizontal. When mounting the valve, make sure that the body is not subjected to any distorting forces. Do not use tapered-thread pipe fittings.

8 Example of use



9 Fluid

MTDA..HD flow divider require fluid with a minimum cleanliness level of ISO 4406 code 20/18/15.

We recommend the use of fluids that contain anti-wear additives for mixed-friction operating conditions. Fluids without appropriate additives can reduce the service life of pumps and motors. The user is responsible for maintaining, and regularly checking the fluid quality.

10 Fluid cleanliness class

Cleanliness class (RK) onto ISO 4406.

Code ISO 4406	Number of particles / 100 ml		
	≤ 4 µm	≤ 6 µm	≤ 14 µm
23/21/18	8000000	2000000	250000
22/20/18	4000000	1000000	250000
22/20/17	4000000	1000000	130000
22/20/16	4000000	1000000	64000
21/19/16	2000000	500000	64000
20/18/15	1000000	250000	32000
19/17/14	500000	130000	16000
18/16/13	250000	64000	8000
17/15/12	130000	32000	4000
16/14/12	64000	16000	4000
16/14/11	64000	16000	2000
15/13/10	32000	8000	1000
14/12/9	16000	4000	500
13/11/8	8000	2000	250

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Classification: 430.310.335.375.000