

Flow Divider Bi-directional Series MTDA...



1 General

1.1 Product description

Series MTDA units are flow dividing valves that operate automatically. They are intended for use with hydraulic fluids.

They divide a flow, the total rate of which may be varied, into two usually

equal 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.

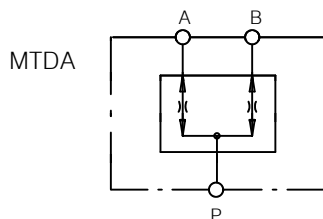
If the valve has an unequal division ratio, the larger part-flow must always be through port B. In order for the valve to work properly, a continuous flow is required at all ports. For example, if one actuator is no longer able to move, then the other part-flow will also be restricted. If the two actuators 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 pres-

ures. Large pressure differences may give rise to significant heat generation, which must be taken into consideration when designing the system.

1.2 Advantages

- these valves do not require maintenance. This lowers costs and reduces the risk of a system failure.
- flows can be split or merged with accuracy (divide/combine functions).
- the flow division ratio can be altered to suit customer requirements.
- for two hydraulic cylinders working in parallel mode exists optionally the possibility of balancing the lag at the end

2 Symbols



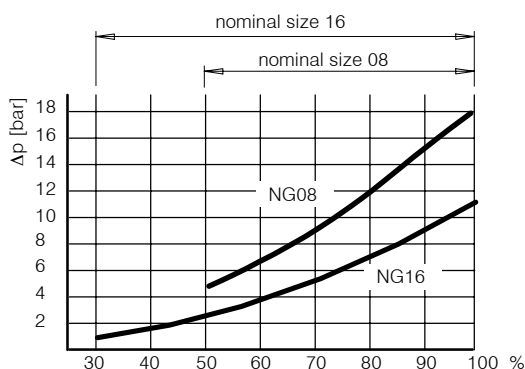
3 Technical data

Maximum operating pressure	bar	315
Oil temperature range	°C	-20 ... +80
Viscosity range	mm ² /s	10 ... 300
division accuracy	≤ ± 3 % within rated current range per section 6)	

4 Characteristic curves

4.1 Pressure drop characteristics

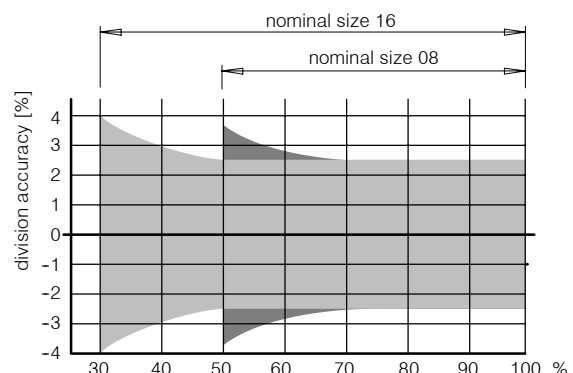
Pressure drop v. flow rate with oil viscosity of 35 mm²/s



4.2 Division accuracy

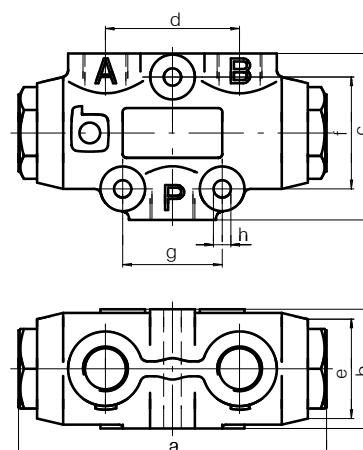
Division error v. flow rate with oil viscosity of 35 mm²/s

Note: for higher division accuracy, contact Bucher Hydraulics



5 Dimensions

	Type	
	MTDA08	MTDA16
a	120	192
b	48	76
c	67	100
d	54	80
e	40	55
f	45	70
g	40	70
h	7	9,5
Weights	1,2 kg	4,1 kg
A, B, P	see section 6	



6 Ordering code

M T D A 0 8 - 0 0 4 M 3 0 /

Flow divider

Bi-directional

Threaded ports

Nominal size 08
 16

Flow range inlet flow (l/min):

Size 08

004 = 2-4
006 = 3-6
008 = 4-8
012 = 6-12
016 = 8-16
025 = 12-25
032 = 16-32
050 = 25-50
075 = 37-75
100 = 50-100

Size 16

100 = 35-100
160 = 50-160
200 = 60-200
250 = 75-250

Port threads (metric)

Other thread forms - contact Bucher Hydraulics

Flow range

Port threads

Size 08

004-025
032-100

M18 x 1,5

M22 x 1,5

M18 x 1,5

M18 x 1,5

Size 16

100
160-250

M27 x 2

M33 x 2

M22 x 1,5

M27 x 2

Division ratio, see section 6.1

Variants / special features

(to be inserted by the factory)

6.1 Unequal division: contact Bucher Hydraulics

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 75 l/min with unequal division of 1 : 3

Flow divider: MTD A08-075M30

At an inlet flow rate of 60 l/min, the unequal division produces:
15 l/min at port A
45 l/min at port B

7 End-stop synchronisation of parallel-connected cylinders

When one of the two cylinders reaches its end-stop, the flow to the other cylinder drops to approx. 5-10% of its nominal rate. This leakage flow enables the second cylinder, which has not yet reached its final position, to slowly re-synchronise itself.

To enable full-speed re-synchronisation of the lagging cylinder, each actuator line from the flow divider must be equipped with a pressure relief valve.

8 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.

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