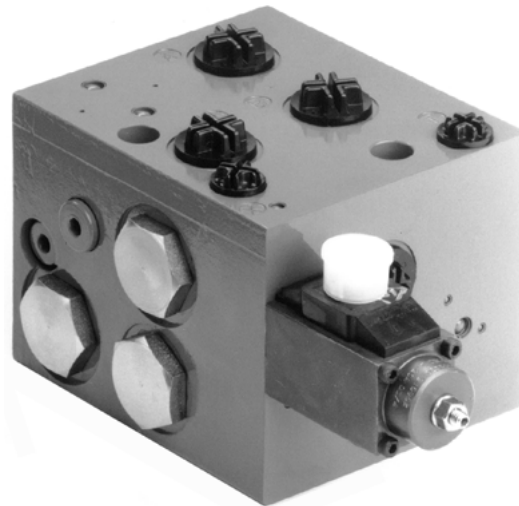


Differential Lock Valve

Series MT..DVD



1 General

1.1 Product description

The differential lock valve consists essentially of two bi-directional flow dividers (dividing and combining) and a directional valve for optionally bypassing the flow dividers. It is intended for use in either open- or closed-loop hydrostatic drives with parallel-connected hydraulic motors.

When the lock valve is switched OFF, the inlet flow can divide itself among the motors in any required manner.

When the lock valve is switched ON, however, the inlet flow is divided into three pressure compensated portions in accordance with the division ratio of the lock valve. The motors are thus driven at fixed speeds, regardless of their respective loads. This arrangement prevents any hydraulic wheel motor from spinning in conditions of poor traction.

Two balancing orifices can optionally be arranged between the outlets A, B and C. These allow some redistribution of flow and prevent unwanted torque build-up between wheels in these circumstances, and when turning.

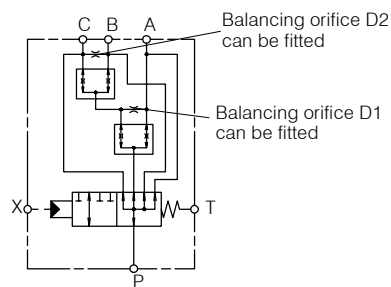
The differential lock valves can be supplied with either hydraulic, or electro-hydraulic, actuation.

1.2 Advantages

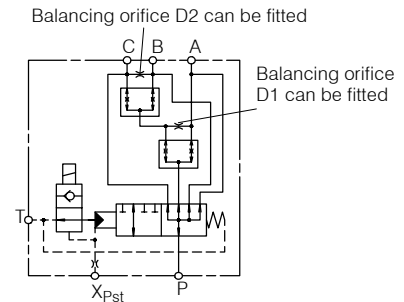
- robust and reliable
- these valves do not require maintenance. This lowers costs and reduces the risk of a system failure.
- precision operation without the use of costly electronics
- attractive price/performance ratio

2 Symbols

2.1 Hydraulic actuation



2.2 Electro-hydraulic actuation



3 Technical data

3.1 Hydraulic characteristics

		Size 08	Size 16
Inlet flow $Q_{max}^{1)}$	l/min	100	200
Operating pressure p_{max}	bar	420	
Pilot pressure $p_p \text{ min} \dots p_p \text{ max}$	bar	10 to 30	
Viscosity range	mm ² /s	10 to 300	
Nominal flow rate	l/min	25, 50, 75, 100	120, 160, 200
Fluids		Mineral oil to DIN 51524 (HL and HLP) ²⁾	
Fluid temperature range	°C	-20 to +70	
Division ratio ³⁾		1:1:1	

3.2 Electrical characteristics

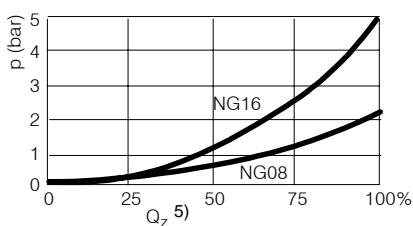
Power consumption	W	30
Voltage	DC Volt	12 / 24
Duty cycle	ED %	100
Ambient temperature	°C	max. +80
Coil temperature	°C	max. +140
Enclosure protection DIN 40050		IP65 ⁴⁾
Electrical connection		Connecting plug to DIN 43650

- 1) State the effective nominal flow when ordering
- 2) For other fluids, contact Bucher
- 3) For other division ratios, contact Bucher
- 4) When the plug is fitted correctly

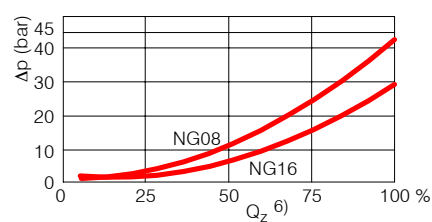
4 Performance graphs

4.1 Pressure drop (at 35 mm²/s)

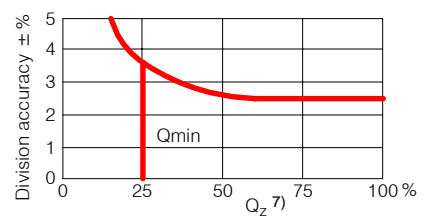
Dividing function switched OFF



Dividing function switched OFF



4.2 Division accuracy

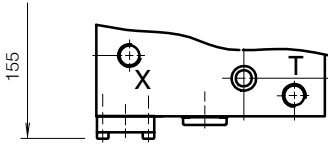


- 5) As a percentage of the maximum flow
- 6) As a percentage of the applicable nominal flow
- 7) Without any balancing orifices between B, C and A (holes plugged)

5 Dimensions

5.1 MT08DVD

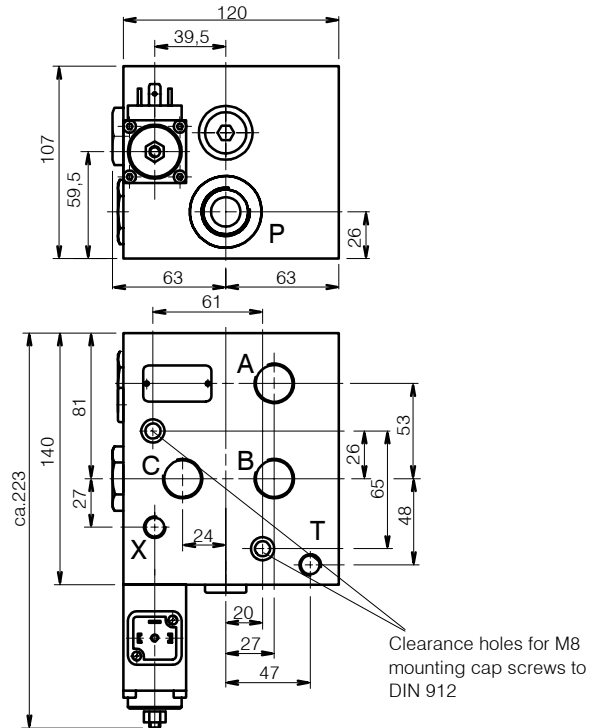
Hydraulic actuation MT08DVD...-H-...



Port threads:

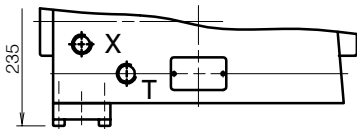
Port P	M27 x 2
Ports A, B and C	M22 x 1.5
Ports X and T	M12 x 1.5

Electro-hydraulic actuation MT08DVD...-EH-...



5.2 MT16DVD

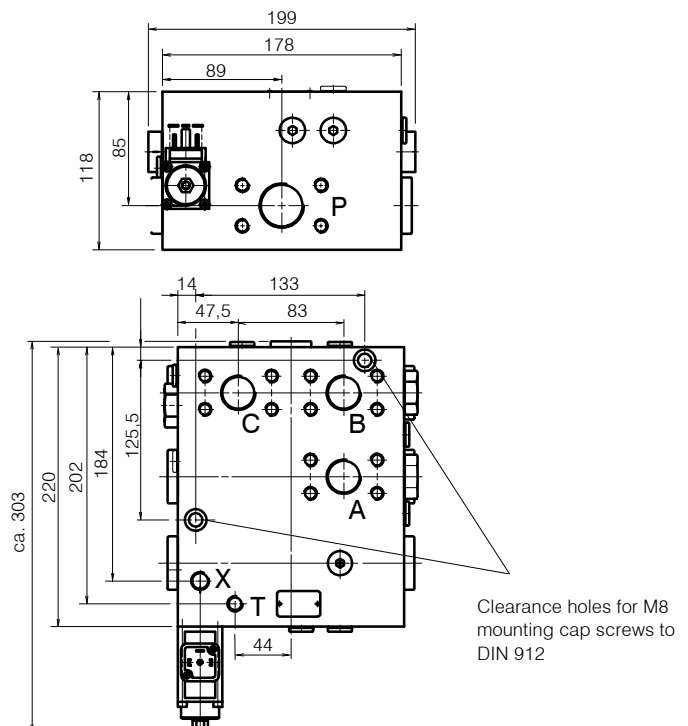
Hydraulic actuation MT16DVD...-H-...



Port threads:

Port P	M33 x 2 alternatively SAE R1 1/4" (3000 PSI)
Ports A, B and C	M27 x 2, alternatively SAE R 1" (3000 PSI)
Ports X and T	M12 x 1.5
For SAE flanges, see data sheet 414.08.116	

Electro-hydraulic actuation MT16DVD...-EH-...



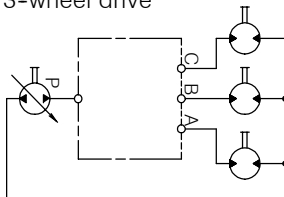
6 Ordering code

		M T 0 8 D V D 1 0 1 0 0 2 5 - E H - 0 G 1 2		D1 = ... ⁹ D2 = ...
Series	=	MT..DV		
Nom. size	=	08 or 16		
3-way differential lock valve	=	D		
Division ratio, A to (B+C),	1 : 1	=	10	
	1 : 1,5	=	15 etc. ⁸⁾	
Division ratio B to C	1 : 1	=	10	
	1 : 1,5	=	15 etc. ⁸⁾	
Nominal flow	per sect. 3.1, e.g. 25 l/min	=	025	
Type of actuation hydraulic		=	*H	
electro-hydraulic		=	EH	
Design no.				
Coil voltage	DC 12 Volt	=	G12	
	DC 24 Volt	=	G24	
	with actuation type *H	=	***	

- 8) With unequal division between A and (B+C), the larger flow goes to (B+C) between B and C, the larger flow goes to C
- 9) Size of balancing orifices must be plainly stated (see also sect. 2) e.g. 0.6 / 0.8 / 1.0 etc.
e.g. if balancing orifice D1 is to be 0.8 mm, then D1 = 0.8
if balancing orifice D2 is to be 1.0 mm, then D2 = 1.0

7 Application example

3-wheel drive



8 Installation

Horizontal mounting is recommended.
Do not bolt the valve body onto an uneven mounting surface.

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We reserve the right of modification without prior notice.

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