

Differential Lock Valve

DL14 (for 2 motors)



- · Excellent traction at the lowest travel speeds
- Differential lock can be activated with low pressure (50 bar max.)
- Anti-shock and make-up valves can be incorporated to protect the system and prevent cavitation
- Bi-directional flow divider (dividing and adding/combining)
- · Minimal pressure losses when lock is active

1 Description

1.1 General

The DL14 differential lock valve is a further development of our current product, with a focus on energy optimization and extended flow control range.

This lock valve is intended for use in hydrostatic drives with parallel-connected hydraulic motors in either open- or closed-loop mode. When the lock valve is switched off, the hydraulic flow can divide itself among the hydraulic motors

1.2 Application examples

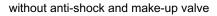
- Agricultural equipment
- Construction equipment

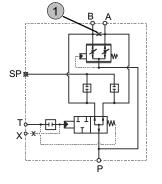
in any required ratio, and with minimal pressure losses. When the lock valve is switched on, the hydraulic motors are compelled to operate in parallel, and the lock valve supplies load-independent flows from its outlet ports. This arrangement prevents the wheel from spinning in unfavorable ground conditions.

- · Forestry machines
- Municipal equipment

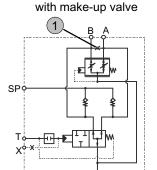
2 Symbols

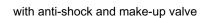
2.1 Hydraulic actuation

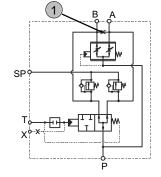




Balancing orifice can be fitted





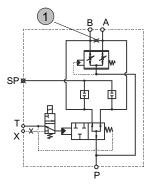


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2.2 Electrohydraulic actuation

without anti-shock and make-up valve



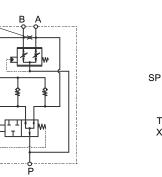
with make-up valve

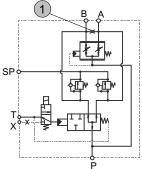
(1)

SP

Т

with anti-shock and make-up valve





Balancing orifice can be fitted

3 Technical data

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Hydraulical characteristics	Unit	Description, Value				
Mounting attitude		Unrestricted; preferably horizontal				
Nominal flow rate Q _{max} (with connected valve)	l/min	150				
Nominal flow rate per connection	l/min	3 75				
Operating pressure p _{max}	bar	450				
Peak pressure (max. 100000 duty cycles)	bar	520				
Pilot pressure p _{p min.} - p _{p max.}	bar	10 50				
Viscosity range	mm²/s	10 300				
Max. admissible level of contamination of the hydraulic fluid		ISO 4406 code 20/18/15, achievable with a filter rating of $\beta_{10} \ge 75$				
Fluid temperature range	°C	-20 +80				
Fluids		HL/HLP mineral oils DIN 51524; other fluids consult Bucher Hydraulics				
Connection types P, A, B T, X, SP		SAE NG 25 M14x1,5				
Electrical characteristics	Unit	Description, Value				
Nominal voltage	V DC	12 or 24				
Power consumption	W	27				
Nitrile seals		NBR				
Duty cycle		100 ED %				
Ambient temperature	°C	max. +60				
Coil temperature	°C	max. +180 (insulation class H)				



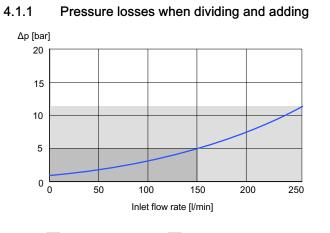
Electrical characteristics	Unit	Description, Value
Enclosure protection (with properly mounted plug)		AMP Junior Timer (2-pole)IP65Deutsch-plug, DT04-2P-EP04IP67(DIN EN 60529)IP67
Electrical connection		AMP Junior Timer (2-pole) Deutsch-plug, DT04-2P-EP04

The body of the DL14 is protected with a black primer (RAL 9004).

4 Performance graphs

Measured with viscosity 35 mm²/s.

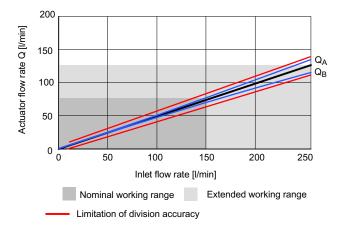
4.1 Pressure drop of 2-fach differential lock valve

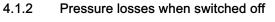


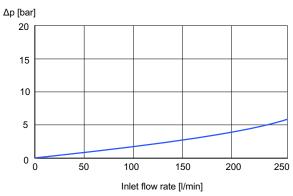


4.2 Division accuracy

4.2.1 Division accuracy to maximium flow rate

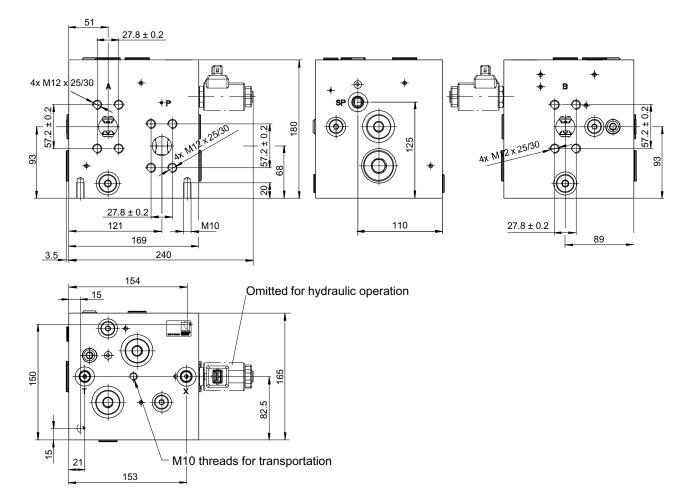








5 Dimensions

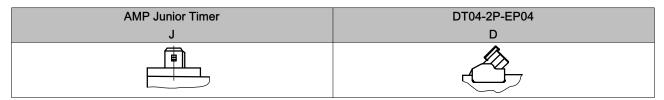


5.1 Connection sizes

Port	Port sizes			
Р, А, В	SAE NG 25			
T, X, SP	M14 x 1,5			

6 Versions

6.1 Plug bases





7 Ordering code

		DL 14	- 50	0 50	- EH] - [0	SA	λΕ	J 12	2 -	P = D1= ¹⁾
Serie = DL Size = 14			port A	port B							
Division ratio [%] A B 1:1 50 50)										
Type of actuation:	hydraulic electrohydraulic	= *H = EH									
Design no.:	0 - 9 (inserted by Bucher Hy	draulics)									
Port thread:	SAE NG25										
Plug connector:	AMP Junior Timer (2-pole) DT04-2P-EP04	= J = D									
Coil voltage:	DC 12V DC 24V with actuation *H	= 12 = 24 = ***									
Options:	with secondary pressure lim adjustable values [bar]: 160 250, 300, 330, 350, 380, 40	, 210, 0	=	Ρ							
	(specify the pressure setting with anti-cavitation valve	g in plain text	:) =	N							

1) Size of balancing orifices must be plainly stated (see also sect. 2) Ø0.6 / 0.8 / 1,0 e.g. if balancing orifice D1 is to be 0.8 mm, then D1 = 08

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