

Manually actuated directional spool valves type DL

The directional spool valve banks type DL are used in mobile or stationary hydraulic systems with single and double acting consumers enabling flow control by means of manually controlled throttling.

This throttling process means closing of the by-pass gallery for idle pump circulation and simultaneously opening of the consumer duct.

The consumer will start moving as soon as the required pressure level for the consumer is achieved by throttling the by-pass.

The directional spool valve versions type DLS are intended for industrial trucks (stackers), featuring a connection block incorporating the first valve section (commonly used for the lifting cylinder). The connection block may be equipped optionally with a priority flow divider. The other valve sections may feature many other options e.g. shock valves etc. widening the field of application even further.



Nomenclature: Throttling directional spool valve

Design: Valve bank, featuring integrated by-pass idle pump circulation

Actuation: Manual
 • Spring return
 • Detent
 Pressure
 • Pneumatic

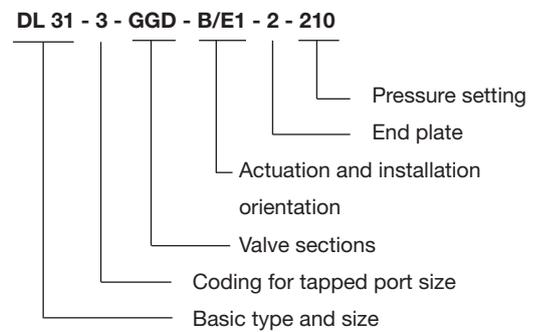
p_{max} : 250 ... 315 bar

Q_{max} : 12 ... 90 lpm

Basic types and general parameters

Basic type and size	Flow Q_{max} (lpm)	Oper. pressure p_{max} (bar)	Tapped ports (BSPP)		
			Coding	A, B	H, P, R
DL 1	12 ... 16	315	1	G 1/4	G 1/4
DL 2	20 ... 30	315	1	G 1/4	G 3/8
			2	G 3/8	G 3/8
DL 3	30 ... 60	250	2	G 3/8	G 1/2
			3	G 1/2	G 1/2
DL 4	90	250	3	G 1/2	G 3/4

Valve bank coding



Additional versions (Basic types)

• Directional spool valve type DLS for industrial trucks (e.g. stackers) (see also "Additional information")

• Directional spool valve type DLSR for variable displacement pumps (see also "Additional information")

Connection blocks

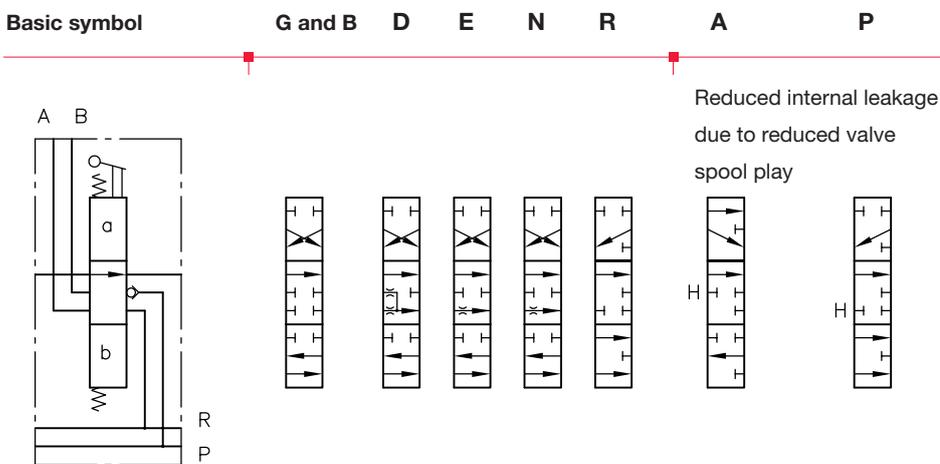
Basic type	Brief description	Symbol
DL 15		DL .5 DL .1
DL 25	Connection block without	
DL 35	pressure limiting valve	
DL 45		
DL 11		
DL 21	Connection block with	
DL 31	pressure limiting valve	
DL 41		

Additional versions (connection blocks)

- Connection block with preferential flow divider (e.g. for hydraulic steering circuit)
- Connection block with shock valve
- Connection block with drop rate braking valve

Symbols (valve section)

max. 10 valves may be combined in a valve bank

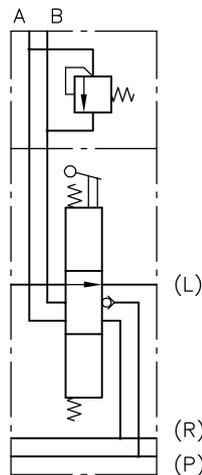


Additional options for the valve sections

Secondary pressure limiting valve for consumer port A and / or B

Example:

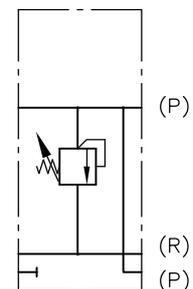
DL 21 - 1 - GDD **G71** GG-B/E1 - 2 - 180



Intermediate plate with pressure limiting valve for all subsequent valve sections

Example:

DL 21 - 2 - GG **X5** D-B/E1 - 2 - 210



Additional versions (valve sections)

- Optional functions at the pump side (orifice, 2-way flow controller)
- Valve sections for size 3 with consumer sided additional functions at the ancillary block (e.g. releasable check valves, shock valves, over-center valves etc.)
- Reducing intermediate plate (size 3 into 2) with 3-way flow divider
- Valve section featuring stop function for all subsequent consumers
- Size 4 also available without check valve for P
- Manual actuation with autom. spring return for switching position "a" and detent for switching position "b"

- Manual actuation with detent for both switching positions
- Manual actuation in combinations with contact switch, cam and switch carrier
- Manual actuation with different mounting orientations
- Manual actuation with protected lever housing for size 3 and 4
- Pneumatic actuation for size 3 and 4
- Displacement transducer or contact switch at the valve spool

End plates

Basic type	Brief description	Symbol	
		2	3
2	Standard end plate with port R		
3	End plate featuring port for subsequent valve bank type DL		

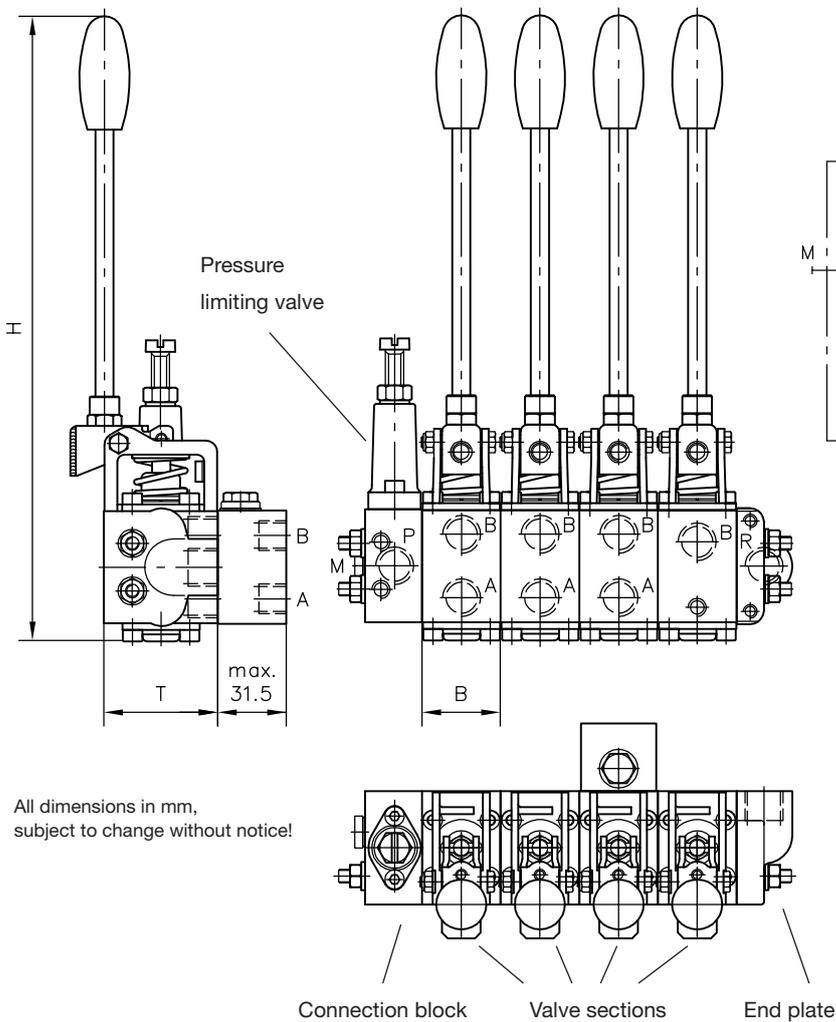
Order examples

DL 21 - 2 - G D G71 N - B/E1 - 2 - 180

Directional spool valve DL, size 2, pressure limiting valve (factory set to 180 bar), port size 2 with tapped ports G 3/8 (BSPP), flow pattern G, D, E, N; flow pattern E with pressure limiting valve for port A (coding 71), valve sections with manual actuation B (standard with hand lever), mounting orientation E1 (ports A, B are directed to the front, valve spool is pushed in the valve body to achieve shifting position "a"), end plate 2 (coding 2)

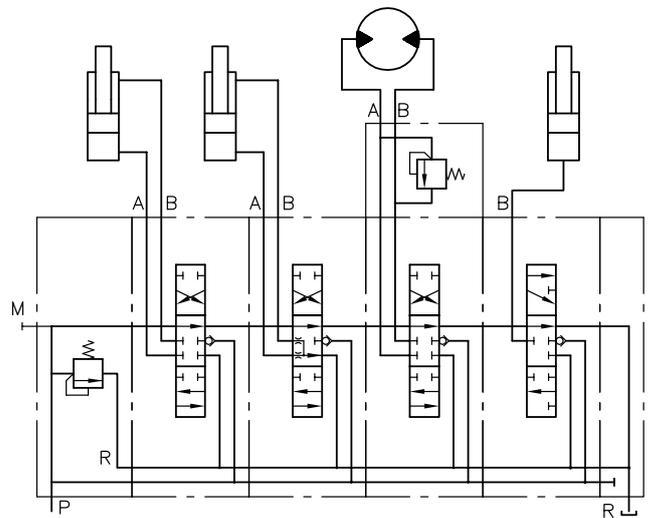
Dimensions

(see order example)



All dimensions in mm, subject to change without notice!

Symbol (see order example)



Basic type	H	B	T	m (kg)
DL 1	approx. 192	31.5	45	0.5
DL 2	approx. 278	34.5	50	0.85
DL 3	approx. 351	39.5	60	1.4
DL 4	approx. 368	39.5	70	1.8

Additional information

- Directional spool valve type DL D 7260
- type DLS, DLSR D 7260 SR

- See also section "Devices for special applications" (Industrial trucks, Hydraulic for mobile applications)

For page and section of the devices additionally listed, see type index