Directional spool valve



Proportional directional spool valve type PSLF, PSLV and SLF

Proportional directional spool valves are a type of directional valve. They control the direction of movement and the velocity of individual or multiple hydraulic consumers actuated simultaneously. Control is independent of the load and continuous. The proportional directional spool valve type PSLF is suitable for constant pump systems and type PSVF for variable pump systems with a pressure/flow controller. The proportional directional spool valve type PSLF is available as an individual manifold mounting valve or in the valve bank. The volumetric flows and load pressures for the individual consumers can be individually adjusted. The directional spool valve can be adapted to different control tasks. Connections on the rear permit easy access to the valve for servicing, even in tight installation spaces. All sizes can be combined with each other. The proportional directional spool valve type PSLF and PSVF is used in mobile hydraulics, in particular in crane and lifting equipment, construction and mining machinery, drilling equipment as well as in offshore and marine technology.

Features and benefits:

- Max. flow 1000 lpm at 420 bar
- Rear side ports for easy access to valves, even in small installation spaces
- Flange design can be combined across all sizes with fast valve replacement
- Simultaneous operation of several functions at full speed

Intended applications:

- Construction machinery and machines for building materials
- Cranes and lifting equipment
- Offshore and marine technology
- Mining machinery



Nomen- clature:	Prop. directional spool valve acc. to the Load-Sensing principle
Design:	Individual manifold mounting valve Valve bank via individual manifold mounting valves
Actuation:	Manual Return spring Detent Electro-hydraulic Pressure Hydraulic Pneumatic
p _{max} :	400 bar
Q _{max. consumer} :	400 l/min
Q _{pu max} :	1000 lpm

Design and order coding example

PSLF	A1/380/4	- 3	- A2J40/40/EA/3	- E2	- G24					
					Solenoid voltage	12V DC, 24V DC				
						 Operated using a proportional amplifier or PLVC Magnets with different plug versions Explosion-proof magnets 				
				End pla	ites					
		Valve sections with actuation								
	1	Size								
(Connection b	lock	Various connectiPressure-limiting	on thre _I valve	ads (pilot-controlled n	ain pressure-limiting valve) in connection block				
Basic ty	pe Type PS Type PS size 3,	SLF (su SVF (su 5 and	pply via constant pun pply via variable disp 7	ıp), laceme	nt pump),					

Function

Connection blocks:

PSLF



1 Pilot pressure valve

2 2/2-way solenoid valve

Connection block for constant pump systems with integrated 3-way controller, pressure-limiting valve and LS shutdown

PSVF

Connection block for variable pump systems with and without pressure-limiting valve

Additional versions of connection blocks:

- 2/2-way solenoid actuated directional valve for arbitrary idle pump circulation
- Additional damping of the 3-way flow controller or pump controller
- Proportional adjustable pressure limitation

Valve sections:

Basic symbol	Circuit symbol								
	L	М	F	Н	J	В	R	0	G
$ \begin{array}{c} $		X	X + + + + + + + + + + + + + + + + + + +	X	X + *		* *		

Versions of valve sections:

- Load-signal outlets at A, B; A and B together
- Version with and without 2-way inflow controller
- Function deactivation
- Secondary pressure-limiting valves (can be individually selected for A and/or B)
- Proportional pressure limitation of the individual functions
- Sub-plates with different additional functions
- Sub-plates for ancillary blocks
- Sub-plates for combining various sizes
- Combination of various sizes in one valve bank possible
- Version with EX solenoid for use in potentially explosive areas
- Version with explosion-proof, intrinsically safe solenoids for mining applications

Key figures for max. flow rates:

	Q _{A, B}									
Size 3	3	6	10	16	25	40	63	80		
Size 5	16	25	40	63	80	120	160			
Size 7	120	160	250	320	400					

- Key figure represents the max. flow rate (lpm) at consumer ports A or B for version with inflow controller
- Flow rates for A and/or B can be selected individually
- Increasing the control pressure means that 60 lpm (size 2), 120 lpm (size 3), 240 lpm (size 5) and 500 lpm (size 7) is possible per consumer port side.
- Versions with 2-way inflow controller and check valve function

Actuations:

Basic type	Brief description	Circuit symbol (example)
Α	Manual operation	
С	Detent (stepless)	
E EA	Electro-hydraulic actuation in combination with manual operation	
EI CAN EA CAN	CAN: Actuation variant with CAN control in combination with manual operation	
H, P HA, PA	Hydraulic and pneumatic actuation in combination with manual operation	Combination of electro- hydraulic and manual operation
HEA	Combination of H, E and A actuation	

End plates:

.



© HAWE Hydraulik SE

Additional versions of end plates:

End plates with additional R port

• End plate with internal leakage oil routing (no tank connection)

Adapter plate for combining size 5 and 3 (coding ZPL 53)

General parameters and dimensions





- Connection block 1
- 2 Valve sections
- 3 End plate

	Flow [lpm]		Oper. pressure [bar]	Ports		Dimensions [mm]				m [kg]	
	Q _{max}	\mathbf{Q}_{PU} max	p _{max}	P, R	А, В	H1	В	т	T1	1)	2)
PSLF/PSVF 3	3 - 120	200	420	G 3/4, 1 1/16-12 UN-2B	G 1/2, G 3/4, 7/8-14 UNF-2B	195	50	80	50	3.3 4.1	6.6 7.6
PSLF/PSVF 5	16 - 210	350	400	G 1, G 1 1/4, SAE 1 1/2"	G 1, SAE 1"	224	62.5	100	100	3.7 4.5	10.9 16.3
PSLF/PSVF 7	120 - 500	1000	400	G 1 1/2, SAE 1 1/2"	G 1 1/4, SAE 1 1/4"	305	106	101	95	13	23

Per valve section depending on actuation and additional functions Per valve section complete with sub-plate 1)

2)

Products suitable for combination:

- Load-holding valves type LHT, LHDV: D 7100, D 7770, D 7918 •
- Joystick: Proportional pressure-reducing valve type KFB 01: D 6600-01

Additional electrical components:

- Proportional amplifier: <u>D 7831/2</u>, <u>D 7831 D</u>, <u>D 7817/1</u> .
- Programmable logic valve control type PLVC: <u>D 7845-41</u>, <u>D 7845 M</u>
- CAN node type CAN-IO: D 7845 IO .

Associated technical data sheets:

- Proportional directional spool valve type PSLF, PSVF and SLF: D 7700-F
- Proportional directional spool valve banks type PSLF and PSVF size 7: D 7700-7F
- Actuation for proportional directional spool valves type PSL/PSV: D 7700 CAN