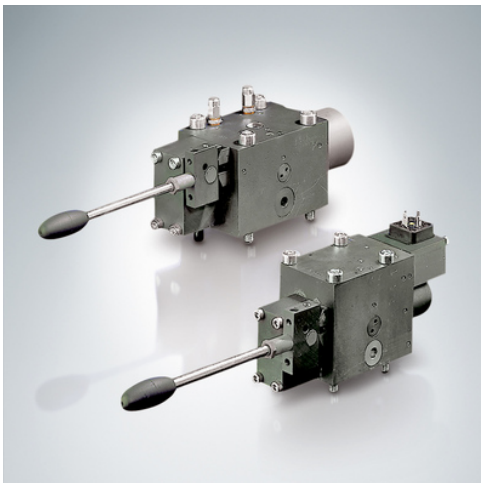
Prop. directional spool valves type PSLF and PSVF - Manifold mounting design

The directional spool valve bank type PSLF/PSVF consists of valve sections attached via manifolds. Type PSLF is designed for constant delivery pump systems (pressure/flow controller) whereas the type PSVF is for variable displacement pump systems. Both are available in two sizes. They serve to control the direction of motion and provide infinite control of the speed of motion of hydraulic consumers regardless of their load. Several consumers may be operated simultaneously and independently of each other. The main field of application is mobile hydraulics (e.g. boom controls of concrete pumps etc.). Main advantage against type PSL/PSV is simplified servicing as individual valve sections can be replaced easily. The main field of application is mobile hydraulics (e.g. crane controls etc.).

Being able to select different maximum volumetric flows for consumer ports A and B, as well as the option to use various additional functions (e.g. function deactivation) guarantees optimal adaptation to the respective control tasks.



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 ... 420 bar**
$Q_{max.\ consumer}$:	**3 ... 470 lpm**
$Q_{pu\ max}$:	**approx. 1000 lpm**

Features and benefits:

- Max. flow 1000 lpm at 420 bar
- Rear side ports for easy access to valves, even in small installation spaces
- Flange construction 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
- Crane and lifting equipment
- Offshore and marine technology
- Mining machinery

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 plates

Valve sections with actuation

Size

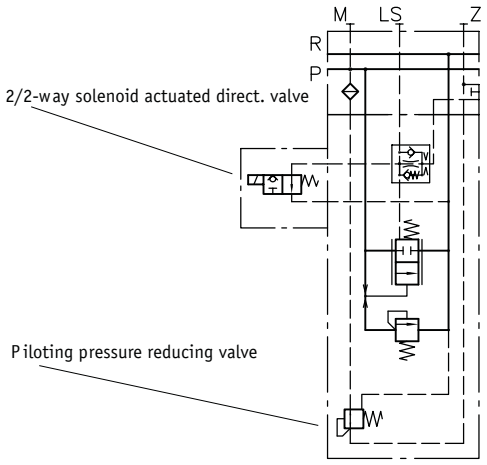
Connection block
- Port G or UNF (SAE-12)
- Pressure-limiting valve (pilot-controlled main pressure-limiting valve) in connection block

Basic type Type PSLF (supply via constant pump),
Type PSVF (supply via variable displacement pump),
size 3, 5 and 7

Function

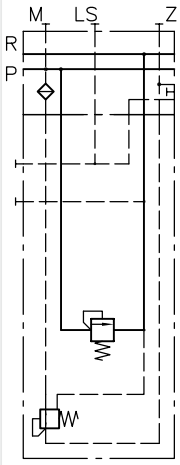
Connection blocks:

PSLF



Connection block for constant delivery pump systems with incorporated 3-way flow controller and pressure limiting valve

PSVF



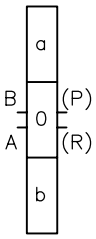
Connection block for variable displacement pump systems with or without pressure limiting valve

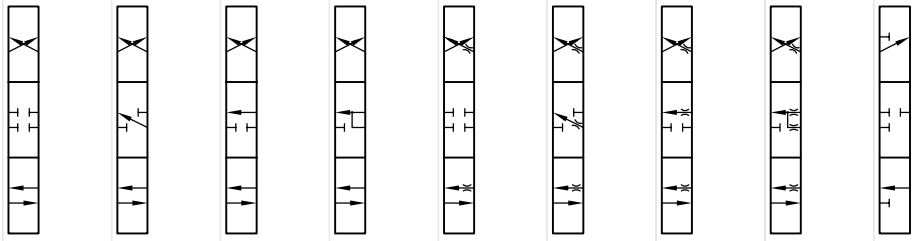
Additional versions of connection blocks:

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

Valve sections:

Basic symbol	Symbol								
	L	M	F	H	J	B	R	O	G





Versions of valve sections:

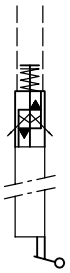
- Load pressure signal outputs at A, B; A and B together
- Version with and without 2-way input controller
- Function deactivation
- Secondary pressure-limiting valves (can be individually selected for A and/or B)
- Prop. pressure limitation of individual functions
- Sub-plates with different additional functions
- Combination of various sizes possible in one valve bank
- Version with ATEX magnet for use in explosive areas
- Version with explosion-proof, intrinsically safe magnets for mining applications

Coding for max. consumer flow:

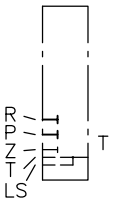
	$Q_{A, B}$							
Size 3	3	6	10	16	25	40	63	80
Size 5	16	25	40	63	80	120	160	
Size 7	120	160	250	320	400			

- Characteristic value corresponds to the max. volumetric flow (lpm) at the consumer ports A or B for the version with input controller
- Volumetric flows for A and/or B can be selected individually
- Increasing the control pressure enables 60 lpm (size 2), 120 lpm (size 3) and 240 lpm (size 5) per consumer port side.
- Version with 2-way input controller and check valve function

Actuations:

Basic type	Brief description	Symbol (example)
A	Manual actuation	 For combination of electro-hydraulic and manual actuation
C	Detent (stepless)	
E **EA**	Electro-hydraulic actuation in combination with manual actuation	
H, P **HA, PA**	Hydraulic and pneumatic actuation in combination with manual actuation	
HEA	Combination of actuation H, E, and A	

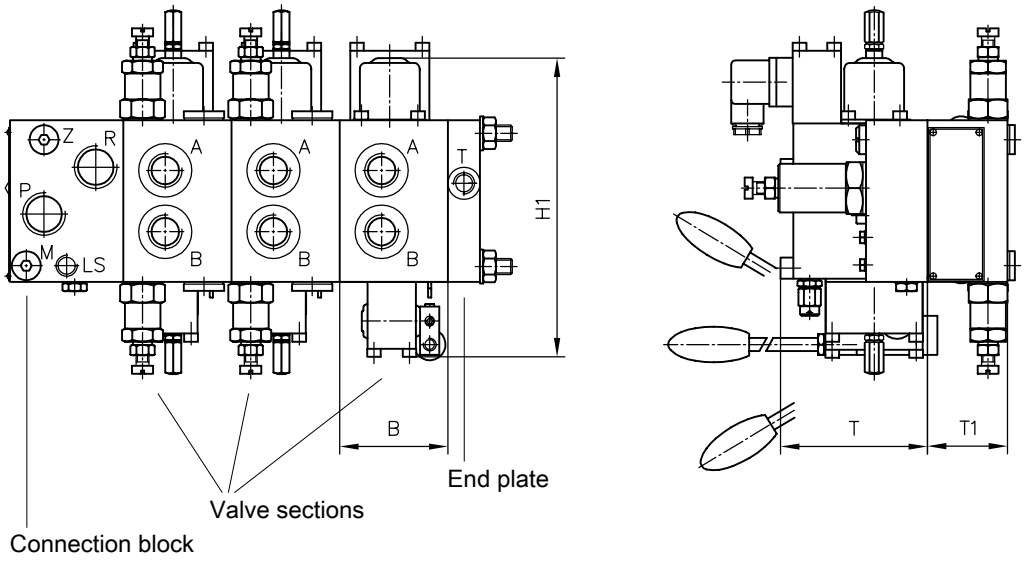
End plates:

E1	E2
	
End plate (std.)	With additional Y-port for LS-input signal

Additional versions of end plates:

- End plate with internal drain line (without T-port)
- End plates with an additional port R
- Adapter plate enabling combination of size 5 with size 3 (coding ZPL 53)

PSVF

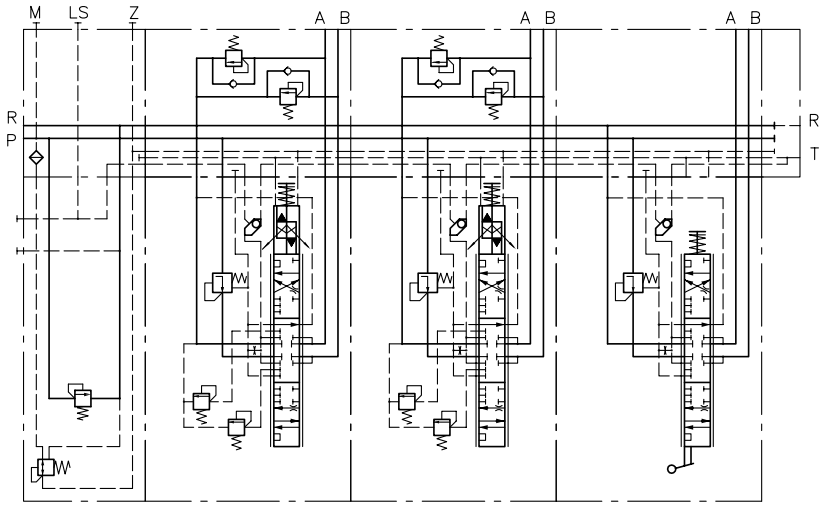


	Flow [lpm]		Oper. pressure [bar]	Ports (BSPP)		Dimensions [mm]				m [kg]	
	Q_{max}	$Q_{PU\ max}$	p_{max}	P, R	A, B	H1	B	T	T1	1)	2)
PSLF/PSVF 3	3 - 120	200	420	G 3/4, 1 1/16-12 UN-2B	G 1/2, G 3/4, 7/8-14 UNF-2B	approx. 195	50	80	50	3.3 ... 4.1	6.6 ... 7.6
PSLF/PSVF 5	16 - 210	350	400	G 1, G 1 1/4, SAE 1 1/2	G 1, SAE 1 1/2	approx. 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	approx. 305	106	101	95	13	23

1) Per valve section depending on actuation and additional functions
2) Per valve section complete with manifold

Example circuit:

PSVF A1/380/4-3	- A2 J 40/40 A200 B200 /E /3 AN210 BN210 - A2 J 80/40 A280 B130 /E /3 AN290 BN140 - A2 J 25/16 /EA /3	- E1 - G24
Valve bank type PSVF for variable displacement pump system Connection block: – Coding for flange construction (here A.) – Coding for pilot pressure-reducing valve (here 1) – Coding for set pressure at pressure-limiting valve (here 380 bar) – Coding for thread size of sub-plate (here /4 = G 3/4) Size: 3	1. Valve section: (exemplary for all subsequent valve sections): – Directional spool valve block with coding for flange construction (here A.) – Coding for basic function of the directional spool valve block (here 2) – Symbol (here J) – Coding for max. consumer volumetric flow at port A and B (here 40 and 40 lpm) – Coding of additional functions (here A 200 B 200; secondary pressure-limiting valve at port A and B set to 200 bar) – Coding for the actuation type (here E = electrical-hydraulic) – Coding for sub-plate (here 3AN210 BN210, G 1/2 with shock and servo-suction valve)	End plate: – Coding for end plate (here E1) – Coding for solenoid voltage 24V DC (here G24)



Suited products for combination:

- Load-holding valves type LHT, LHDV: D 7100, D 7770, D 7918
- Hydraulic joystick type KFB: **D 6600-01**

Electronic accessory components

- Joystick type EJ: D 7844
- Prop. amplifier (module) type EV1M2, EV1D1 and EV22K2: D 7831, D 7817/1, D 7831 D
- Programmable logic valve control type PLVC: Page D 7845-21, D 7845-41, D 7845 M, **7845 I0**

Associated technical data sheets:

- Prop. directional spool valve type PSLF/PSVF size 3, 5: D 7700-F
- Prop. directional spool valve type PSLF/PSVF size 7: D 7700-7F