

2.1 Directional spool valve bank type SWR and SWS

Directional spool valves are a type of directional valve. They control the direction of movement and the velocity of single and double-acting hydraulic consumers. The directional spool valve bank type SWS is available with series connection. The consumers can be operated with on-off or proportional control. Versions are available for usage in potentially explosive atmospheres. By means of additional functions in the pump line, in the intermediate plates (longitudinal and sandwich valve combination) and ancillary blocks the directional spool valve bank can be flexibly adapted to different control tasks.

Intended applications include mobile hydraulics, in particular civil engineering, agricultural engineering and material handling.

Features and benefits:

- Can be combined for forklift trucks with lifting modules
- Suitable for constant pressure systems
- Proportional movements can also be controlled independently of the load
- Extensive range of ancillary blocks
- Compact and extremely space-saving dimensions

Intended applications:

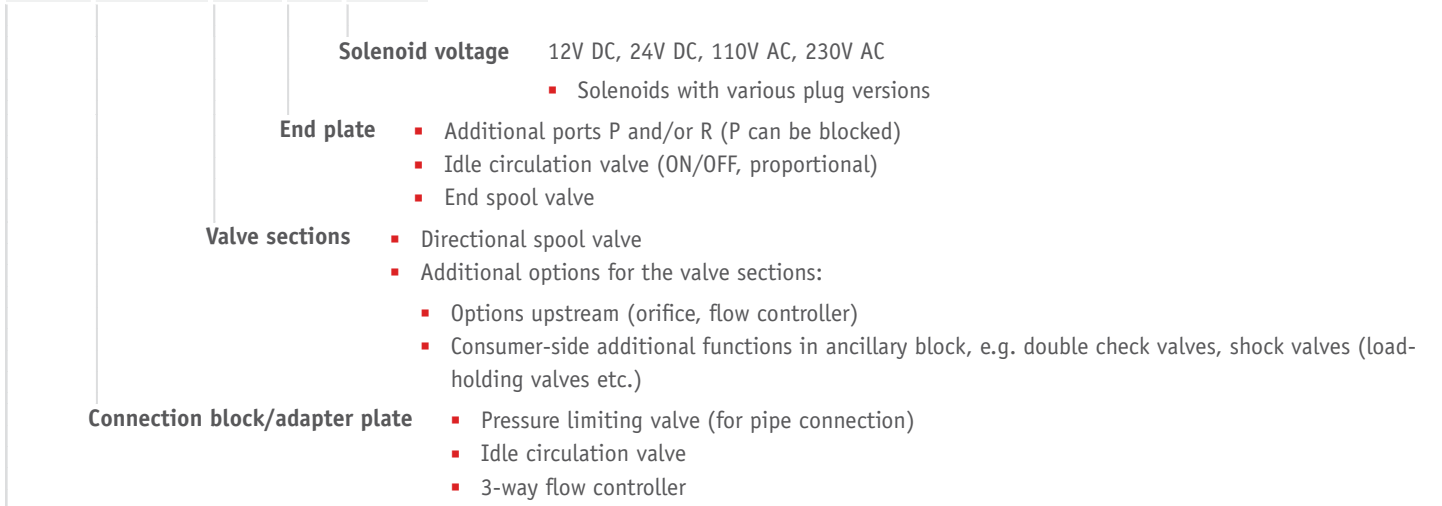
- Material handling
- Wind turbines
- Construction and construction materials
- Handling and assembly techn.
- Municipal trucks



Nomenclature:	Directional spool valve
Design:	Valve bank Combination with hydraulic power packs
Actuation:	Solenoid
p_{max}:	315 bar
Q_{max}:	25 l/min

Design and order coding example

SWR1 A-6/230 - GG - 1 - G24

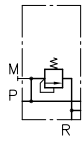


Basic type, size Type SWR 1 and SWS 2

Function

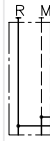
Connection blocks:

A 6



With fixed pressure limiting valve
(for pipe connection)

F/D



For direct mounting onto hydraulic power packs
(type KA, HC, MP, HK)

Valve sections:

Basic symbol

SWR 1	SWS 2	Symbol												
		G	D	E	O	C	N	B	W	K	Q	R	U	
		Spool valves suited for prop. actuation												
		G	D											
		<ol style="list-style-type: none"> Ancillary block with additional function (on the consumer side) Actuation Additional function (on the pump side) 												

Additional versions for valve sections:

- b/w solenoids with stroke limitation
- prop. solenoids with stroke limitation
- solenoids also available in ATEX-compliant version ($p_{max} = 210$ bar)

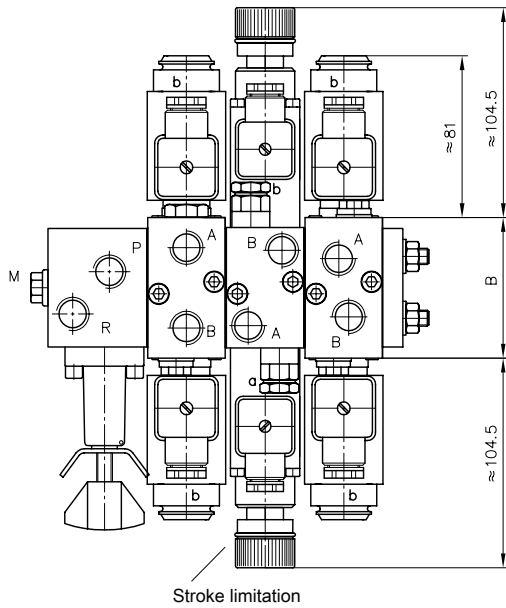
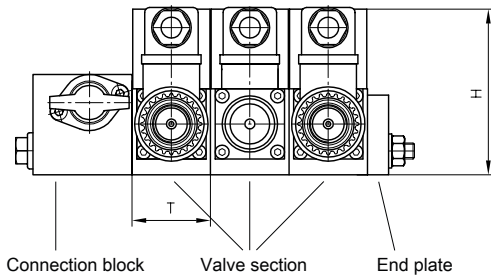
End plates (SWR 1/SWS 2):

Series	With circulation valve	With lockable pump output

Ancillary block type SWS 2 with additional functions (consumer side):

Releasable check valve	Shock valve	Sequence valve	Over center valve

General parameters and dimensions



- 1 Connection block
- 2 Valve section
- 3 End plate
- 4 Stroke limitation

	Q_{\max} [lpm]	p_{\max} [bar]	Ports	Dimensions [mm]			m_{\max} [kg]	
				H	B	T	Individual section	Connection block
SWR 1	12	315	G 1/4	77 - 90	40	40	1.1 - 1.5	0.6 - 0.7
SWS 2	25	315	G 3/8, G 1/4	78 - 82.5	60	40	1.1 - 2.4	0.8

Circuit example:
SWS 2 A 7/200

Valve bank type SWS, size 2, connection block with pressure-limiting valve (manually adjustable, set to 200 bar)

- G/M/2/2 RH

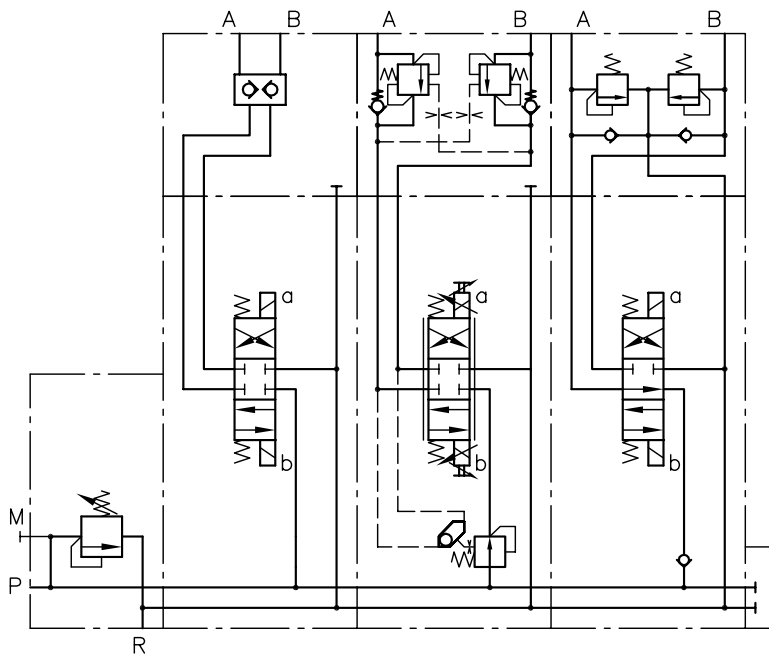
1. Valve section with circuit symbol G with solenoid actuation, no additional function in P gallery, with releasable check valves for A and B in the ancillary block

- G 10/MPF/DW/2 AL B 7/180 BLC 4/140

2. Valve section with circuit symbol G and proportional spool, max. flow rate A and B with 10 lpm, proportional solenoid MP with stroke limitation for A and B, pressure compensator in P gallery of the basic block (DW), ancillary block with load-holding valve for A (set to 180 bar) and for B (set to 140 bar)

- E/M/R/2 AN100 BN 100-1-G 24

3. Valve section with circuit symbol E and solenoid actuation, a check valve in the P gallery, ancillary block featuring shock and servo-suction valves for ports A and B (set to 100 bar), standard end plate, solenoid voltage 24V DC


Associated technical data sheets:

- [Directional spool valve SW: D 7451](#)
- [Directional spool valve bank type SWS: D 7951](#)

Suited products for combination:

- Pressure switches type DG3..., DG5.E: [Page 262](#)

Similar products:

- Proportional directional spool valve type EDL: [Page 82](#)

Suitable male connectors:

- [Line connector type MSD and others: D 7163](#)
- With economy circuit: [D 7813](#), [D 7833/1](#)
- Proportional amplifier type EV2S: [Page 274](#)