

Directional spool valves type HSRL and HSF

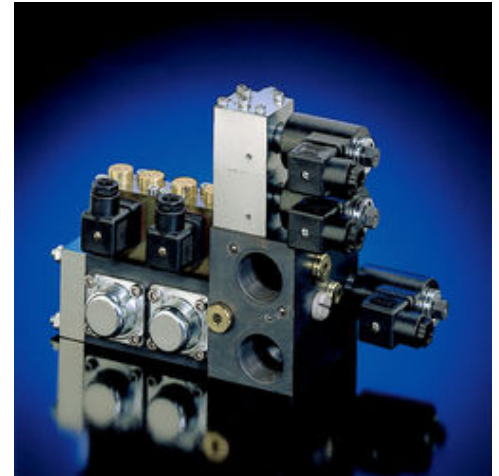
The directional spool valves are available as individual valve for pipe connection (type HSL), manifold mounting (type HSF) or as valve banks (type HSR). These valves are utilized to control the direction of movement of hydraulic consumers. All of them are indirectly electro-hydraulically actuated. The control fluid demand is either taken internally from the main circuit or fed externally from a separate control oil circuit. Harsh switching operations and the risk of decompression surges, particularly in the event of high pressure and large consumer volumes, can be avoided (except with HSRL 3) by using adjustable thread type throttles (adjustable response time). Standard connection blocks or connection blocks with an idle circulation valve, a pressure-limiting valve and integrated pressure-reducing valve are available for series connection. With the HSRL 3 version it is also possible to arbitrarily select different pressure levels.

Features and benefits:

- Soft shifting of high flow
- Suitable for high pressures due to steel housing
- Hydraulic pilot actuation via compact twin solenoids
- Versions conforming ATEX

Intended applications:

- Mining equipment (incl. oil exploration)
- Cranes, lifting-lowering devices
- Construction and construction materials machinery
- Material handling (forklift trucks etc.)



Nomenclature:	Directional spool valve
Design:	Individual manifold mounting valve Valve bank in series connection
Actuation:	Electro-hydraulic Hydraulic
p_{max}:	400 bar
Q_{max}:	80 ... 160 lpm

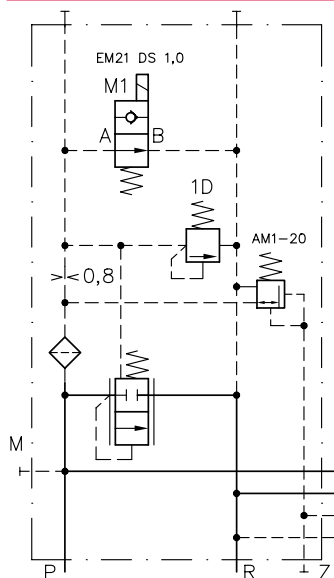
Design and order coding example

HSRL3	/C321	- DD	- 1	- G24	- 300	
						Pressure setting pressure limiting valve [bar]
						Solenoid voltage 12V DC, 24V DC, 98V DC, 205V DC, 110V AC, 230V AC, at HSRL: Solenoid conforming ATEX
						End plate Internal or external control oil return
						Valve sections With/without adjustable switching speed
						Connection block <ul style="list-style-type: none"> ■ With/without pressure limiting valve (tool or manually adjustable) ■ Internal or external control oil supply (max. 160 bar) ■ Type HSRL: Ancillary blocks to the connection block with various pressure stages
						Basic type and size <ul style="list-style-type: none"> Type HSF: Manifold mounting Type HSRL: Size 3 directional spool valve bank

Function

Connection blocks (HSRL):

C 321



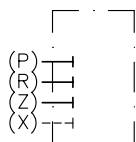
With internal control oil supply picked up from P gallery, idle circulation valve and pressure-limiting valve, optional ancillary blocks for three additional pressure stages

Valve sections:

Basic symbol		Symbol								
HSF	HSRL	G	D	E	C	W	B	L	H	F
Manifold mounting valve	Valve section	All symbols are also available with adjustable response time (not for type HSRL 3)								

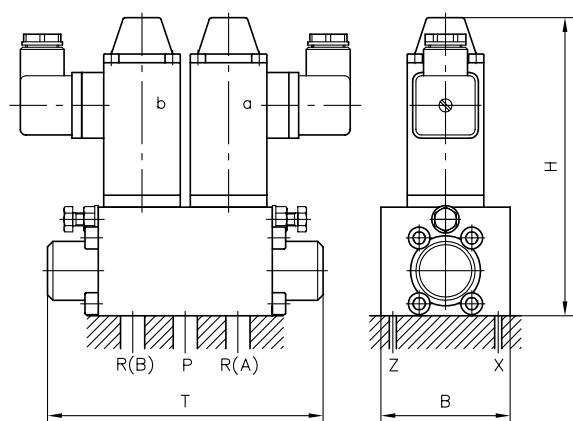
End plates:

HSRL

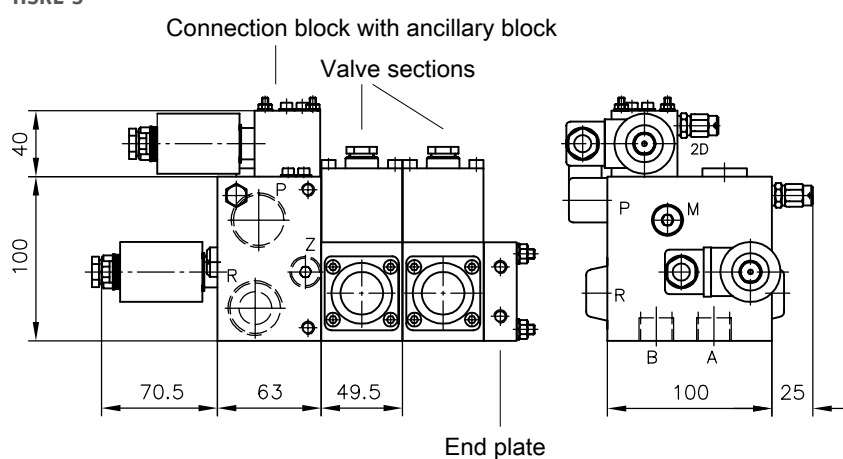


General parameters and dimensions

HSF



HSRL 3

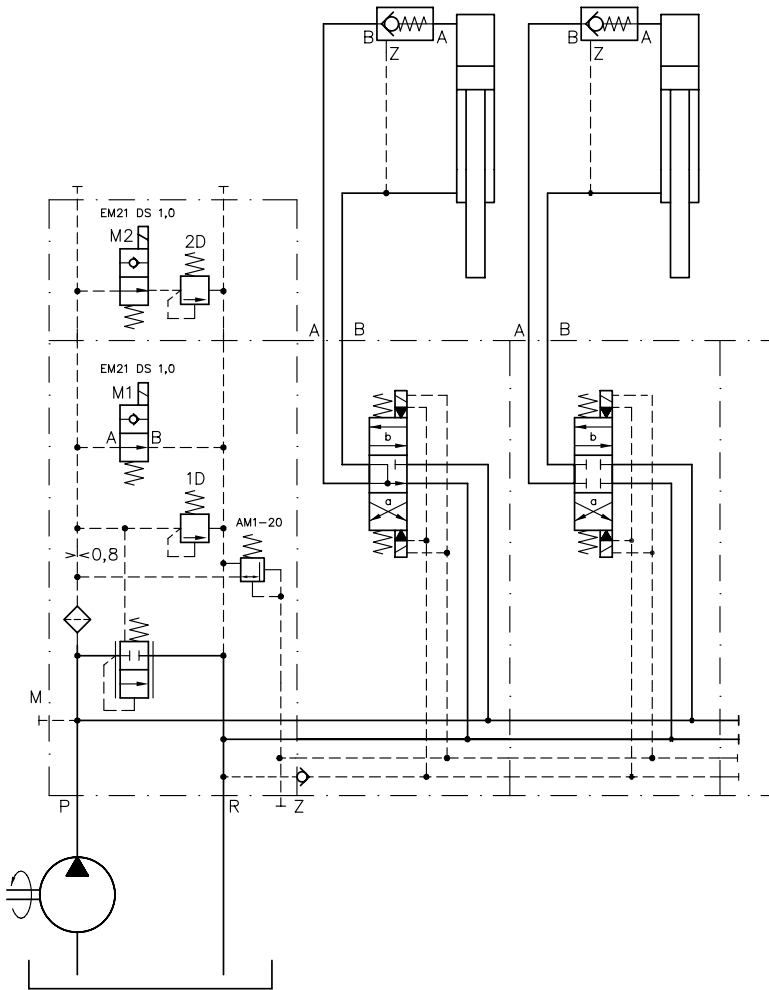


	Q_{\max} [l/min]	p_{\max} [bar]	$p_{\text{contr.}}$ [bar]	Ports (BSPP)		Dimensions [mm]			m [kg]	
				A, B, P, R	M, X, Z	H	B	T	Individual spool valve or valve section	Connection block
HSF 3						137	59	126		
HSRL 3						see illustration			2.0	1.7 ... 4.0
HSF 4						157	70	184		

Circuit example:

HSRL 3/C322/1D200 2D100 - DG - 1 - G 24

Size 3 valve bank type HSRL, connection block with integrated pressure-reducing valve, idle circulation valve, pilot-controlled pressure-limiting valve, main pressure-limiting valve factory set to 200 bar, second pressure stage set to 100 bar, two valve sections with the symbols D and G and a standard end plate, solenoid voltage 24V DC



Associated technical data sheets::

- Directional spool valve type HSR: [D 7493](#)
- Directional spool valve type HSRL: **Sk 7493 RL**
- Directional spool valve type HSF: [D 7493 E](#)
- Directional spool valve type HSL: [D 7493 L](#)

Plugs:

- With LEDs etc.: [D 7163](#)
- With economy circuit: [D 7813](#), [D 7833](#)