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Part Number RS 160, RS 160 Open-Center Sectional Directional Control Valves

RS 160 is a sectional open center valve in a modular design that together with the wide range of standard parts offers maximum flexibility.

The valve is designed for high performance applications mainly in systems with fixed pumps but also for systems with variable pumps.

Two or more valves can be connected to each other in a range of different circuits.

The valve is very robust and well suited for demanding mobile applications. The sections are designed to meet the most stringent requirements on

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Specifications

Brands	HYDAC
Maximum Pressure	250 bar
Maximum Pump Port Flow Rate	60 L/min
Maximum Working Port Flow Rate	60 L/min

General Data and Operating Conditions

Number of Working Sections	1 to 10
Installation Position	Optional
Inlet Plate (P15) Mass	2.6 kg
Inlet Plate (U15) Mass	3.0 kg
Working Section (BP4E) Mass	2.3 kg
Working Section (SP4E) Mass	2.1 kg
Electro-Hydraulic (EH) Mass	0.4 kg
Manual Override Mass	0.3 kg

End Plate (E5E1/E5E2) Mass	2.2 kg	
	0.2 kg	0.3 kg
Working Section (2/4/6/8) Tie Rod Mass	0.4 kg	0.5 kg
	0.6 kg	
Thread Connection Type	BSPP (According to ISO 1179-1) SAE (According to ISO 11926-1 or SAE J1626)	
Ambient Temperature	-20 to 60 °C	
Hydraulic Fluid Temperature	-15 to 80 °C	
Painting	Standard Primer	Top Coat RAL 9005 on Inquiry
Recommended Contamination Level at Normal Duty	Equal to or Better than 18/14 as per ISO 4406.	
Recommended Temperature for Continuous Operation	5 to 176 °F	-15 to 80 °C
Spool Leakage¹	<10 cm ³ /min	

Hydraulic Data

Maximum Flow Rate (P1, P2, A, B)	60 L/min	
Typical Nominal Inlet Flow Rate	16 gpm	
Maximum Typical Nominal Inlet Flow Rate	60 L/min	
Maximum Operating Pressure at Port (A, B, P1, P2, PM, HPCO)	3,625 psi	250 bar
Maximum Operating Pressure at Port (T1, T2, T3)²	25 bar	
Maximum Operating Pressure at Port (Z)³	10 bar	
Maximum External Pilot Oil Supply Pressure	30 bar	
Minimum Electrohydraulic Pilot Pressure	20 bar	
Required Minimum Pump Pressure at Block	9 bar	
Hydraulic Fluid	Mineral Oil (HL/HLP) According to DIN 51524 Synthetic Oil	Other Hydraulic Fluids on Inquiry
Hydraulic Fluid Viscosity at Continuous Operation⁴	10 to 400 mm ² /s	
Maximum Permitted Degree of Contamination of the Hydraulic Fluid	20/18/15 According to ISO 4406 (c)	

Electrical Data

Direct Current (DC) Supply Voltage	12 V	24 V
Connector Type	2-Pin Axial	AMP Junior Timer
Protection Class	Up to IP6K6	
Connector Type with Mating Connector Mounted and Locked	2-Pin Deutsch DT04	Axial
Protection Class with Mating Connector Mounted and Locked	Up to IP6K9K	
Note for Connector Type and IP Protection Class	Mating plug-in connectors are not included.	

General Information and Functional Description

The RS 160 is a proportional control valve according to the open-center principle with electro-hydraulic operation.

The maximum flow rate to the working ports A and B is 60 l/min. The spool 2.1 determines the flow rate and the flow direction.

The pressure control valves 2.3.1 and 2.3.2 are providing shifting pressure to the face sides of the main spool 2.1.

The level of electric current determines the level of pilot pressure and therefore the position of the spool.

Shock/anti-cavitation valves 2.5.1 and 2.5.2 protect the working ports A and B from pressure peaks and/or cavitation.

The check valve 2.2 in the parallel channel P" prevents the load from descending if the spool is moved and the pump does not provide the system with enough pressure (on A and B side).

General Information and Functional Description

Features

- Flow-optimized valve design
- Compact size and low weight
- Several connection options for pump and tank
- Applicable for constant and load-sensing pumps
- Symmetrical sections (Inlet plate can be placed left or right)
- Modular design up to 10 working sections
- Operation type is electrohydraulic proportional (with/without hand lever)
- Shock/anti-cavitation valves for protection of actuators

The modular system includes different types of inlets, sections and outlets. The valve is available with 1 - 10 working sections per valve assembly.

The sections are symmetric which makes it possible to use the valve both as "Left Hand Inlet" and "Right Hand Inlet".

Applications

RS 160 is designed as a

Applications

flexible valve for a wide range of applications, but typical applications are cranes, wheel loaders and agriculture applications within the flow range for the valve.

Note

The technical data were measured at a viscosity of 32 mm²/s.
Higher values are possible, depending on application.

¹ At 100 bar, 32 cSt and 40 °C

² 10 bar for internal connection Z → T

³ Drained to tank preferred

⁴ Higher viscosity allowed at start up