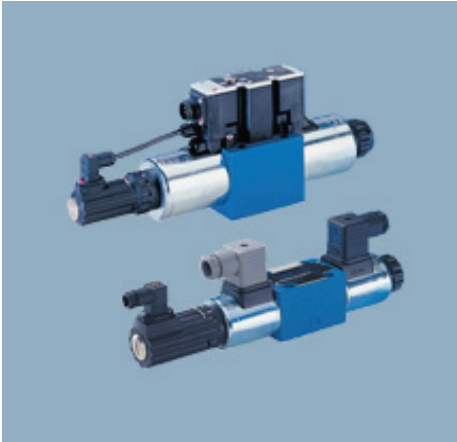


# Proportional and Servo Valve Index



## Proportional and Servo Valves

*Leading the Way for Intelligent Hydraulics*

Hydraulic valves which are electrically operated by proportional solenoids are classified as proportional valves. We offer directional control, pressure relief, pressure reducing, flow control, and throttle valves using proportional operation. High Response Control Valves are proportional directional valves with greater dynamics, normally for improved performance or closed loop applications. Servo valves are electrically operated by a torque motor, for very dynamic performance.

Bosch Rexroth offers the widest variety and range of electrohydraulic valves of any manufacturer.

*To go directly to a specific type click on one of the titles below.*



**Proportional Directional Control Valves**



**High Response Directional Control Valves**



**Flow Control Proportional Valves**



**Pressure Relief Proportional Valves**

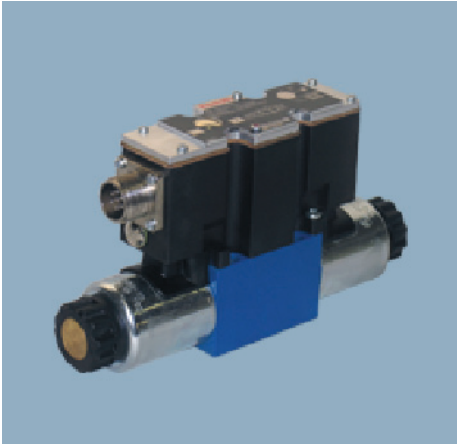


**Pressure Reducing Proportional Valves**



**Servo Valves**





# Proportional and Servo Valves



## Hydraulic Directional Control *Improving Performance and Accuracy*

Standard directional proportional valves are perfect for many hydraulics applications. There are low cost designs without spool feedback for manual and open loop control applications. These can be direct or pilot operated. General purpose valves have better axis performance and accuracy, and Rexroth has implemented valve design improvements that have reduced cost. Consequently, these standard proportional directional valves work well in many closed loop applications.

*Click the data sheet numbers to open the PDF file.*

Proportional Directional Control Valves				
Product Photo	Model	Description	Size	Data Sheet
	4WRA(E)B	<b>Proportional Directional Control Valve</b> Hydraulics Application: 4/2 and 4/3-Way Proportional Directional Control Valve, Direct-Operated	Size 6	RA 29 057
	4WRA and 4WRAE	<b>Proportional Directional Control Valves</b> Hydraulics Application: 4/2- and 4/3-way proportional directional valves, direct operated, without electrical position feedback	Sizes 6 and 10	RE 29 055
	4WRE and 4WREE	<b>Proportional Directional Control Valves</b> Hydraulics Application: 4/2 and 4/3-way proportional directional valves, direct operated, with electrical position feedback	Sizes 6 and 10	RE 29 061
	4WRBA-EA, 4WRBA-E-W 4WRBAE../..W	<b>Proportional Directional Control Valves</b> Hydraulics Application: Proportional directional valves, without position control	Sizes 6 and 10	RE 29 047 RE 29 049 RE 29 051









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# Proportional and Servo Valves

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Proportional Directional Control Valves – continued				
Product Photo	Model	Description	Size	Data Sheet
	KKDSR1	<b>Proportional Directional Control Valves</b>	T8A	RA 18 139-02
	4WRH, 4WRZ, 4WRZE	<b>Proportional Directional Valves</b> Hydraulics Application: 4/2, 4/3 and 5/2, 5/3 proportional directional valves, pilot operated, without electrical position feedback	Sizes 10 to 52	RE 29 115
	4WRK and 4WRKE	<b>Proportional Directional Valves</b> Hydraulics Application: Proportional directional valves, pilot operated, with integrated control electronics (OBE) and electrical position feedback	Sizes 10 to 35	RE 29 075
	4WRP..EA 4WRP..E../..W	<b>Directional Control Valves</b> Hydraulics Application: 4/2 proportional valves with position overlap and position feedback (LvdT AC/AC)	Sizes 6 and 10	RE 29 020 RA 29 022
	4WRPE	<b>Directional Control Valves</b> Hydraulics Application: Proportional valves with on-board electronics, positive overlap and position feedback	Sizes 6 and 10	RA 29 024 RE 29 025
	ZDC	<b>Pressure Compensator for Proportional Valves</b> Hydraulics Application: Meter-in pressure compensator, direct operated	Sizes 6, 10, 16, 25 and 32	RE 29 224



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# Proportional and Servo Valves







## Hydraulics High Response Directional Control

Advancing Intelligent Hydraulics

High-response hydraulics valves offer the greatest performance in proportional directional valve technology. Primarily used in closed loop systems to control position, velocity, pressure, or force – high-response proportional valves are a powerful tool for advancing intelligent hydraulics in your systems. Rexroth has engineered these directional control hydraulics valves to approach a servo valve performance on a cost-effective basis, for the same flow range.

*Click the data sheet numbers to open the PDF file.*

High Response Directional Control Valves				
Product Photo	Model	Description	Size	Data Sheet
	4WRPH 4WRPEH (OBE) 4WRPH 4WRPEH (OBE)	<b>High Response Directional Control Valves</b> Hydraulics Application: High-response directional servo solenoid valves, direct operated, with electrical position feedback	Sizes 6 and 10	RE 29 028 RE 29 035 RE 29 032 RE 29 037
	5WRP 5WRPE	<b>High Response Directional Control Valves</b> Hydraulics Application: High-response directional 5/3-way servo solenoid pQ valves, direct operated, with electrical position feedback	Size 10	RE 29 043 RA 29 045
	4WRREH	<b>Proportional High Response Directional Control Valves</b> Hydraulics Application: High response servo solenoid valves, without position control with electrical position feedback	Size 6	RE 29 041
	4WRSE	<b>Directional High-Response Directional Control Valves</b> Hydraulics Application: 4/3 directional high-response control valves, direct operated, with integrated control electronics (OBE)	Sizes 6 and 10	RE 29 067



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# Proportional and Servo Valves

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High Response Directional Control Valves – continued				
Product Photo	Model	Description	Size	Data Sheet
	4WRL and 4WRLE	<b>High Response Directional Control Valves</b> High response servo solenoid, pilot operated	4WRLE10...35, E. /W. 4WRLE10...35, V/V1 4WRL10...35, E. /W. 4WRL10...35, V/V1	RE 29 089 RE 29 088 RE 29 087 RE 29 086
	4WRVE	<b>High Response Directional Control Valve</b> High response solenoid, pilot operated	Sizes 10 to 25	RE 29 077
	4WRTE	<b>High Response Directional Control Valve</b> Dual solenoid, proportional pilot	Sizes 10 to 35	RE 29 083
	4WRL	<b>High Response Directional Control Valve</b> Ruggedized servo solenoid pilot (So-750), without onboard electronics	Sizes 10 to 25	RE 29 084
	4WRDE	<b>High Response Directional Control Valve</b> Servo valve pilot	Sizes 10 to 32	RE 29 093
	4WRPH6	<b>High Response Directional Control Valve</b> AC/AC LVDT feedback	Sizes 6 and 10	RE 29 030
	4WRP-750	<b>High Response Directional Control Valve</b> Ruggedized servo solenoid pilot (So-750), direct operated, without onboard electronics	Sizes 6 and 10	RE 29 026
	4WREQ	<b>High Response Directional Control Valve</b> 4/3 proportional directional valve, direct operated, with pQ functionality and field bus interface (IAC-P)	Sizes 6 and 10	RE 29 050
	4WRPNH	<b>High Response Directional Control Valve</b> Integrated digital axis control (IAC-R) and clock-synchronized PROFIBUS DP/V2 (PROFIdrive profile)	Sizes 6 and 10	RE 29 291



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# Proportional and Servo Valves








## Hydraulic Flow Control

*Optimizing Machine and Assembly Line Performance*

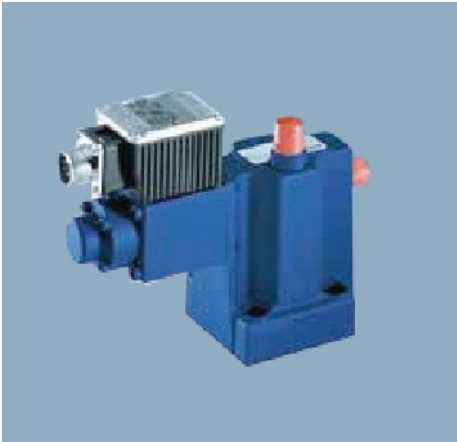
Electronically adjusted orifices with pressure compensation, proportional flow control valves have an integrated compressor or hydrostatic that limits the pressure differential across the throttling orifice. This keeps the flow, or actuator speed, constant when the load forces change. It's one more example of how Rexroth intelligent hydraulics lets you optimize machine and assembly line performance and protect manufacturer's investments in manufacturing technology.

*Click the data sheet numbers to open the PDF file.*

Flow Control Valves				
Product Photo	Model	Description	Size	Data Sheet
	FE, FEE	<b>Flow Control Valves</b> Hydraulics Application: 2-way proportional throttle valves, pilot operated, for block installation	Size 16	RE 29 202
	2FRE	<b>Flow Control Valves</b> Hydraulics Application: Proportional flow control valves, direct operated, 2-way version	Size 6 Sizes 10 and 16	RE 29 188 RE 29 190
	FESX FESXE	<b>Flow Control Valves</b> Hydraulics Application: Proportional cartridge throttle valve, with inductive position transducer, pilot operated (FESXE with on-board electronics (OBE))	Sizes 16, 25, 32, 40 and 50	RE 29 215 RE 29 216
	FES and FESE	<b>Flow Control Valves</b> Hydraulics Application: 2-way proportional throttle valve for block installation	Sizes 25 to 63	RE 29 209
	3WRCB	<b>Flow Control Valve</b> Hydraulics Application: 3-way servo logic valves, cartridge type, pilot operated, with inductive position transducer	Sizes 25, 32, and 50	RE 29 217

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# Proportional and Servo Valves



## Hydraulic Pressure Relief

*Improving Machine and Manufacturing Productivity*

Proportional pressure relief valves limit the pressure in a hydraulic circuit and allow this set limit to be adjusted by electronic control. While relieving pressure, excess flow is returned to a hydraulic reservoir tank, to improve machine efficiency and manufacturing productivity. Rexroth has developed multiple direct and pilot operated designs provide a wide range of hydraulic flow capacity for any relief circuit.







*Click the data sheet numbers to open the PDF file.*

Pressure Relief Proportional Valves				
Product Photo	Model	Description	Size	Data Sheet
	(Z)DBE, (Z)DBEE	<b>Pressure Relief Proportional Valves</b> Hydraulics Application: Proportional pressure relief valves, pilot operated	Size 6	RA 29 158
	DBE(M), DBE(M)E	<b>Pressure Relief Proportional Valves</b> Hydraulics Application: Proportional pressure relief valves, pilot operated	Sizes 10 to 32	RA 29 160
	DBET, DBETE	<b>Pressure Relief Proportional Valves</b> Hydraulics Application: Proportional pressure relief valves, direct operated	Size 6	RE 29 162
	DBEP	<b>Pressure Relief Proportional Valve</b> Hydraulics Application: Proportional pressure relief valves, direct operated	Size 6	RE 29 164

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# Proportional and Servo Valves

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Pressure Relief Proportional Valves – continued				
Product Photo	Model	Description	Size	Data Sheet
	DBETR	<b>Pressure Relief Proportional Valve</b> Hydraulics Application: Proportional pressure relief valve	Size 6	RE 29 166
	DBETX	<b>Pressure Relief Proportional Valve</b> Hydraulics Application: Proportional pressure relief valve, directly operated, pilot valve	Size 6	RE 29 161
	DBETBEX	<b>Pressure Relief Proportional Valve</b> Hydraulics Application: Proportional pressure relief valve with on-board electronics (OBE) and position feedback	Size 6	RE 29 151
	DBETFX	<b>Pressure Relief Proportional Valve</b> Hydraulics Application: Proportional pressure relief valve with linear curve (LvdT AC/AC)	Size 6	RE 29 152
	DBEBE6X	<b>Pressure Relief Proportional Valve</b> Hydraulics Application: Proportional pressure relief valve, pilot operated, with on-board electronics (OBE) and position feedback	Size 6	RE 29 159
	KBPS.9	<b>Proportional Pressure Relief Valves</b> Hydraulics Application: Proportional pressure relief valves, direct operated	T13A	RA 18 139-03

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# Proportional and Servo Valves








## Hydraulic Pressure Reducing

*A Wide Range of Pressure Control Functions*

By regulating downstream pressure in a branch circuit, proportional pressure reducing valves allow this set limit to be adjusted by electronic control. Rexroth reducing valves are optimized to reduce the effect of pressure changes due to varying flow rates. Their excellent transient response prevents excess pressure or overshoot, and under pressure, during changes in desired pressure conditions. Very low pressures can be accurately controlled. In addition, they continue to operate correctly if the flow becomes static. Rexroth proportional reducing valves provides a wide range of flow capacity in pressure control functions.

*Click the data sheet numbers to open the PDF file.*

Pressure Reducing Proportional Valves				
Product Photo	Model	Description	Size	Data Sheet
	3DREP, 3DREPE	<b>Pressure Reducing Valves</b> Hydraulics Application: Proportional pressure reducing valves, direct operated	Size 6	RA 29 184
	DRE6, ZDRE6 ZDREE10	<b>Pressure Reducing Valves</b> Hydraulics Application: Proportional pressure reducing valves, pilot operated	Size 6 Size 10	RE 29 175 RE 29 279
	DREBE6X	<b>Proportional Pressure Reducing Valve</b> Pilot operated, with on-board electronics (OBE) and position feedback	Size 6	RE 29 195
	DRE(M) and DRE(M)E10	<b>Pressure Reducing Valves</b> Hydraulics Application: Proportional pressure reducing valves, pilot operated	Sizes 10 and 25	RA 29 276
	3DRE(M) and 3DRE(M)E	<b>Pressure Reducing Valves</b> Hydraulics Application: Proportional pressure reducing valves, pilot operated	Sizes 10 and 16	RE 29 286

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# Proportional and Servo Valves





## Hydraulic Servos

*Dynamic Response for Intelligent Hydraulic Systems*

Used in closed loop control system applications, electrohydraulic servo valves have the highest dynamic response for intelligent hydraulics systems. With the appropriate system feedback and controller design, Rexroth hydraulic servo valves are unsurpassed in controlling pressure, flow, or position. Servo valves are appropriate for systems with one or more of the following characteristics: high load stiffness (static or dynamic); high accuracy and stability; precise positioning; fine control of velocity and acceleration control.

*Click the data sheet numbers to open the PDF file.*

Servo Valves				
Product Photo	Model	Description	Size	Data Sheet
	4WSE3E	Hydraulic Servos 3-stage	16, 25, 32	RE 29 620 RE 29 621 RE 29 622
	4WS.2E.	<b>Hydraulic Servos</b> Hydraulics Application: 2-stage directional servo-valves, mechanical and electrical feedback	Size 6 Size 10 Size 16	RE 29 564 RE 29 583 RE 29 591

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