Direct-operated valves

	Typical case of application (hydraulic) [1]				Features						
Type	Open control loop	Position control with low accuracy	Position control with high accuracy	Pressure control	Externalelectronics	Integrated electronics (OBE)	Electrical position feedback	IO-Link	Multi-Ethernet	Integrated safety function	Motion control
4WRA, 4WRAE	👍	👎	👎	👎	○	○	–	–	–	–	–
4WRE, 4WREE	👍	👍	👎	👎	○	○	●	–	–	–	–
4WRPE, 4WRPF, 4WRPQ	👍	👍	👎	👍	–	●	●	○	○	○	○ [2]
4WRPDH, 4WRPEH, 4WRPFH	👎	👎	👍	👍	–	●	●	○	○	●	●
4WRREH	👎	👎	👍	👍	–	●	●	–	–	–	–

Pilot-operated valves

	Typical case of application (hydraulic) [1]				Features						
Type	Open control loop	Position control with low accuracy	Position control with high accuracy	Pressure control	Externalelectronics	Integrated electronics (OBE)	Electrical position feedback	IO-Link	Multi-Ethernet	Integrated safety function	Motion control
4WRZ, 4WRZE	👍	👎	👎	👎	○	○	–	–	–	○ [3]	–
4WRKE	👍	👎	👎	👎	–	●	●	–	–	○ [3]	–
4WRLD, 4WRLE, 4WRLF	👎	👍	👍	👍		●	●	○	○	○	○
4WRTE	👎	👎	👍	👍	–	●	●	–	–	○ [3]	–
4WRVE	👎	👎	👍	👍	–	●	●	–	–	–	–
4WRGE	👎	👎	👍	👍	–	●	●	–	–	–	–
4WRDE	👎	👎	👍	👍	–	●	●	–	–	–	–

[1] Guidelines, no performance guarantee
[2] Pressure / flow control
[3] With spool position monitoring

○ = optional
● = integrated

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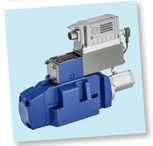
Proportional directional valves

Product overview



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Directional servo valves

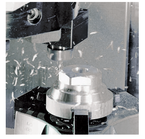
	Typical case of application (hydraulic) [1]				Features						
Type	Open control loop	Position control with low accuracy	Position control with high accuracy	Pressure control	Externalelectronics	Integrated electronics (OBE)	Electrical position feedback	IO-Link	Multi-Ethernet	Integrated safety function	Motion control
4WS2E, 4WSE2E	👎	👎	👍	👍	○	○	○	–	–	–	–
4WSE3E	👎	👎	👍	👍	–	●	●	–	–	–	–

The data and properties specified in this brochure only serve to provide a general overview of the "proportional directional valves" product range of Bosch Rexroth AG.

The overview does not include all technical data and variants and does not replace a technical data sheet. Detailed information on the individual valves can be found in the corresponding data sheets.

No statements concerning a certain condition or suitability for a certain application can be derived from our information.

The information given does not release the user from the obligation of own judgment and verification.



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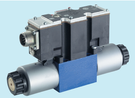
Proportional directional valves, direct-operated

Type			4WRA, 4WRAE				4WREE	
○ = optional ● = integrated [1] According to ISO 10770-1								
Size			6		10		6	10
Component series			2X				3X	2X
Data sheet			29055				29105	29061
Nominal flow	(Δp = 10 bar/valve)	l/min	26		60		32	70
	(Δp = 70 bar/valve)	l/min	–		–		–	–
Maximum operating pressure		bar	315				350	315
Frequency response 90°	±5%	Hz	–		–		65	50
	±25%	Hz	–		–		50	40
Step response	0 … 100% (T_{max}) [1]	ms	70		200		25	33
Analog interface / digital IO-Link			● / –				●	
Field bus Multi-Ethernet			–				–	
Electrical position feedback			–				●	
Pressure-force controller (external/internal sensor)			–				–	
Axis controller (IAC)			–				–	
Closed-loop flow (Q control)			–				–	
Integrated safety function STO (EN13849)			–				–	
Main spool position (without power supply)	Symbol E; W (overlapped)		Central position				Central position	
	Symbol V (zero overlap)		–				undefined	

Directional control valves, direct-operated

Type			4WRPE		4WRPF		4WRPQ		4WRPDH		4WRPEH		4WRPFH	4WRREH
○ = optional ● = integrated [1] According to ISO 10770-1														
Size			10		6	10	6	10	6	10	6	10	6	6
Component series			3X		3X		3X		2X		3X		3X	1X
Data sheet			29122		29131		29133		29391		29121	29038	29395	29041
Nominal flow	(Δp = 10 bar/valve)	l/min	80		32	80	32	80	–	–	–	–	–	–
	(Δp = 70 bar/valve)	l/min	–		–		–		40	100	40	100	40	40
Maximum operating pressure		bar	350		350		350		350		350		350	315
Frequency response 90°	±5%	Hz	45		90	60	90	60	150	125	110	70	150	210
	±25%	Hz	38		65	60	65	60	125	70	110	70	125	170
Step response	0 … 100% (T_{max}) [1]	ms	19		20	25	20	25	8	22	8	18	8	5
Analog interface / digital IO-Link			● / ○		–		–		● / –		○		–	● / –
Field bus Multi-Ethernet			–		●		●		●		–		●	–
Electrical position feedback			●		●		●		●		●		●	●
Pressure-force controller (external/internal sensor)			–		○		●		● (external sensor)		–		○	–
Axis controller (IAC)			–		–		–		●		–		–	–
Closed-loop flow (Q control)			–		–		●		–		–		–	–
Integrated safety function STO (EN13849)			–		●		●		●		–		●	–
Main spool position (without power supply)	Symbol E; W (overlapped)		Central position		Central position		Central position		–		–		–	–
	Symbol V (zero overlap)		undefined		undefined		undefined		Fail-safe position		Fail-safe position		Fail-safe position	undefined

Proportional directional valves, pilot-operated

Type			4WRZ, 4WRZE										4WRKE									
○ = optional ● = integrated [1] According to ISO 10770-1																						
Size			10	16	25	32	10	16	25	27	32	35	10	16	25	27	32	35
Component series			7X				3X											
Data sheet			29115				29075											
Nominal flow	(Δp = 10 bar/valve)	l/min	85	180	325	520	90	220	350	500	600	1000	100	250	400	600	1500
	(Δp = 70 bar/valve)	l/min	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Maximum operating pressure		bar	315	350	350	350	350	350	350	270	350	350	350	350	350	270	350
Dynamics (measured at pilot pressure; zero overlap)		bar	50				100						100					
Frequency response 90°	±5%	Hz	–	–	–	–	–	–	–	–	–	–	50	50	55	50	30
	±25%	Hz	–	–	–	–	–	–	–	–	–	–	30	28	24	25	13
Step response	0 … 100% (T_{max}) [1]	ms	40	75	100	170	18	29	48	48	75	125	22	20	24	24	75
Analog interface / digital IO-Link			● / –										● / –					
Field bus Multi-Ethernet			–				–						●					
Electrical position feedback			–				●						●					
Pressure-force controller (external/internal sensor)			–				–						● (external sensor)					
Axis controller (IAC)			–				–						●					
Integrated safety function STO (EN13849)			○ (Type 4WRZ(E)M)				○ (SO986)						●					
Main spool position (without power supply)	Symbol E; W (overlapped)		Central position				Central position						Central position					
	Symbol V (zero overlap)		–				–						Offset position					

Directional control valves, pilot-operated

Type			4WRLD					4WRLE					4WRLF				4WRTE					
○ = optional ● = integrated [1] According to ISO 10770-1																						
Size			10	16	25	27	35	10	16	25	27	35	10	16	25	27	10	16	25	27	32	35
Component series			4X					4X					4X				4X					
Data sheet			29289					29123					29293				29083					
Nominal flow	(Δp = 10 bar/valve)	l/min	100	250	400	600	1500	100	250	400	600	1500	100	250	400	600	90	220	350	500	600	1000
	(Δp = 70 bar/valve)	l/min	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Maximum operating pressure		bar	350	350	350	270	350	350	350	350	270	350	350	350	350	270	350	350	350	270	350	350
Dynamics (measured at pilot pressure; zero overlap)		bar	100					100					100				100					
Frequency response 90°	±5%	Hz	50	50	55	50	30	61	59	60	52	32	50	50	55	50	50	40	30	30	18	12
	±25%	Hz	30	28	24	25	13	54	51	51	45	23	30	28	24	25	50	50	35	35	20	18
Step response	0 … 100% (T_{max}) [1]	ms	22	20	24	24	75	22	20	26	26	69	22	20	24	24	15	22	25	25	50	76
Analog interface / digital IO-Link			● / –					○					–				● / –					
Field bus Multi-Ethernet			●					–					●				–					
Electrical position feedback			●					●					●				●					
Pressure-force controller (external/internal sensor)			● (external sensor)					–					○				–					
Axis controller (IAC)			●					–					–				–					
Integrated safety function STO (EN13849)			●					–					●				○ (Type 4WRTEM)					
Main spool position (without power supply)	Symbol E; W (overlapped)		Central position					Central position					Central position				Central position					
	Symbol V (zero overlap)		Offset position					Offset position					Offset position				Offset position					

Type			4WRGE			4WRDE						4WS.2E			4WSE3E		
○ = optional ● = integrated [1] According to ISO 10770-1																	
Size			10	16	25	10	16	25	27	32	35	6	10	16	16	25	32
Component series			1X			6X				5X		2X	5X	2X	2X	3X	5X
Data sheet			29070			29097				29093		29564	29583	29591	29620	29621	29622
Nominal flow	(Δp = 10 bar/valve)	l/min	90	200	350	90	220	350	500	600	1000	10	34	75	100	170	340
	(Δp = 70 bar/valve)	l/min	–	–								25	90	200	260	450	890
Maximum operating pressure		bar	315	350	350	350	350	350	270	350	350	315			350	350	315
Dynamics (measured at pilot pressure; zero overlap)		bar	210			100						315			315		
Frequency response 90°	±5%	Hz	125	105	95	110	100	90	90	80	55	320	320	160	190	190	135
	±25%	Hz	60	50	40	75	70	70	70	60	40	210	160	60	60	70	52
Step response	0 … 100% (T_{max}) [1]	ms	24	34	60	9	14	13	13	19	17	3	4	6	4.5	4.5	6
Analog interface / digital IO-Link			● / –			● / –						● / –			● / –		
Field bus Multi-Ethernet			–			–						–			–		
Electrical position feedback			●			●						–			●		
Pressure-force controller (external/internal sensor)			–			–						–			–		
Axis controller (IAC)			–			–						–			–		
Integrated safety function STO (EN13849)			–			–						–			–		
Main spool position (without power supply)	Symbol E; W (overlapped)		–			○ (Central position)						–			–		
	Symbol V (zero overlap)		undefined			○ (Offset position)						–			–		

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