

2-way cartridge valves, directional functions

Type LC (cartridge valves)
 Type LFA (control cover)

RE 21010

Edition: 2017-05

Replaces: 2014-09



- ▶ Standard series
- ▶ Size 16 ... 160
- ▶ Component series 2X; 6X; 7X
- ▶ Maximum operating pressure 420 bar
- ▶ Maximum flow 25,000 l/min

Features

- ▶ Valve poppet with or without damping nose
- ▶ 2 area ratios
- ▶ 6 different cracking pressures
- ▶ 4 stroke limitations
- ▶ Control cover with integrated seat valve
- ▶ Control cover with integrated shuttle valve
- ▶ Control cover for set-up of directional spool valves with or without installed shuttle valve

Ordering code: Control cover type LFA...

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
LFA			-	/										

Corrosion resistance

13	None	no code
	Improved corrosion protection (240 h salt spray test according to EN ISO 9227)	J3

Seal material







14	NBR seals	no code
	FKM seals	V
	Observe compatibility of seals with hydraulic fluid used. (Other seals upon request)	

Connections, mounting and plug screws

15	Mounting screws, metric; connections inch thread	no code
	Mounting screws UNC; connections UNF	/12

Notice:

Additional functions with special numbers see from page 97.

Orifice symbol		Symbol in ordering code		
A**		A**		This orifice is designed as screw-type orifice. If an orifice is to be installed, the respective code letter with the orifice \varnothing in 1/10mm has to be entered in the type designation. Example: A12 = orifice with \varnothing 1.2 mm in channel A.
\varnothing1.2				This orifice is designed as bore. No specifications are made in the type designation. (Orifice \varnothing in mm)
Z12				This orifice is designed as screw-type orifice. This is a standard orifice. No specifications are made in the type designation. (Orifice \varnothing in 1/10 mm)

Pilot control valve (separate order)

Control cover		Pilot control valve	
Size	Design	Size	Description
16 ... 50	WE., WEM., WECA, GW., KW.	6	4/3-, 4/2-, 3/2-directional spool valve, direct operated (subplate mounting)
63 ... 100	WE., WEM., WECA, GW., KW.	10	
125	WE., WEMA, KW.	10, 16	2/2-, 3/2-, 4/2 directional seat valve, direct operated (subplate mounting)
160	WE.	25	

Notice:

- ▶ By combination of a 2-way cartridge valve with a pilot control valve, various valve functions can be realized. Possible pilot control valves according to ISO 4401 see selection table above.
- ▶ Mounting screws for pilot control valves are not included in the scope of delivery.

Technical data

(For applications outside these parameters, please consult us!)

general												
Size		16	25	32	40	50	63	80	100	125	160	
Weight	▶ Type LC	kg	0.25	0.5	1.1	1.9	3.9	7.2	13.0	27.0	44.0	75.0
	▶ Type LFA	kg	1.2	2.3	4.0	7.4	10.5	21.0	27.0	42.0	80.0	150.0
Ambient temperature range		°C	-30 ... +60 (NBR seals) -20 ... +60 (FKM seals)									
MTTF _D values according to EN ISO 13849		Years	150 (for further details, see data sheet 08012)									

hydraulic			
Maximum operating pressure	▶ Without directional valve	bar	420
	▶ Port A, B, X, Z1, Z2	bar	315; 350; 420 (dependent on the attached directional valve)
	▶ Port Y	bar	Depending on the maximum tank pressure of the attached directional valve
Maximum flow		l/min	25000 (NG-dependent; see characteristic curves page 10 ... 13)
Hydraulic fluid			See table below
Hydraulic fluid temperature range		°C	-30 ... +80 (NBR seals) -20 ... +80 (FKM seals)
Viscosity range		mm ² /s	2.8 ... 500
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)			Class 20/18/15 ¹⁾

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP, HLPD, HVLP, HVLPD	NBR, FKM	DIN 51524	90220
Bio-degradable ²⁾	▶ Insoluble in water	HETG	ISO 15380	90221
		HEES		
	▶ Soluble in water	HEPG	ISO 15380	
Flame-resistant	▶ Water-free	HFDU (glycol base)	ISO 12922	90222
		HFDU (ester base) ²⁾		
	▶ containing water ²⁾	HFC (Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620)	NBR	ISO 12922



Important information on hydraulic fluids:

- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).

▶ Flame-resistant – containing water:

- Life cycle as compared to operation with mineral oil HL, HLP 30 ... 100%
- Maximum hydraulic fluid temperature 60 °C

- ▶ **Bio-degradable and flame-resistant:** If this hydraulic fluid is used, small amounts of dissolved zinc may get into the hydraulic system.

¹⁾ The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components.

Available filters can be found at www.boschrexroth.com/filter.

²⁾ Not recommended for corrosion-protected version "J3" (contains zinc)

Ordering code: Control cover type LFA...

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
LFA			-	/										

01	Control cover	LFA
02	Size 16	16
	Size 25	25
	Size 32	32
	Size 40	40
	Size 50	50
	Size 63	63
	Size 80	80
	Size 100	100
	Size 125	125
	Size 160	160

Control cover types

03	Control cover with remote control port (NG16 ... 160)	D
	Control cover with stroke limitation (hand wheel) and remote control port (NG16 ... 63)	H1
	Control cover with stroke limitation (internal hexagon) and remote control port (NG16 ... 160)	H2
	Control cover with stroke limitation (rotary knob, lockable) and remote control port (NG16 ... 40)	H3
	Control cover with stroke limitation (rotary knob) and remote control port (NG16 ... 100)	H4
	Control cover with integrated shuttle valve (NG16 ... 100)	G
	Control cover with integrated pilot operated pilot control valve (directional seat valve) (NG25 ... 100)	R
	Control cover with integrated pilot operated pilot control valve (directional seat valve) (NG25 ... 100)	RF
	Control cover for set-up of a directional valve (NG16 ... 160)	WEA
	Control cover for set-up of a directional valve (NG16 ... 160)	WEB
	Control cover for set-up of a directional valve; additional control port (NG16 ... 125)	WEMA
	Control cover for set-up of a directional valve; additional control port (preferably "WEMA") (NG16 ... 100)	WEMB
	Control cover for set-up of a directional valve (check valve circuit) (NG16 ... 100)	WECA
	Control cover with shuttle valve and for set-up of a directional valve (NG16 ... 100)	GWA
	Control cover with shuttle valve and for set-up of a directional valve (preferably "GWA") (NG16 ... 100)	GWB
	Control cover with shuttle valve and for set-up of a directional valve; additional control port (NG16 ... 100)	GWMA
	Control cover with two check valves and for set-up of a directional valve; additional control port (NG16 ... 100) ¹⁾	GWMA20
	Control cover with shuttle valve and for set-up of a directional valve (check valve circuit) (NG16 ... 100) ¹⁾	KWA
	Control cover with shuttle valve and for set-up of a directional valve (check valve circuit) (NG16 ... 100) ¹⁾	KWB
	Control cover with shuttle valve and for set-up of a directional valve; additional control port (NG16 ... 100)	KWMA
Control cover for set-up of a directional valve with stroke limitation (NG16 ... 63) ¹⁾	HWMA	
Control cover for set-up of a directional valve with stroke limitation (NG16 ... 63) ¹⁾	HWMB	
04	Component series 70 ... 79 (70 ... 79: unchanged installation and connection dimensions) (NG16 ... 63)	7X
	Component series 60 ... 69 (60 ... 69: unchanged installation and connection dimensions) (NG80 ... 100)	6X
	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions) (NG125 ... 160)	2X

Remote control port

05	For more detailed information, please refer to the pages of the individual control cover variants	
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Orifices

06 ... 12	For more detailed information, please refer to the pages of the individual control cover variants and to page 95 (orifice characteristic curves).	
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¹⁾ Other sizes upon request

Ordering code: Cartridge valve (without control cover)

01	02	03	04	05	06	07
LC					/	

01	Cartridge valve	LC
02	Size 16	16
	Size 25	25
	Size 32	32
	Size 40	40
	Size 50	50
	Size 63	63
	Size 80	80
	Size 100	100
	Size 125	125
Size 160	160	

Spool design (for area ratio see section on page 3)

03	$A_1 : A_2 = 2 : 1$ ($A_2 = 50\%$)	A
	$A_1 : A_2 = 14.3 : 1$ ($A_2 = 7\%$)	B
04	Cracking pressure 0 bar (without spring)	00
	Cracking pressure ca. 0.5 bar	05
	Cracking pressure ca. 1 bar	10
	Cracking pressure ca. 2 bar	20
	Cracking pressure ca. 3 bar (only NG125)	30
	Cracking pressure ca. 4 bar (not NG125)	40
	For the exact values see page 8.	
05	Valve poppet without damping nose	E
	Valve poppet with damping nose	D
06	Component series 70 ... 79 (70 ... 79: unchanged installation and connection dimensions) (NG16 ... 63)	7X
	Component series 60 ... 69 (60 ... 69: unchanged installation and connection dimensions) (NG80 ... 100)	6X
	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions) (NG125 ... 160)	2X

Seal material

07	NBR seals	no code
	FKM seals	V
	Attention: Observe compatibility of seals with hydraulic fluid used. (Other seals upon request)	

Symbols

Version "E"		Version "D"	
Area ratio $A_1 : A_2 = 2 : 1$ Version "...A.E..."	Area ratio $A_1 : A_2 = 14.3 : 1$ Version "...B.E..."	Area ratio $A_1 : A_2 = 2 : 1$ Version "...A.D..."	Area ratio $A_1 : A_2 = 14.3 : 1$ Version "...B.D..."

Additional functions with special numbers see page 97.