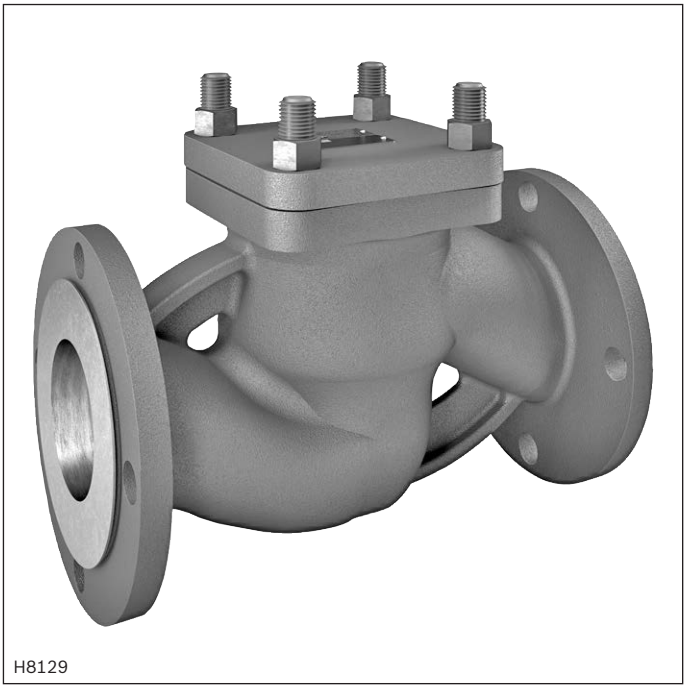
Check valve

Type L–S

RE 20405
Edition: 2019-02



H8129

- Size 40 ... 300
- Component series 1X
- Maximum operating pressure 16 bar
- Maximum flow 50000 l/min

Features

- For flange connection
- Flange connection according to DIN EN 1092-2 type 21
- 4 cracking pressures

Contents

Ordering code

01	02	03	04	05		06	07	08
L–S		**F**		**–**	**1X**	**/**	**16**		*****

01	Check valve	**L–S**

02	Size 40	**40**
	Size 50	**50**
	Size 65	**65**
	Size 80	**80**
	Size 100	**100**
	Size 125	**125**
	Size 150	**150**
	Size 200	**200**
	Size 250	**250**
	Size 300	**300**

03	Flange connection according to DIN EN 1092-2 type 21	**F**

Cracking pressure

04	0 bar; (without spring, horizontal installation position; top cover)	**0**
	0.7 bar	**1**
	1.5 bar	**2**
	3.0 bar (not for NG250 and NG300)	**3**

05	Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions)	**1X**

06	Maximum operating pressure 16 bar	**16**

Seal material

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

08	Further details in the plain text	*****

Symbols

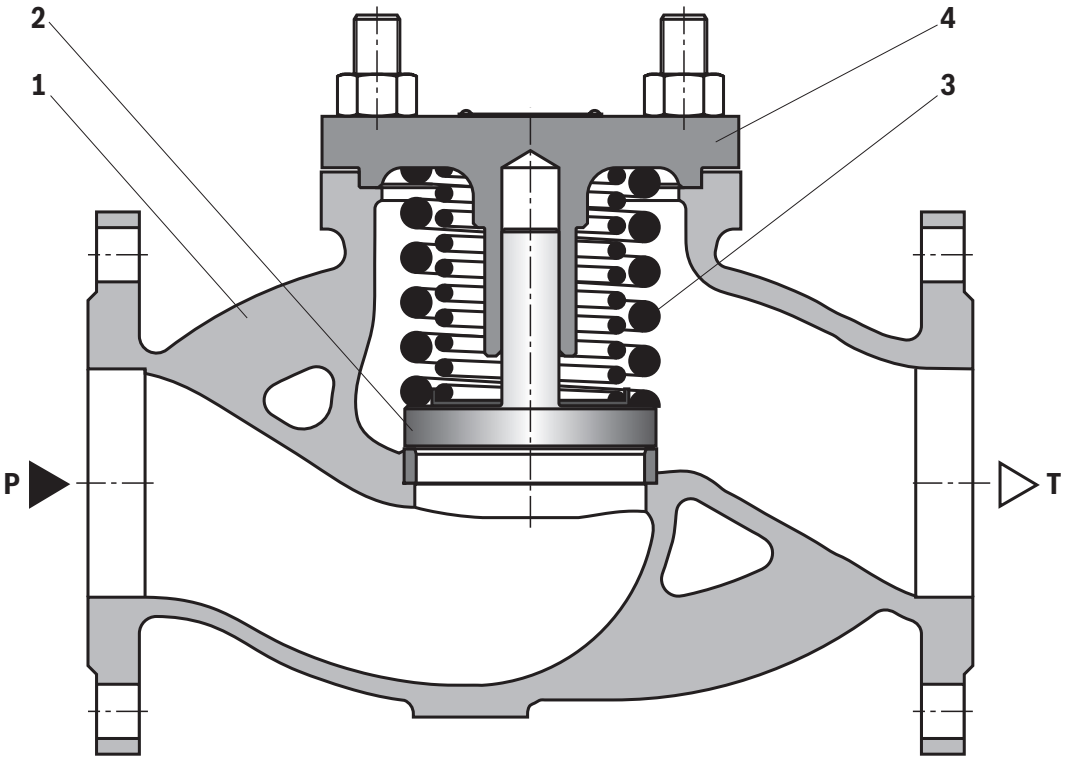
Without spring

With spring

Function, section

Valves type L-S are check valves for pipeline installation. They are particularly suited for high flows.
The valves basically consist of pipeline installation housing (1), main spool (2), spring (3) and cover (4). In direction P → T, the main spool (2) can be opened by the flow against the spring force. In direction T → P, however, the line is locked leakage-free by the main spool (2).

☞ **Notice:**
Observe flow direction and flow direction indicator.



Technical data
(for applications outside these values, please consult us!)

General										
Size	40	50	65	80	100	125	150	200	250	300
Weight kg	8	11	17	22	33	52	72	123	200	310
Installation position	any									
Ambient temperature range °C	–30 ... +80 (NBR seals) –15 ... +80 (FKM seals)									

Hydraulic		
Maximum operating pressure ▶ Port P, X	bar	16
Maximum flow	l/min	50000
Hydraulic fluid		see table below
Hydraulic fluid temperature range	°C	–30 ... +80 (NBR seals) –15 ... +80 (FKM seals)
Viscosity range	mm^2/s	10 ... 800
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	NBR, FKM	DIN 51524	90220
Bio-degradable	▶ Insoluble in water	HETG	FKM	ISO 15380	90221
		HEES	FKM		
	▶ Soluble in water	HEPG	FKM	ISO 15380	
Flame-resistant	▶ Water-free	HFDU (glycol base)	FKM	ISO 12922	90222
		HFDU (ester base)	FKM		
	▶ Containing water	HFC (Fuchs: Hydrotherm 46M; Petrofer: Ultra Safe 620)	NBR	ISO 12922	90223

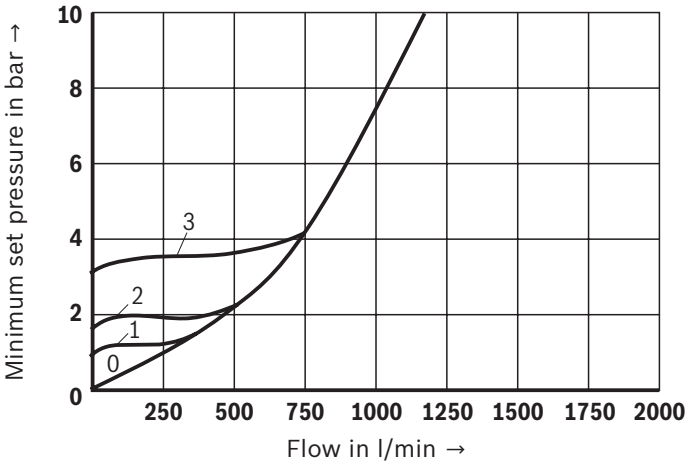
☞ **Important information on hydraulic fluids:**
- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).
- ▶ The ignition temperature of the hydraulic fluid used must be 50 K higher than the maximum surface temperature.
- ▶ **Flame-resistant – containing water:**
  Due to increased cavitation tendency with HFC hydraulic fluids, the life cycle of the component may be reduced by up to 30% as compared to the use with mineral oil HLP. In order to reduce the cavitation effect, it is recommended - if possible specific to the installation - to back up the return flow pressure in ports T to approx. 20% of the pressure differential at the component.

[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.

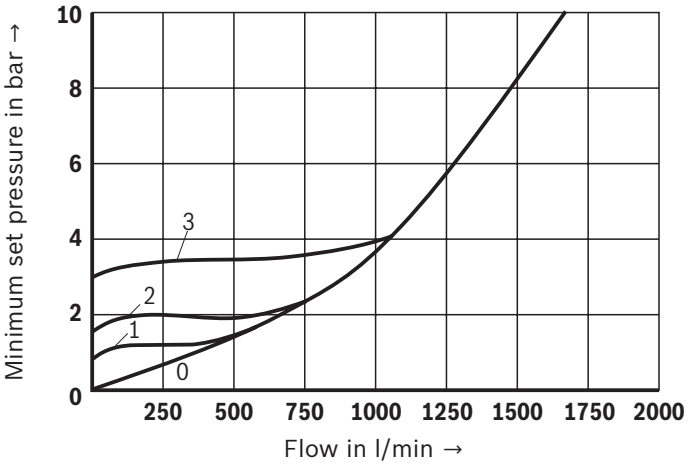
Characteristic curves

(simulated with HLP46, ϑ_{oil} = 40 ±5 °C)

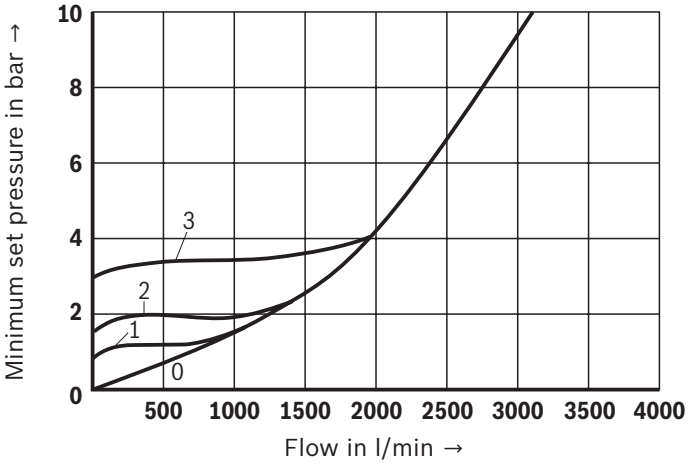
Size 40



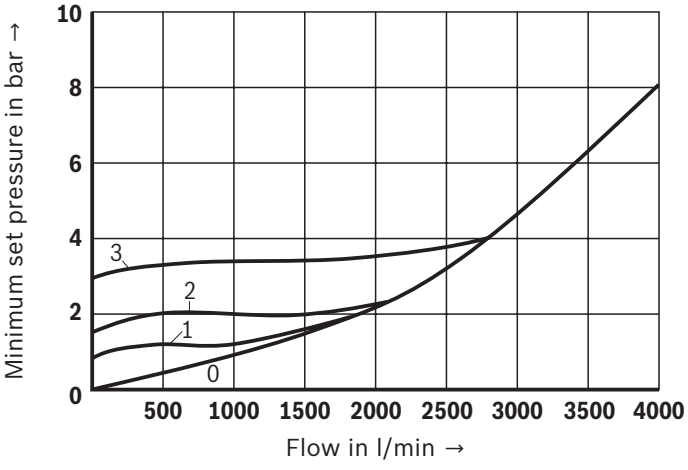
Size 50



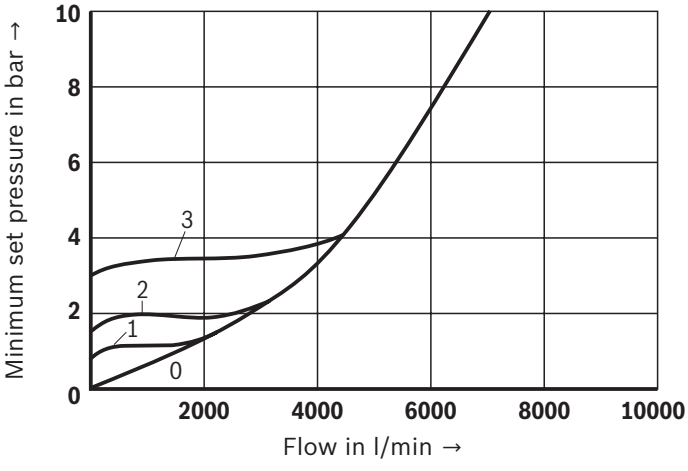
Size 65



Size 80



Size 100

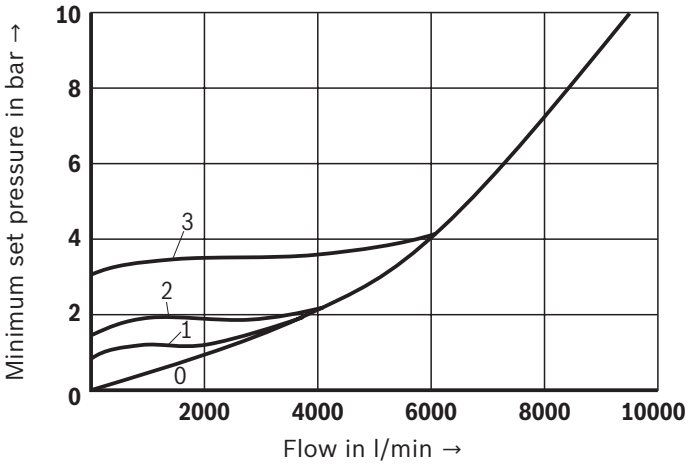


0 Cracking pressure 0 bar (without spring)
1 Cracking pressure 0.7 bar
2 Cracking pressure 1.5 bar
3 Cracking pressure 3.0 bar

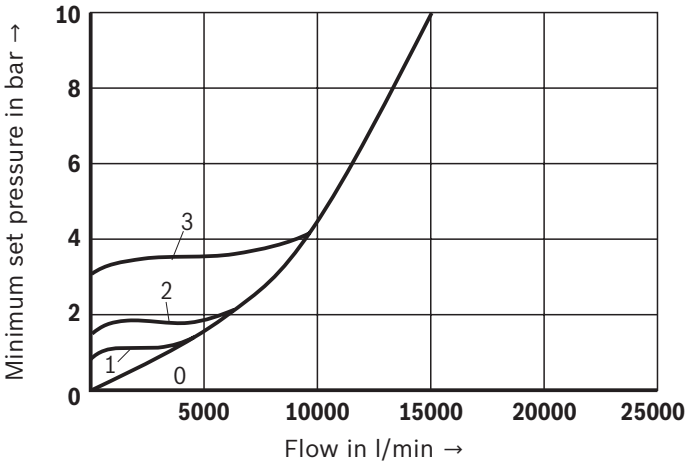
Characteristic curves

(measured with HLP46, ϑ_{oil} = 40 ±5 °C)

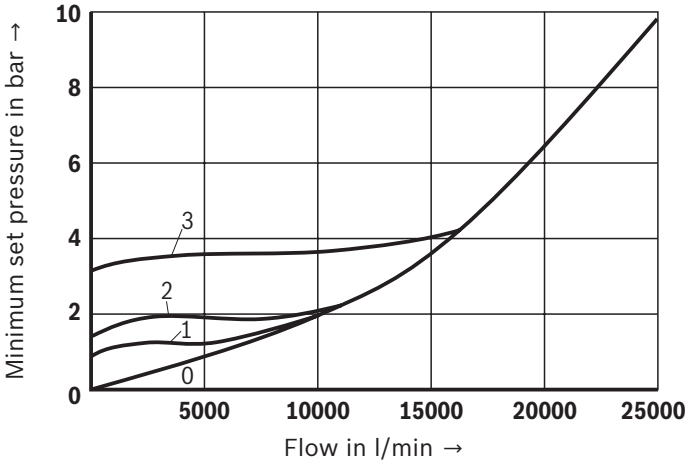
Size 125



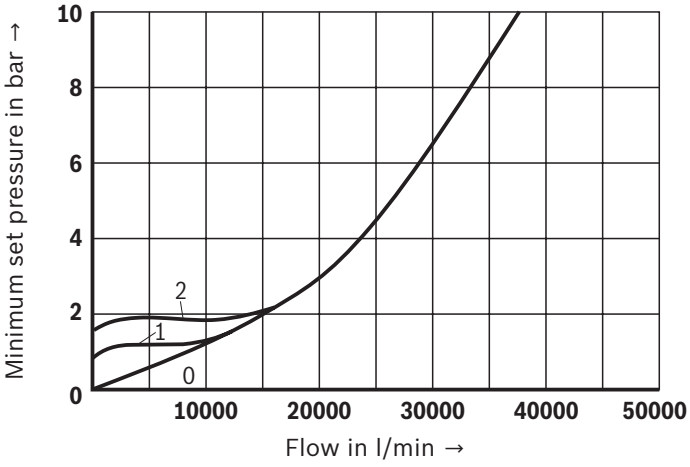
Size 150



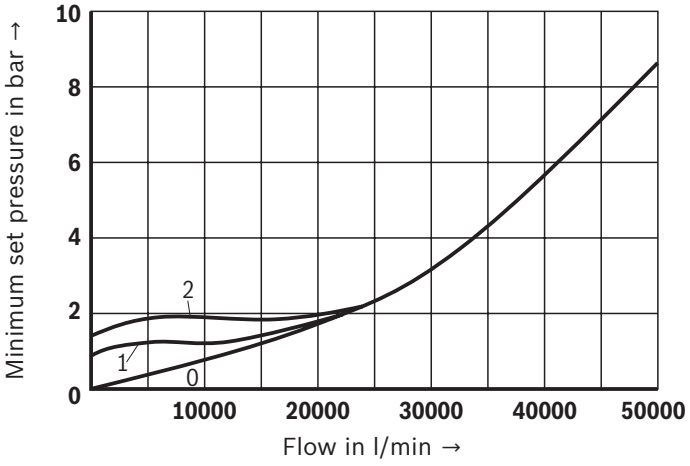
Size 200



Size 250



Size 300



0 Cracking pressure 0 bar (without spring)
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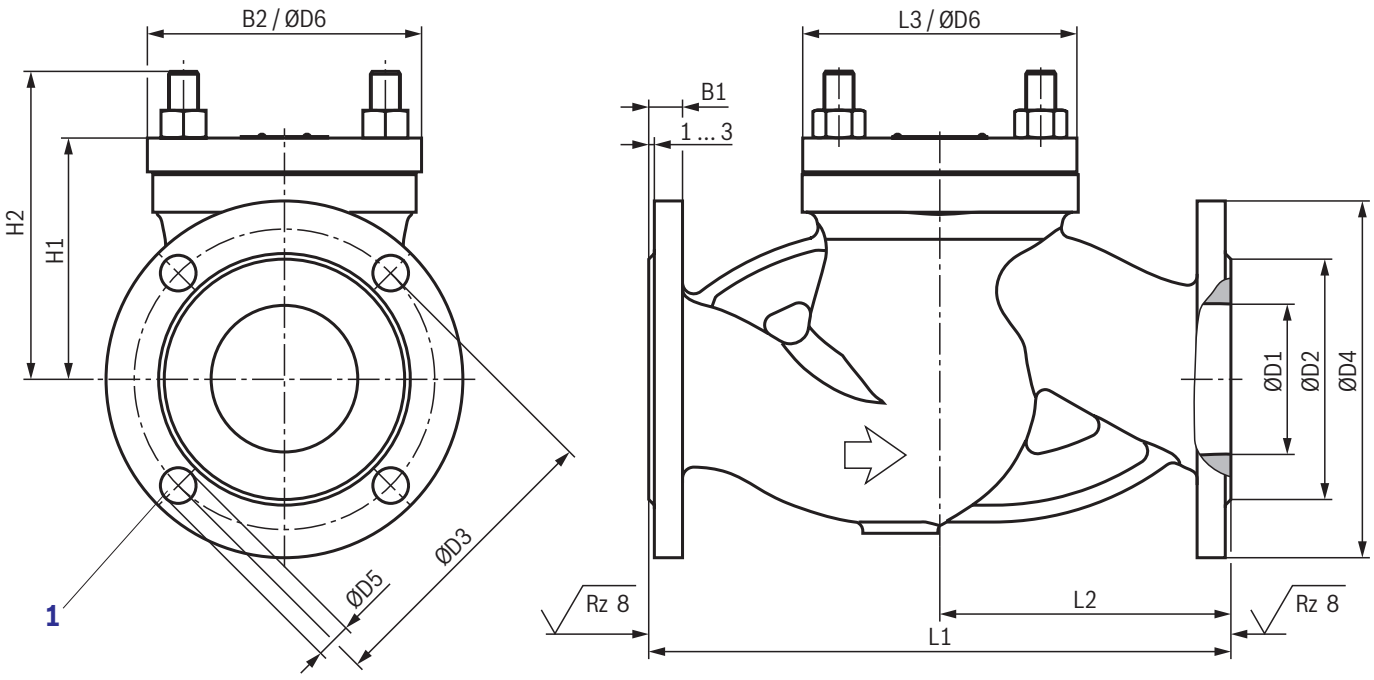
Dimensions
(dimensions in mm)



NG	L1	L2	L3	H1	H2	B1	B2	ØD1	ØD2	ØD3	ØD4	ØD5	ØD6
40	198±2	99	96	90	105	13	96	40	84	110	150	19	–
50	228±2	114	104	95	112	15	106	50	99	125	165	19	–
65	288±3	144	131	120	134	15	134	65	118	145	185	19	–
80	308±3	154	144	130	146	17	147	80	132	160	200	19	–
100	348±3	174	169	155	179	19	174	100	156	180	220	19	–
125	398±3	199	–	175	200	21	–	125	184	210	250	19	255
150	478±3	239	–	195	220	21	–	150	211	240	285	23	285
200	598±4	299	–	245	266	25	–	200	266	295	340	23	345
250	728±4	364	–	295	312	27	–	250	319	355	405	28	418
300	848±5	424	–	335	353	26	–	300	370	410	460	28	484

1 Valve mounting bores

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Valve mounting screws see page 8.

Dimensions

Valve mounting screws (separate order)

NG	Quantity	Hexagon screw [1]	Hexagon nut	M_A in Nm [2]
40	4	Hexagon screw ISO 4018 - M16 - 4.6	HEXAGON NUT ISO4032-M16	63
50	4	Hexagon screw ISO 4018 - M16 - 4.6	HEXAGON NUT ISO4032-M16	63
65	4	Hexagon screw ISO 4018 - M16 - 4.6	HEXAGON NUT ISO4032-M16	63
80	8	Hexagon screw ISO 4018 - M16 - 4.6	HEXAGON NUT ISO4032-M16	63
100	8	Hexagon screw ISO 4018 - M16 - 4.6	HEXAGON NUT ISO4032-M16	63
125	8	Hexagon screw ISO 4018 - M16 - 4.6	HEXAGON NUT ISO4032-M16	63
150	8	Hexagon screw ISO 4018 - M20 - 4.6	HEXAGON NUT ISO4032-M20	123
200	12	Hexagon screw ISO 4018 - M20 - 4.6	HEXAGON NUT ISO4032-M20	123
250	12	Hexagon screw ISO 4018 - M24 - 4.6	HEXAGON NUT ISO4032-M24	213
300	12	Hexagon screw ISO 4018 - M24 - 4.6	HEXAGON NUT ISO4032-M24	213

1) For selection and design, DIN EN 1092-2 has to be observed

2) Tightening torques have been calculated with hexagon socket head cap screws ISO 4762 (galvanized)
Friction coefficient μ_{total} = 0.09 0.14

☞ **Notice:**
The specified tightening torques stated are guidelines when using screws with the specified friction coefficients and when using a manual torque wrench (tolerance ±10%).

Further information

▶ Hydraulic fluids on mineral oil basis	Data sheet 90220
▶ Environmentally compatible hydraulic fluids	Data sheet 90221
▶ Flame-resistant, water-free hydraulic fluids	Data sheet 90222
▶ Flame-resistant hydraulic fluids - containing water (HFAE, HFAS, HFB, HFC)	Data sheet 90223
▶ Hydraulic valves for industrial applications	Operating instructions 07600-B
▶ Selection of filters	www.boschrexroth.com/filter

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