Short description

Axial piston pump LH30VO

The Liebherr LH30VO axial piston pumps were developed for open circuits in mobile and stationary applications.

The medium pressure pumps are designed as swashplates and can be operated with through-drive up to 130%.

The through-drive design of the LH30VO is highly flexible, even after installation in the final application. Its modular control model kit provides more than 35 possible control combinations, including power control (LR), electrical volume flow control (VE) with rising characteristic, and additional jump function at signal loss (VK). They are designed for the most common applications, such as driving equipment, ventilation, or steering of a machine.

Its increased performance and the optimised production and assembly processes make the LH30VO an attractive and high-performing product for mobile and stationary applications where a pressure range up to 4,061 psi (280 bar) is required.

Valid for:
LH30VO028
LH30VO045
LH30VO085
LH30VO100

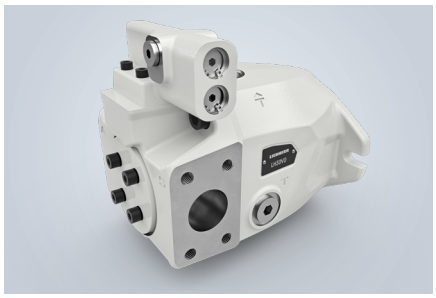
Features:
Open circuit
Modular design of through-drive and control

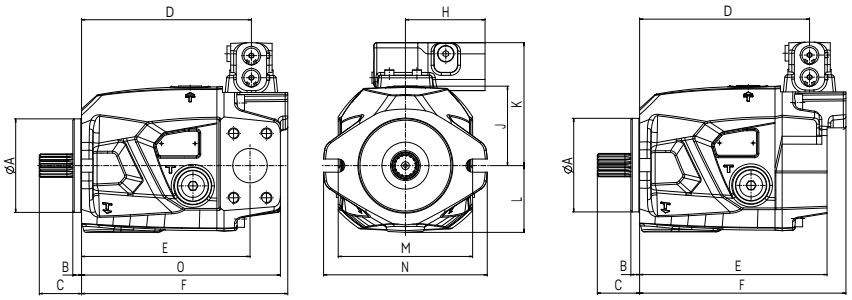
Control types:
Pressure control
Volume flow regulation
Performance regulation
Various combined forms of regulation

Pressure range:
Nominal pressure p_N = 4,061 psi (280 bar)
Maximum pressure p_{max} = 4,641 psi (320 bar)

LIEBHERR

Axial piston pump LH30VO





LH30VO variable displacement, open circuit, nominal pressure 4,061 psi (280 bar), maximum pressure 4,641 psi (320 bar)

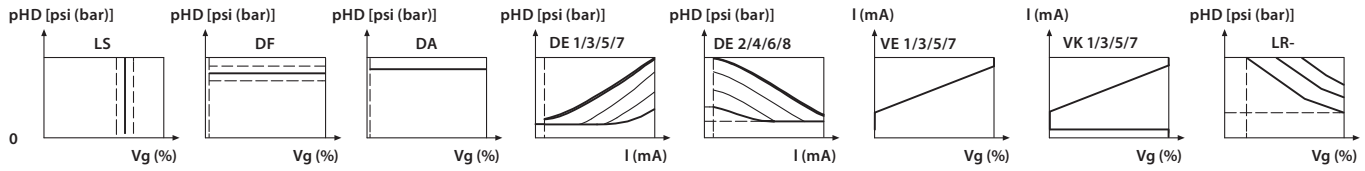
Nominal size			**28**	**45**	**85**	**100**
Displacement volume	$V_{g\,max}$	$inch^3$ (cm^3)	1.75 (28.7)	2.84 (46.5)	5.25 (86.1)	6.32 (103.5)
Max. speed	at $V_{g\,max}$, n_{max}	rpm	3,300	3,000	2,500	2,400
Volume flow	at n_{max}, $q_{v\,max}$	US.liq.gal/min (l/min)	25.0 (94.7)	36.9 (139.5)	54.6 (206.6)	65.6 (248.4)
Drive power	Δp = 4,061 psi (280 bar), P_{max}	hp (kW)	59.3 (44.2)	87.3 (65.1)	134.6 (100.4)	155.4 (115.9)
Drive torque	Δp = 4,061 psi (280 bar), T_{max}	lbf·ft (Nm)	94.3 (127.9)	152.8 (207.2)	283.0 (383.7)	340.1 (461.1)
Max. torque of through-drive		lbf·ft (Nm)	117 (158)	221 (300)	392 (532)	392 (532)
Available controls			LS-DA, LS-DE, DF-DA, DE-DA, DA, DE, VE, VK, LR			

Technical data

Product dimensions [inch (mm)]*		**LH30VO028 On side****	**LH30VO028 Rear****	**LH30VO045 On side****	**LH30VO045 Rear****	**LH30VO085 On side****	**LH30VO085 Rear****	**LH30VO100 On side****	**LH30VO100 Rear****
Centering diameter	A	4.00 (101.6)	4.00 (101.6)	4.00 (101.6)	4.00 (101.6)	5.00 (127)	5.00 (127)	5.00 (127)	5.00 (127)
Length, centering diameter	B	0.37 (9.5)	0.37 (9.5)	0.37 (9.5)	0.37 (9.5)	0.50 (12.7)	0.50 (12.7)	0.50 (12.7)	0.50 (12.7)
Length from the flange to the end of the shaft	C	1.61 (41)	1.61 (41)	1.81 (45.9)	1.81 (45.9)	2.18 (55.4)	2.18 (55.4)	2.18 (55.4)	2.18 (55.4)
Length from flange to the regulating screws of the control	D	6.54 (166)	6.54 (166)	7.26 (184.5)	7.26 (184.5)	8.94 (227)	8.94 (227)	9.37 (238)	9.37 (238)
Length from the flange to the suction channel and high-pressure channel	E	6.24 (158.5)	7.09 (180)	7.20 (183)	8.01 (203.5)	8.98 (228)	9.65 (245)	9.41 (239)	10.08 (256)
Total length of the pump (from the flange)	F	8.17 (207.5)	8.17 (207.5)	8.82 (224)	8.82 (224)	11.04 (280.5)	11.04 (280.5)	11.48 (291.5)	11.48 (291.5)
Width from the centre of the pump to high-pressure side	G	2.62 (66.5)	1.38 (35)	2.87 (73)	1.57 (40)	3.39 (86)	2.17 (55)	3.39 (86)	2.17 (55)
Width from the centre of the pump to the control	H	3.41 (86.5)	3.41 (86.5)	3.41 (86.5)	3.41 (86.5)	3.41 (86.5)	3.41 (86.5)	3.41 (86.5)	3.41 (86.5)
Width from the centre of the pump to suction side	I	2.62 (66.5)	1.30 (33)	2.87 (73)	1.57 (40)	3.39 (86)	1.61 (41)	3.39 (86)	1.61 (41)
Height of the pump (housing)	J	3.11 (79)	3.11 (79)	3.40 (86.3)	3.40 (86.3)	4.21 (107)	4.21 (107)	4.21 (107)	4.21 (107)
Height of the pump (control)	K	4.85 (123.3)	4.85 (123.3)	5.26 (133.6)	5.26 (133.6)	6.10 (155)	6.10 (155)	6.10 (155)	6.10 (155)
Depth of the pump	L	2.64 (67)	2.64 (67)	2.85 (72.5)	2.85 (72.5)	3.86 (98)	3.86 (98)	3.86 (98)	3.86 (98)
Distance between fastening holes	M	5.75 (146)	5.75 (146)	5.75 (146)	5.75 (146)	7.13 (181)	7.13 (181)	7.13 (181)	7.13 (181)
Width of the pump (SAE flange)	N	7.00 (177.8)	7.00 (177.8)	7.00 (177.8)	7.00 (177.8)	8.59 (218.2)	8.59 (218.2)	8.59 (218.2)	8.59 (218.2)
Length from the fastening flange to the back of the connecting plate	O	7.56 (192)	-	8.50 (216)	-	10.81 (274.5)	-	11.24 (285.5)	-
Eccentricity, low-pressure connection		-	0.20 (5)	-	0.30 (7.5)	-	0.41 (10.5)	0.41 (10.5)	0.41 (10.5)

* The dimensions can vary depending on the configuration and additional equipment (installation drawing available upon request).
** Clockwise rotation

Control



Type code

L	H	3	0	V	0		/		20	V					0	00		000			
1.	2.	3.	4.	5.	6.	7.		8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.

1. Manufacturer

Liebherr Machines Bulle SA	**L**

2. Department

Hydraulics	**H**

3. Nominal pressure range

Nominal pressure p_N = 4,061 psi (280 bar) / maximum pressure p_{max} = 4,641 psi (320 bar)	**3**

4. Design

Single unit (pump) (multiple unit inline)	**0**

5. Design type

Variable displacement	**V**

6. Circuit

Open circuit	**0**

7. Nominal size

	028	045	085	100	

8. Control (3-/6- or 9-digit)

1. Control axis	**XX-**
2. Control axis (combination control)	**XX-XX-**
3. Control axis (combination control)	**XX-XX-XX-**

Mechanical-hydraulic control

Pressure cut-off	■	■	■	■	**DA-**
Hydraulic pressure control (remote-controlled) / pressure cut-off (combination control)	■	■	■	■	**DF-DA-**
Load sensing (without vent nozzle in control) / pressure cut-off (combination control)	▼	▼	▼	▼	**LS0DA-**
Load sensing (with vent nozzle in control) / pressure cut-off (combination control)	□	□	□	□	**LS2DA-**
Power control	■	■	■	■	**LR-**

Electric-hydraulic control

Electrical pressure control	▼	▼	▼	▼	**DE_**
Load sensing (without vent nozzle in control) / electrical pressure cut-off (combination control)	■	■	■	■	**LS0DE_**
Load sensing (with vent nozzle in control) / electrical pressure cut-off (combination control)	□	□	□	□	**LS2DE_**

For electrical pressure controls, the underscore is a placeholder for the desired voltage / characteristic / plug.

24V, rising characteristic, Deutsch plug	■	■	■	■	**1**
24V, falling characteristic, Deutsch plug	■	■	■	■	**2**
12V, rising characteristic, Deutsch plug	□	□	□	□	**3**
12V, falling characteristic, Deutsch plug	□	□	□	□	**4**
24V, rising characteristic, AMP plug	▼	▼	▼	▼	**5**
24V, falling characteristic, AMP plug	▼	▼	▼	▼	**6**
12V, rising characteristic, AMP plug	□	□	□	□	**7**
12V, falling characteristic, AMP plug	□	□	□	■	**8**
Electrical volume control	■	■	■	■	**VE_**
Electrical volume control with jump function at signal loss	■	■	■	■	**VK_**
Volume, electrical override (retarder)	■	■	■	■	**VO_**

For electrical volume flow controls, the underscore is a placeholder for the desired voltage / characteristic / plug.

24V, rising characteristic, Deutsch	■	■	■	■	**1**
12V, rising characteristic, Deutsch	□	□	□	□	**3**
24V, rising characteristic, AMP	■	■	■	■	**5**
12V, rising characteristic, AMP plug	□	□	□	□	**7**

Availability matrix for controls (1-3 control axes)

		Control axis 1-2										
		DA-	DE_	LS0DA-	LS2DA-	LS0DE_	LS2DE_	DF-DA-	DE_DA-	VE_	VK_	LR-
Additional option	None	■	■	■	□	■	□	■	■	■	■	■
	DA-	-	■	-	□	■	□	-	-	■	■	■
	VE_	■	■	■	□	■	□	■	■	-	-	-
	VK_	■	■	■	□	■	□	■	■	-	-	-
	LR-	■	■	■	□	■	□	■	■	-	-	-
	VO_	■	■	■	□	■	□	■	■	-	-	-

9. Series

Design	**20**

10. Sealing material

Viton	**V**

11. Direction of rotation (viewed towards the drive shaft)

Right	■	■	■	■	**R**
Left	■	■	■	■	**L**

12. Mounting flange

SAE B = 4.00 inch (101.6mm) (SAE J744) 2-hole mounting	▼	▼	-	-	**B2**
SAE C = 5.00 inch (127.0mm) (similar to SAE J744) 2+4-hole mounting	-	-	▼	▼	**C6**

13. Driving shaft end

ANSI, 7/8“, 13 teeth, with undercut	■	■	-	-	**A1**
ANSI, 7/8“, 13 teeth, without undercut	▼	■	-	-	**A2**
ANSI, 1", 15 teeth, with undercut	□	■	-	-	**A3**
ANSI, 1”, 15 teeth, without undercut	□	▼	-	-	**A4**
ANSI, 1 1/4", 14 teeth, with undercut	-	-	■	■	**A5**
ANSI, 1 1/4", 14 teeth, without undercut	-	-	■	□	**A6**
ANSI, 1 1/2", 17 teeth, with undercut	-	-	■	□	**A9**
ANSI, 1 1/2", 17 teeth, without undercut	-	-	▼	▼	**A0**

14. Working connection

Fastening thread metric lateral ISO 6162-2 / SAE J518-2	-	-	▼	▼	**A1**
Fastening thread metric rear ISO 6162-2 / SAE J518-2	-	-	■	■	**A3**
Fastening thread metric lateral ISO 6162-1 / SAE J518-1	▼	▼	-	-	**B1**
Fastening thread metric rear ISO 6162-1 / SAE J518-1	■	■	-	-	**B3**

15. Add-on parts

Without add-on parts	**0**

16. Gear pump

Without gear pump	**00**

17. Through drive

Without through-drive with side working connections A1/B1 (rear working connections A3/B3 = without through-drive available for all NS, see type code 14)			□	□	□	□	**0000**
Centering diameter	Shaft teeth	Fastening					
Ø 3.25 inch (82.55 mm) (SAE J744-A)	ANSI B92.1a, 5/8 in 9T 16/32DP	2-hole / open hole	■	■	■	■	**A11D**
Ø 3.25 inch (82.55 mm) (SAE J744-A)	ANSI B92.1a, 3/4 in 11T 16/32DP	2-hole / open hole	■	■	■	■	**A21D**
Ø 4.00 inch (101.6 mm) (SAE J744-B)	ANSI B92.1a, 7/8 in 13T 16/32DP	2-hole / open hole	▼	■	■	■	**B11D**
Ø 4.00 inch (101.6 mm) (SAE J744-B)	ANSI B92.1a, 1 in 15T 16/32DP	2-hole / open hole	-	▼	■	■	**B21D**
Ø 5.00 inch (127 mm) (SAE J744-C)	ANSI B92.1a, 1 1/4 in 14T 12/24DP	2-hole / open hole	-	-	■	■	**C11D**
Ø 5.00 inch (127 mm) (SAE J744-C)	ANSI B92.1a, 1 1/2 in 17T 12/24DP	2-hole / open hole	-	-	■	■	**C21D**
Special / centering diameter	No shaft coupling	4-hole / closed hole	▼	▼	▼	▼	**K02G**

18. Valve

Without valve	**000**

19. Sensors

Without sensor	▼	▼	▼	▼	**0**
Preparation of pressure measuring connection (Minimess)	-	□	□	□	**V**

20. Swing angle limit stops

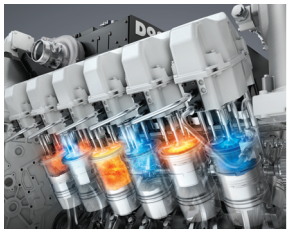
Standard (without Q_{min} + Q_{max} limit stop)	▼	▼	▼	▼	**0**
With fixed Q_{min} limit stop (specify when ordering)	□	□	□	□	**4**
With fixed Q_{max} limit stop (specify when ordering)	□	□	□	□	**5**

21. Special designs and options

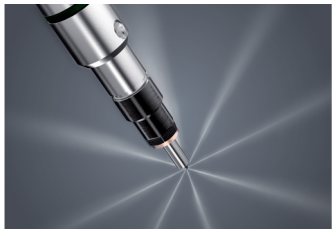
Primer	▼	▼	▼	▼	**G**
Primer and paintwork (colour specified by customer)	□	□	□	□	**F**
Conservation without primer (tank pump)	□	□	□	□	**K**
Additional leakage oil connection	■	■	■	■	**Z**

▼ Preferred series ■ Available □ Upon request - Not available

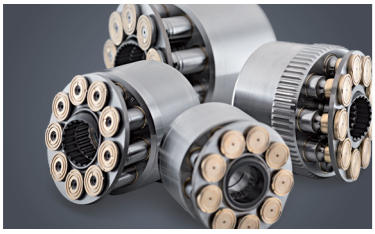
Components



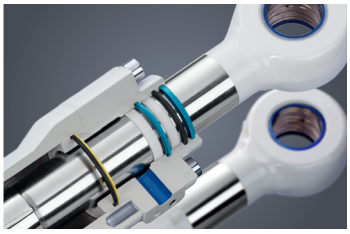
Diesel engines



Injection systems



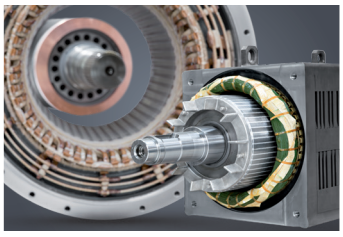
Axial piston hydraulics



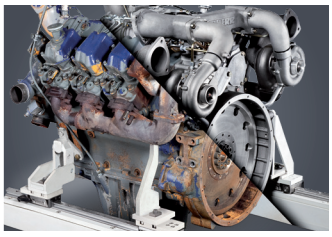
Hydraulic cylinders

Large diameter bearings

Gearboxes and rope winches

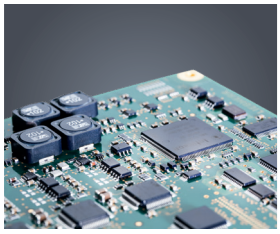


Electrical machines



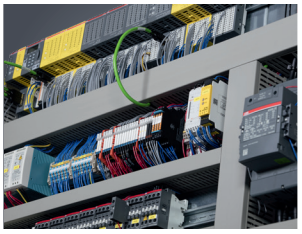
Preparation of components

Human-machine interfaces and gateways



Control electronics and sensors

Power electronics



Switchgear

Software

From A to Z, the components division of the Liebherr Group offers a broad range of solutions for mechanical, hydraulic, electric and electronic drive and control technology. The efficient components and systems are produced at a total of ten production sites around the world to the highest standards of quality. Central contacts for all product lines are available to customers at Liebherr Component Technologies AG and our regional sales branches.

Liebherr is your partner for joint success: from product idea to development, manufacture and commissioning, right through to customer service solutions, such as preparation of components.

components.liebherr.com

LIEBHERR

Liebherr-Components AG · Postfach 222 · 5415 Nussbaumen, Schweiz
+41 56 296 43 00 · components@liebherr.com · www.liebherr.com

BK AxM-LH30V0-SD-09.22-en