

## Short Description

# LH30VO Axial Piston Pumps



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

The medium pressure pumps have a swashplate design and a through-drive capacity of up to 130 %.

Further controls have been added, including power controls (LR), electrical volume flow controls (VE) with rising characteristic and an additional step function at control signal loss (VK). They are tailored to the most common applications such as working hydraulics, ventilation, steering or power units.

Its increased performance and optimized production and assembly processes make the LH30VO an attractive, high-performance product for mobile and stationary applications that require a pressure range of up to 4061.06 psi.

### Valid for:

LH30VO028  
LH30VO045  
LH30VO085

### Features:

Series 20  
Open loop

### Control types:

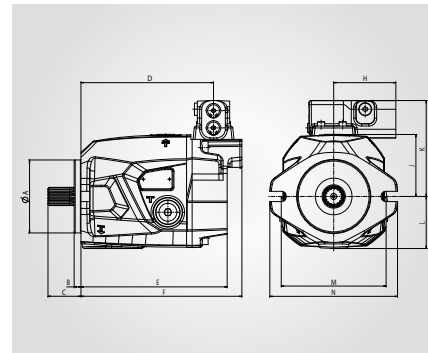
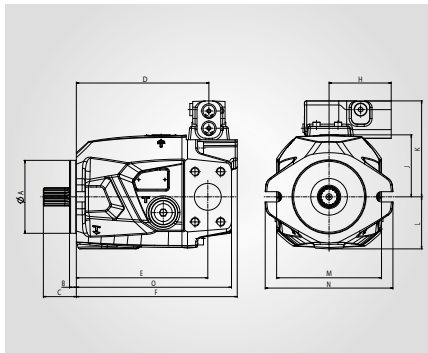
- Load Sensing control with pressure cut-off
- Electric pressure control
- Remote controlled hydraulic pressure control with superimposed pressure cut-off

### Pressure range:

Nominal pressure  $p_{HD_N} = 4061.06$  psi.  
Maximum pressure  $p_{HD_{max}} = 4641.22$  psi

# Technical Data

## LH30VO Axial Piston Pumps



### LH30VO

Variable displacement, open loop circuit, nominal pressure 4061.06 psi, maximum pressure 4641.22 psi

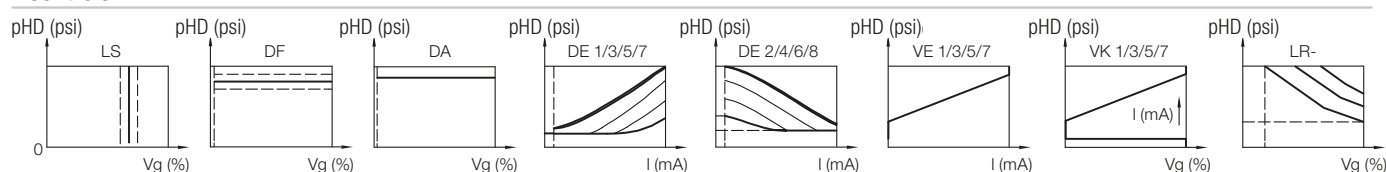
Nominal size		28	45	85
Displacement volume	$V_{g \max}$ [in <sup>3</sup> ]	1.75	2.84	5.25
Max. speed	at $V_{g \max}$ , $n_{\max}$ [rpm]	3300	3000	2400
Volumetric flow	at $n_{\max}$ , $q_{v \max}$ [US. liq. gal. /min]	25.02	36.85	54.58
Drive power	$\Delta p = 4061.06$ psi, $P_{\max}$ [hp]	59.27	87.30	129.27
Drive torque	$\Delta p = 4061.06$ psi, $T_{\max}$ [lbf-ft]	94.33	152.82	283.00
Max. through-drive torque	[lbf-ft]	116.53	221.27	392.38
Available controls		LS-DA, LS-DE, DF-DA, DE-DA, DA, DE, VE, VK, LR		

### Technical data

Product dimensions (inch) *		LH30V0028	LH30V0028	LH30V0045	LH30V0045	LH30V0085	LH30V0085
		Ports lateral CW	Ports rear CW	Ports lateral CW	Ports rear CW	Ports lateral CW	Ports rear CW
Centering diameter	A	4.00	4.00	4.00	4.00	5.00	5.00
Length of centering diameter	B	0.37	0.37	0.37	0.37	0.50	0.50
Length from flange to the end of the shaft	C	1.61	1.61	1.81	1.81	2.18	2.18
Length from the flange to the control regulating screws	D	6.54	6.54	7.26	7.26	8.94	8.94
Length from the flange to the suction channel and high-pressure channel	E	6.24	7.09	7.20	8.01	8.98	9.65
Overall length of pump (from flange)	F	8.17	8.17	8.82	8.82	11.04	11.04
Width from the center of the pump to the HP side	G	2.62	1.38	2.87	1.57	3.39	2.17
Width from the center of the pump to the control	H	3.41	3.41	3.41	3.41	3.41	3.41
Width from the center of the pump to the suction side	I	2.62	1.30	2.87	1.57	3.39	1.61
Height of pump (housing)	J	3.11	3.11	3.40	3.40	4.21	4.21
Height of pump (control)	K	4.85	4.85	5.26	5.26	6.10	6.10
Depth of pump	L	2.64	2.64	2.85	2.85	3.86	3.86
Spacing between fastening holes	M	5.75	5.75	5.75	5.75	7.13	7.13
Width of pump (SAE flange)	N	7.00	7.00	7.00	7.00	8.59	8.59
Off-centered suction port		-	0.20	-	0.30	-	0.41

\* The dimensions may differ depending on configuration and additional equipment (installation drawing available on request).

### Controls



# Type Code

# LH30VO Axial Piston Pumps

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

## 1. Manufacturer

Liebherr Machines Bulle SA L

## 2. Division

Hydraulics H

## 3. Nominal pressure range

Nominal pressure  $p_n = 4061.06$  psi / Maximum pressure  $p_{max} = 4641.22$  psi 3

## 4. Version

Single unit (pump) (multiple unit inline) 0

## 5. Design

Variable V

## 6. Circuit

Open loop circuit 0

## 7. Nominal size (NS)

NS (multiple unit inline) 028 045 085

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

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

### Mechanical-hydraulic controls

Pressure cut-off	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DA-
Hydraulic pressure control (remote control) / pressure cut-off (combination control)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DF-DA-
Load-sensing control (without pressure-relief nozzle in control) / pressure cut-off (combination control)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	LSODA-
Load-sensing control (with pressure-relief nozzle in control) / pressure cut-off (combination control)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LS1DA-
Power control	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	LR-

### Electro-hydraulic controls

Electrical pressure control	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DE_
Load-sensing control (without pressure-relief nozzle in control) / Electrical pressure control (combination control)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	LSODE_
Load-sensing control (with pressure-relief nozzle in control) / Electrical pressure control (combination control)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LS1DE_
The underscore placeholder for electrical pressure controls is for the desired voltage / characteristic / plug.				
24 V, rising characteristic, Deutsch plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1
24 V, falling characteristic, Deutsch plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2
12 V, rising characteristic, Deutsch plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3
12 V, falling characteristic, Deutsch plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4
24 V, rising characteristic, AMP plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
24 V, falling characteristic, AMP plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6
12 V, rising characteristic, AMP plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7
12 V, falling characteristic, AMP plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8

### Electric volume control

Electric volume control	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	VE_
Electric volume control with jump function at signal loss	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	VK_
Volume electrically overridden (retarder)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	VO_
The underscore placeholder for electrical volume flow controls is for the desired voltage / characteristic / plug.				
24 V, rising characteristic, Deutsch plug	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
12 V, rising characteristic, Deutsch plug	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
24 V, rising characteristic, AMP plug	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
12 V, rising characteristic, AMP plug	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7

### Availability matrix for controls (1-3 control axes)

		Basic option										
		DA-	DE_	LSODA-	LS1DA-	LSODE_	LS1DE_	DF-DA-	DE_DA-	VE_	VK_	LR-
Additional option	None	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	DA-	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	VE_	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	VK_	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	LR-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	VO_	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 9. Series

Design 20

## 10. Seal material

Viton V

## 11. Direction of rotation (looking at the face of the drive shaft)

Counterclockwise	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	L
Clockwise	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	R

## 12. Mounting flange

SAE B = 4.0 in (SAE J744) 2-hole fastening	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B2
SAE C = 5.0 in (similar to SAE J744) 2+4-hole fastening	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	C6

## 13. Driving shaft end

ANSI, 7/8", 13 teeth, with undercut	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A1
ANSI, 7/8", 13 teeth, without undercut	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A2
ANSI, 1", 15 teeth, with undercut	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A3
ANSI, 1", 15 teeth, without undercut	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A4
ANSI, 1 1/4", 14 teeth, with undercut	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A5
ANSI, 1 1/4", 14 teeth, without undercut	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A6
ANSI, 1 1/2", 17 teeth, with undercut	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A9
ANSI, 1 1/2", 17 teeth, without undercut	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A0

## 14. Working connection

Metric fastening thread at the side ISO 6162-2 / SAE J518-2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A1
Metric fastening thread at the rear ISO 6162-2 / SAE J518-2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A3
Metric fastening thread at the side ISO 6162-1 / SAE J518-1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B1
Metric fastening thread at the rear ISO 6162-1 / SAE J518-1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B3

## 15. Add-on parts

Without add-on parts 0

## 16. Gear pump

Without gear pump 00

## 17. Through-drive

Without through-drive			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0000
Centering diameter	Shaft gearing	Fastening				
03.25 (SAE J744-A)	ANSI B92.1a, 5/8 in 9T 16/32DP	2-hole / open hole	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A11D
03.25 (SAE J744-A)	ANSI B92.1a, 3/4 in 11T 16/32DP	2-hole / open hole	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A21D
04.0 (SAE J744-B)	ANSI B92.1a, 7/8 in 13T 16/32DP	2-hole / open hole	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	B11D
04.0 (SAE J744-B)	ANSI B92.1a, 1 in 15T 16/32DP	2-hole / open hole	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	B21D
05.0 (SAE J744-C)	ANSI B92.1a, 1 1/4 in 14T 12/24DP	2-hole / open hole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C11D
05.0 (SAE J744-C)	ANSI B92.1a, 1 1/2 in 17T 12/24DP	2-hole / open hole	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	C21D
Special / Centering diameter	No shaft coupling	4-hole / closed hole	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	K02G

## 18. Valves

Without valve 000

## 19. Sensors

Without sensors	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Preparation for pressure measuring connection (Minimess)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V

## 20. Swivel angle limit stops

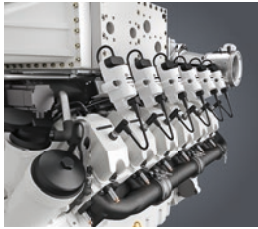
Standard (without $Q_{min}$ + $Q_{max}$ limit stop)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
With $Q_{max}$ fixed limit stop (please specify in purchase order)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5

## 21. Special design and options

Primer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	G
Primer and paint (color as specified by customer)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F
Conservation without primer (tank pump)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	K

▼ Preferred series, ■ Available, □ Available on request, - Not possible

# Liebherr Components



Gas engines



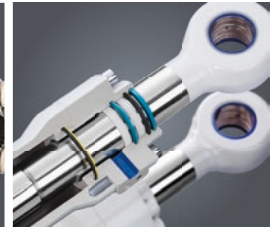
Diesel engines



Fuel injection systems



Axial piston hydraulics



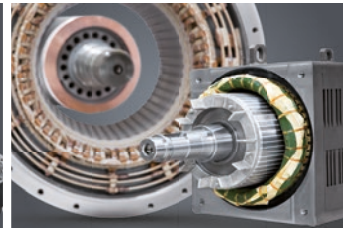
Hydraulic cylinders



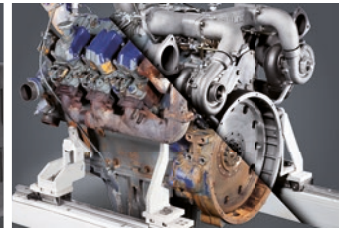
Slewing bearings



Gearboxes and winches



Electric machines



Remanufacturing



Human-machine interfaces and gateways



Control electronics and sensor technology



Power electronics



Control cabinets



Software

From A to Z – the components division of the Liebherr Group offers a broad range of solutions in the area of mechanical, hydraulic, electric and electronic drive system 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 contact persons for all product lines are available to our customers at Liebherr-

Components AG and the regional sales and distribution branches.

Liebherr is your partner for joint success: from the product idea to development, manufacture and commissioning right through to customer service solutions like remanufacturing.

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