

HA10VSO18

Variable Axial Piston Pump

LEHMANN

Product show and brief introduction

Open circuit
Series 18
Size 31
Nominal pressure 28 MPa
Peak pressure 35 MPa



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Features

- Variable displacement axial piston pump of swashplate design for hydrostatic open circuit systems
- Flow is proportional to drive speed and displacement. It can be infinitely varied by adjustment of the swashplate
- SAE mounting flange
- Flange connections to SAE
- 2 case drain ports
- Good suction characteristics
- Permissible continuous pressure 28 MPa
- Low noise level
- Long service life
- Axial and radial load of drive shaft possible
- High power-weight ratio
- Wide range of controls
- Short response times
- Through drive option for multi-circuit system

Model Code

HA10VS O 18 / 31 -

Axial piston unit

Swashplate design, variable Nominal pressure 28MPa, peak pressure 35MPa	HA10VS
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Type of operation

Pump in open circuits	O
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Size

Displacement V_{gmax}	mL/r	18
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Control device

Pressure control	DR		DR
	DR	G	DRG
remote control			
Pressure flow control	DFR		DFR
	DFR	1	DFR1
without orifice between X and tank			

Series

	31
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Direction of rotation

Viewed on shaft end	Clockwise	R
	Anti clockwise	L

Seals

NBR nitril-caoutchouc, shaft seal in FKM	P
FKM fluor-caoutchouc	V

Shaft end

SAE Parallel with key	K
SAE Splined shaft	S
SAE Splined shaft (higher through drive torque)	R
SAE Splined shaft (not suitable for through drive)	U

Mounting flange

SAE 2-hole	C
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Service line connections

Pressure port B and Suction port S: SAE ports at opposite sides UNC fixing threads	62
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Through drives

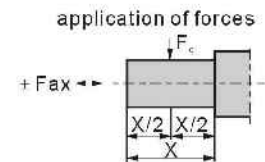
Without through drives		N00
Mounting flange	Hub	
82-2(SAE A)	5/8 in (A)	K01
82-2(SAE A)	3/4 in (A-B)	K52

Technical Data

Size				18
Displacement		$V_{g \max}$	mL/r	18
Max. speed ¹⁾	at $V_{g \max}$	$n_{o \max}$	rpm	3300
	at increased inlet pressure $P_{\text{abs}} \text{ resp. } V_g < V_{g \max}$	$n_{o \max}$	rpm	3900
Max. flow	at $n_{o \max}$	$Q_{o \max}$	L/min	59.4
	at $n_n = 1800 \text{ rpm}$	Q_o	L/min	32
Max. power ($\Delta P = 28 \text{ MPa}$)	at $n_{o \max}$	$P_{o \max}$	kW	28
	at $n_n = 1800 \text{ rpm}$	P	kW	15
Max. torque	at $V_{q \max} (\Delta P = 28 \text{ MPa})$	M_{\max}	Nm	80
	at $V_{q \max} (\Delta P = 10 \text{ MPa})$	M	Nm	28.6
Moment of inertia (about drive axis)		J	kgm^2	0.00093
Fill volume			L	0.4
Weight (without fluid)		m	kg	12
Permissible loading of drive shaft	max. axial force	$F_{ax \max}$	N	700
	max. permissible radial force ²⁾	$F_{q \max}$	N	350

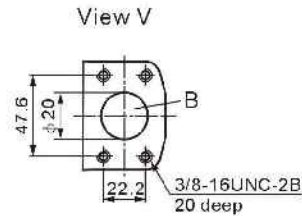
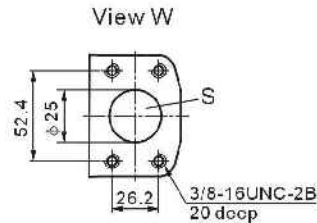
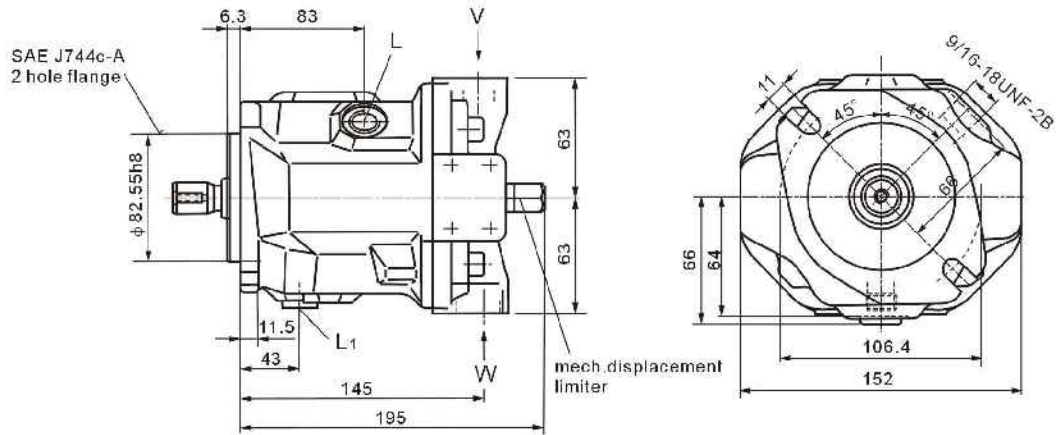
1) These values are valid for an absolute pressure of 0.1 MPa at the suction port S. By reducing the displacement or increasing the input pressure the speed can be increased as shown in the diagram.

2) Please consult us for higher radial forces.



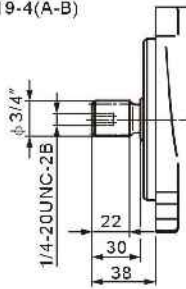
Installation Dimensions

N00 tapy (without control valves)

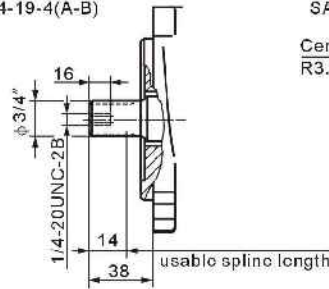


Shaft ends

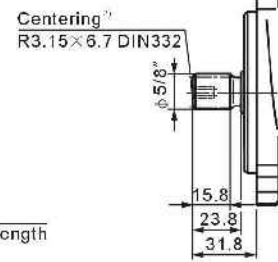
S Splined shaft 3/4in 11T
16/32 DP¹⁾
SAE J744-19-4(A-B)



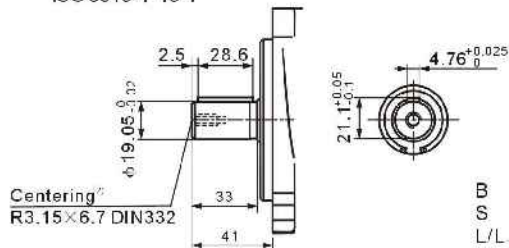
R Splined shaft 3/4in 11T
16/32 DP¹⁾
SAE J744-19-4(A-B)



U Splined shaft 5/8in 9T
16/32 DP¹⁾
SAE J744-16-4(A)



K Parallel with key
ISO 3019-1 19-1



- B Pressure port SAE 3/4" (Standard pressure range)
- S Suction port SAE 1" (Standard pressure range)
- L/L Case drain ports 9/16-18UNF-2B (L plugged factory)

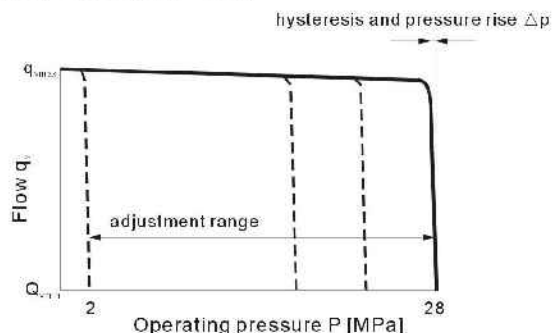
1) ANSI B92.1a-1976, pressure angle 30°, flat root, side fit, tolerance class 5.
2) Axial locking of the coupling e.g. via clamping coupling or radial mounted binding screw.

DR Pressure Control

The pressure controller serves to maintain a constant pressure in a hydraulic system within the range of the pump. The pump therefore supplies only the amount of hydraulic fluid required by the system. Pressure may be steplessly set at the pilot valves.

● Static operating curve

(at $n_1=1500$ rpm; $t_1=50^\circ\text{C}$)

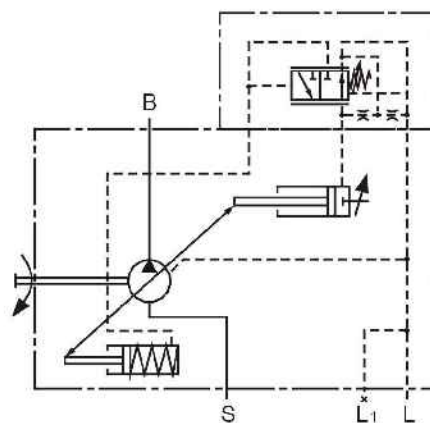
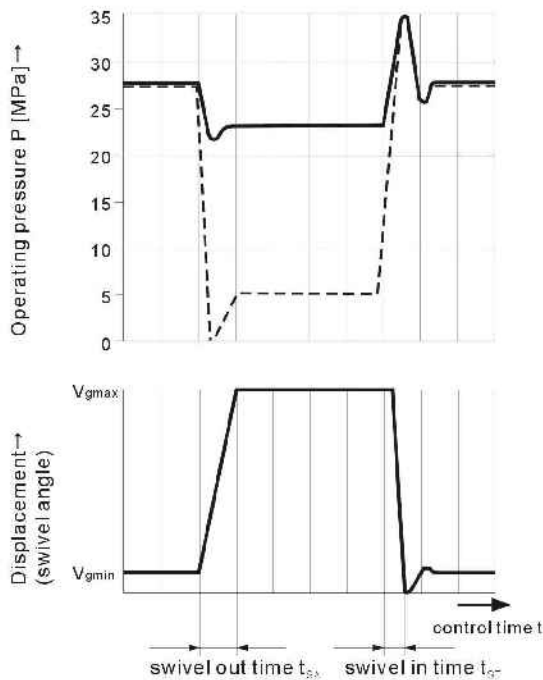


● Dynamic operating curves

The opening curves are mean values measured under test conditions with the unit mounted inside the tank.

Conditions: $n = 1500$ rpm
 $t_1 = 50^\circ\text{C}$
 Main relief set at 35 MPa

Stepped loading by suddenly opening or closing the pressure line a pressure relief valve at 1 m downstream from the pump pressure outlet.



Ports

- B Pressure port
- S Suction port
- L, L Case drain ports (L plugged)

● Controller Data

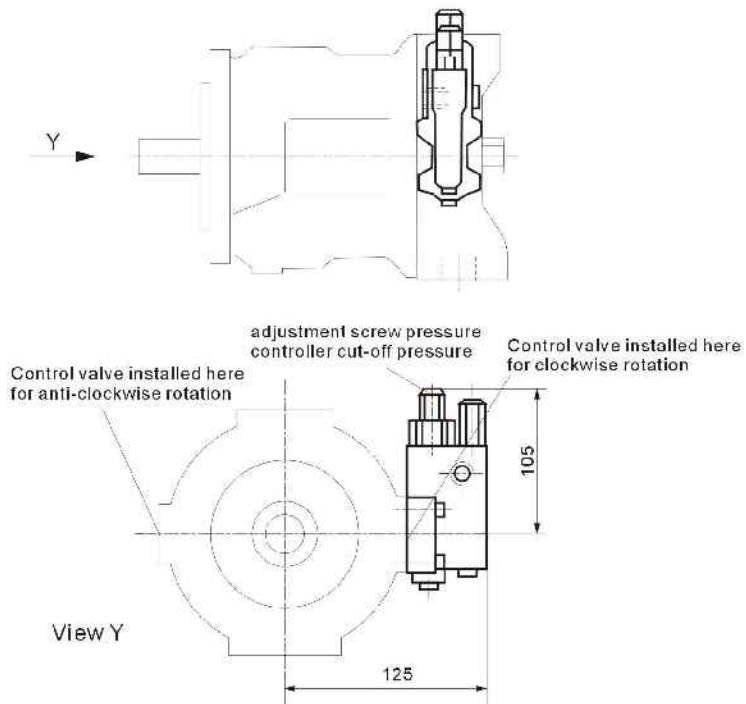
Hysteresis and repetitive accuracy ΔP max. 0.4 MPa

Pilot oil consumption Max. approx 3 L/min

● Control Times

Size	$t_{s,}$ (ms) against 5 Mpa	$t_{s,}$ (ms) against 22 Mpa	$t_{i,}$ (ms) zero stroke 28 MPa
18	50	25	20

● Installation Dimensions



the DFR valve used. The flow control spool is blocked and not tested.