HA10VSO18
Variable Axial Piston Pump

Product show and brief introduction

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

Contents

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 continous 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 mulit-circuit system

| | HA10VS | O | 18 | | / | 31 | | - | | | | | | | |

Axial piston unit

| Swashplate design,variable Nominal pressure 28MPa,peak pressure 35MPa | HA10VS |

Type of operation

| Pump in open circuits | O |

Size

| Displacement Vgmax | mL/r | 18 |

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 |

Direction of rotation

| Viewed on shaft end | Clockwise | R |
| | Anti clockwise | L |

Seals

| NBR nitril-caoutchouc,shalft 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 |

Service line connections

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

Through drives

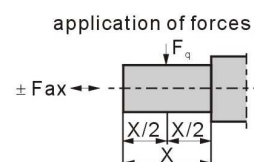| Without through drives | | N00 |
Mounting flange	Hub	
82-2(SAE A)	5/8 in (A)	K01
82-2(SAE A)	3/4 in (A-B)	K52

Technical Data

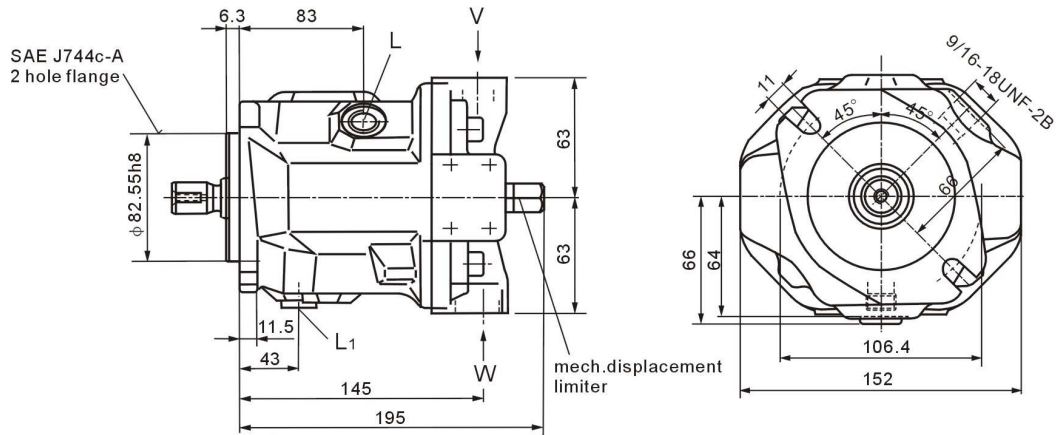| Size				18
Displacement		$V_{g\ max}$	mL/r	18
Max.speed[1]	at $V_{g\ max}$	$n_{o\ max}$	rpm	3300
	at increased inlet pressuure P_{abs} resp.$V_g < V_{g\ max}$	$n_{o\ max}$	rpm	3900
Max.flow	at $n_{o\ max}$	$Q_{o\ max}$	L/min	59.4
	at $n_E = 1800rpm$	Q_o	L/min	32
Max.power ($\triangle P= 28\,MPa$)	at $n_{o\ max}$	$P_{o\ max}$	kW	28
	at $n_E = 1800rpm$	P	kW	15
Max.torque	at $V_{q\ max}(\triangle P=28MPa)$	M_{max}	Nm	80
	at $V_{q\ max}(\triangle P=10MPa)$	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.
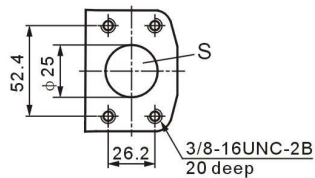2) Please consult us for higher radial forces.

application of forces

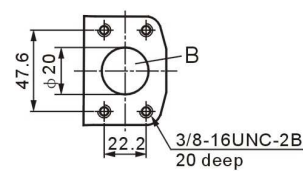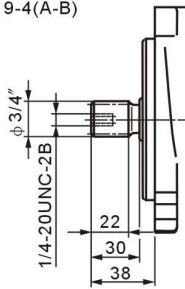## N00 tapy(without control valves)

SAE J744c-A
2 hole flange

6.3   83

ϕ82.55h8

11.5
43

145

195

63
63

V

L

W

mech.displacement
limiter

9/16-18UNF-2B

45°   45°

11

66   64

106.4

152

View W

52.4 ϕ25

26.2

S

3/8-16UNC-2B
20 deep

View V

47.6 ϕ20

22.2

B

3/8-16UNC-2B
20 deep

Shaft ends

S Splined shaft 3/4in 11T
16/32 DP[1]
SAE J744-19-4(A-B)
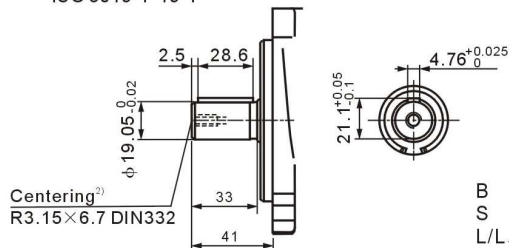
ϕ 3/4"

1/4-20UNC-2B

22
30
38

R Splined shaft 3/4in 11T
16/32 DP[1]
SAE J744-19-4(A-B)

16

ϕ 3/4"

1/4-20UNC-2B

14
38

usable spline length

U Splined shaft 5/8in 9T
16/32 DP[1]
SAE J744-16-4(A)

Centering[2]
R3.15×6.7 DIN332

ϕ 5/8"

15.8
23.8
31.8

K Parallel with key
ISO 3019-1 19-1

2.5   28.6

ϕ19.05$^{0}_{-0.02}$

$21.1^{+0.05}_{-0.1}$

$4.76^{+0.025}_{0}$

Centering[2]
R3.15×6.7 DIN332

33
41

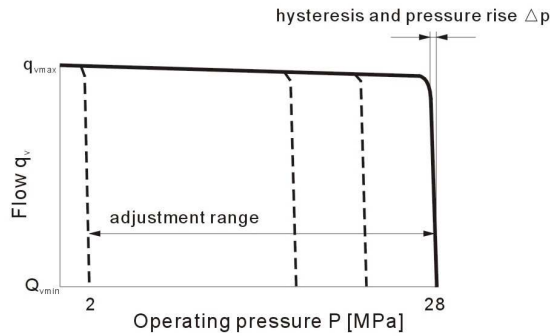| B	Pressure port	SAE 3/4"	(Standard pressure range)
S	Suction port	SAE 1"	(Standard pressure range)
L/L$_1$	Case drain ports	9/16-18UNF-2B	(L$_1$ plugged factory)

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.

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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
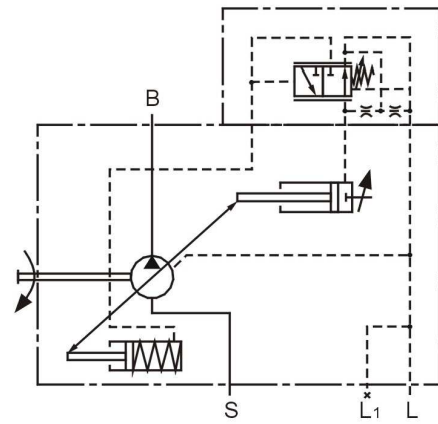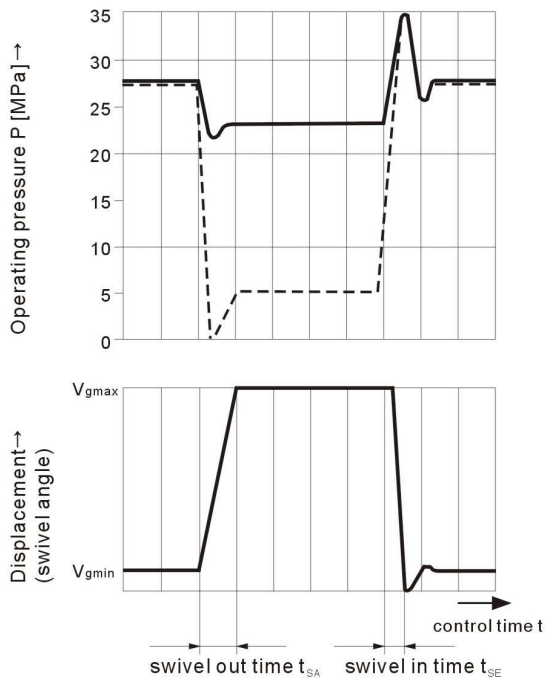
(at n_1=1500 rpm; t_{oil}=50℃)

● Dynanmic operating curves

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

Conditions: n = 1500 rpm
               t_{oil} = 50℃
               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

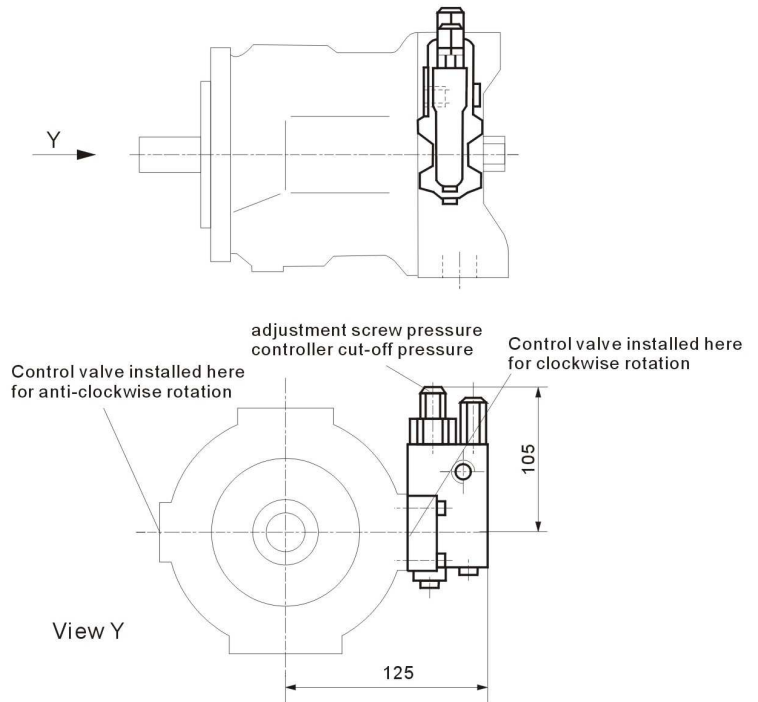|	
B	Pressure port
S	Suction port
L, L_1	Case drain ports (L_1 plugged)

● Contorller Data

Hysteresis and repetitive accuracy $\triangle P$_____max. 0.4 MPa

Pilot oil consumption_____ Max.approx 3 L/min

● Control Times

Size	t_{SA} (ms) against 5 Mpa	t_{SA} (ms) against 22 Mpa	t_{SA} (ms) zero stroke 28 MPa
18	50	25	20

● Installation Dimensions

View Y

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