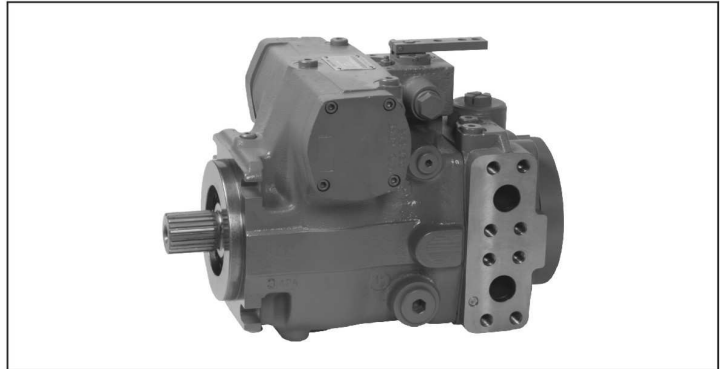


HA4VTG 90

Axial Piston Variable Pump

Product show and brief introduction

Series 3
Size 90
Nominal pressure 40 MPa
Peak pressure 45 MPa
Closed circuit
for the drum drive in mobile
concrete mixers



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Features

- Variable axial piston pump of swashplate design for hydrostatic closed circuit transmission
- Flow is proportional to drive speed and displacement and is infinitely variable
- Flow increases with the swivel angle of the swashplate from 0 to its maximum value
- Flow direction changes smoothly when the swashplate is moved through the neutral position
- Two pressure-relief valves are provided on the high pressure ports to protect the hydrostatic transmission(pump and motor) from overload
- The high-pressure relief valves also function as boost valves
- The integrated boost pump acts to replenish leakage and provide control oil
- The maximum boost pressure is limited by a built-in boost-pressure-relief valve

Model code

HA4VT G 90 HW / 3 2 R - N L D 12 F00 1 S

Axial piston unit

Variable swashplate design, nominal pressure 40MPa, peak pressure 45 MPa, mobile concrete mixers **HA4VT**

Operating mode

Pump, closed circuits **G**

Size

Displacement Vgmax in mL/r **90**

Control devices

Proportional control, hydraulic, mechanical servo, hex shaft with lever to rear **HW**

Mechanical stroke limiter

Without mechanical stroke limiter(no code)

With mechanical stroke limiter, external variable **M**

Ports X₃ and X₄ for stroking chamber pressure

Without ports X₃ and X₄ (no code)

With ports X₃ and X₄ **T**

Series

3

Index

2

Direction of rotation

Viewied on shaft end clockwise **R**

anti-clockwise **L**

Seals

NBR(nitrile-caoutchouc), shaft seal in FKM(flouor-caoutchouc) **N**

Shaft end

Splined shaft SAE Without coupling flange **S**

With coupling flange **L**

Mounting flange

SAE J744-4 hole **D**

Service line ports

SAE flange ports A and B on same side (metric threads) **12**

Boost pumps and through drive

Boost pump	Through drive		
	Flange	Splined shfat hub	
●	—	—	F00
●	SAE A, 2 hole	SAE A(N 5/8-9T 16/32DP)	F01
●	SAE B, 2 hole	SAE B(N 7/8-13T 16/32DP)	F02

Valves

With high-pressure relief velve, pilot operated **1**

Filtration

Filtration in suction line of boost pump **S**

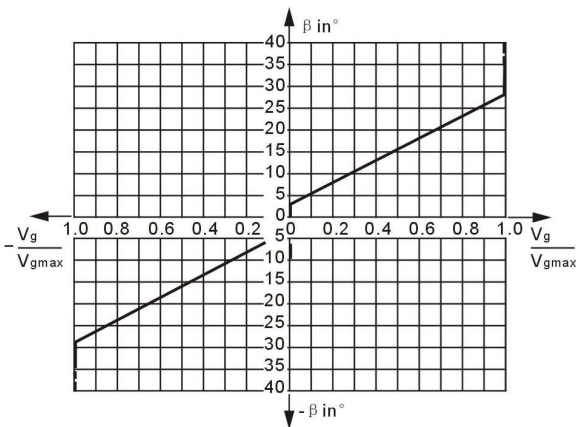
Technical Data

Size				90
Displacement	variable pump	$V_{g \max}$	mL/r	90
	boost pump(at P=2MPa)	$V_{g h}$	mL/r	28.3
Speed	maximum at $V_{g \max}$	$n_{o \max \text{ continuous}}$	min ⁻¹	3050
	minimum	n_{\min}	min ⁻¹	500
Flow	at $n_{\max \text{ continuous}}$ and $V_{g \max}$	$q_{v \max}$	L/min	275
Power ¹⁾	at $n_{\max \text{ continuous}}$ and $V_{g \max}$ $\Delta P = 40 \text{ MPa}$	P_{\max}	kW	183
Torque ¹⁾	at $V_{g \max}$ $\Delta P = 40 \text{ MPa}$	$T_{o \max}$	Nm	572
		T	Nm	143
Moment of inertia for rotary group		J	kgm ²	0.0106
Weight approx.(without through drive)		m	kg	48

HW-Proportional control, hydraulic,mechanical servo

The flow output of the pump is infinitely varied in the range of 0 to 100%, proportional to the rotation of the control lever between 0° and ±29° from the spring-centered zero flow position.

A feedback lever, connected to the stroke piston, maintains the pump flow for any given position of the control lever between 0° and ±29°



Swivel angle β at the control lever for deflection:

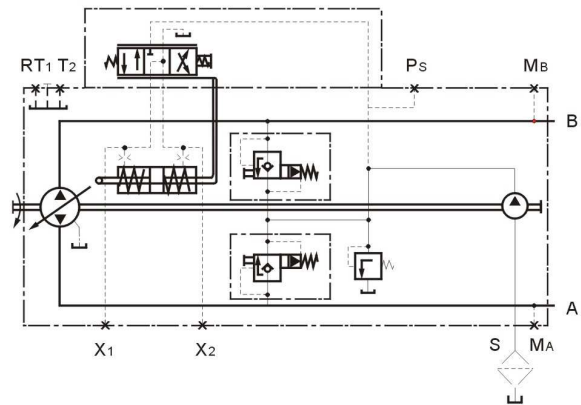
Start of control at $\beta = 3^\circ$

End of control at $\beta = 29^\circ$ (max. displacement $V_{g \max}$)

Mech. Stop for $\beta : \pm 40^\circ$

The maximum required torque at the lever is 170 Ncm. To prevent damage to the HW control unit, a positive mechanical stop must be provided for the HW control lever.

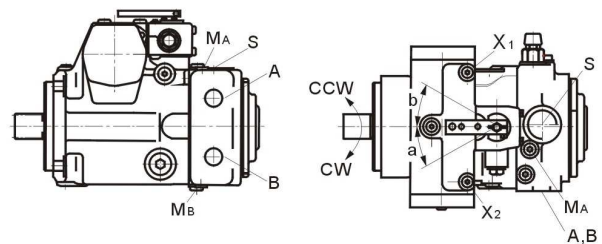
Note: Spring centering enables the pump to move automatically into the neutral position ($V_g=0$) as soon as there is no longer any torque on the control lever of the HW control unit (regardless of deflection angle).



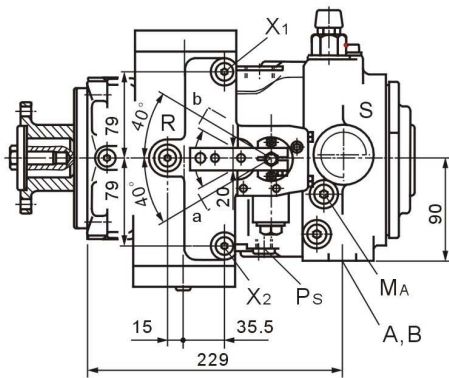
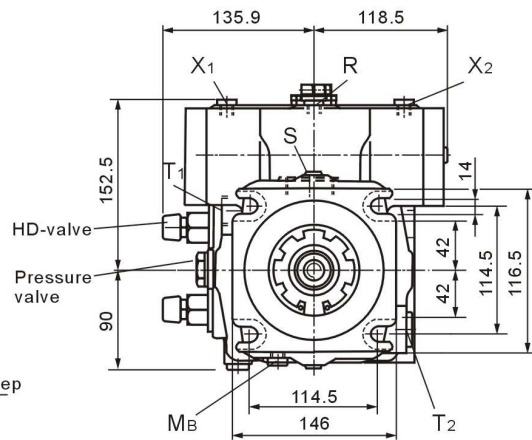
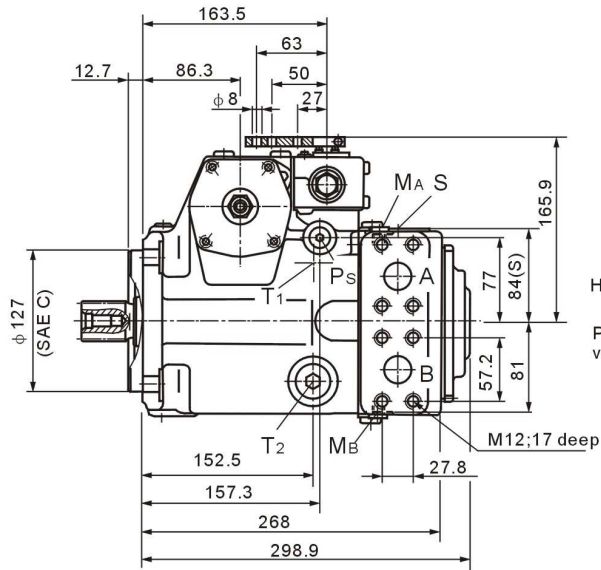
Assignment

Direction of rotation-Control-Direction of through put flow

Direction of rotation	CW		CCW	
	A	B	A	B
Lever direction	X2	X1	X2	X1
Control pressure	B to A	A to B	A to B	B to A
Direction of through put flow	MA	MB	MB	MA



Installation dimensions

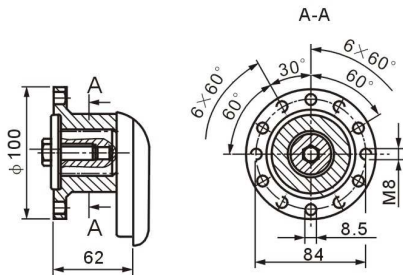


Ports

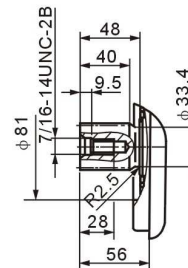
Designation	Function	Size
A, B	Service line Fixing thread A/B	φ25 M12×1.75;17 deep
S	Suction	M42×2;20 deep
T ₁ T ₂	Tank	M26×1.5;16 deep
M _A , M _B	Measuring pressure A Measuring pressure B	M12×1.5;12 deep
R	Air bleed	M16×1.5;12 deep
X ₁ , X ₂	Control pressure (upstream of orifice)	M12×1.5;12 deep
X ₃ , X ₄	Stroking chamber pressure	M12×1.5;12 deep
P _S	Pilot pressure inlet	M14×1.5;12 deep

Shaft ends

L Splined shaft 1 1/2in
with coupling flange



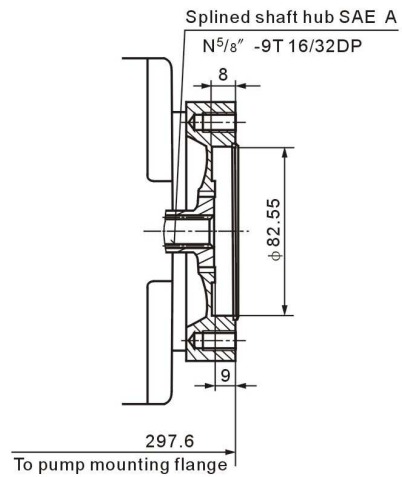
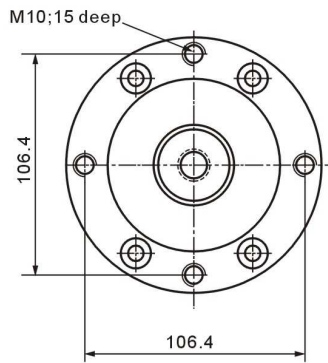
S Splined shaft 1 1/2in
23 T 16/32DP¹⁾
(SAE J744)



1)ANSI B92.1a-1976.30° pressure angle, flat root, side fit, tolerance class 5.

Through drive dimensions

Through drive SAE A (F01)



Through drive SAE B (F02)

