A4VTG Series Axial Piston

Variable Pump

PIONEER FLURD POWER

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

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

A4VT	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 X_3 and X_4 for stroking chamber pressure

Without ports X_3 and X_4 (no code)	
With ports X_3 and X_4	T

Series

	3

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Direction of rotation

Viewied on shaft end	clockwise	R
	anti-clockwise	L

Seals

NBR(nitrile-caoutchouc),shaft seal in FKM(fluor-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 (mitric 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

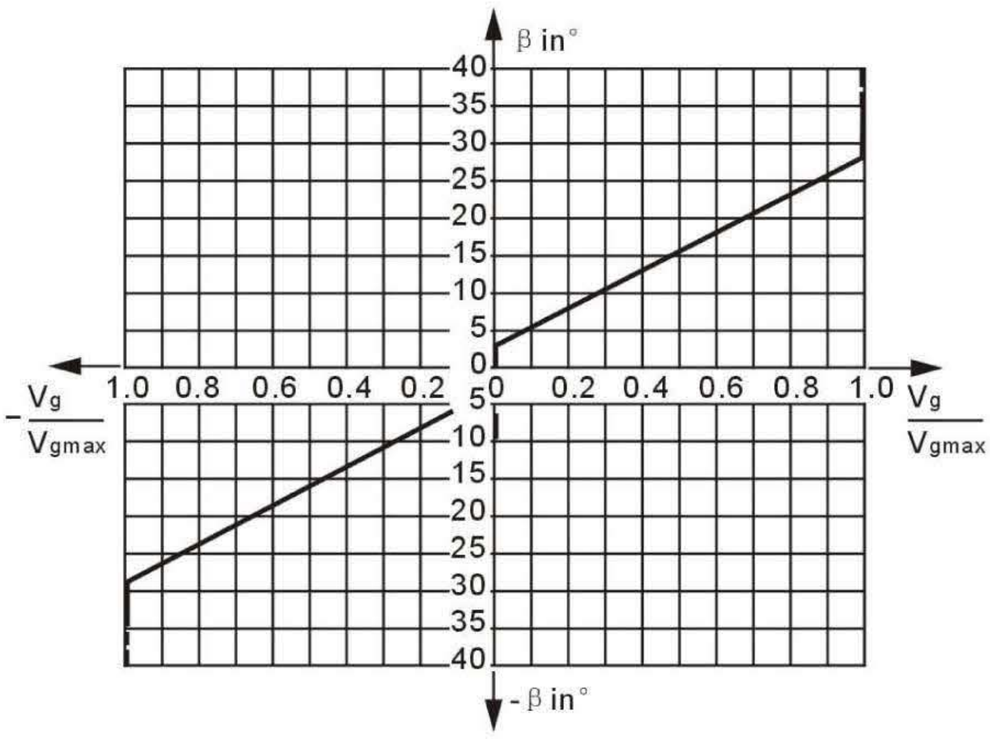
Filtration in suction line of boost pump	S

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 $V_{g\,max}$		$n_{o\,max\ continuous}$	min^{-1}	3050
	minimum		n_{min}	min^{-1}	500
Flow	at $n_{max\ continuous}$ and V_{gmax}		$q_{v\,max}$	L/min	275
Power[1)]	at $n_{max\ continuous}$ and V_{gmax}	△P = 40 MPa	P_{max}	kW	183
Torque[1)]	at $V_{g\,max}$	△P = 40 MPa	$T_{o\,max}$	Nm	572
		△P = 10 MPa	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 p-orition.
A feedback lever, connected to the stroke piston, maintains the pump flow for any given position of the control lever between 0° and ±29°

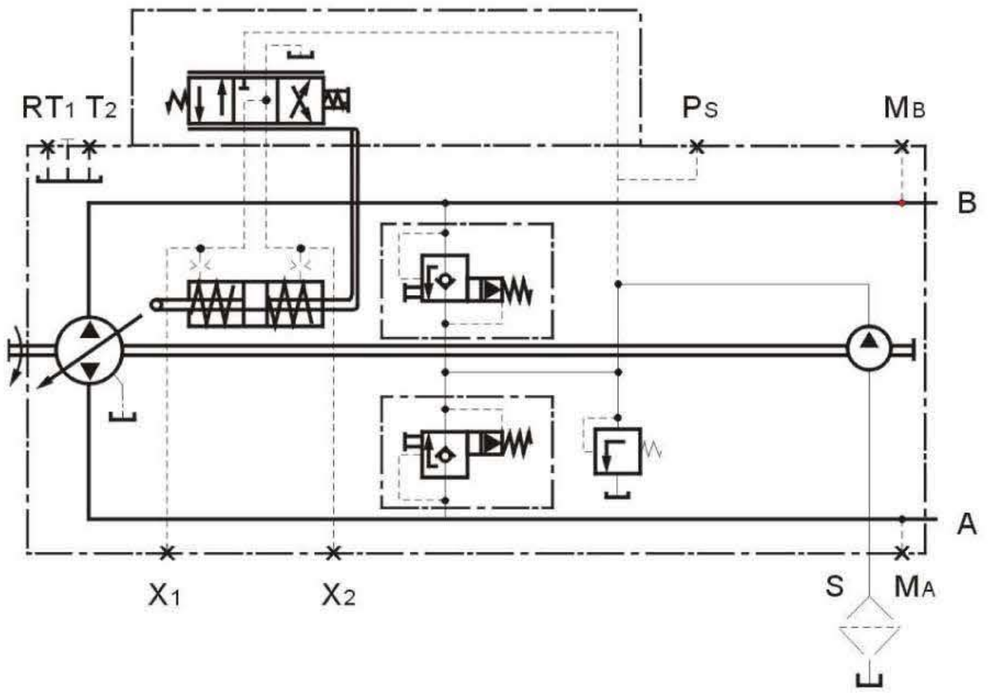


Swivel angle β at the control lever for deflection:

Start of control at β =3°
End of control at β =29° (max.displacement V_{gmax})
Mech. Stop for β : ±40°

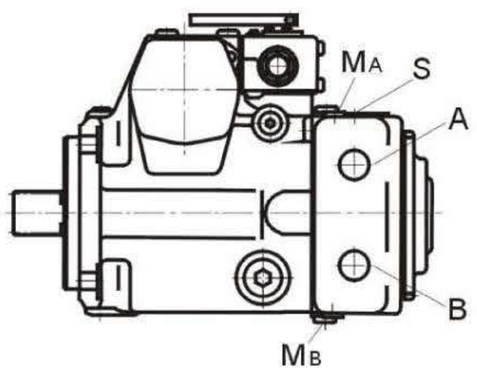
The maximum required torque at the lever is 170 Ncm. To prevent damage to the HW control unit, a positive mechanical stop must be provided for the HW control lever.

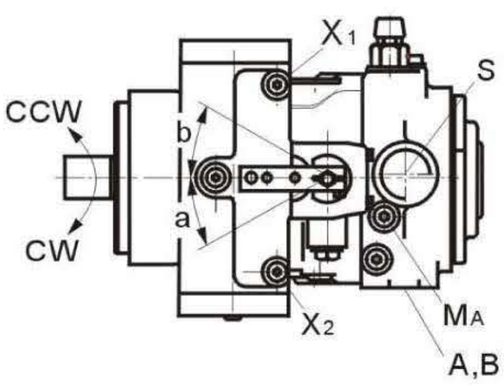
Note:Spring centering enables the pump to move automatically into the neutral position(V_g=0)as soon as there is nolonger any torque on the control lever of the HW control unit (regardless of deflection angle).



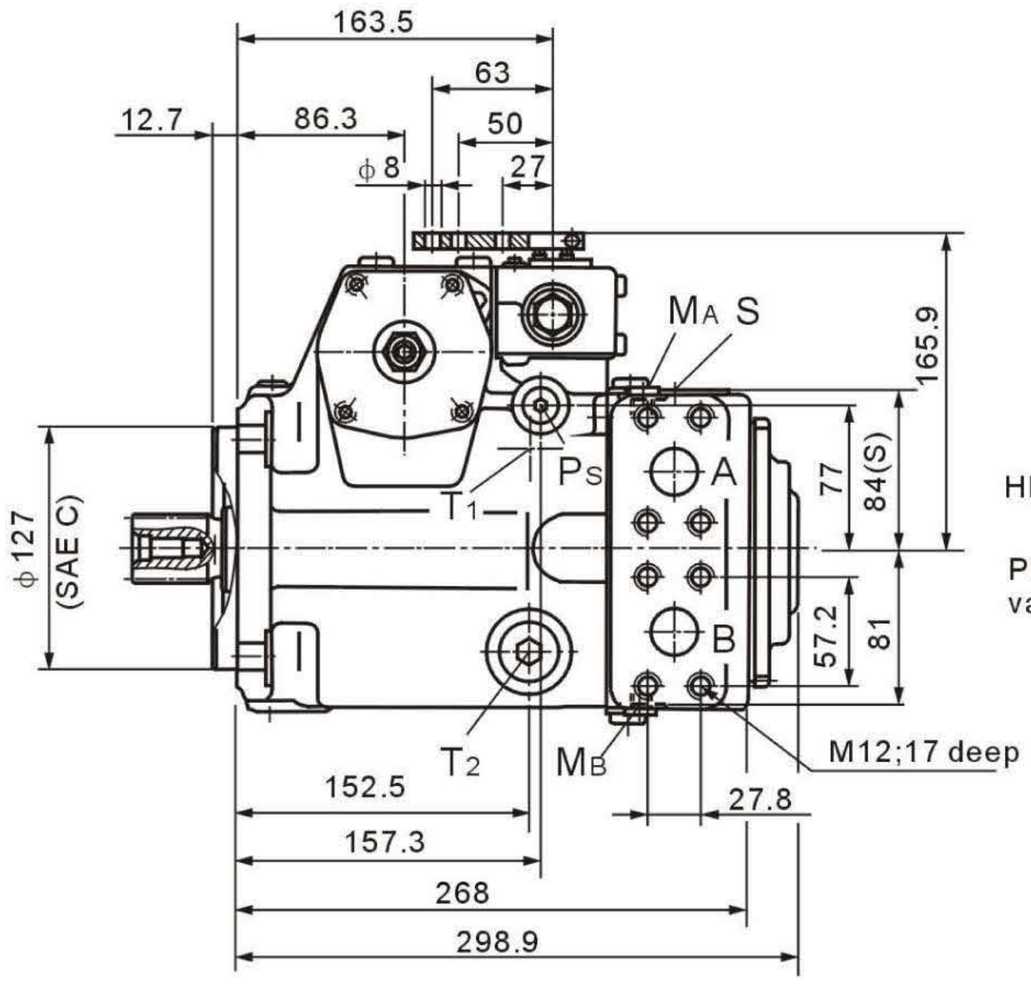
Assignment
Direction of rotation-Control-Direction of through put flow

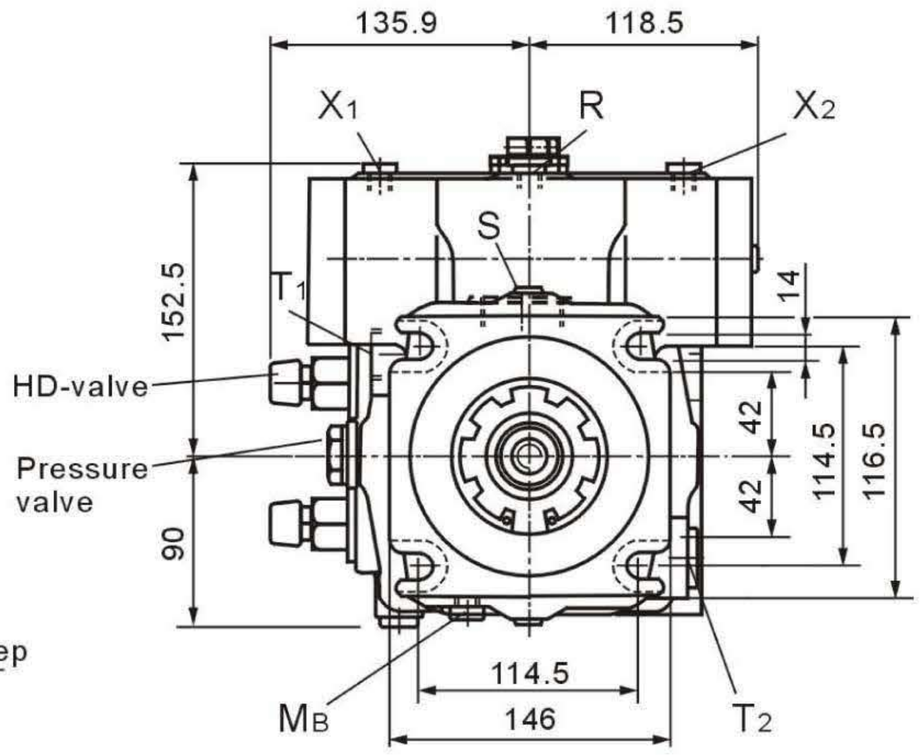
Direction of rotation	CW		CCW	
Lever direction	A	B	A	B
Control pressure	X_2	X_1	X_2	X_1
Direction of through put flow	B to A	A to B	A to B	B to A
Operating pressure	M_A	M_B	M_B	M_A

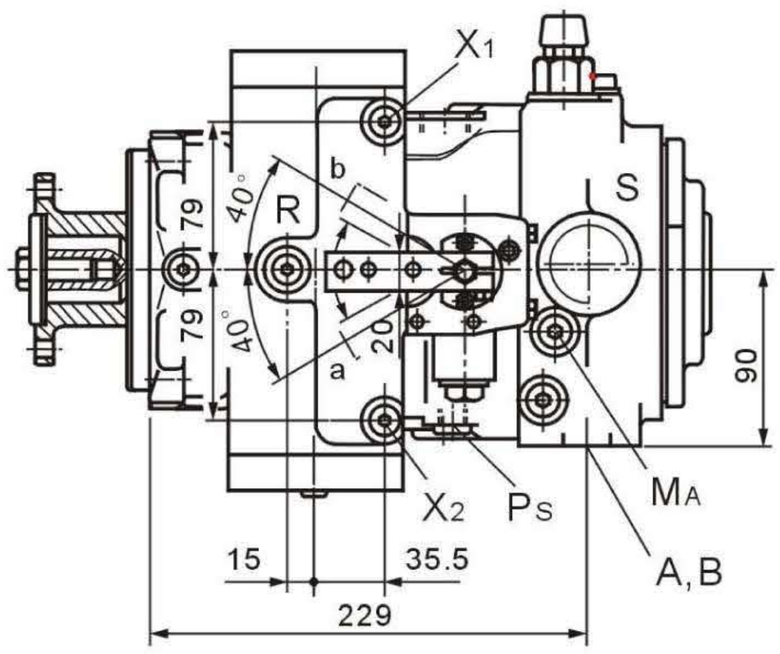




Installation dimensions





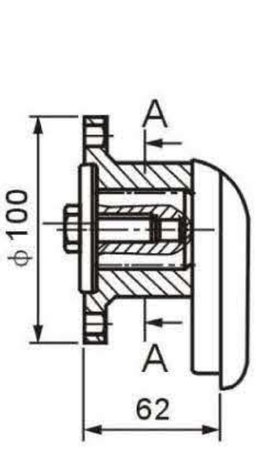


Ports

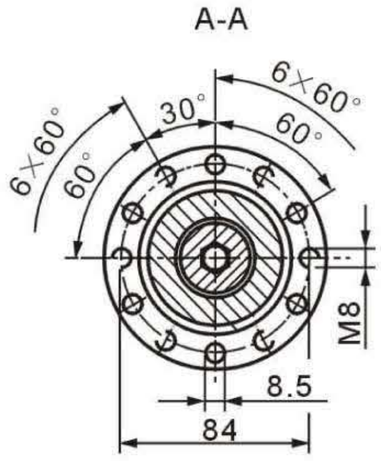
Designation	Function	Size
A,B	Service line Fixing thread A/B	ϕ25 M12×1.75;17 deep
S	Suction	M42×2;20 deep
T_1 T_2	Tank	M26×1.5;16 deep
M_A, M_B	Measuring pressure A Measuring pressure B	M12×1.5;12 deep
R	Air bleed	M16×1.5;12 deep
X_1, X_2	Contril pressure (upstream of orfice)	M12×1.5;12 deep
X_3, X_4	Stroking chamber pressure	M12×1.5;12 deep
P_S	Pilot pressure inlet	M14×1.5;12 deep

Shaft ands

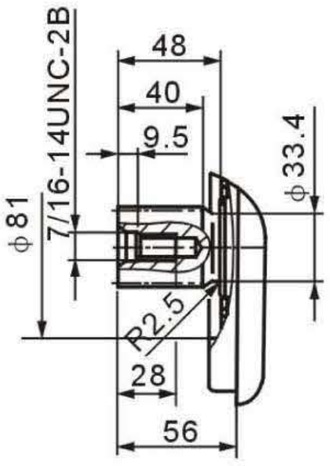
L Splined shaft 1 1/2in
with coupling flange



A-A

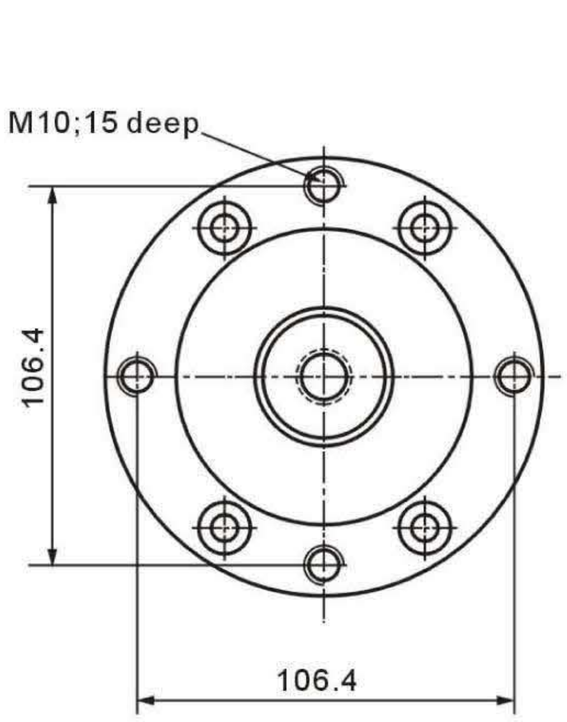


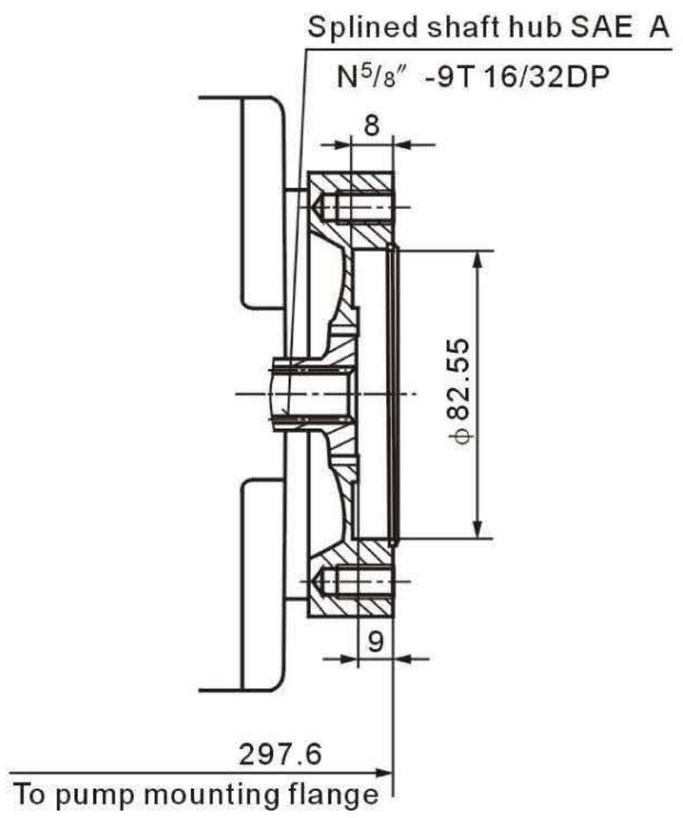
S Splined shaft 1 1/2in
23 T 16/32DP[1)]
(SAE J744)



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

Through drive SAE A (F01)





Through drive SAE B(F02)