

HP5V SERIES

Swash-plate Type
Axial Piston Variable Displacement Pump

HP5V series piston pump is high pressure open circuit axial piston pump specially designed with a new structure, and has lighter weight, higher power density, and longer life compared with HP3V pump.

Apply to open hydraulic circuit

Displacements (cc/rev): (S)28 28 45 60 76 85 105 Rated pressure (bar): 250 320 320 250 320 280 350 Peaking pressure (bar): 315 350 350 280 350 320 400



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Features

- · Variable pump in swash-plate design for open circuit.
- · High continuous pressure.
- · Exceptional self-priming capability.
- · Available with American (SAE) and Japanese (JIS) mounting flanges and shafts.
- · Excellent reliability and long life.
- · High power to weight ratio.
- ·Variety of control options.
- · Optional through drive.
- · Quick control response.
- · Low pressure pulsation and low noise.
- Developed for engineering, mobile vehicles, industrial, other industrial application and agricultural machinery.

Technical Data

Size		HP5VS28	HP5V28	HP5V45	HP5V60	HP5V76	HP5V85	HP5V105			
Displacen	nent (cc/rev)	28	28	45	60	76	85	104.3			
Draggura	Rated pressure (bar)	250	320	320	250	320	280	350			
Pressure	Peak pressure (bar)	315	350	350	280	350	320	400			
Rotation	Max for self-priming ^{*1} (rpm)	3000	3000	2700	2400	2400	2400	2200			
speed	Max ^{*2} (rpm)	3600	3600	3250	3000	3000	3000	2600			
Weight (K	g)	17.2	20	24	24	28	28	45			
Quantity of fill pump		0.55	0.6	0.6	0.6	0.8	0.8	1			
Input torc	que rating (Nm)	198	155	225	225	400	400	530			
Temperat	ure Range (°C)	-20~95									
Viscosity I	Range (mm²/s)	10-1000 ^{*3} (The best use of viscosity range 16~36 mm²/s)									

Permissible through drive torque											
Input shaft code S1 S2 S3 S4 S5 K1 K2 K3											
Input torque rating (Nm)	171	272	552	925	1470	145	230	430			

- 1. Steady state suction pressure should be 0 bar and above(at normal condition);
- 2. If suction pressure less than 0 bar, Boost pressure should be required;
- 3. In case of $200-1000\,\text{mm}^2/\text{s}$, please allow system to warm up before using machine.

Type introduction

HP5V	76	/	Α	V	1	0	R	B2	S1	М	S	_	L1/1	_	D	2	_	Т
1	2		3	4	5	6	7	8	9	10	11)		12		13	14)		15)

Product series

Ī	1	Product series		HP5V	
		Compact product series	H	HP5VS	

Displacement

2 Displacement cc/rev 28 45 60 76 85

Design series

(3)	Design series	A Series	A	
_				

Seals

4	Coalc	FKM (Viton rubber: DIN ISO 1629)	<u>\</u>	<mark>/</mark>
	Seals	NBR (Nitrile rubble :DIN ISO 1629)	l N	1

Hydraulic circuit

5	Hydraulic circuit	Open circuit	. <mark>1</mark>
	, , , , , , , , , , , , , , , , , , ,		

Through Drive

			S28	28	45	60	76	85	105	Code
1	Without through o	drive	•	•	•	•	•	•	•	0
	Without through drive, SAE flange ports, rear			0	•					NO1
	Without through o	drive, Thread ports, rear			•					NO2
	Standard configu	ration with gear pump 6cc/rev							0	X1
	Standard configu	ration with gear pump 10cc/rev			0	0	0	0	0	X2
	Mounting Flange	Spline shaft								
6	SAE A 82-2	SAE J744-16-4 9T 16/32DP			•	•	•	•		A1
	SAE A 62-2	SAE J744-19-4 11T 16/32DP			0	0		•		A2
	CAE D 101 2	SAE J744-22-4 13T 16/32DP								B1
	SAE B 101-2	SAE J744-25-4 15T 16/32DP			•	•	•	•		B2
	CAE C 127 2	SAE J744-32-4 14T 12/24DP					•	•	0	C1
	SAE C 127-2	SAE J744-38-4 17T 12/24DP								C2
	SAE C 127-4	SAE J744-32-4 14T 12/24DP					•	•	•	С3
	SAE C 121-4	SAE J744-38-4 17T 12/24DP							•	C4

Type introduction

Direction of Rotation

Vioused on drive shaft	<u>Clockwise</u>	F	₹	
viewed on drive shaft	Counter-clockwise	1	L	

Input Mounting flanges

	Mounting flanges size	S28	28	45	60	76	85	105	Code
8	SAE B 101-2								B2
	SAE C 127-2					•	•	•	C2
	SAE C 127-4					•	•	•	C4

Input Shaft

	Shaft size	S28	28	45	60	76	85	105	Code
	SAE J744-22-4 13T 16/32DP	•	•	•	•	0	0		S1
	SAE J744-25-4 15T 16/32DP								S2
	SAE J744-32-4 14T 12/24DP								S3
	SAE J744-38-4 17T 12/24DP							•	S4
9	SAE J744-44-4 13T 8/16DP								S5
	SAE J744-22-1 B6.35×28 straight shaft		•						K1
	SAE J744-25-1 B6.35×32 straight shaft			•	•				K2
	SAE J744-32-1 B7.94×44 straight shaft					•	•		K3
	ISO straight shaft (non through shaft)								Р

Thread type of Flange Fixing Port

10	Throad type	Metric threads	M	1
	Thread type	UNC threads	S	<mark>.</mark> }

Connection type (except inlet and outlet port)

ſ		UNC port, ISO 11926				
11	11	BSPPG thread, JIS B2351	G			
		Metric port, ISO 9974	M			

Type introduction

Control type

	Control type Apply to constant displacement pump			28	45	60	76	85	105	Code
				0	0	0	0	0	0	N
		Only pressure control	•	•	•		•	•	0	DR
	Duocoura	Electro-hydraulic pressure control, positive control	0	0	0					ER1
	Pressure cut-off	Electro-hydraulic pressure control, negative control	•	•	•	•	•	•	•	ER2
		+Load sensing							0	L1
12		Remotely operated	•	•	•	•	•	•	0	P0
		Pressure cut-off+ Load sensing	•		•	•	•	•	•	L1/1
		Remotely operated+ Load sensing	•		•	•	•	•	0	P0/1
	Power Control	Electrically (negative control) +Pressure cut-off+ Load sensing	•				•	•	0	L1/1-E0
	Control	Hydraulic control + Pressure cut-off + Load sensing					•	•	0	L1/1-H0
		+Load sensing		•						LP1

Connector for solenoids

	Connector for solenoid	S28	28	45	60	76	85	105	Code
	Without solenoid								Blank
13	AMP Junior timer; 2 contact pin, (without suppressor diode)					•	•	0	А
	Deutsch DT04-2P; 2 contact pin,								D
	(without suppressor diode)								D

Input Voltage

ĺ		Without solenoid				
	14)	12VDC	1			
		24VDC	2			

Application Conditions

	Application	S28	28	45	60	76	85	105	Code
15)	Apply to excavator		•		•		•		Т
	Other mobile machinery, construction machinery, industrial application	•	•	•	•	•	•	•	Blank

Remark: ● = available; ○ = On request;

Regulators introduction

Code: L1(DR)

Control Type: 1. Load sensing

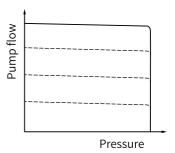
Standard setting: 15bar

Adjustment range: 10bar-21bar

2. Pressure Cut-off

Standard setting: 320bar

Adjustment range: 21bar-320bar



Function and Features: Load sensing + Pressure Cut-off

The load sensing control is a flow control option that operates as a function of the load pressure to regulate the pump displacement to match the actuator flow requirement.

The load sensing control compares pressure before and after the sensing orifice and maintains the pressure drop across the orifice (differential pressure Δp) and with it the pump flow constant.

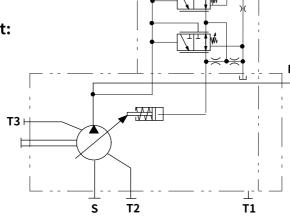
If the differential pressure Δp increases, then the pump displacement decreases, and if the differential pressure Δp decreases, then the pump displacement increases until the pressure drop across the sensing orifice in the valve is restored.

Pump displacement is controlled to match the flow requirement as a function of the system differential pressure(load pressure vs delivery pressure). In addition, there is a pressure cut off function incorporated into the control.

The pressure cut off control keeps the pressure in a hydraulic system constant within its control range even under varying flow conditions, the variable pump only moves as much hydraulic fluid as is required by the actuators. if the operating pressure exceeds the set point set at the pressure control valve, the pump displacement is automatically swivelled back until the pressure deviation is corrected.

"DR" control is on the basis of "L1" control, tighten the load sensitive valve adjust screw, and the load sensitive valve doesn't work.



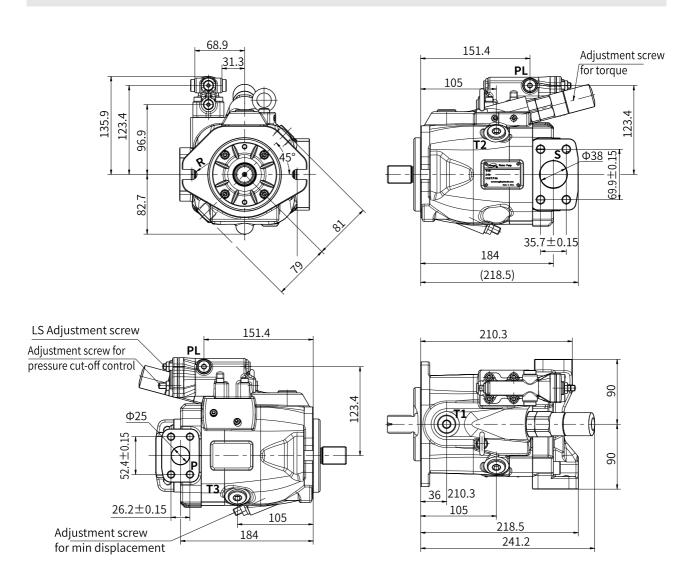


Installation size

HP5V45/60 Installation size

HP5V45/60 with Cut-off/Load Sense Control with torque limit (Clockwise Rotation)

For the CCW pump just reverse the inlet and outlet port.

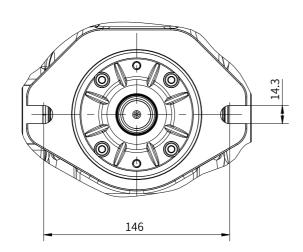


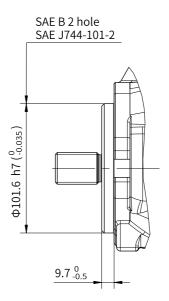
Port Details

	Port Name	Pol	Tightening Torque (N-m)				
P	Working port	1"SAE J518C	M (metric)	M10×1.5 (depth 17mm)	57		
Г	Working port	Code 61 (5000psi)	S(UNC)	3/8-16UNC-2B (depth 17mm)	31		
S	Suction Port	1-1/2"SAE J518C	M (metric)	M12×1.75(depth 20mm)	98		
3		Code 61 (3000psi)	S(UNC)	1/2-13UNC-2B (depth 20mm)	36		
T1、T2、T3	Case drain Port	ISO 11926 (7/8-14U	120				
PL	PL LS Control Port ISO 11926 (7/16-20UNF-2B) depth 11.5mm						

Installation size

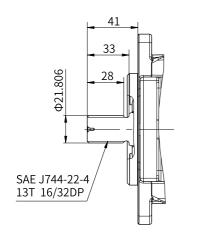
HP5V45/<mark>60</mark> Mounting Flange



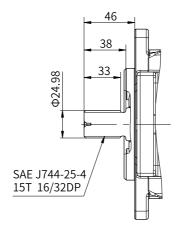


SAE "B2"type

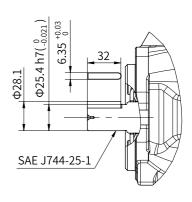
HP5V45/60 Input Shaft type



"S1"type spline shaft



"S2"type spline shaft



"K2"type straight shaft