



1.1

HP6V SERIES

Swash-plate Type Axial Piston Variable Displacement Pump

The HP6V series axial piston pumps are designed for high pressure open systems with a specially designed new power structure that is smaller and more resistant to pollution.

Apply to open hydraulic circuit

Displacements (cc/rev):	18	65
Rated pressure (bar):	280	300
Peaking pressure (bar):	315	320



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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		18	65
Displacement (cc/rev)		18	65
Pressure	Rated pressure (bar)	280	300
	Peak pressure (bar)	315	320
Rotation speed	Max for self-priming ¹ (rpm)	3300	2600
	Max ² (rpm)	3900	3140
Weight (Kg)		15.9	25
Quantity of oil to fill pump case (L)		0.4	0.6
Temperature Range (°C)		-20~95	
Viscosity Range (mm ² /s)		10-1000 ³ (The best use of viscosity range 16~36 mm ² /s)	

Permissible through drive torque

Input shaft code	S	S0	S2	S3
Input torque rating (Nm)	59	124	272	552

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 200-1000mm²/s, please allow system to warm up before using machine.

Type introduction

HP6V	65	/	A	V	1	O	R	B2	S2	M	A	—	L1/1	—	T
①	②		③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪		⑫		⑬

Product series

①	Product series	HP6V
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Displacement

②	Displacement cc/rev	18	65
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Design series

③	Design series	A Series	A
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Seals

④	Seals	FKM (Viton rubber: DIN ISO 1629)	V
		NBR (Nitrile rubble :DIN ISO 1629)	N

Hydraulic circuit

⑤	Hydraulic circuit	Open circuit	1
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Through Drive

⑥	Through Drive	18	65	代号
	Without through drive	●	●	O

Direction of Rotation

⑦	Viewed on drive shaft	18	65	Code
	Clockwise	●	●	R
	Counter-clockwise	○	○	L

Type introduction

Input Mounting flanges

	Mounting flanges size	18	65	Code
⑧	SAE B 82-2	●		A2
	SAE B 101-2		●	B2

Input Shaft

	Shaft size	18	65	Code
⑨	SAE J744-16-4 9T 16/32 DP	●		S
	SAE J744-22-4 13T 16/32DP		○	S1
	SAE J744-19-4 11T 16/32DP	●		S0
	SAE J744-25-4 15T 16/32DP		●	S2
	SAE J744-32-4 14T 12/24DP		●	S3

Thread type of Flange Fixing Port

⑩	Thread type	Metric threads	M
		UNC threads	S

Connection type (except inlet and outlet port)

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

Control type

	Control type	18	65	Code		
⑫	Apply to constant displacement pump	○	○	N		
	Pressure cut-off	Only pressure control	●	●	DR	
		Electro-hydraulic pressure control, negative control	○	○	ER2	
		+Load sensing	●	●	L1	
		Remotely operated	○	○	P0	
	Power Control	Pressure cut-off+ Load sensing	●	●	L1/1	
		Remotely operated+ Load sensing		○	P0/1	
		Electrically (negative control) +Pressure cut-off+ Load sensing. Deutsch DT04-2P ; 2 contact pin, (without suppressor diode)	12V	●	●	L1/1-E1
			24V			L1/1-E2

Type introduction

Application Conditions

	Application	18	65	Code
⑬	Apply to excavator	●	●	T
	Other mobile machinery, construction machinery, industrial application, agricultural machinery	●	●	Blank

Remark: ● = available; ○ = On request;

Regulators introduction

Code: L1(DR)

Control Type :

1. Load sensing

Standard setting: 15bar

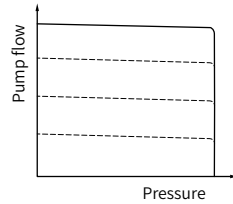
Adjustment range: 10bar-21bar

(It can be set to 38 bar at most, but it is not recommended to set it too high. If you need other settings, please consult our company.)

2. Pressure Cut-off

Standard setting: 320bar

Adjustment range: 21bar-320bar



01

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.

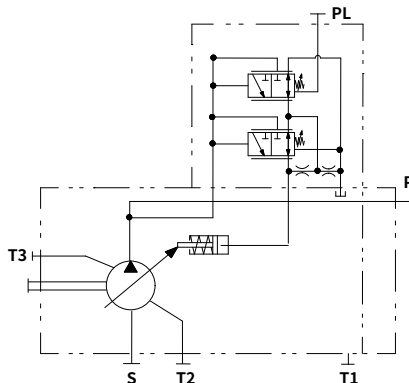
$$\Delta p = P_p - P_L$$

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.

Hydraulic Circuit:

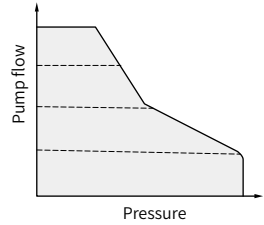


Regulators introduction

Code: □ /1

Control Type :

- 1. Load sensing**
 Standard setting: 15bar
 Adjustment range: 10bar-21bar
 (It can be set to 38 bar at most, but it is not recommended to set it too high. If you need other settings, please consult our company.)
- 2. Pressure Cut-off**
 Standard setting: 320 bar
 Adjustment range: 21 bar-320 bar
- 3. Torque limiting**

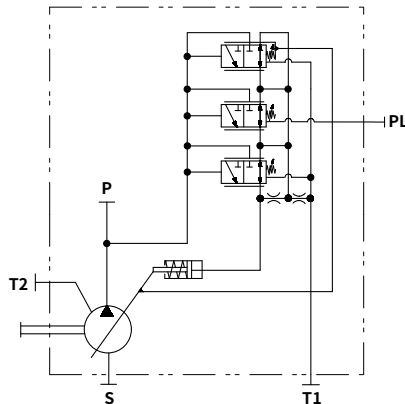


Function and Features: _/1 Load Sense and Pressure Cut-off with Torque limiting

The L1 control functions as previously noted. In response to a rise in delivery pressure the swash plate angle is decreased, restricting the input torque. This regulator prevents excessive load against the prime mover.

The torque limit control module is comprised of two springs that oppose the spool force by the system pressure. By turning an outer and inner spring adjustment screw, the appropriate input torque limit can be set.

Hydraulic Circuit:

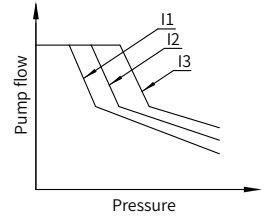


Regulators introduction

Code: □ /1-E □

Control Type :

- 1. Load sensing**
 Standard setting:15bar
 Adjustment range:10bar-21bar
 (It can be set to 38 bar at most, but it is not recommended to set it too high. If you need other settings, please consult our company.)
- 2. Pressure Cut-off**
 Standard setting: 280bar(HP6V18)
 Adjustment range: 21bar~215bar(HP6V18)
- 3. Port Pr pressure:** 20bar~45bar
- 4. Electromagnet characters**



300bar(HP6V65)
 21bar~320bar(HP6V65)

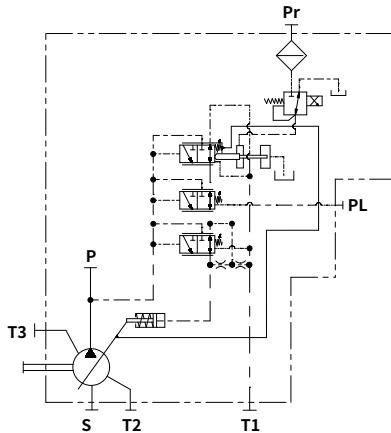
Code	Voltage(V)	Current(A)	Resistance(Ω)	Insulation grade
L1/1-E1	12	0.80	7.3±10%(20°C)	H(180°C)

- 5. Connector (amp)**
 AMP:174354-2、173706-1

Function and Features: 1-E Load Sense and Pressure Cut-off with Torque limiting

The L1 control functions as previously noted. It controls the input torque of the pump by changing different current, specific current is related to certain input torque, thus satisfy needs of different torque on excavator

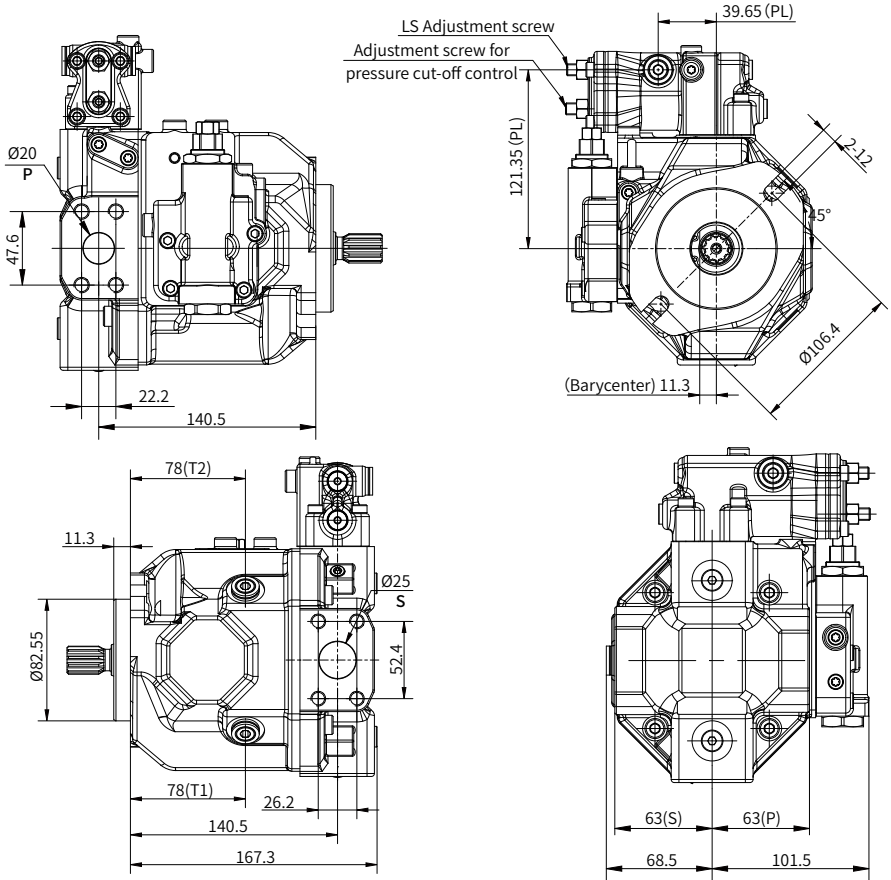
Hydraulic Circuit:



Installation size

HP6V18 installation size

Displacement is adjustable
 HP6V18 with Cut-off/Load Sense Control with torque limit
 (Clockwise Rotation)
 For the CCW pump just reverse the inlet and outlet port.

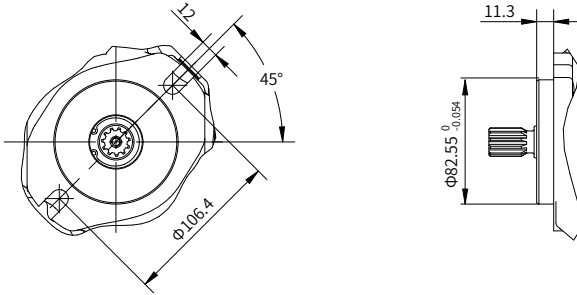


Port Details

Port Name		Port Size and Description			Tightening Torque (N-m)
P	Working port	3/4"SAE J518C code 61 (5000psi)	M(metric)	M10×1.5 (depth 17mm)	57
S	Suction port	1"SAE J518C code 61 (3000psi)	M(metric)	M10×1.5 (depth 17mm)	57
T1, T2	Case drain port	ISO 6149 (M14×1.5)			45
PL	LS Control port	ISO 6149 (M14×1.5)			45

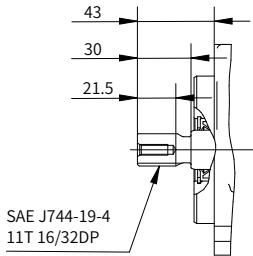
Installation size

HP6V18 Mounting Flange



SAE "A2" type

HP6V18 Input Shaft type



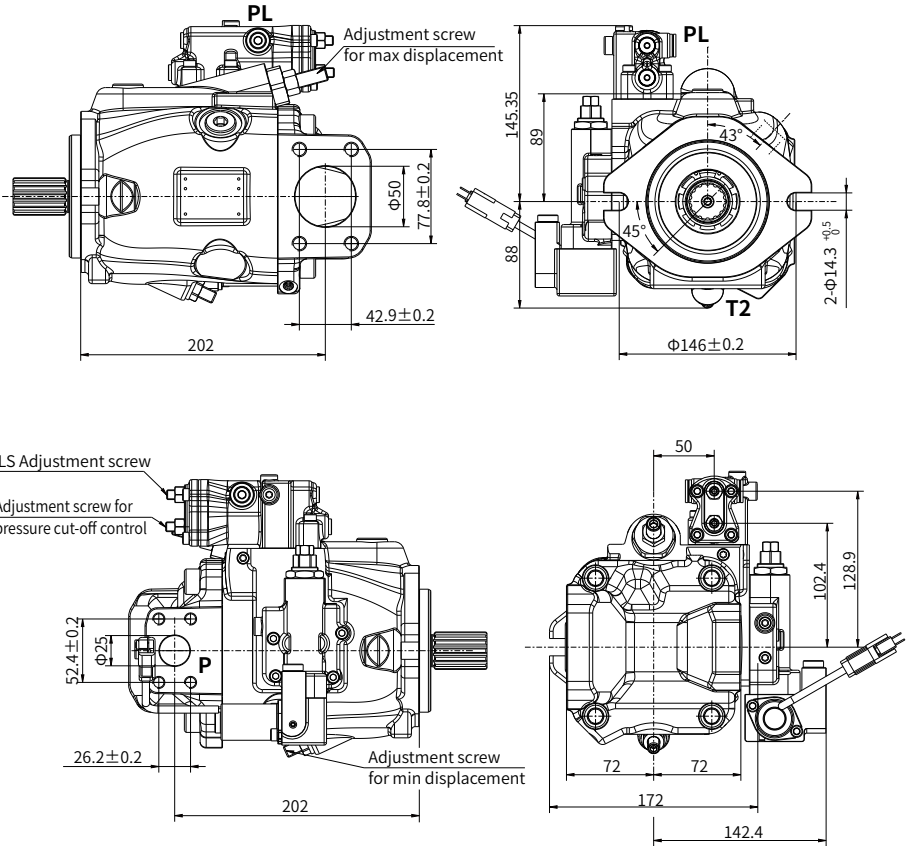
"S0" type spline shaft

Installation size

HP6V65 installation size

HP6V65 with Cut-off/Load Sense Control with torque limit
(Clockwise Rotation)

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

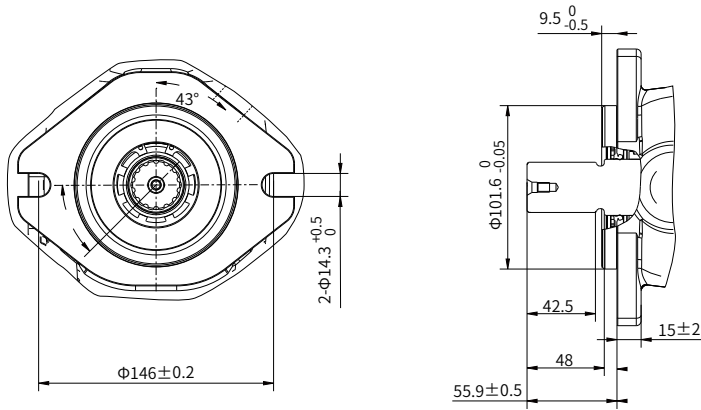


Port Details

	Port Name	Port Size and Description			Tightening Torque (N-m)
P	Working port	1"SAE J518C Code 61 (5000psi)	M (metric)	M10×1.5 (depth 17mm)	57
			S(UNC)	3/8-16UNC-2B (depth 17mm)	
S	Suction Port	1-1/2"SAE J518C Code 61 (3000psi)	M (metric)	M12×1.75(depth 20mm)	98
			S(UNC)	1/2-13UNC-2B (depth 20mm)	
T1, T2	Case drain Port	ISO 11926 (7/8-14UNF-2B) depth 13mm			120
PL	LS Control Port	ISO 11926 (7/16-20UNF-2B) depth 11.5mm			12

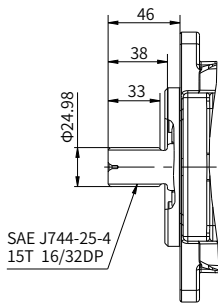
Installation size

HP6V65 Mounting Flange

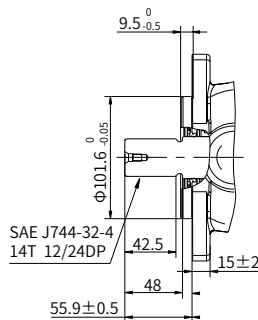


SAE "B2" type

HP6V65 Input Shaft type



"S1" type spline shaft



"S3" type spline shaft

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