HP3V

Swash-plate Type
Axial Piston Variable Displacement Pump

Hengli swash-plate axial piston pump HP3V, the key parts of the pump are made of imported materials, quality strictly controlled, suitable for high-pressure hydraulic applications.

Apply to open hydraulic circuit		
Displacements (cc/rev)	80	140
Rated pressure (bar)	320	350
Peaking pressure (bar)	350	400

Technical Data	02
Type introduction	03-05
Regulators introduction	06-11
Performance curves	
·HP3V 80 Performance curves	12
·HP3V 140 Performance curves	13
Installation size	
·HP3V 80 Installation size	14-16
·HP3V 140 Installation size	17-22
·Through Drive Installation Options	23-29
·Size of Tandem pumps	30
Setting of regulator and Max. displacement	31

- Variable pump in swash-plate design for open circuit.
- High continuous pressure.
- Exceptional self-priming capability.
- Available with American (SAE) and Japanese (JIS) mounting fanges 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 and other industrial application.

Technical Data

Size		HP3V 80	HP3V 140
Displacement (cc/rev)		80	140
Pressure	Rated pressure (bar	320	350
	Peak pressure (bar	350	400
Rotation speed	Max for self-priming[*1] (rpm)	2400	2150
	Max[*2] (rpm)	3000	2500
Weight (Kg)		38.5	65
Quantity of oil to fll pump case (L)		0.8	1.4
Temperature Range ( )		-20~95	
Viscosity Range (mm^2/s)		10-1000[*3] (The best use of viscosity range 16~36 mm^2/s)	

Ncp k gqqg `jc r fpmsef bpgtc rmposc								
Input shaft code	S2	S3	S4	S5	D3	D4	K3	K8
Input torque rating (Nm)	272	552	925	1470	990	1470	430	1000

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 200-1000mm^2/s, please allow system to warm up before using machine.

Type introduction

Nombsar qcpgcq

	Product series	HP3V

Bgqnj_ac k c l r

	Displacement cc/rev	80	140

Bcqge l qcpgcq

	Design series	A Series: HP3V 80-140	A

Qc_jq

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

Type introduction

GInsr Kmslrgle _lecq

	Mounting fanges size	80	140	Code
	SAE C 127-2	●		C2
	SAE C 127-2/4 bolt (same fange)		●	C4
	SAE D 152-4		●	D4
	ISO 3019/2-125, 2 bolt	○		I2
	ISO 3019/2-160, 4 bolt		○	I3
	ISO 3019/2-180, 4 bolt		●	I4
	ISO 3019/2-125, 2/4 bolt (same fange)		○	I5

GInsr Qf_dr

Rfpc_b rwnc md Dj_lec Dgvgle Nmpr

Type introduction

Aml rpmj rwnc

	Control type		80	140	Code
	Cover plate, apply to constant displacement pump		●	●	N
	Pressure cut-of	Only pressure control	●	●	DR
		+Load sensing with orifce R4	●	●	L0
		+Load sensing without orifce R4	●	●	L1
		Remotely operated+ Load sensing	●	●	P0
		+Electric proportional displacement		●	DR-EDO
	Power Control (*)	Pressure cut-of + Load sensing	●	●	L1/1
		Remotely operated+ Pressure cut-of	●	●	P0/1
		Electrically (negative control) +Pressure cut-of + Load sensing	●	●	L1/1-E0
		Hydraulic control + Pressure cut-of + Load sensing	●	●	L1/1-H0
		+Electric proportional displacement + Pressure cut-of		●	DR/1-EDO

Aml l carmp dmp qmjc l mgbq

		80	140	Code
	Without solenoid	●	●	Blank
	AMP Junior timer; 2 contact pin, (without suppressor diode)	●	●	A
	Deutsch DT04-2P ; 2 contact pin, (without suppressor diode)	●	●	D
	DIN EN175301-803 3 contact pin, (without suppressor diode)		●	H

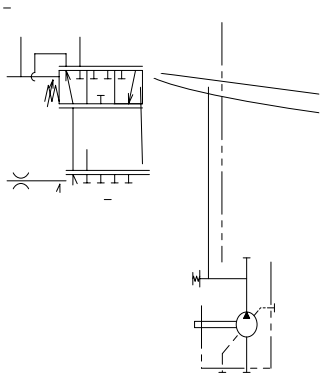
G l nsr Tmjr_ec

	Without solenoid	Blank
	12VDC	!

?nnjga_rgm l Aml bgrgm l q

		80	140	Code
	Apply to excavator	●	●	T
	Other mobile machinery, construction machinery, industrial application	●	●	Blank

Remark ● = available ○ = On request

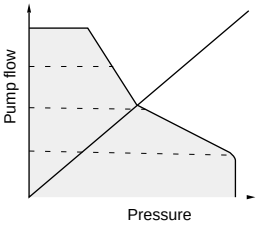


Regulators introduction

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 L0/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-E0**

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
3. Port Pr pressure: 20bar~45bar
4. Electromagnet characters

Voltage(V)	Current(A)	Resistence(Ω)	Insulation grade
12	0.89	7.3 ± 10%(20)	H(180)
24	0.75	21.2 ± 10%	UP to IP6K6/IPX9K

5. Connector (deutsch or Amp)
DEUTSCH: DT04-2P-E005
AMP: 174354-2 173706-1

Function and Features: **_/1-E0 Load Sense and Pressure Cut-off with Torque limiting**
The L0/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:

Code: □ **/1-H0**

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-o f
Standard setting: 320bar
Adjustment range: 21bar-320bar

Code: ***-EDO**

Control Type :

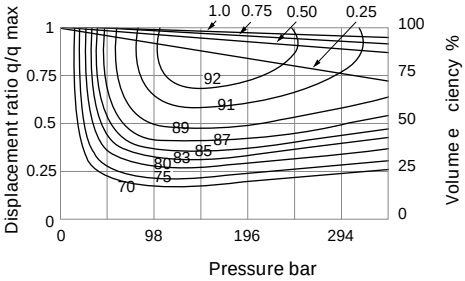
Function and Features:

Hydraulic Circuit:

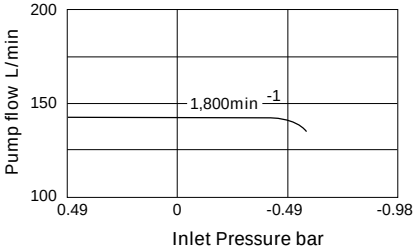
Performance curves

FN1T 6. Ncpdmp k_ lac asptcq

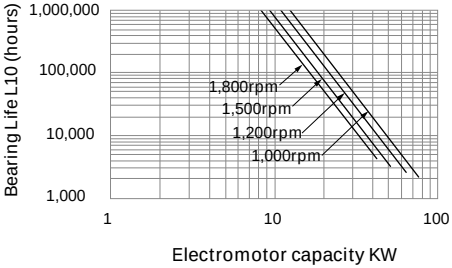
Pump e ciency (%)



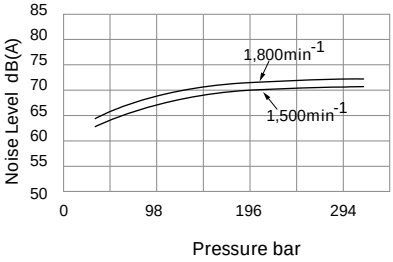
Self-priming Capability

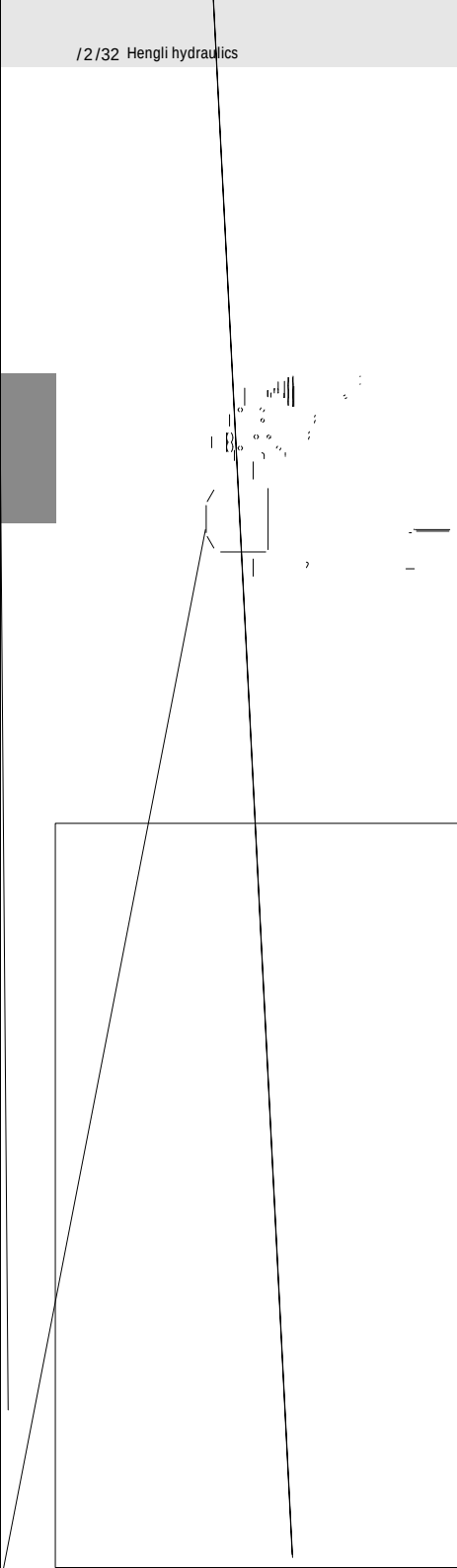


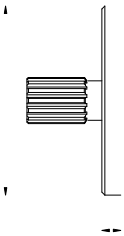
Bearing Life



Noise Level

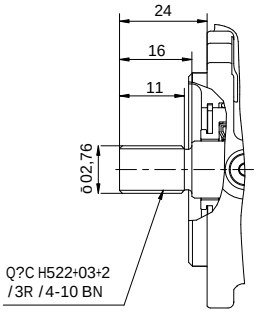




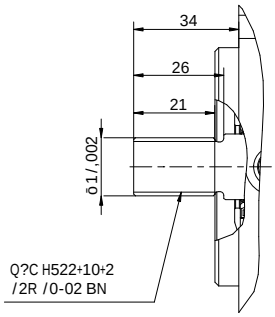


Installation size

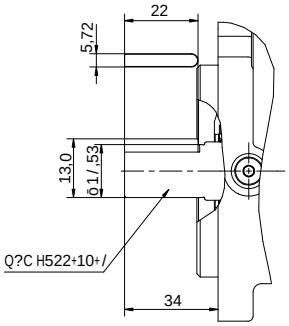
HP3V80 Input Shaft type



"S2" type spline shaft



"S3" type spline shaft



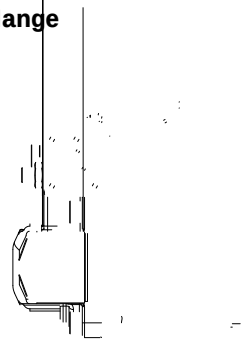
"K3" type straight shaft

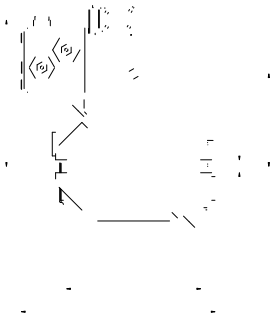
Installation size

HP3V140 installation size

HP3V140 With Cut-of /Load Sense Control with Torque limit (Clockwise Rotation)
For the CCW pump just reverse the inlet and outlet port.

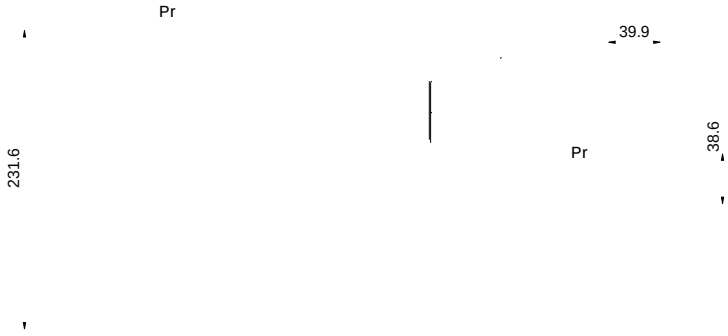
D Flange





Installation size

HP3V140 With Electrical Control for Torque limit



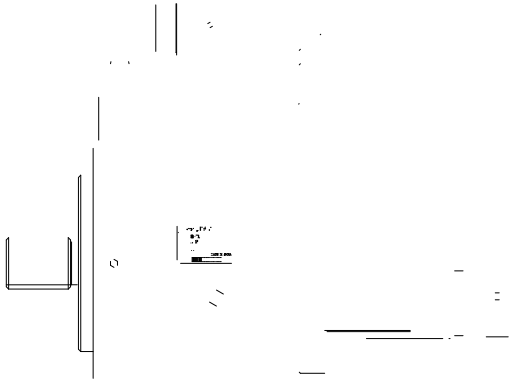
Installation size

HP3V140 Electric proportional displacement pump installation size

(Please refer to "Page 11/32" for hydraulic Circuit.)

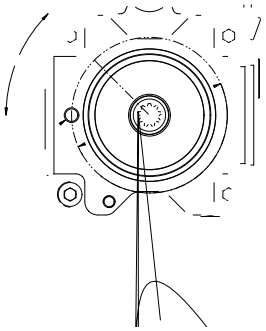
Through Drive Installation Options

X Type



Ec_p ns k n g l dmp k _rgm l

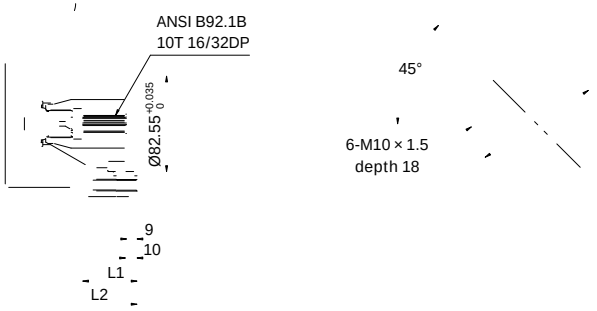
	Rated pressure	Peak pressure	Theoretical displacement
6cc/rev	39bar	70bar	6cc/rev
10cc/rev	39bar	50bar	10cc/rev



Through Drive Installation Options

?1 Rwnc

Q?C ? 60+0) ?LQ@70,/@ /.R /4-10BN



Disp.(cc/rev)	80	140 (flange C)	140 (flange D)
L1	47	—	—
L2	290	—	—

Through Drive Installation Options

A1 Rwnc

Q?C A /05+2)Q?C H522+10+2 /2R /0-02BN

Disp.(cc/rev)	80	140 (f ange C)	140 (f ange D)
L1	—	56.5	56.5
L2	—	367.5	337.5

A2 Rwnc

Q?C A /05+2)Q?C H522+16+2 /5R /0-02BN

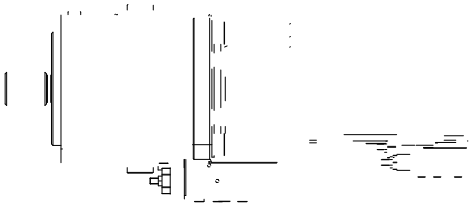
Disp.(cc/rev)	80	140 (f ange C)	140 (f ange D)
L1	—	62	62
L2	—	373	343

Through Drive Installation Options

B / Rwnc

Q?C B /30+2) Q?C H522+22+2 /1R 6- /4BN

Size of Tandem pumps



Qgxc md R_lbck nsknq

/,nsknq / 0,nsknq	FN1T6.						
	a	b	c	d	e	f	g
HP3V80	272	260	556.5	217	513.5	217	513.5
	FN1T/2.						
HP3V80	307.5	260	597.5	250	554.5	250	554.5
HP3V140	307.5	296	646.5	250	600.5	250	600.5

Setting of regulator and Max. displacement

Qcrrgle amlrpmj t_jtc

FN1T6.+/2. Nsk n

qgxc	?nnpmv, npcqqspc af_lec ncp pmr_rc qapc u&`_p'		Setting pressure at delivery: Pressure control : 320bar Di ferential pressure: 15bar
	Npcqqspc asr+m t_jtc	JQ t_jtc	
80	80	13	
140	92	14	

Qcrrgle md K_v, bgqnj_ack clr

qgxc	?nnpmv, bgqnj_ack bg# ɔ	?ß ʌ ľ ml ľ	] ɞ ŏ m Þ

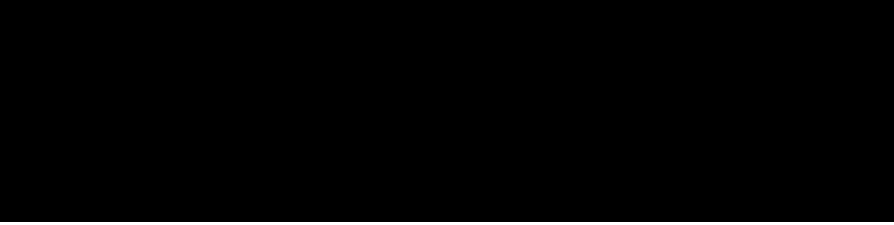
Inaccurate description.

HP SERIES

Caution for using

Am l rc l rq

1. Mounting Direction and Drain Piping	02-03
2. Filtration	04
3. Connection of driving shaft	05
4. Fluid	06
5. Starting	06
6. Case drain pressure	06



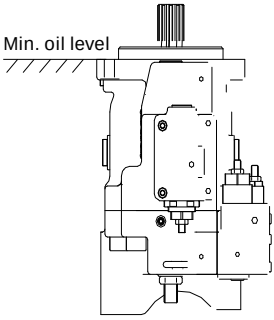
Caution for using

1. Mounting Direction and Drain Piping

Installation Type 2: **Vertical installation 1 — Installation within a tank**

Caution: Open the drain port and the air bleeder plug port.

Sketch Diagram:



Installation Type 2: **Vertical installation 2 — Installation outside a tank**

Caution:

Sketch Diagram:

Caution for using

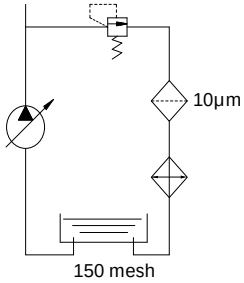
2. Filtration

Caution:

1) For satisfactory service life of these pumps in application, the operating fluid should be continuously filtered to keep at least the cleanliness level ISO/DIS 18/15 or NAS1638 Class9;

2) A 10μm-filter must be used in the return circuit and an 80~150-mesh strainer in the suction circuit.

Sketch Diagram:



Caution for using

4. Fluid

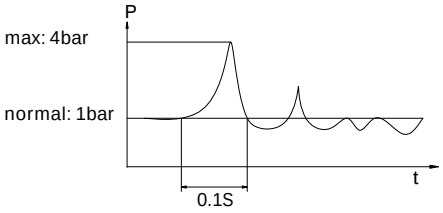
Caution: It is recommended to use the anti-wear type hydraulic fuid as mineral oil type when the pressure is higher than 206 bar.

5. Starting

Caution: 1) Before starting-up, fl " yp ^ pr é] D ä ч D ÿ t ę N { T ÿ k / ž v mi] Dc

6. Case drain pressure

Caution: Please be careful so that the drain pressure in the casing does not exceed 1 bar normally and 4 bar at its peak.

A suitable size of drain hose and drain fIter should be selected.

Sketch Diagram: