



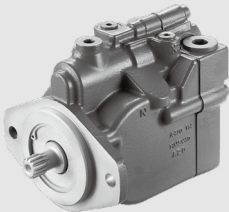
4.4

HM5V SERIES

Axial Piston Variable Displacement Motor

HM5V series swash-plate variable piston motor adopt flange design, small volume, light weight.Compact installation space, applied to the open or closed hydraulic transmission circuits.

Apply to open or close circuit			
Size:	35	40	45
Nominal pressure (bar):	210	175	175
Max pressure (bar):	350	350	350



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Features

- Swash plate axial piston motor for open or close circuit.
- Flange design, widely used.
- Integration of two variable motor, servo variable piston, can set the minimum displacement of the motor.
- The side and the end are equipped with oil ports, easy to oil circuit arrangement
- High cliometric efficiency.
- Based on mature technology, excellent reliability.

Technical data

Size		35	40	45
Max displacement (cc/rev)		35	40	45
Min displacement (cc/rev)		Can be adjusted according to the requirements		
Direction of rotation		Clockwise, Counter clockwise		
Rotation speed (at max displacement)	Rated (rpm)	3600	3500	3500
	Max (rpm)	4000	3900	3900
Rotation speed (at min displacement)	Rated (rpm)	4650	4500	4500
	Max (rpm)	5200	5050	5050
Pressure	Rated (bar)	210	175	175
	Max (bar)	415	350	350
Control Pressure	Min (bar)	14		
	Max (bar)	69		
Casting pressure	Rated (bar)	2		
	Max (bar)	6		
Weight (Kg)		15.4		
Oil viscosity (mm ² /s)		7~1600, Best range: 12~80		
Oil Temperature (°C)		-20~100, Best range: 10~80		
Oil Cleanliness		ISO 4406 20/18/15		

Type introduction

HMSV	35	N	S1	R	N	N	F1513	
①	②	③	④	⑤	⑥	⑦	⑧	⑨

Product series

①	Swash plate axial piston motor	HMSV
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Size

②	Size	35	40	45
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Speed sensor

③	Without	N
	With 45 pulse/ring	S

The input shaft

④	13T 16/32 pitch ANSI B92.1-1970	S1
	15T 16/32 pitch ANSI B92.1-1970	S2

Back cover port type

⑤	Lateral port, 1-1/16-12UN-2B	R
	Axial port, 1-1/16-12UN-2B	Y

Flush valve

⑥	None (standard, If you want to flush valve please contact with us)	N
	Flow=option 1, open pressure 10.3bar (to be developed)	1

Adjustable min displacement limiter

⑦	None	N
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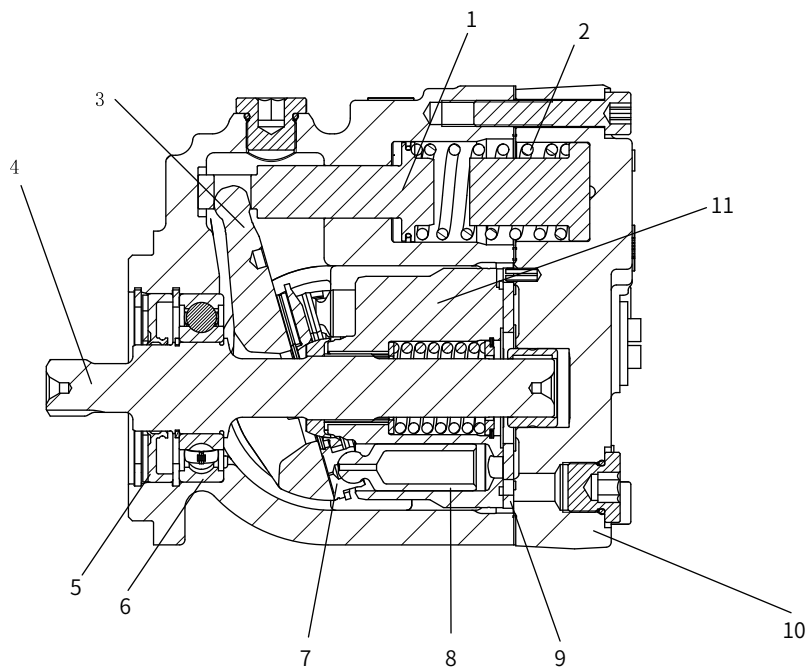
Minimum displacement set

⑧	10.3 cc/rev	F1030
	13.3 cc/rev	F1330
	18 cc/rev	F1800

Paint and nameplate

⑨	HL nameplate and black paint	None
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Section view



1. Servo piston

2. Bias spring

3. Swash plate

4. Output shaft

5. Shaft seal

6. Bearing

7. Slipper

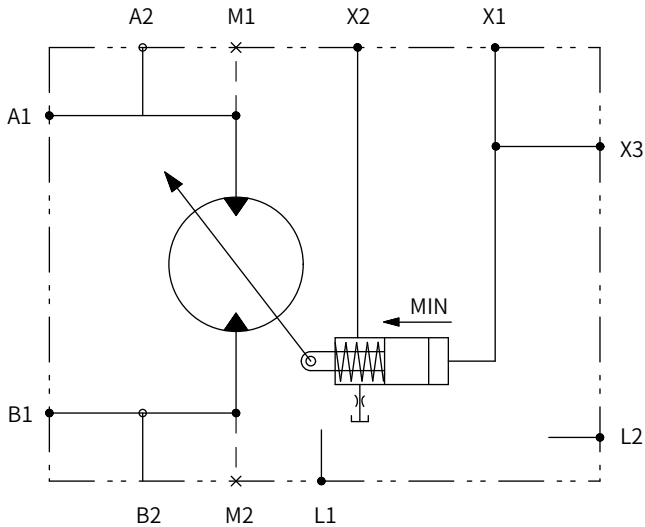
8. Piston

9. Valve plate

10. Endcap

11. Cylinder block

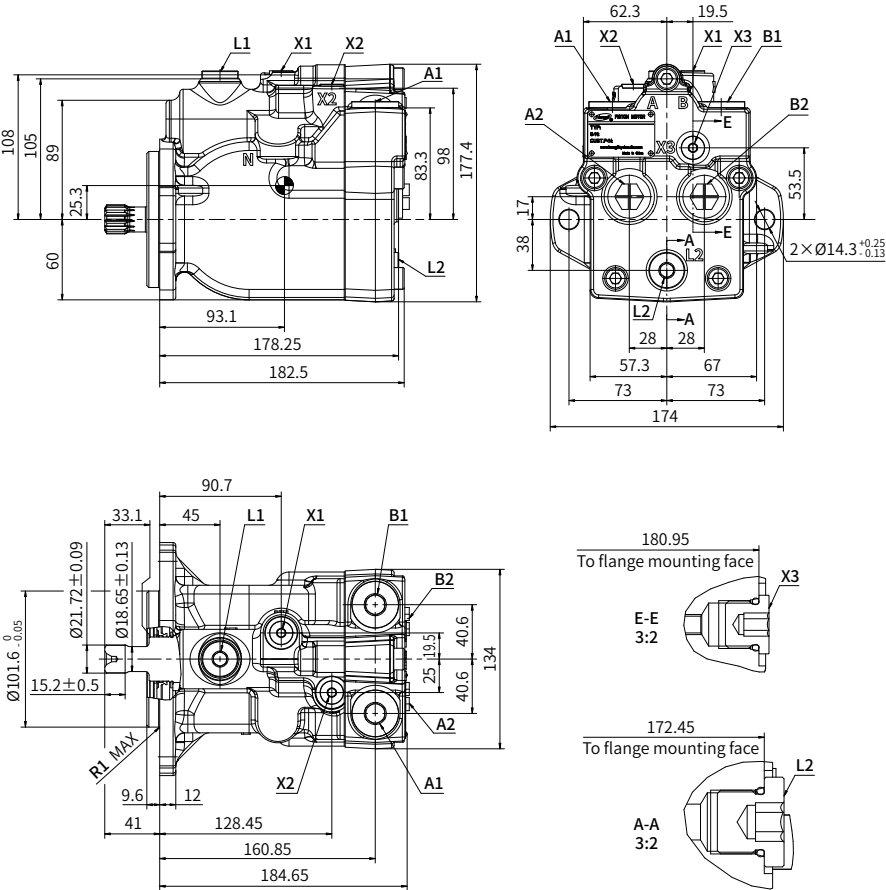
Principle



- 1) Two position variable motor, motor initial work location is maximum displacement location maintained by the bias spring and pressure oil to the motor control can switch the motor to minimum displacement.
- 2) On the housing there is an oil channel, which is independent with pressure relief oil line of the brake, this kind of design enables external brake control oil line through the oil duct connection to the brake relief port of the gear reducer brake.
- 3) In open loop, the motor output port maintains a back pressure to ensure lubrication and normal work of the motor internal components. System low side pressure should be 3 bar higher than the housing pressure.

Installation size

HM5V 35/40/45 Installation size



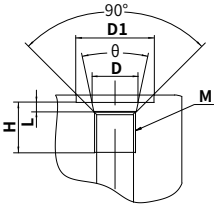
Installation size

• Direction of rotation and oil flow direction

Installation	Rotation
Flow A → B	Clockwise
Flow B → A	Counter-clockwise

• Port details

	Port Name	Port Size and Description	Tightening Torque (N·m)
A1、A2	Inlet port and Delivery port	1-1/16-12UN-2B (depth 22 mm)	147
B1、B2		1-1/16-12UN-2B (depth 22 mm)	147
X1、X3	Control port Switch to a small displacement	9/16-18UNF-2B (depth 16 mm)	25
L1、L2	Case drain port	3/4-16UNF-2B (depth 17 mm)	62
X2	Control port	9/16-18UNF-2B (depth 16 mm)	25



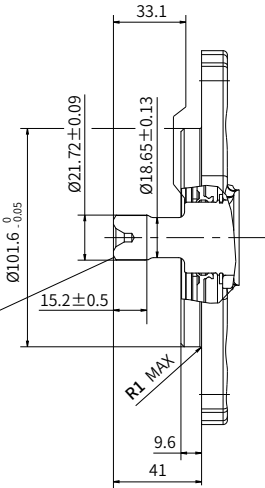
Port	H	L	M	D	D1	θ
A1、A2	22	3.3	1-1/16-12UN-2B	Φ29.2	Φ41	30°
B1、B2	22	3.3	1-1/16-12UN-2B	Φ29.2	Φ41	30°
X1、X3	16	2.5	9/16-18UNF-2B	Φ15.7	Φ24.7	24°
L1、L2	17	2.5	3/4-16UNF-2B	Φ20.65	—	30°
X2	16	2.5	9/16-18UNF-2B	Φ15.7	Φ24.7	24°

Installation size

Input Shaft type

“S1” type shaft
13 teeth spline

13 teeth 16/32 pitch
30° pressure angle
20.6375 [0.8125] pitch diameter
Fillet root side fit
Also mates with flat root side fit



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