

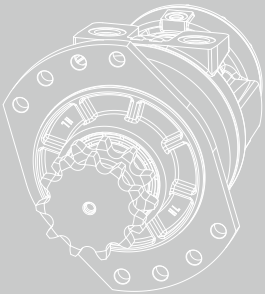
1.4



HRP5A series

Radial piston hydraulic motor

The HRP5A series radial piston hydraulic motor, is a kind of low speed high torque hydraulic motor, disc valve structure, with high pressure, good stability at low speed, high volumetric efficiency and mechanical efficiency.



Contents

Overview	02
Advantages	02
Standard structure	02
Specification	03
Ordering information	04-05
Installation size	06
Speed sensor	07-08
Shaft end dimensions	09-10
Hydraulic diagram	11
Allowable shaft load/bearing curve	11
Rotation direction	12



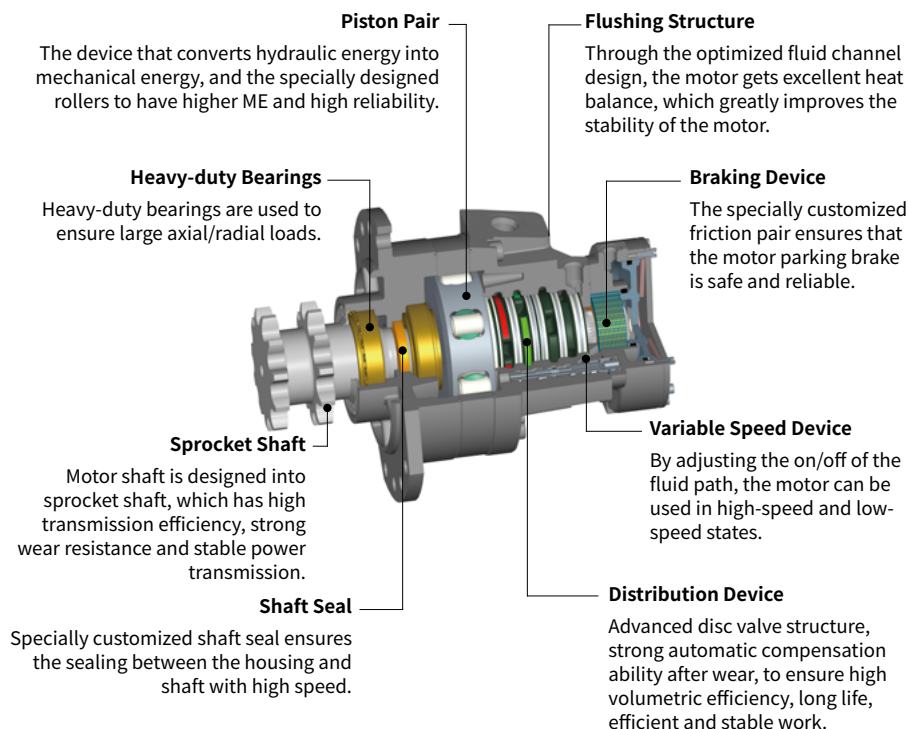
Overview

The HRP5A series radial piston hydraulic motor, is a kind of low speed high torque hydraulic motor, disc valve structure, with high pressure, good stability at low speed, high volumetric efficiency and mechanical efficiency, the motor can be equipped with a variety of functional modules.

Advantages

- Using tapered roller bearing structure, can support larger axial and radial load.
- Advanced disc valve structure, strong automatic compensation ability after wear, to ensure high volumetric efficiency, long life, high efficiency and stable work.
- Various function modules can be selected, such as flushing valve, brake, variable speed valve, speed sensor, etc., are available to meet the needs of users in various fields.

Standard structure



Specification

Series			HRP5A	
Motor performance				
Displacement		cm ³ /rev.	565	
Variable Displacement		cm ³ /rev.	310	
Max.torque		N·m	4047	
Min.stable speed		rpm	5	
Max.speed	Displacement		rpm	320
	Variable displacement		rpm	385
Pressure	Max.differential pressure		bar	400
Max.power		kW	35	
Wight	Two-speed	With brake	kg	60
		Without brake	kg	49
Brake				
Static braking torque		N·m	2200	
Release pressure		bar	11 ~ 15	
Maximum pressure at brake port Z		bar	30	
Oil volume to operate brake		cm ³	23	

T - 0095

- Make sure the motor is full of oil before use.
- During motor running-in(at least 20 hours), it should not be operated without load at greater than 100rpm.
- The filtration standard of ISO 4406 cleaning standard 20/18/15 is recommended.
- High quality anti-wear hydraulic fluids are recommended.
- When the temperature is 50° , the minimum viscosity of the oil is recommended to be 20mm²/s.
- The recommended maximum operating temperature is 85° C.

Ordering information

HRP5A	2	11	M6	S4	N	A2	B	AA
①	②	③	④	⑤	⑥	⑦	⑧	⑨

Radial Piston Series

①	Incurve multiple-action radial piston motor	HRP5A
---	---	-------

Single and Two Speed

②	Two speed, gear ratio < 2	2
---	---------------------------	---

Displacement cm³/rev.

③	565/310, Step piston	11
---	----------------------	----

Port Connection

④	1-1/16-12UN(A, B), 3/4-16UNF(L), 3/4-16UNF(F), 9/16-18UNF(X), mounting flange forward 5mm	MH
	1-1/16-12UN(A, B), 3/4-16UNF(L), 3/4-16UNF(F), 9/16-18UNF(X)	M6
	G3/4(A, B), G3/8(L), G1/2(F), G1/4(X)	M5
	1-1/16-12UN(A, B), 3/4-16UNF(L), 3/4-16UNF(F), 9/16-18UNF(X)	MP

Output Shaft

⑤	17 teeth spline DIN5480-W55×3×17×8f	S3
	Double-sprocket 11 teeth, Chain No. 100(ISO 606)	S4
	56 teeth spline ANSIB92.1	SK
	Double-sprocket 10 teeth, Chain No. 16A(ISO606)	SM
	Double-sprocket 9 teeth, 100/20A(ISO606)	S7

Paint Option

⑥	No Paint	N
	Black	B
	Hengli blue	C
	Yellow	Y

Ordering information

Brake

⑦	Static braking torque 2200N·m, port Z 9/16-18UNF	A2
	Static braking torque 2200N·m, port Z G1/4	A4

Flushing Valve

⑧		M5	M6	MP	MH	Code
	No flushing valve	●				A
	There is a flushing valve with a flow rate of 5L/min		●	●	●	B
	There is a flushing valve with a flow rate of 7L/min		●	●	●	C
	There is a flushing valve with a flow rate of 10L/min		●	●	●	D
	There is a flushing valve with a flow rate of 12.5L/min		●	●	●	E
	There is a flushing valve with a flow rate of 13.5L/min		●	●	●	F

Special Features

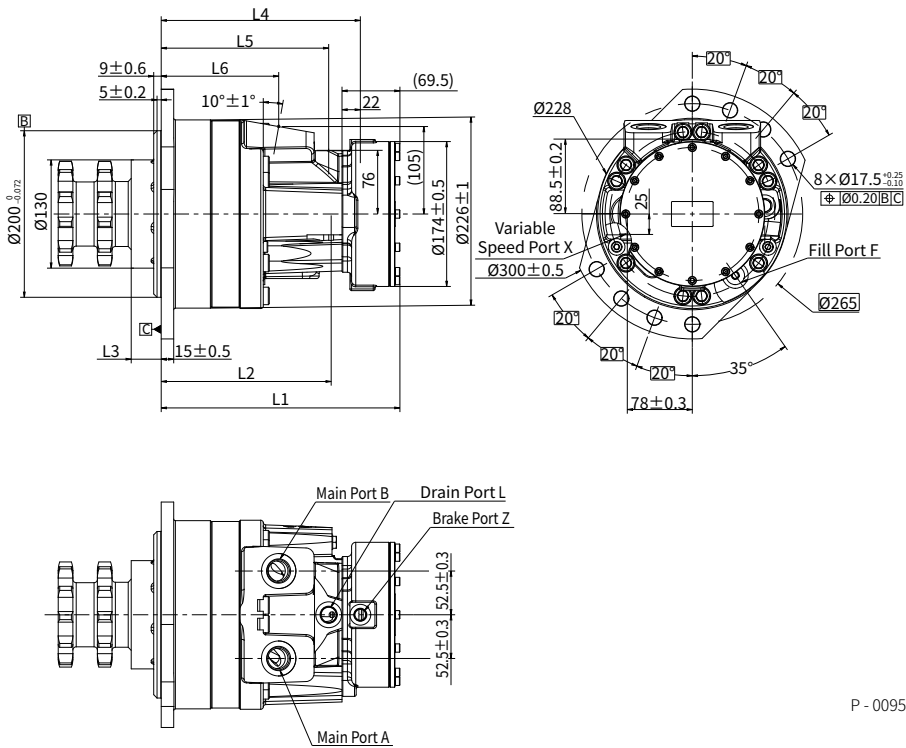
⑨		M5	M6	MP	MH	Code
	High temperature, FKM	●	●	●	●	V1
	Speed sensor cavity, High temperature, FKM		●	●	●	S4
	Speed sensor, High temperature, FKM		●	●	●	S3

T - 0259

Note: ● =Available; For the other types of port forms, output forms and brake port orientations, please contact Hengli's application engineer for consultation.

Ordering information

·Two speed shaft output: Take HRP5A211M6S4BA2FV1 for example



P - 0095

T - 0260

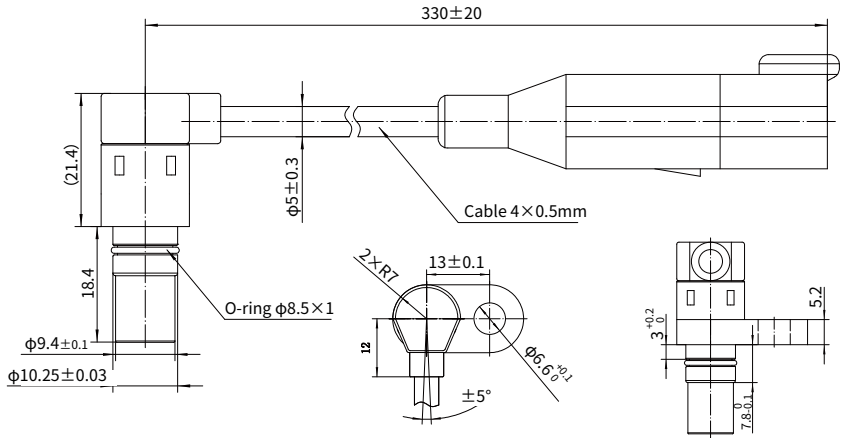
Code	L1	L2	L3	L4	L5	L6
M5/M6/MP	286.5±1	204±0.5	36±1	239±0.5	201±0.5	141±0.5
MH	291.5±1	209±0.5	31±1	244±0.5	206±0.5	146±0.5

Name	Port Function	M5	M6/MP/MH
A、B	Main Port	G3/4	1-1/16-12UN
L	Drain Port	G3/8	3/4-16UNF
F	Fill Port	G1/2	3/4-16UNF
X	Variable Speed Port	G1/4	9/16-18UNF

T - 0096

Speed sensor

·Speed sensor: S3



P - 0272

Dimensions	Ø10.25 /L=18.4mm
Voltage	8-32VDC
Input Current	<15mA
Sensing distance	0.2~2mm
Power reverse protection (Y/N)	Yes
Power input overcurrent and overvoltage protection (Y/N)	Yes
Maximum output current	50mA
Voltage drop	≤ 3VDC
Working frequency	0-20KHz
Output signal	A, B
Operating temperature	-40°C ~+125°C
Protection	IP67/IP69K
Shell material	Copper/plastic
Pressure resistance of measuring surface	10bar
Connector	Cable 0.33m, Injection 4-core DEUTSCH DT04-4P-EP04 plug

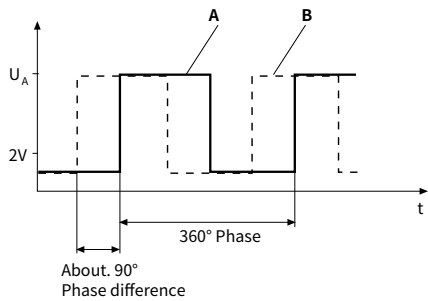
T - 0208

Speed sensor

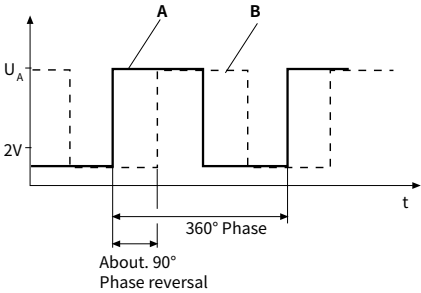
· Speed sensor: S3

■ OUTPUT SIGNAL

↻ The measured gear rotates clockwise



↻ The measured gear rotates counterclockwise



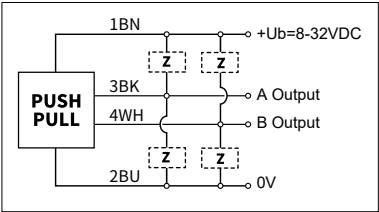
P - 0273

■ TERMINAL ASSIGNMENT

Signal		+Ub	0V	A	B
Color		BN	BU	BK	WH
4 core plug DT04		1	2	3	4

P - 0274

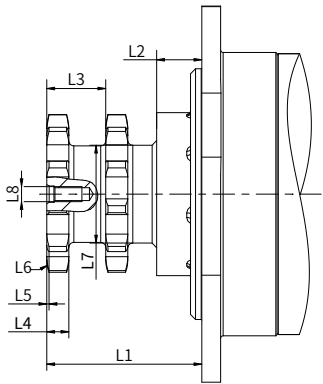
■ WIRING DIAGRAM



P - 0275

Shaft end dimensions

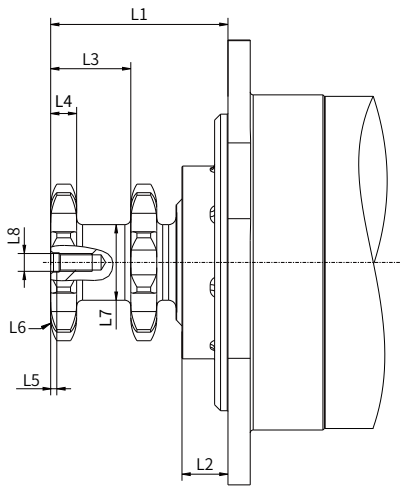
· Double-sprocket Shaft



P - 0094

Code	L1	L2	L3	L4	L5	L6	L7	L8
S4	123.6±0.8	36±1	47±0.2	2x17.58 ⁰ _{-0.35}	4x1.8	4xR31.75	Ø77±0.2	M12 ∇ 28 min.
SM	113.9±0.8		43±0.2	2x14.8 ⁰ _{-0.35}	4x3.3	4xR25.4	Ø50.8±0.2	

T - 0221



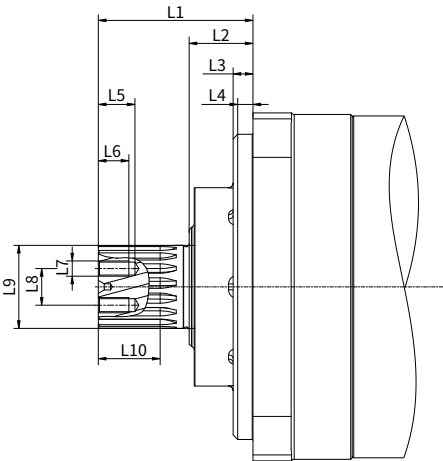
P - 0362

Code	L1	L2	L3	L4	L5	L6	L7	L8
S7	119.5±0.8	31±1	54±0.2	2x17.5 ⁰ _{-0.35}	4x4.128	4xR31.75	Ø51±0.2	M12 ∇ 28 min.

T - 0261

Shaft end dimensions

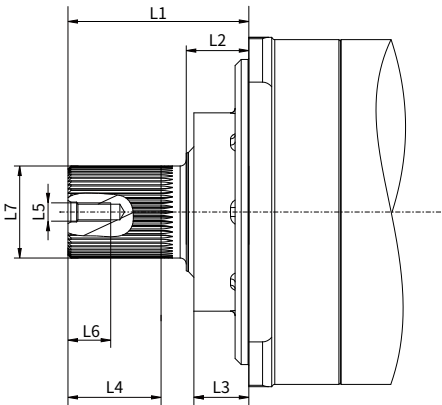
· Spline Shaft



P - 0226

Code	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
S3	101.2±0.8	41.7±1	9±0.6	5±0.2	2x24	2x20 min.	2xM10	24±0.1	Ø54.4	40.5 min.

T - 0224



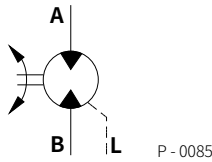
P - 0228

Code	L1	L2	L3	L4	L5	L6	L7
SK	118.5±0.8	41±1	36±0.5	61 min.	M12	28 min.	Ø59.267

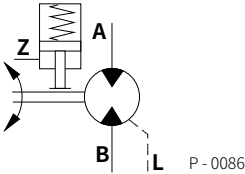
T - 0223

Hydraulic diagram

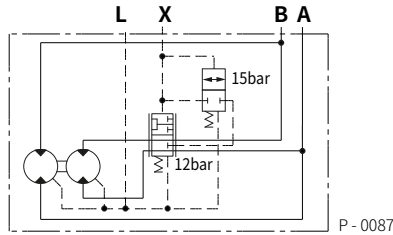
· Motor without brakes



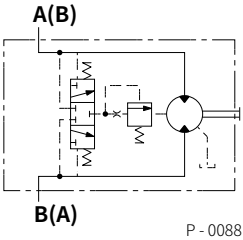
· Motor with parking brake



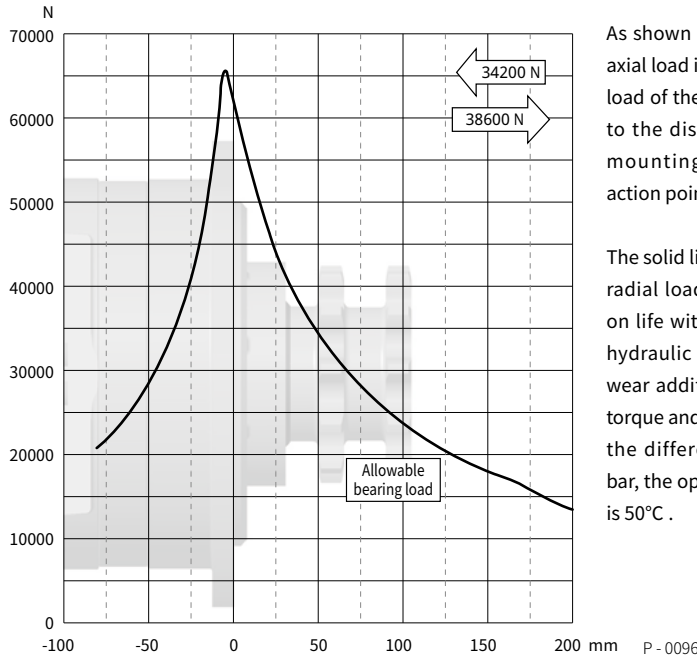
· Schematic diagram of a two-speed motor



· Flushing valve schematic



Allowable shaft load/bearing curve

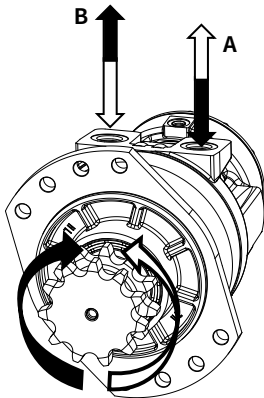


As shown in the figure, when the axial load is 0, the radial allowable load of the output shaft is related to the distance from the flange mounting surface to the load action point.

The solid line shows the allowable radial load of the bearing based on life with 2000hrs. Denote use hydraulic fluids containing anti-wear additives, and rated output torque and motor speed of 50rpm, the differential pressure is 250 bar, the operating oil temperature is 50°C .

Rotation direction: CW

When facing the motor shaft extension direction, port A is high pressure oil, the output shaft rotates CW; Otherwise, it rotates CCW.



P - 0098