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HRP05 series

Radial piston hydraulic motor

The HRP05 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

The HRP05 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

Piston Pair

The device that converts hydraulic energy into mechanical energy, and the specially designed rollers to have higher ME and high reliability.

Flushing Structure

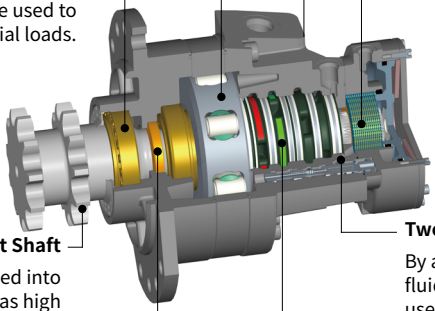
Through the optimized fluid channel design, the motor gets excellent heat balance, which greatly improves the stability of the motor.

Heavy-duty Bearings

Heavy-duty bearings are used to ensure large axial/radial loads.

Braking Device

The specially customized friction pair ensures that the motor parking brake is safe and reliable.



Sprocket Shaft

Motor shaft is designed into sprocket shaft, which has high transmission efficiency, strong wear resistance and stable power transmission.

Two Speed Device

By adjusting the on/off of the fluid path, the motor can be used in high-speed and low-speed states.

Shaft Seal

Specially customized haft seal ensures the sealing between the housing and shaft with high speed.

Distribution Device

Advanced disc valve structure, strong automatic compensation ability after wear, to ensure high volumetric efficiency, long life, efficient and stable work.

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Specification

Series			HRP05				
Motor performance							
Displacement		cm^3/rev.	470	520	565	750	820
Max.torque		Nm	3030	3350	3640	4300	4700
Min.stable speed		rpm	5				
Max.speed	Displacement	rpm	385	350	320	240	220
	Variable displacement	rpm	465	420	385	290	265
Pressure	Max.differential pressure	bar	450			400	
Brake							
Minimum static torque		Nm	2200				
Release pressure		bar	11 ～ 15				
Maximum pressure at brake port Z		bar	30				
Oil volume to operate brake		cm^3	23				

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· Make sure the motor is full of oil before use.
· The maximum torque is only available for small operating conditions.
· 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 $20mm^2/s$.
· The recommended maximum operating temperature is 85° C.

Ordering information

HRP05	Single and Two Speed	Displacement	Port Connection	Output Shaft	Paint Option	Brake	Flushing Valve	Special Features
01	02	03	04	05	06	07	08	09

Radial Piston Series

01	Incurve multiple-action radial piston motor	HRP05

Single and Two Speed

02	Single speed	1
	Two speed, gear ratio 2:1	2

Displacement $cm^3/rev.$

03	470, Standard piston	09
	520, Standard piston	10
	565, Standard piston	11
	750, Step piston	14
	820, Step piston	15

Port Connection

04	1-1/16-12UN(A, B), 3/4-16UNF(L), 3/4-16UNF(F)	M3
	G3/4(A, B), G3/8(L), G1/2(F)	MF
	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

Output Shaft

05	Double-sprocket 9 teeth, Chain No. 100(GB/T 1243)	S1
	17 teeth spline DIN5480-W55×3×17×8f	S2/S3
	Double-sprocket 11 teeth, Chain No. 100(ISO 606)	SA/S4
	Double-sprocket 10 teeth, Chain No. 100(ISO 606)	S5
	56 teeth spline ANSIB92.1	S6
	Double-sprocket 10 teeth, Chain No. 16A(ISO606)	S9
	Φ50 straight shaft, parallel key 14×9×70	SJ

Ordering information

Paint Option

06	No Paint	N
	Black	B
	Hengli blue	C
	Yellow	Y

Brake

07	No brakes	AA
	Static braking torque 2200Nm, port Z G1/4	A1
	Static braking torque 2200Nm, port Z 9/16-18UNF	A2

Flushing Valve

08	Whether there is a flushing valve or not	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

09	Standard	AA
	High temperature, FKM	V1
	Low temperature	V2
	Speed sensor cavity	S1
	Speed sensor to determine direction	S2

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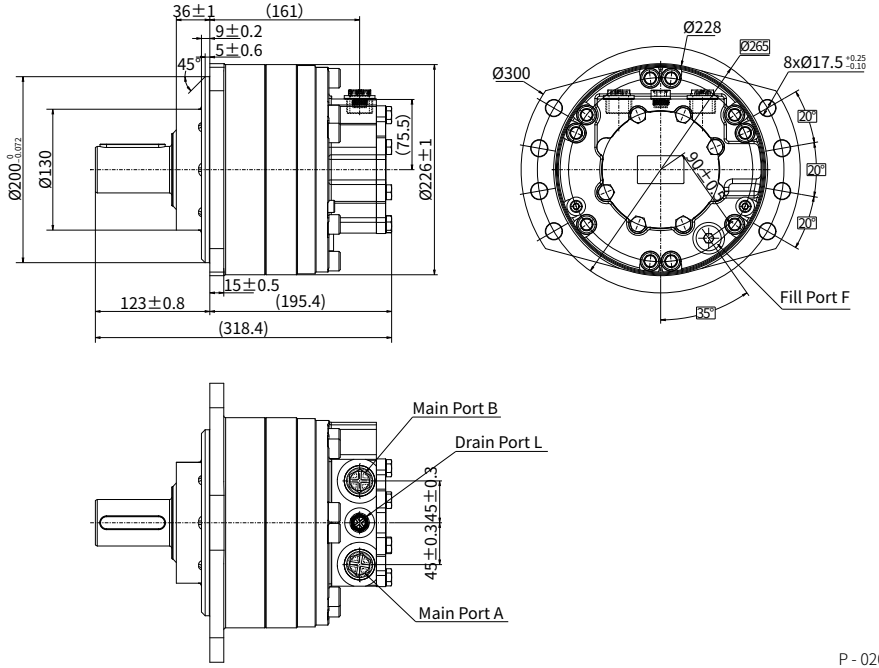
Note: For the other types of port forms, output forms and brake port orienttations, please contact Hengli's application engineer for consultation.

Installation size

·HRP05（Single speed）



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Note: The weight of the connection shown in the figure is 46.8kg.

Name	Port function	M3	MF
A、B	Main Port	1-1/16-12UN	G3/4
L	Drain Port	3/4-16UNF	G3/8
F	Fill Port	3/4-16UNF	G1/2

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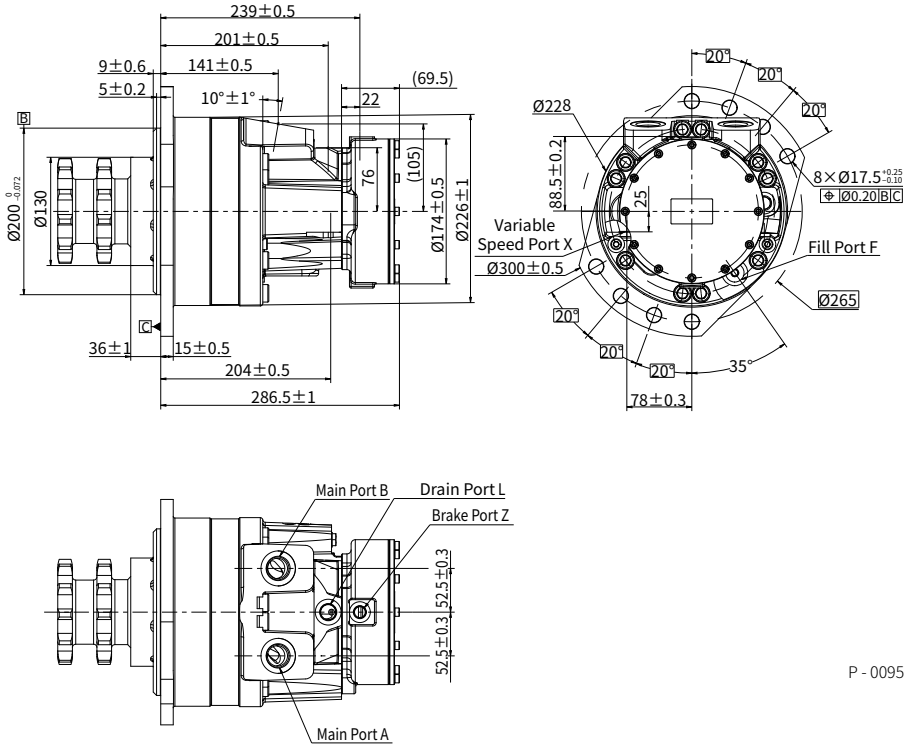
Installation size

·HRP05（Two speed）



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Note: The weight of the connection shown in the figure is 60kg.

Name	Port function	M5	M6
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

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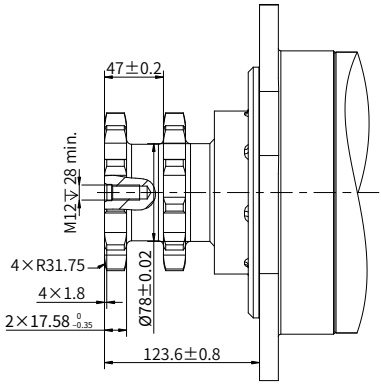
Shaft end dimensions

S4/SA **Double-sprocket 11 teeth, Chain No.100(ISO 606)**



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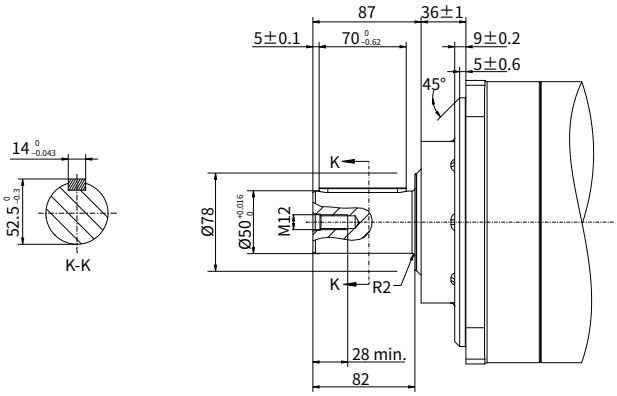
SJ **Φ50 straight shaft, parallel key 14×9×70**



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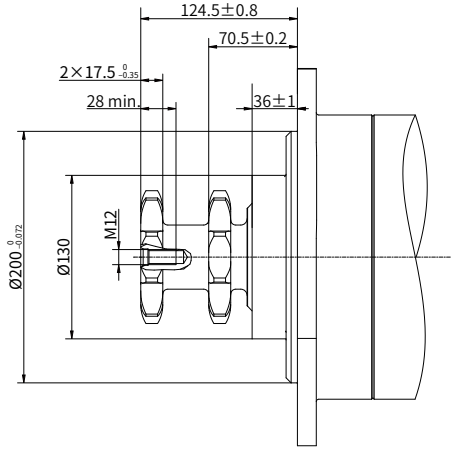
Shaft end dimensions

S1 **Double-sprocket 9 teeth, Chain No. 100(GB/T 1243)**



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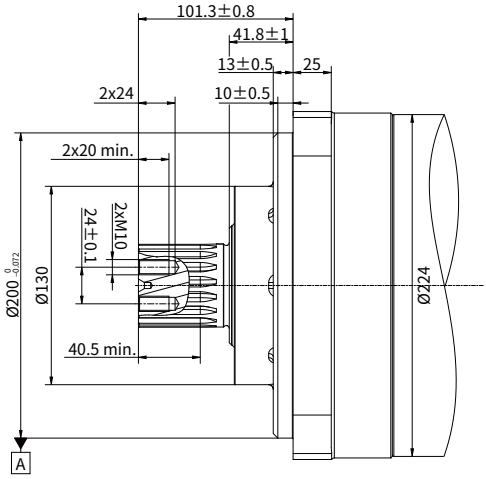
S2/S3 **17 teeth spline DIN5480-W55×3×17×8f**



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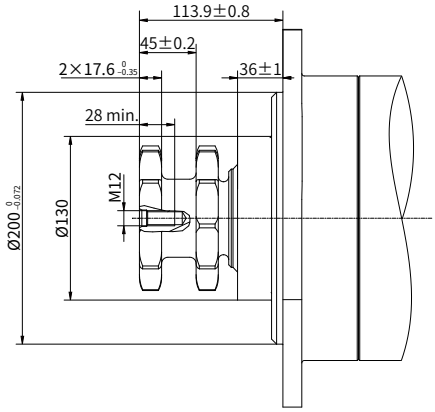
Shaft end dimensions

S5 Double-sprocket 10 teeth, Chain No. 100(ISO 606)



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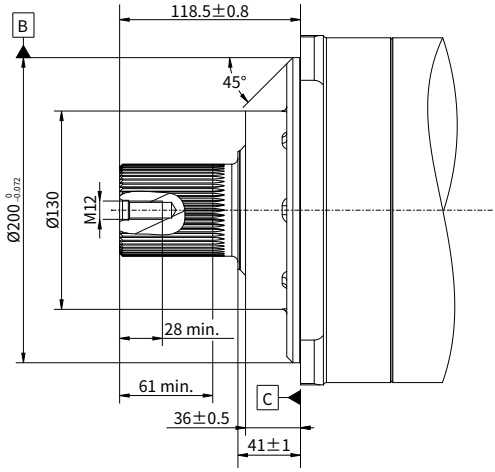
S6 56 teeth spline ANSIB92.1



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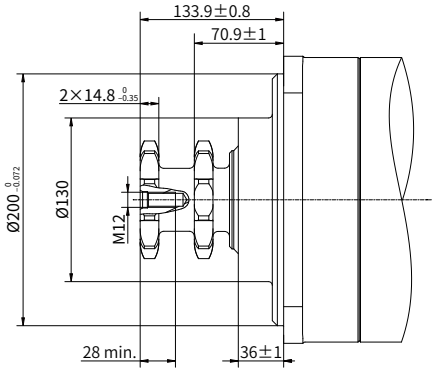
Shaft end dimensions

S9 **Double-sprocket 10 teeth, Chain No. 16A(ISO606)**



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Single and Two speed	Output shaft						
Single speed	S1	S2	S5	S6	S9	SA	SJ
Two speed	S3			S4			

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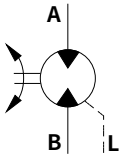
Hydraulic diagram

· Motor without brakes



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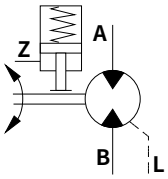
· Motor with parking brake



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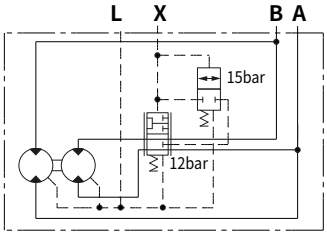
· Schematic diagram of a two-speed motor



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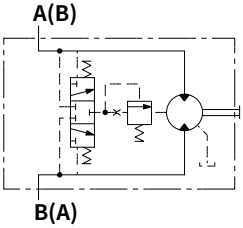
· Flushing valve schematic



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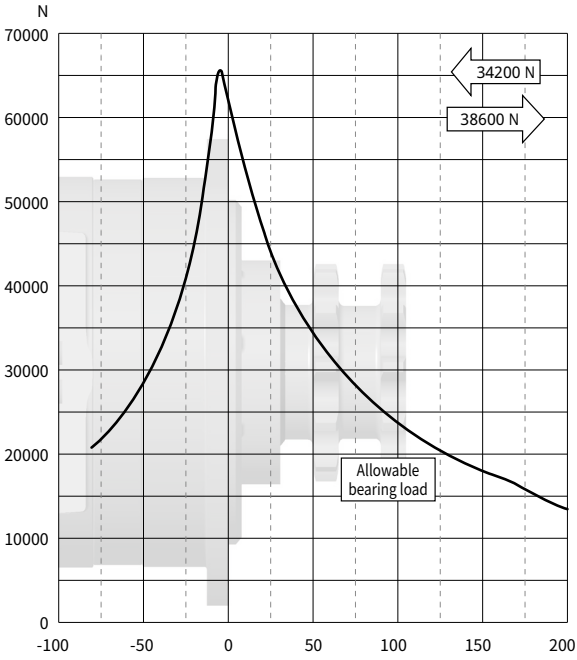
Allowable shaft load/bearing curve



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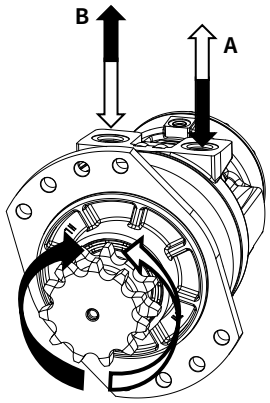
As shown in the figure, when the axial load is 0, the radial allowable load of the output shaft is related to the distance from the flange mounting surface to the load action point.

The solid line shows the allowable radial load of the bearing based on L_{10} 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.



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