

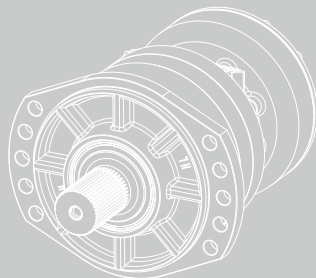
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Hengli®

HRP03 series

Radial piston hydraulic motor

The HRP03 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
Installation size	06
Shaft end dimensions	07
Hydraulic diagram	08
Allowable shaft load/bearing curve	08
Rotation direction	09



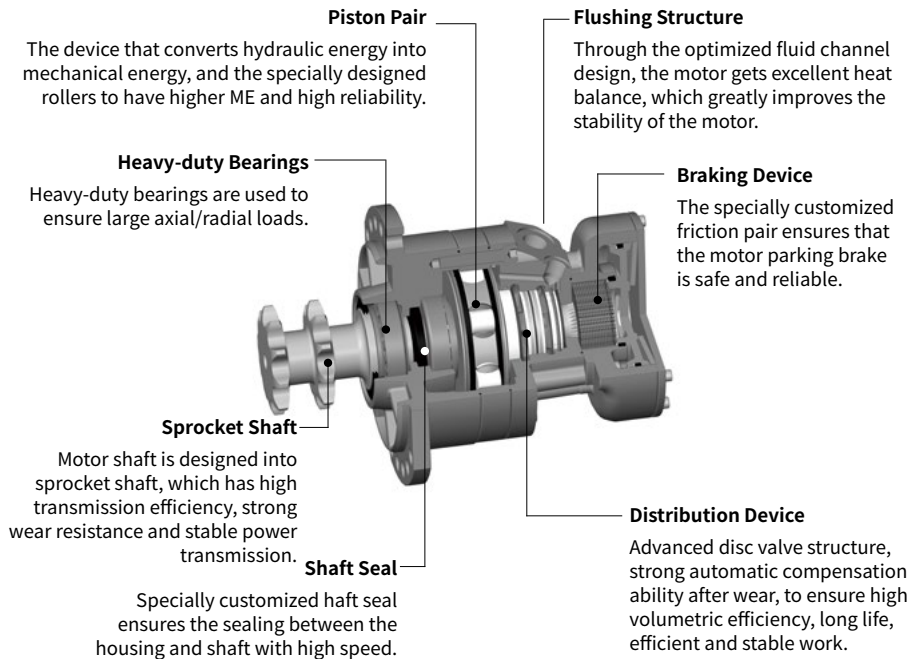
Overview

The HRP03 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, and the motor can be equipped with various optional function 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, efficient and stable work.
- Various function modules can be selected, such as flushing valve, brake, variable speed valve, speed sensor, etc. to meet the needs of users in various fields.

Standard structure



Specification

Series		HRP03	
Motor performance			
Displacement	cm ³ /rev	400	
Max.torque	Nm	2290	
Min.stable speed	rpm	5	
Max.speed (Single speed)	rpm	270	
Max.speed (Two speed)	rpm	350	
Pressure	Rated pressure	bar	250
	Maximum differential pressure	bar	400
	The max.pressure of A or B	bar	420
	Max.shell drain pressure	bar	10
Weight	Single speed	kg	35
	Two speed	kg	40
Brake			
Minimum static torque	Nm	2200	
Release pressure	bar	11 ~ 15	
Maximum pressure at brake port Z	bar	40	
Oil volume to operate brake	cm ³	23	

T - 0092

- Make sure the motor is full of oil before use.
- The maximum torque is only available for small operating conditions.
- During motor running-in, 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

HRP03	Single and Two Speed	Displacement	Port Connection	Output Shaft	Paint Option	Brake	Flushometers	Special Features
01	02	03	04	05	06	07	08	09

Radial Piston Series

01	Incurve multiple-action radial piston motor	HRP03
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Single and Two Speed

02	Single speed	1
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Displacement cm³/rev

03	400, Step piston	07
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Port Connection

04	7/8-14UNF(A, B), 9/16-18UNF(L), 3/4-16UNF(F)	M2
	G1/2(A, B), G3/8(L), G3/8(F), the port face is parallel to the flange	M3

Output Shaft

05	Splined shaft, 42-tooth ANSI B92.1	S2
	Double-sprocket, 10-tooth ASME B29.1	S3
	Double-sprocket, 9-tooth ISO-606	S5

Paint Option

06	No Paint	N
	Black	B
	Hengli blue	C
	Yellow	Y

Brake

07	Static braking torque 2200Nm, port Z 9/16-18UNF	A1
	Static braking torque 2200Nm, port Z 9/16-18UNF, same side as the main port	A2
	Static braking torque 2200Nm, port Z G1/4, same side as the main port	A4

Ordering information

Flushometers

08	Whether there is a flushometer or not	A
	There is a flushometer with a flow rate of 5L/min	B
	There is a flushometer with a flow rate of 7L/min	C
	There is a flushometer with a flow rate of 10L/min	D
	There is a flushometer with a flow rate of 12.5L/min	E
	There is a flushometer with a flow rate of 13.5L/min	F

Special Features

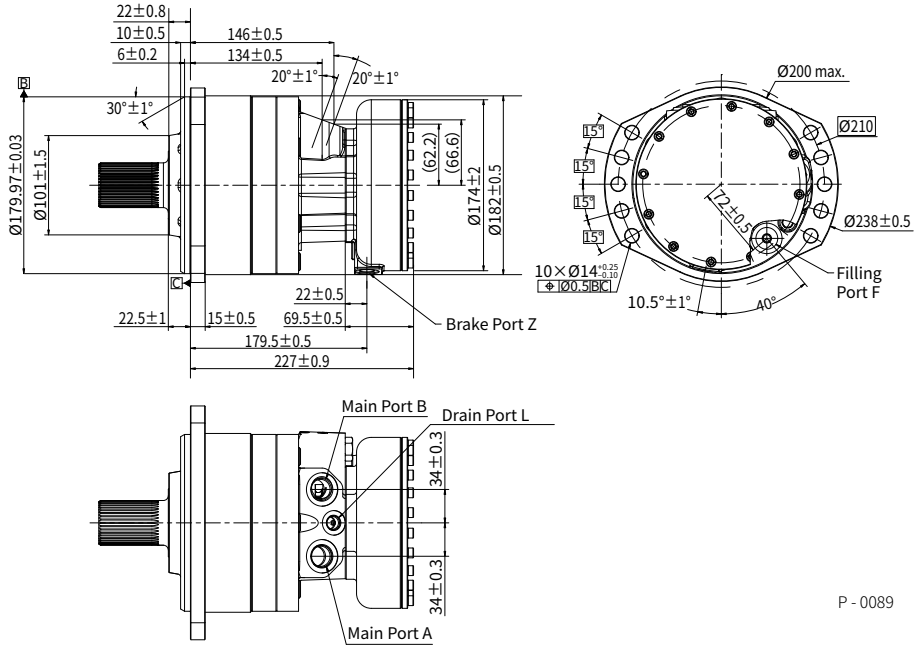
09	Standard	AA
	Free running	FF
	High temperature, FKM	V1
	Low temperature	V2
	Speed sensor cavity	S1
	S1+V1	S4

T - 0091

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Installation size

·HRP03 (Single speed)



P - 0089

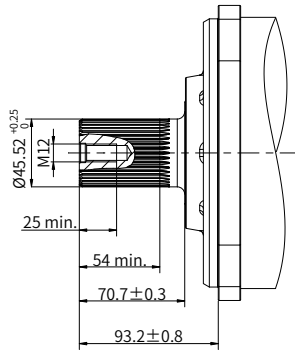
Name	Port function	M2	M3
A, B	Main port	7/8-14UNF	G1/2
L	Drain port	9/16-18UN	G3/8
F	Filling port	3/4-16UNF	G3/8

T - 0093

Shaft end dimensions

S2 Splined shaft, 42-tooth ANSI B92.1

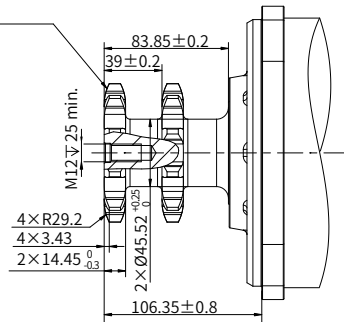
Refer Standards:	ANSI B92.1-1996
Number of Teeth:	42
Pitch:	24/48
Pressure Angle:	30°
Base Diameter:	Ø38.495
Pitch Diameter:	Ø44.45
Form diameter:	Ø43.282
Large Diameter:	Ø45.52 ^{+0.25} ₀
Minor Diameter:	Ø41.96 ^{+0.15} ₀
Maximum effective circular tooth thickness:	1.661
Actual minimum tooth thickness:	1.554
Finish :	Ra1.6
Pin Diameter:	Ø2.032
Measurement Over Pins:	47.449-47.622



P - 0090

S3 Double-sprocket, 10-tooth ASME B29.1

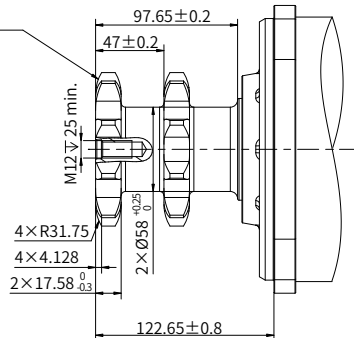
Chain Whell Date	
Refer Standards:	ASME B29.1
Chain No.:	80/16A
Number of Teeth:	10
Pitch:	25.4
Base Diameter:	Ø82.197
Large Diameter:	Ø93.42
Root Diameter:	Ø66.322
Max. Root Pitch:	66.01-66.32
Stragglng Pitch:	32.94-33.2
Pin Diameter:	Ø15.875
Measurement Over Pins:	97.765-98.065



P - 0091

S5 Double-sprocket, 9-tooth ISO-606

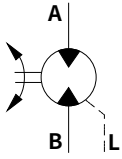
Chain Whell Date	
Refer Standards:	ISO 606
Chain No.:	100/20A
Number of Teeth:	9
Pitch:	31.75
Pitch Diameter:	Ø92.831
Tip Diameter:	Ø106.68 ⁰ _{0.25}
Root Diameter:	Ø73.781 ⁰ _{-0.22}
Pin Diameter:	Ø19.05
Measurement Over Pins:	110.47 ⁰ _{-0.25}



P - 0092

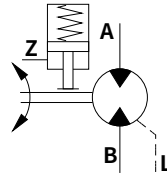
Hydraulic diagram

· Motor without brakes



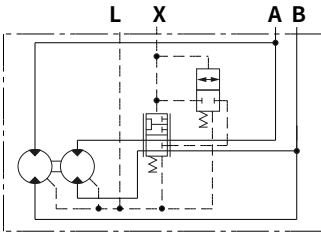
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· Motor with parking brake



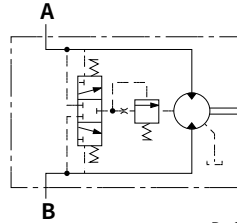
P - 0086

· Schematic diagram of a two-speed motor



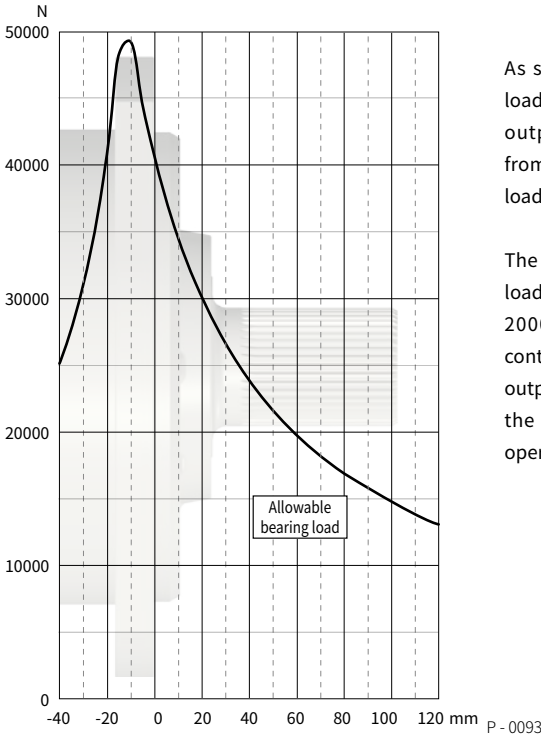
P - 0087

· Flushometer schematic



P - 0088

Allowable shaft load/bearing curve

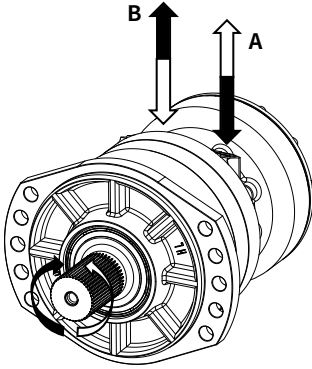


As shown in the figure, when the axial load is 0, the radial allowable load of the output shaft is related to the distance from the flange mounting surface to the load action point.

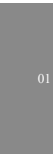
The solid line shows the allowable radial load of the bearing based on L_{10} life with 2000hrs. Denote use hydraulic fluids containing anti-wear additives, and rated output torque and motor speed of 50rpm, the differential pressure is 250 bar, the operating oil temperature is 50°C .

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.



P - 0097



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