

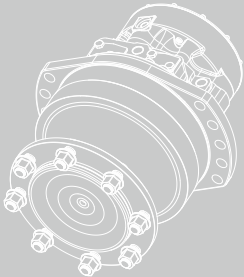
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HRP18 series

Radial piston hydraulic motor

The HRP18 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	06-07
Speed sensor	08-09
Shaft end dimensions	10-11
Hydraulic diagram	11
Allowable shaft load/bearing curve	12
Rotation direction	13



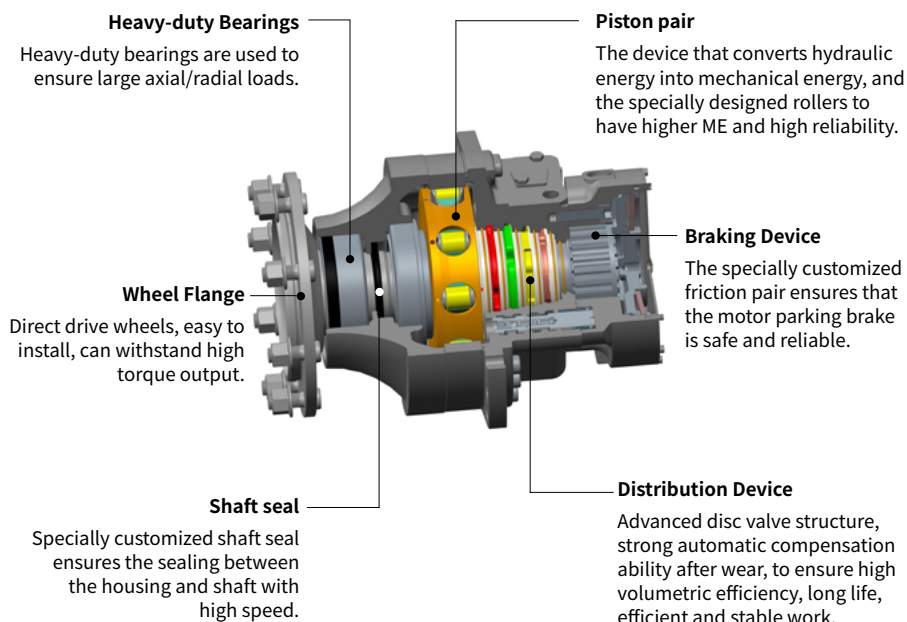
Overview

The HRP18 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 radial load.
- Advanced disc valve structure, radial large-diameter piston, high torque, high volumetric efficiency.
- More options including parking brake, speed sensor, etc.
- Smoothly 2-speeds changed.

Standard structure



Specification

Series			HRP18					
Motor performance								
Displacement		cm ³ /rev.	1392	1747	1862	2099	2560	2812
Max.torque		N·m	9800	12180	13000	15016	16280	17884
Min.stable speed		rpm	5					
Max.speed	Displacement	rpm	155	125	100	100	85	75
	Variable displacement	rpm	160	150	125	125	100	90
Pressure	Max.differential pressure	bar	450				400	
Brake								
Static braking torque		N·m	18600					
Release pressure		bar	12 ~ 30					
Maximum pressure at brake port Z		bar	30					
Oil volume to operate brake		cm ³	70					

T - 0118

- 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 20mm²/s.
- The recommended maximum operating temperature is 85° C.

Ordering information

HRP18	2	22	M8	W1	N	F1	A	AA
①	②	③	④	⑤	⑥	⑦	⑧	⑨

Radial Piston Series

①	Incurve multiple-action radial piston motor	HRP18
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Single and Two Speed

②	Single speed	1
	Two speed, gear ratio 2:1	2
	Two speed, gear ratio 2.28:1	3

Displacement cm³/rev.

③		1	2	3	Code
	1392/696, Standard piston	●	●		22
	1747/874, Standard piston	●	●		26
	1862/816, Standard piston			●	28
	2812/1406, Step piston	●	●		30
	2099/1050, Standard piston	●	●		31
	2560/1280, Step piston	●	●		33

Port Connection

④		1	2	3	Code
	Ø18.5(A, B), M22×1.5(L, F)	●			M6
	Ø18.5(A, B), M22×1.5(L, F), M22×1.5(X)		●	●	M8/M5

Output Shaft

⑤		M6	M8	M5	Code
	Pilot diameter Ø220.7×10, threaded holes Ø275 distribution circle 16×M20×1.5	●	●		W1
	Pilot diameter Ø220.7×18, hub bolt Ø275 distribution circle 8×M20×1.5	●	●		W2
	Pilot diameter Ø220×25, threaded holes Ø254 distribution circle 3×6×M16×1.5, compact model	●		●	W5

Ordering information

Paint Option

⑥	No Paint	N
	Black	B
	Hengli blue	C
	Yellow	Y

Brake

⑦	Static braking torque 18600N·m, port Z M16x1.5, thin back cover	F1
	Static braking torque 18600N·m, port Z M16x1.5, brake without flushing, thick back cover	F3
	Static braking torque 18600N·m, port Z M16x1.5, brake with flushing, thick back cover	F2

Flushing Valve

⑧	No flushing valve	A
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Special Features

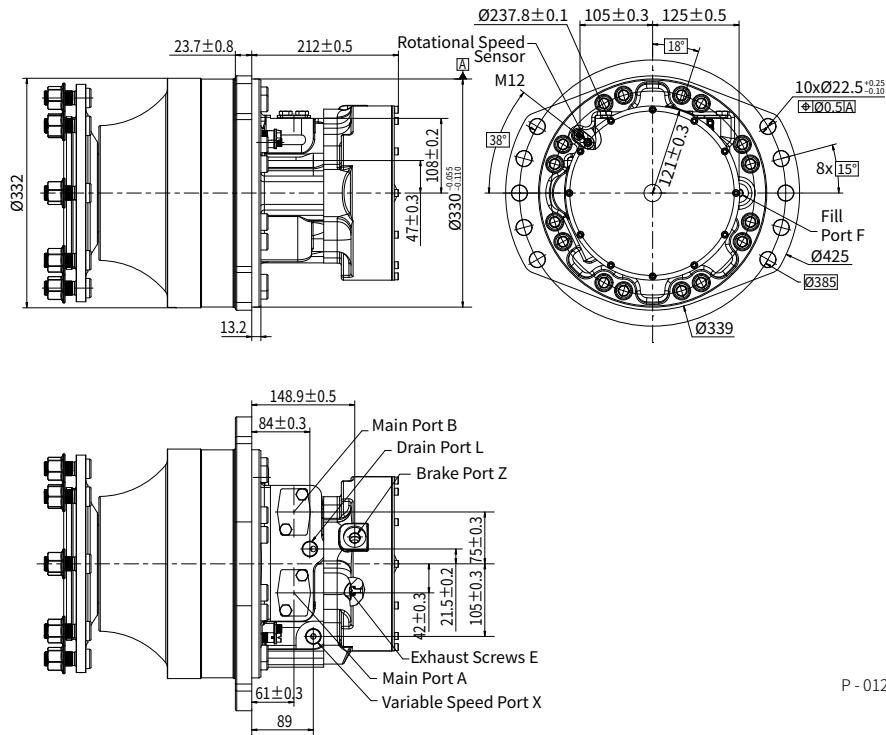
⑨	Standard	AA
	Speed sensor cavity	S1
	High speed, +30%	HS
	S6+HS	AB
	Wheel side axle without hub bolts	AC
	Wheel side axle with hub bolts only, without nuts	AD
	S1+AC	S5
	Speed sensor(with direction judgement)	S6
	S1+HS	S8

T - 0117

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

Installation size

·HRP18 (Two speed)



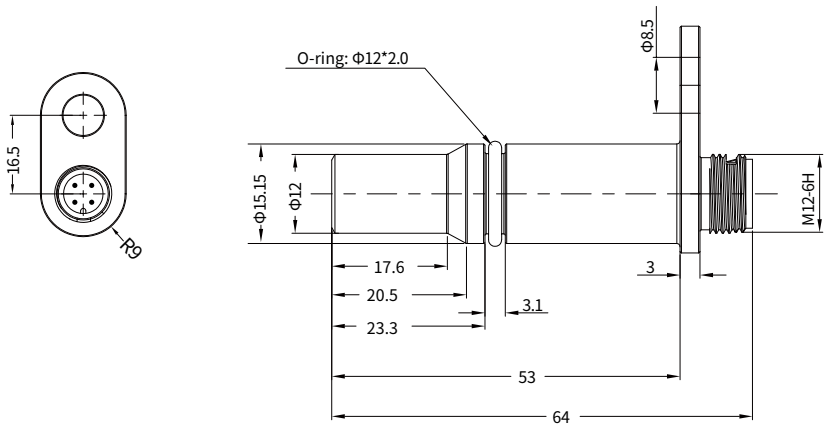
Note: The weight of the connection shown in the figure is 167.1kg.

Name	Port Function	M8/M5
A, B	Main Port	$\varnothing 18.5$
L	Drain Port	$M22 \times 1.5$
F	Fill Port	$M22 \times 1.5$
X	Variable Speed Port	$M22 \times 1.5$
Z	Brake Port	$M16 \times 1.5$

T - 0119

Speed sensor

· Speed sensor: S6



P - 0268

Dimensions	Ø12 /L=53mm
Voltage	8-32VDC
Input Current	<20mA
Sensing distance	0.2~1.15mm
Output circuitry	Push-Pull
Output overcurrent protection (Y/N)	Yes
Maximum output current	≤ 200mA
Voltage drop	≤ 3.5VDC
Working frequency	0-15KHz
Output signal	A, B
Operating temperature	-40°C ~+125°C
Protection	IP67
Shell material	Copper/plastic
Pressure resistance of measuring surface	10bar
Connector	M12
Weight	55g
Installation depth	53mm
Reverse polarity protection	Yes
Dielectric strength	500VDC

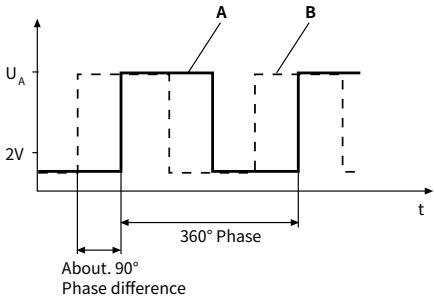
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Speed sensor

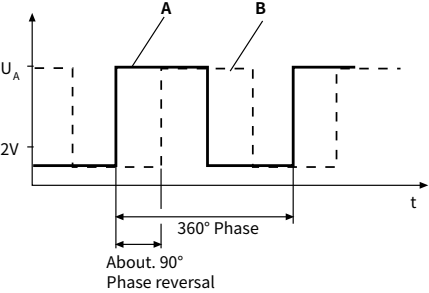
·Speed sensor: S6

■ OUTPUT SIGNAL

↻ The measured gear rotates clockwise

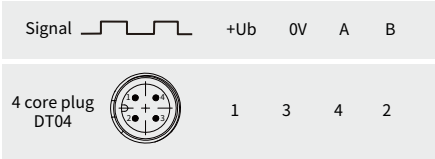


↻ The measured gear rotates counterclockwise



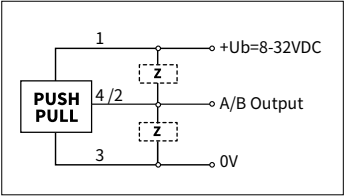
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■ TERMINAL ASSIGNMENT



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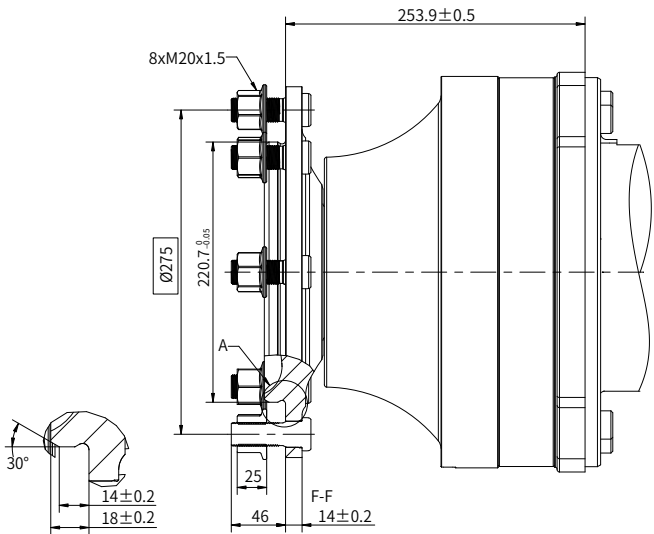
■ WIRING DIAGRAM



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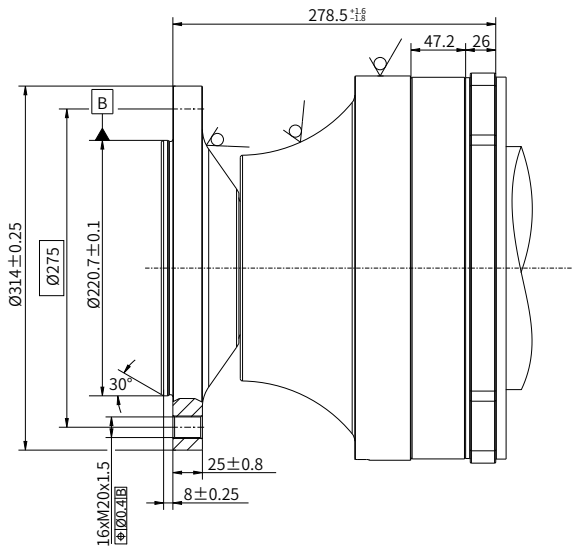
Shaft end dimensions

W2 Pilot diameter $\varnothing 220.7 \times 18$, hub bolt $\varnothing 275$ distribution circle $8 \times M20 \times 1.5$



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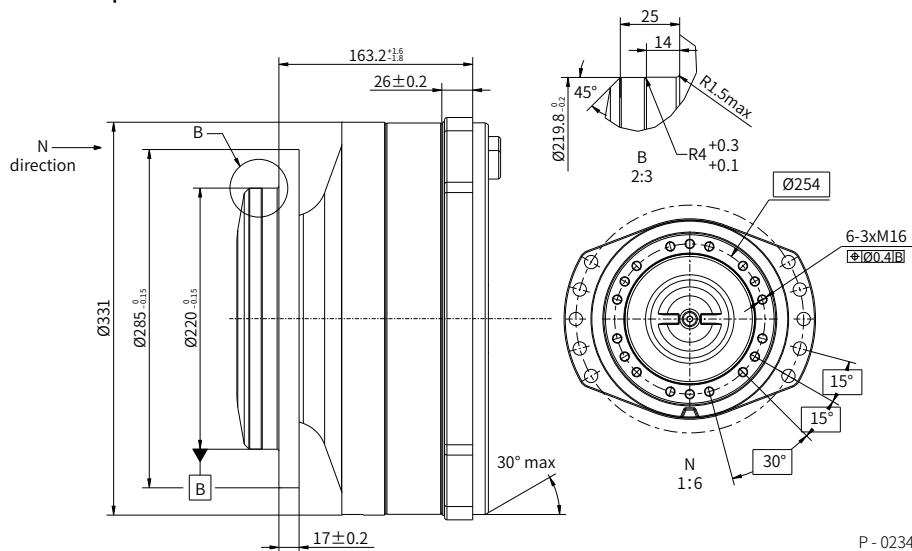
W1 Pilot diameter $\varnothing 220.7 \times 10$, threaded holes $\varnothing 275$ distribution circle $16 \times M20 \times 1.5$



P - 0233

Shaft end dimensions

W5 Pilot diameter $\varnothing 220 \times 25$, threaded holes $\varnothing 254$ distribution circle $3 \times 6 \times M16 \times 1.5$, compact model

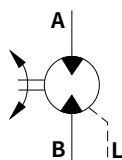


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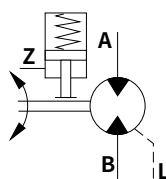
Hydraulic diagram

· Motor without brakes



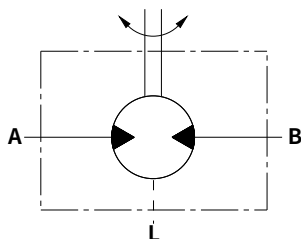
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· Motor with parking brake



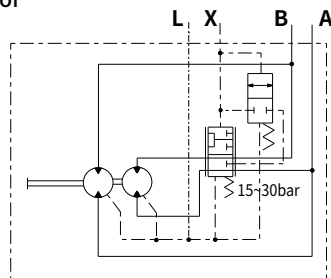
P - 0086

· Schematic diagram of a single-speed motor



P - 0135

· Schematic diagram of a two-speed motor

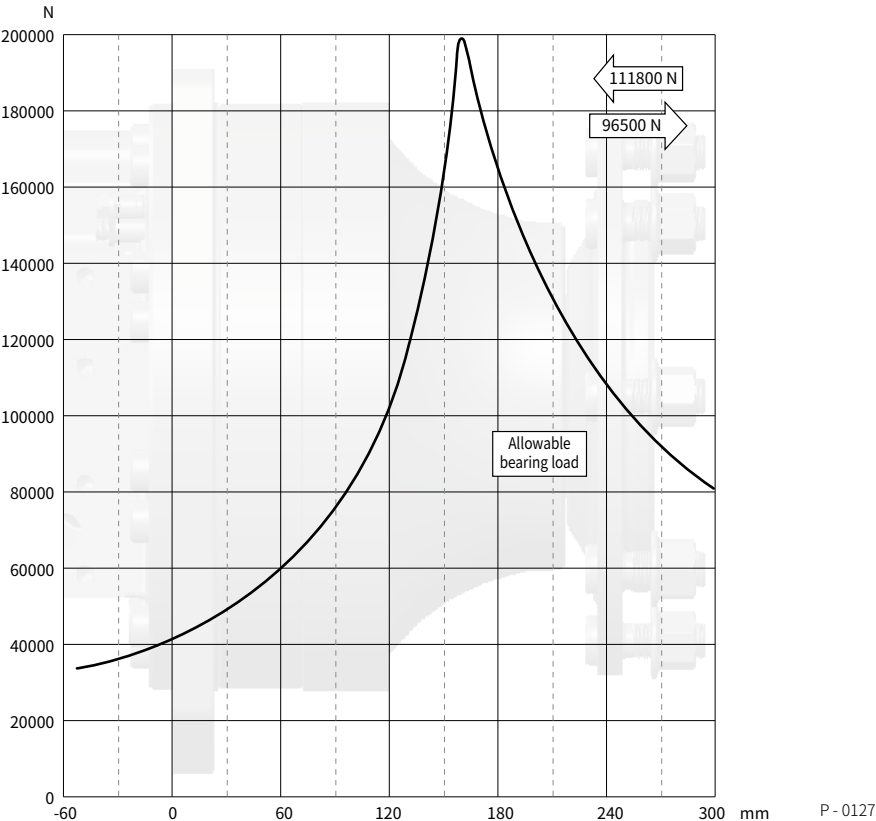


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Allowable shaft load/bearing curve

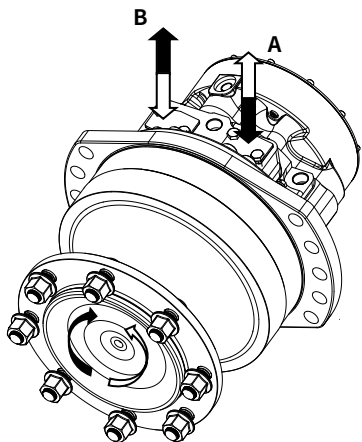
As shown in the figure, when the axial load is 0, the radial allowable load of the output shaft is related to the distance from the flange mounting surface to the load action point.

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-0130

