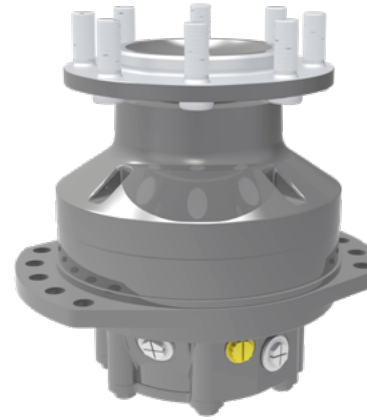
1.8

HRP08 series

Radial piston hydraulic motor

The HRP08 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 HRP08 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 bearings, can support large radial loads.
· Advanced disc valve structure, radial piston, high torque and high volumetric efficiency.
· Smoothly 2-speeds changed.
· More options including brake, variable speed valve, speed sensor, etc.

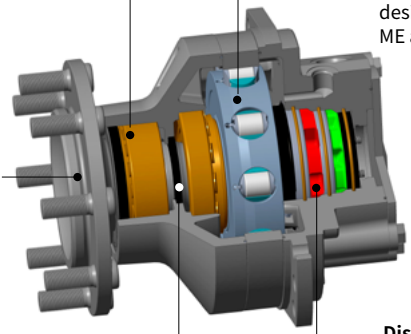
Standard structure

Heavy-duty Bearings

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

Piston Pair

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



Wheel Flanges

Direct drive wheels, easy to install, can withstand high torque output.

Shaft Seal

Specially customized shaft 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				HRP08				
Motor performance								
Displacement			$cm^3/rev.$	627	780	934	1248	1356
Max.torque			N·m	4270	5130	6022	7949	8036
Min.stable speed			rpm	5				
Max.speed（Displacement）			rpm	210	160	140	100	155
Pressure	Max.differential pressure		bar	450			400	
Max.power	Displacement		kW	41				
	Variable Displacement		kW	27				
Weight	Single-speed	With brake	kg	89.632				
		Without brake	kg	66.9				
	Two-speed	With brake	kg	101.832				
		Without brake	kg	80.551				
Brake								
Static braking torque			N·m	9000				
Release pressure			bar	12~30				
Maximum pressure at brake port Z			bar	30				
Oil volume to operate brake			cm^3	40				

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· 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 $20mm^2/s$.

· The recommended maximum operating temperature is 85° C.

Ordering information

HRP08	1	17	B1	W1	N	AA	A	AA
①	②	③	④	⑤	⑥	⑦	⑧	⑨

Radial Piston Series

①	Incurve multiple-action radial piston motor	HRP08

Single and Two Speed

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

Displacement cm^3/rev.

③	934, Standard piston	17
	1248, Step piston	35
	1356, Step piston	39
	627, Standard piston	43
	780, Standard piston	01

Port Connection

		Single Speed:1	Two Speed:2	Code
④	1-1/16-12UN(A, B), 3/4-16UNF(L), 3/4-16UNF(F)	●		B1
	ISO6162 Ø13, connection hole 2-4×M8(A, B), M18×1.5(L), M18×1.5(F)	●		B4
	M22×1.5(A, B), M18×1.5(L), M18×1.5(F)	●		B3
	ISO 1179-1, G3/4(A, B), G3/8(L), G3/8(F)	●		B6/B9
	M27×2(A、B), M18×1.5(L), M18×1.5(F)	●		B7
	ISO6162 Ø13, connection hole 8×M8(A, B), M18×1.5(L), M18×1.5(F)	●		M1
	ISO 1179-1, G3/4(A, B), G3/8(L), G3/8(F), G1/4(X)		●	N1

Ordering information

Output Shaft

		B1/B7/B9 /N1	B3/B4/B6	M1	Code
⑤	Wheel pilot Ø150.9×17, hub bolt Ø203.2, distribution circle 8×M20×1.5	●			W1
	Wheel pilot Ø160.7×17, hub bolt Ø205, distribution circle 6×M18×1.5	●			W2
	46T spline ANSI B92.1-1993 16/32 pressure angle of indeing circle 30° class 5 tolerance		●		S1
	German standard spline DIN5480-W70×3×30° ×22×8h		●		S2
	Gear shaft module 10, number of teeth 11, shift coefficient +0.404		●		G1
	French standard spline(E22-141)-65×24×2.5		●		S3
	Wheel pilot Ø160×14, hub bolt Ø205 distribution circle10×M22×1.5	●			W3
	Wheel pilot Ø220.7×14, hub bolt Ø275 distribution circle 8×M20×1.5	●			W4
	Half motor, no output shaft			●	C0

Paint Option

⑥	No Paint	N
	Black	B
	Hengli blue	C
	Yellow	Y

Brake

		B1/B3/B6/B7/B9/ M1	B4	N1	Code
⑦	No brakes	●	●	●	AA
	Static brake torque 9000N·m, port Z M16×1.5		●		A9
	Static brake torque 9000N·m, port Z G1/4			●	A1

Ordering information

Flushing Valve

		B1/B3/B4/B7/B9/M1/N1	B6	Code
⑧	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
	There is a flushing valve with a flow rate of 9.5L/min		●	G

Special Features

		B1/B3/B7/B9	B4/B6/N1/M1	Code
⑨	Standard	●	●	AA
	Speed sensor cavity		●	S1
	Speed sensor		●	S2
	High speed, +30%	●	●	HS
	HS+S1		●	SA

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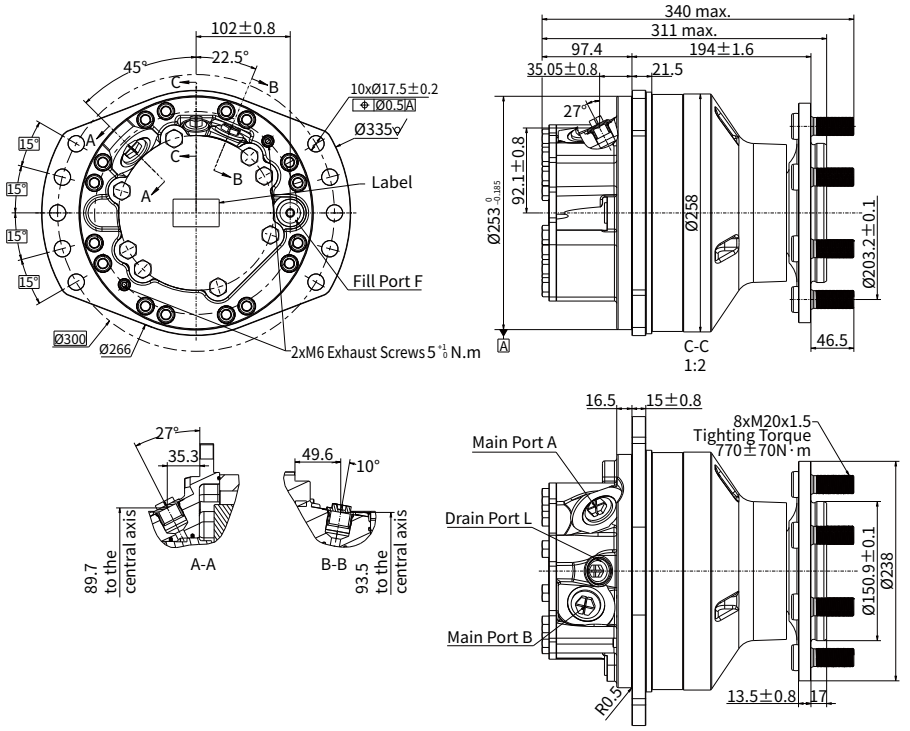
Note: ● =Available; For the other types of port forms, output forms and brake port orienttations, please contact Hengli's application engineer for consultation.

Installation size

·Single speed wheel output: Take HRP08117B1W1BAAAAA for example



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Note: The weight of the connection shown in the figure is 63.6kg.

Name	Port Function	B1	B7	B9
A, B	Main Port	1-1/16-12UN	M27×2	G3/4
L	Drain Port	3/4-16UNF	M18×1.5	G3/8
F	Fill Port	3/4-16UNF	M18×1.5	G3/8

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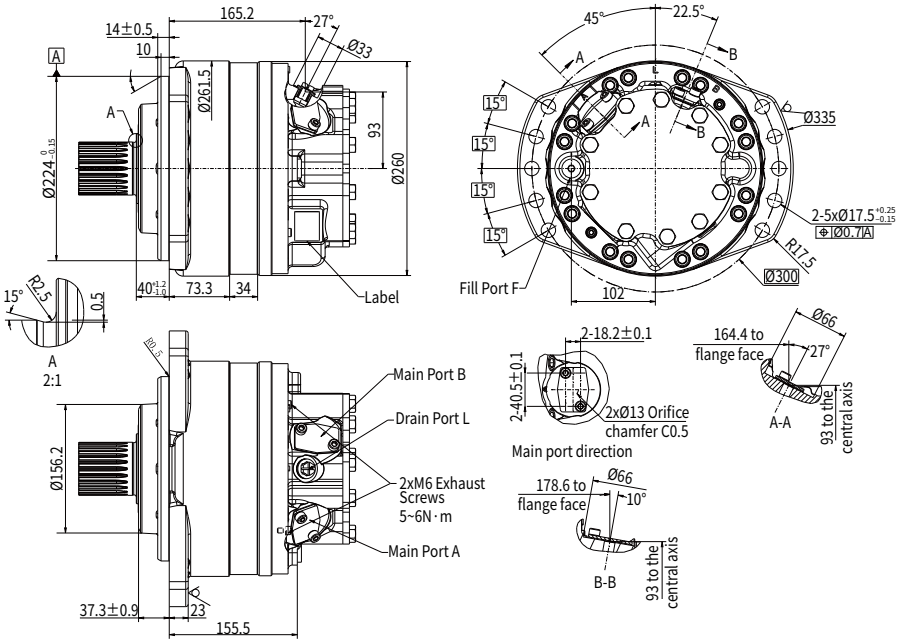
Installation size

·Single speed shaft output: Take HRP08117B4S3BAAAHS for example



External Spline Parameters 65x24x2.5(E22-141)		
Module	m	2.5
Number of teeth	N	24
Pressure angle	α	20°
Addendum modfication coefficient	x	0.8
Pin diameter	U	4.5
Pin spacing value	F	69.463~69.559
Centring method		Face centring
Fitting method		Slide fit

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Note: The weight of the connection shown in the figure is 66.5kg.

Name	Port Function	B4	B3	B6
A, B	Main Port	Ø13	M22×1.5	G3/4
L	Drain Port	M18×1.5	M18×1.5	G3/8
F	Fill Port	M18×1.5	M18×1.5	G3/8

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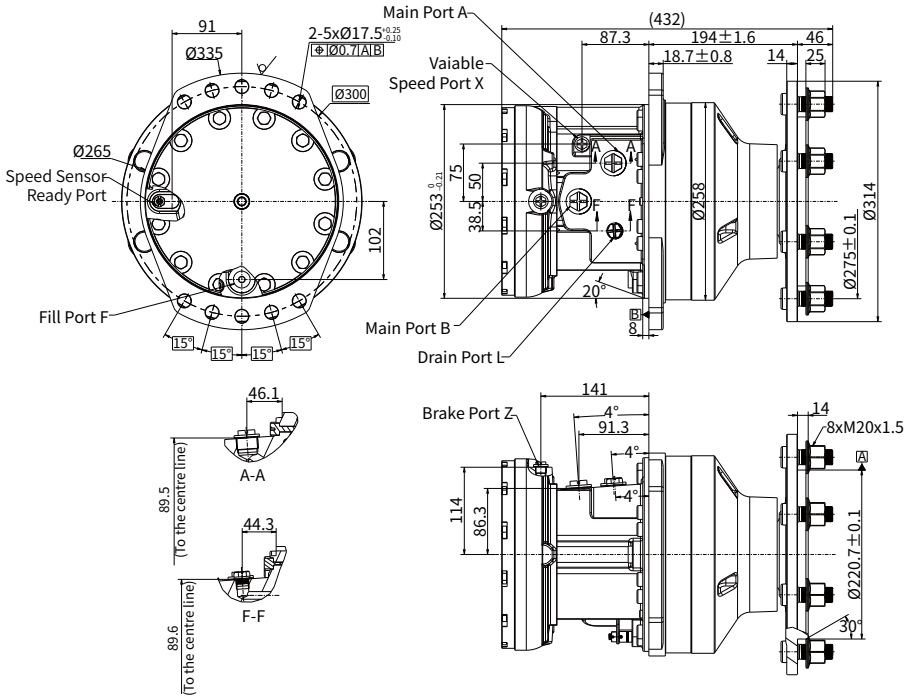
Installation size

·Two speed wheel output: Take HRP08243N1W4BA1AS1 for example



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Note: The weight of the connection shown in the figure is 101.812kg.

Name	Port Function	N1
A, B	Main Port	G3/4
L	Drain Port	G3/8
F	Fill Port	G3/8
X	Variable Speed Port	G1/4

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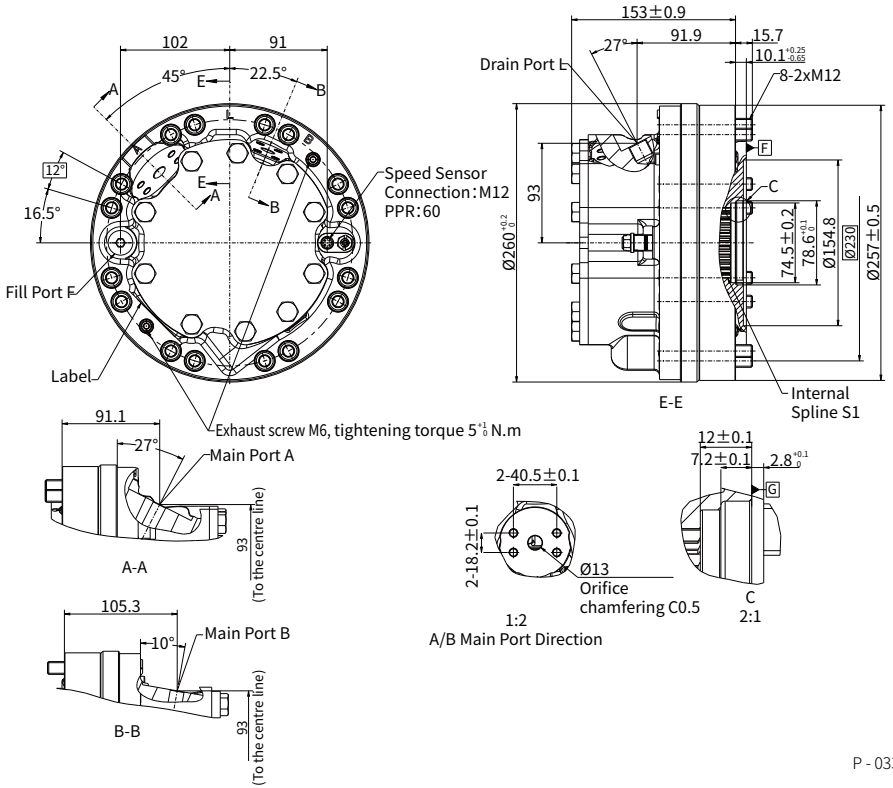
Installation size

· Half motor, no output shaft: Take HRP8H135M1C0NAAAAA for example



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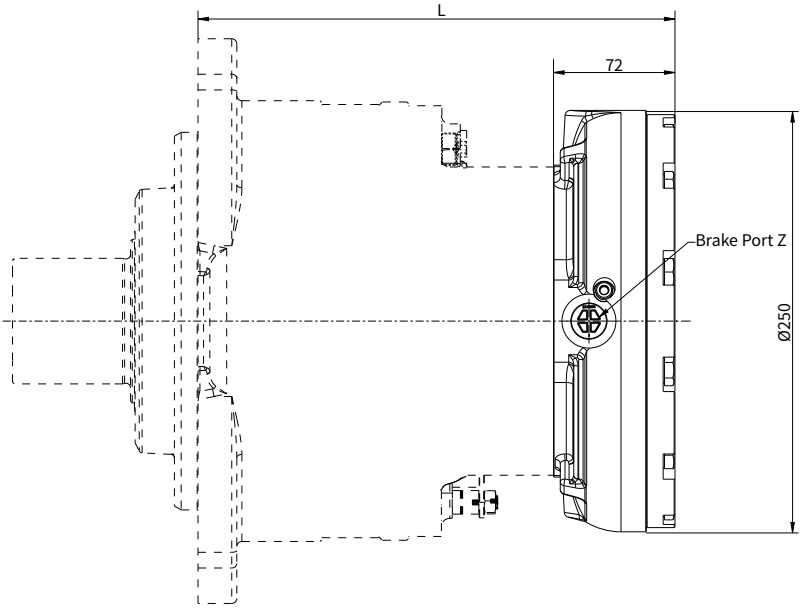
Note: The weight of the connection shown in the figure is 34.7kg.

Name	Port Function	M1
A, B	Main Port	Ø13
L	Drain Port	M18x1.5
F	Fill Port	M18x1.5

T - 0238

Installation size

Parking brake: Order code"A9"



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Single and Two speed	L	Z
Single speed shaft output	282.8	M16×1.5

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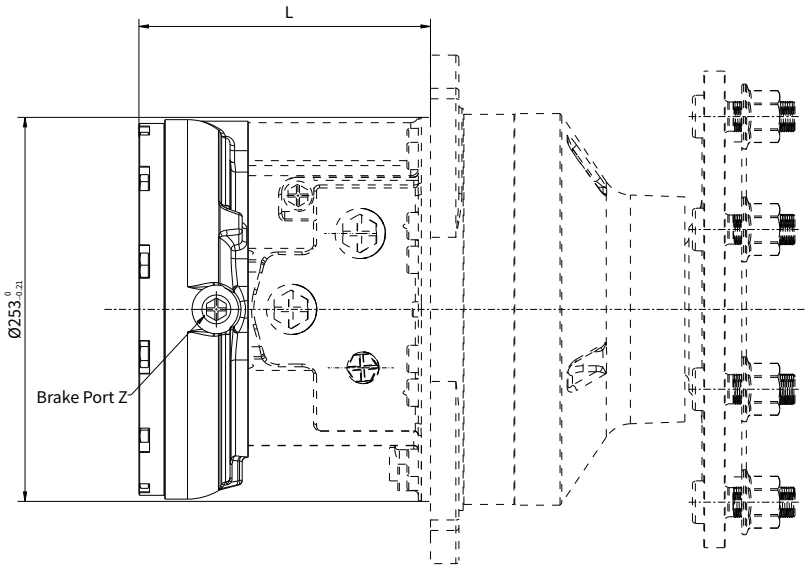
Installation size

Parking brake: Order code"A1"



双速马达原理图

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Single and Two speed	L	Z
Two speed wheel output	192	G1/4

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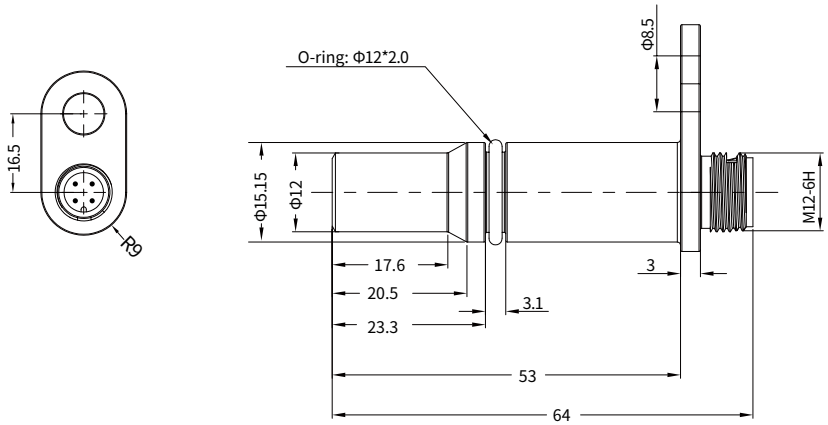
Speed sensor

·Speed sensor: S6



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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
Weigh	55g
Installation depth	53mm
Reverse polarity protection	Yes
Dielectric strength	500VDC

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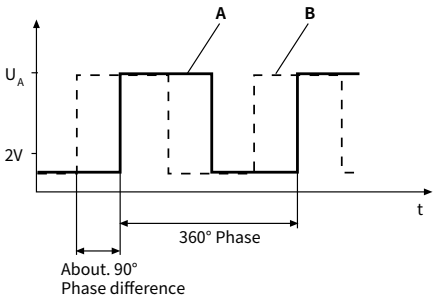
Speed sensor

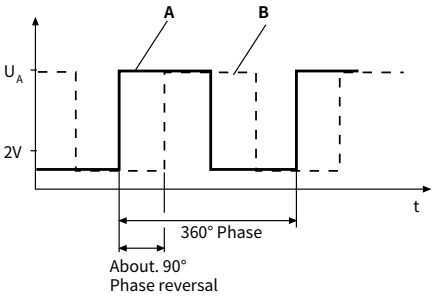
·Speed sensor: S6

■ OUTPUT SIGNAL

The measured gear rotates clockwise



The measured gear rotates counterclockwise



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■ TERMINAL ASSIGNMENT

Signal	+Ub	0V	A	B
4 core plug DT04	1	3	4	2

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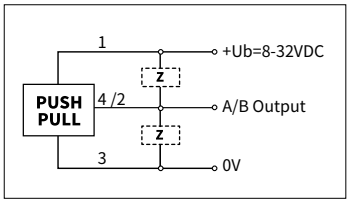
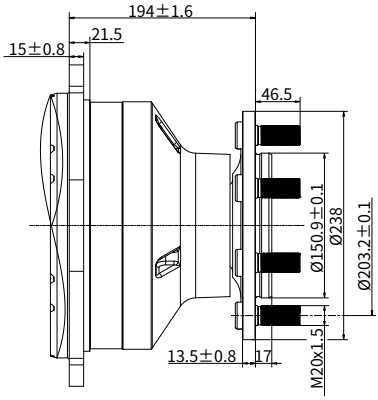
■ WIRING DIAGRAM



P - 0275

Shaft end dimensions

W1 **Wheel pilot Ø150.9×17, hub bolt Ø203.2, distribution circle 8×M20×1.5**



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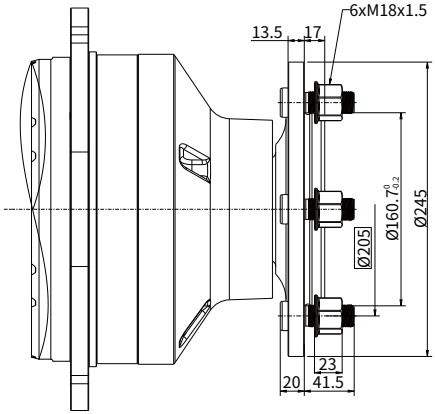
W3 **Wheel pilot Ø160×14, hub bolt Ø205, distribution circle 10×M22×1.5**



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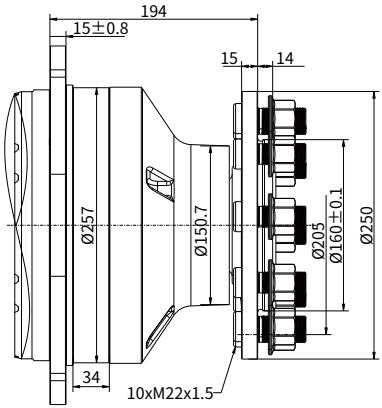
Shaft end dimensions

W3 **Wheel pilot Ø160×14, hub bolt Ø205, distribution circle 10×M22×1.5**



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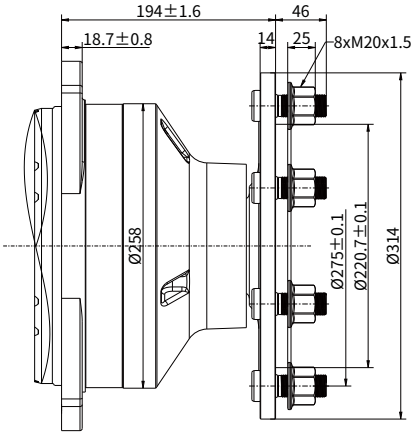
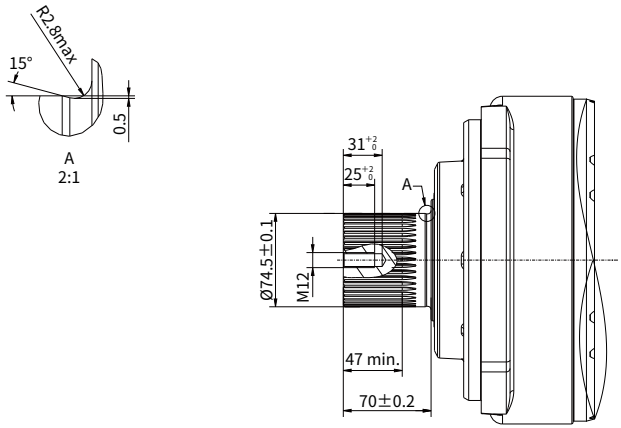
W4 **Wheel pilot Ø220.7×14, hub bolt Ø275, distribution circle 8×M20×1.5**



P - 0335

Shaft end dimensions

S1 46T spline ANSI B92.1-1993 16/32 pressure angle of indeing circle 30° class 5 tolerance



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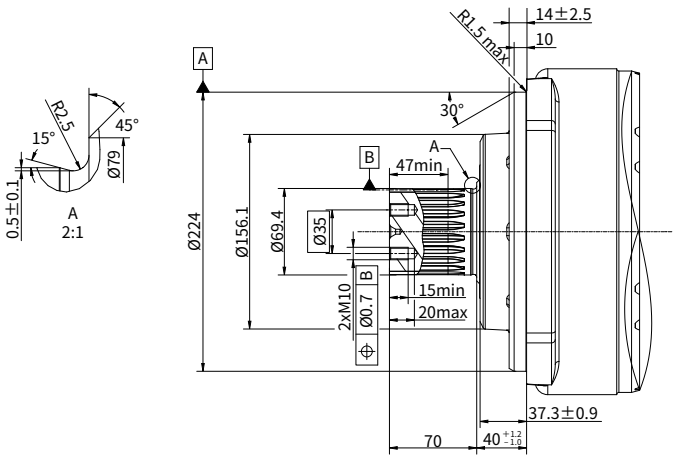
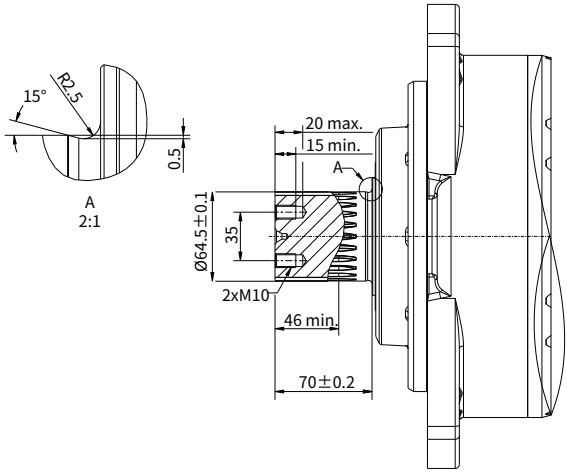
S2 German standard spline DIN5480-W70×3×30° ×22×8h



P - 0230

Shaft end dimensions

S3 **French standard spline(E22-141)-65×24×2.5**



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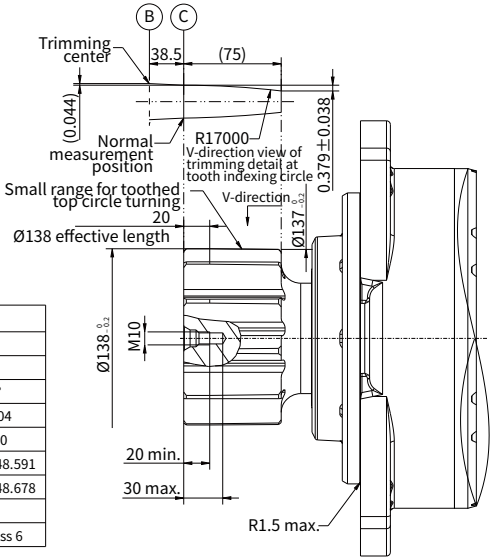
G1 **Gear shaft module 10, number of teeth 11, shift coefficient +0.404**



Gear wheel data	
Module	10
Number of teeth	11
Pressure angle	20°
Addendum modfication coefficient	+0.404
Pitch dia.	Ø110
Displacement over teeth at position C	48.407~48.591
Displacement over teeth at position B	48.494~48.678
Number of teeth	2
Accuracy class	JIS class 6

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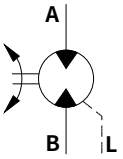
Hydraulic diagram

·Motor without brakes



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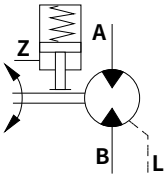
·Motor with parking brake



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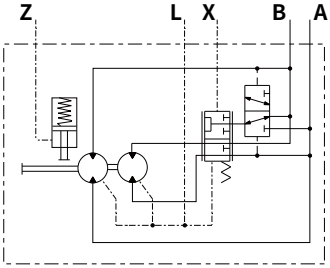
·Two-speed motor with brakes



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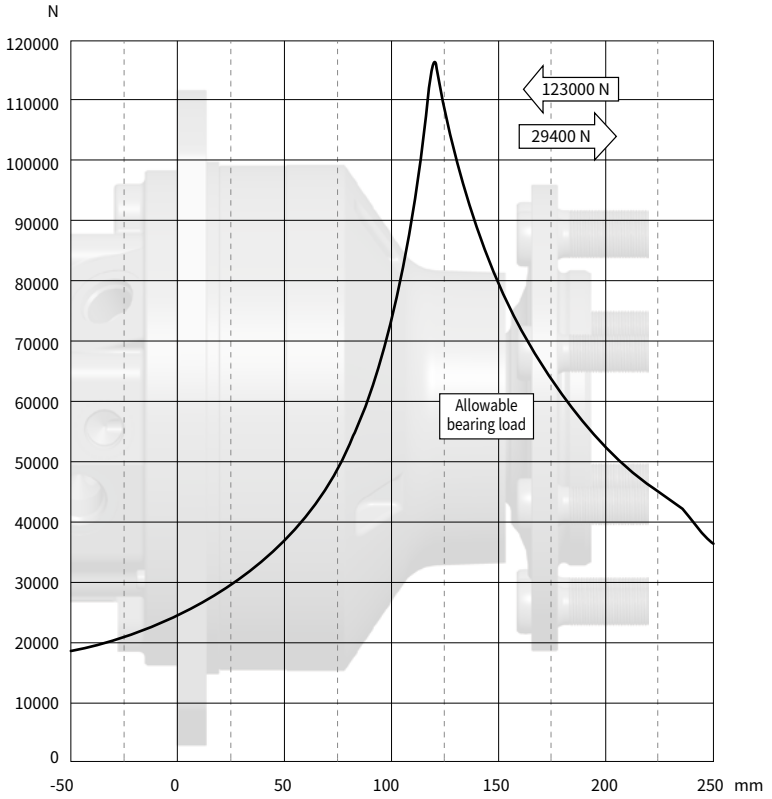
Allowable shaft load/bearing curve

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℃ .

·Wheel Output Bearing Curve



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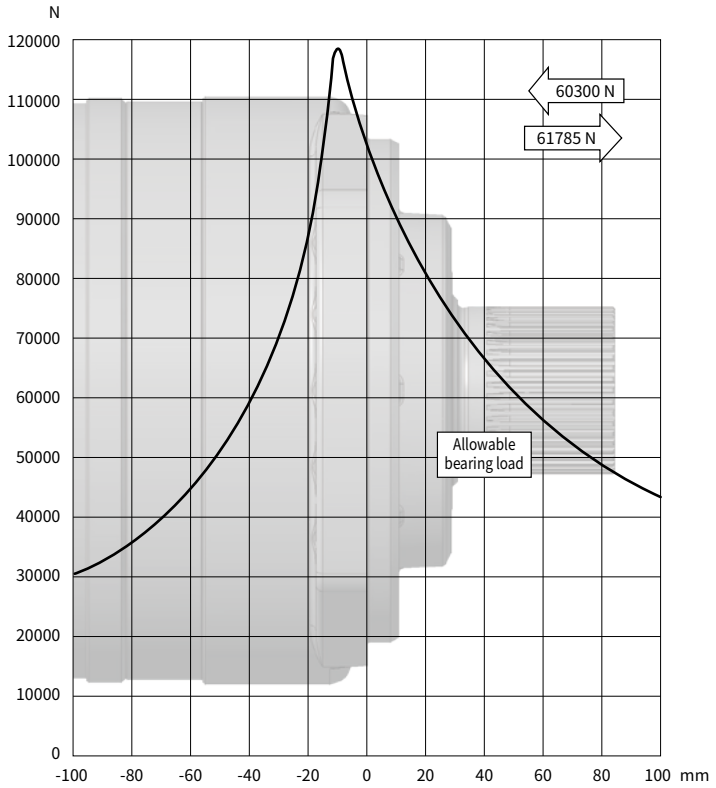
Allowable shaft load/bearing curve

·Shaft Output Bearing Curve



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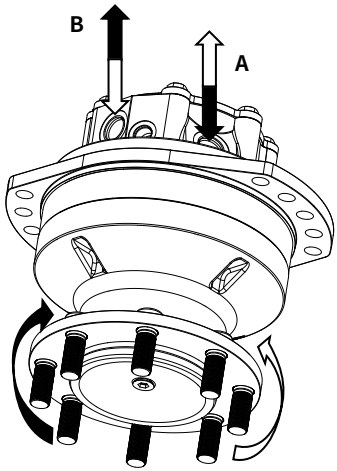
Rotation direction: CW

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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