



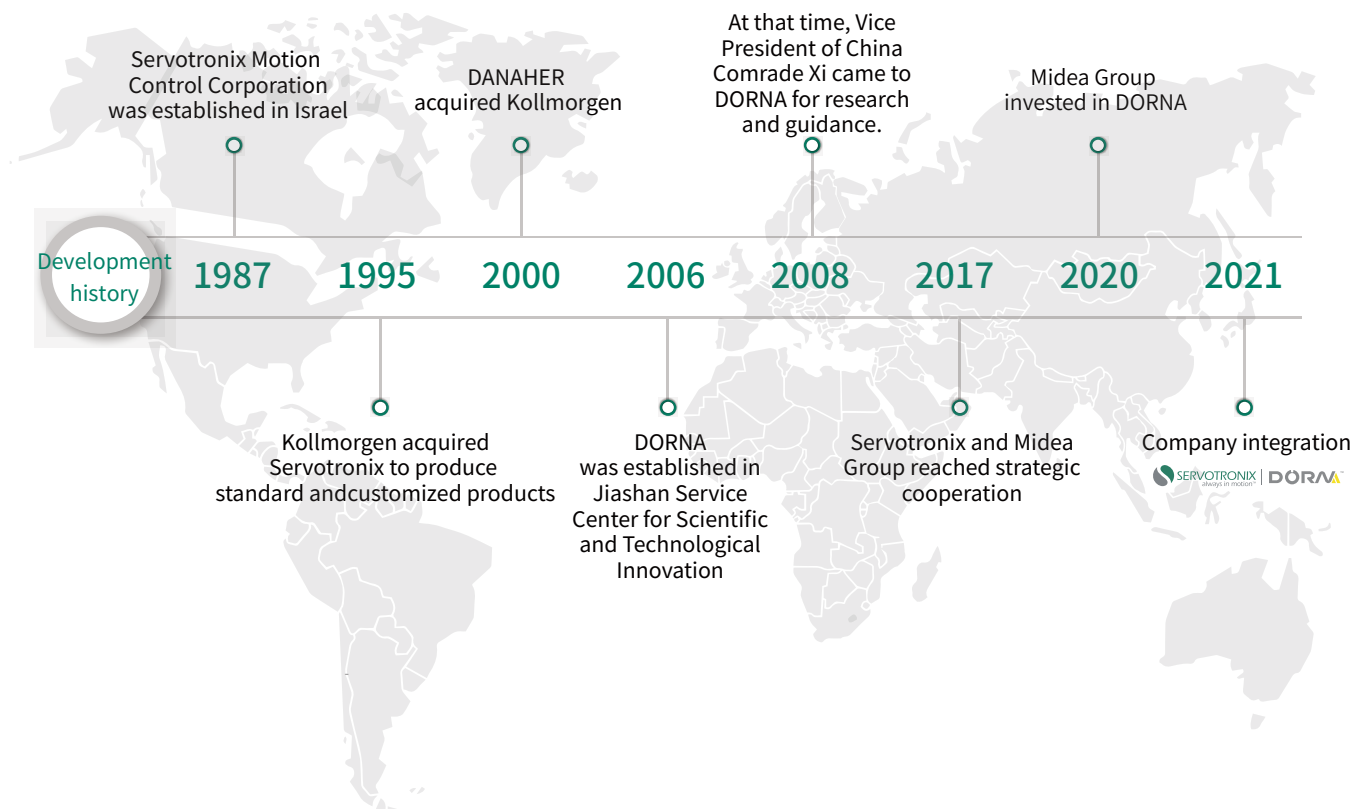
PRH22-R SERIES

A High Performance Permanent
Magnet Synchronous Servo Motor

About Servotronix

Founded in 1987, Servotronix Motion Control Corporation is a comprehensive solution provider specializing in research, production and sales of servo systems and control systems. We are committed to making continuous breakthroughs in the field of automation, contributing to the development of high-end manufacturing industry in China. We own two brands: SERVOTRONIX and DORNA.

SERVOTRONIX and DORNA design and provide standardized and customized motion control solutions for equipment manufacturers and automation system suppliers, delivering professional services to more than 1,000 customers in more than 30 countries around the world. In particular, SERVOTRONIX continues to lead the industry in the direct drive market in China. Servotronix Motion Control has R&D teams in cities such as Israel, Shanghai, Jiashan, and Shunde. We are an international company.





PRHD-R Series

PRHD2-R Series Servo Motor



Power: 50w、100w、200w、400w、750w

High power density, with shortest length among similar motors in the industry

Up to 3.5 times rated torque for instantaneous overload torque

Torque pulsation less than 1.5% of rated torque

The motor speed can reach 3000/8000rpm, and the maximum mechanical speed can reach 8500rpm. in case of 750w, field weakening is required for the drive to reach 8000rpm

Self-developed magnetic encoder comes standard with the self-developed 20bit absolute magnetic encoder, which can monitor the motor temperature online.

Highly reliable braking system; emergency braking 200 times, life time 2 million times

Designed for SCARA, Delta and small 6-axis robots, etc.

Products meet CE and UL certification.

Product Technical Information

Motor model	Rated voltage [VAC]	Rated power [W]	Rated torque/peak [N·m]	Rated speed/ maximum speed [rpm]	Rated speed/ maximum speed / Maximum current [A/4r.m3s]	Moment of inertia/moment of inertia (with brake) $\times 10^{-4}$ kg.m ²
PH2-R04A230	220	50	0.16/0.56	3000/8000	1.15/4.3	0.055/0.057
PH2-R04B230	220	100	0.32/1.12	3000/8000	1.4/4.9	0.1/0.102
PH2-R06A230	220	200	0.64/2.24	3000/8000	2.2/8.5	0.21/0.226
PH2-R06B230	220	400	1.27/4.45	3000/8000	3.4/12.5	0.42/0.436
PH2-R08A230	220	750	2.39/8.36	3000/6000	4.5/18.0	1.53/1.58



Ordering Information

	PH2	R	04	A	2	30	2	5	M4	0	D	CX-X
PH2 Servo motor												
Type of inertia												
R Robot customization												
Flange size												
04 40mm												
06 60mm												
08 80mm												
Winding design type (supplementary: see parameter table for corresponding power)												
A Type A												
B Type B												
Rated voltage												
2 230 VAC												
Rated speed												
30 3000 rpm												
Shaft extension/oil seal												
0 Smooth Shaft												
2 Keyway												
3 Keyway with oil seal												
4 Customized axis												
5 Customized axis + oil seal												
Enclosure protection class												
5 IP65												
Feedback type												
S4 Short version sensAR 20-bit single-turn absolute encoder												
M4 Short version sensAR 20-bit multi-turn absolute encoder												
Brake												
0 Without brake												
1 With brake												
Connection type												
D With connector cable												
D Special specifications												
Standard product												
CX-X* With brake												

* X can refer to 0-9 or A-Z.

Note: Naming rules are only used for the explanation of naming, which does not mean that all combinations exist!

PRHD2-R40 Series



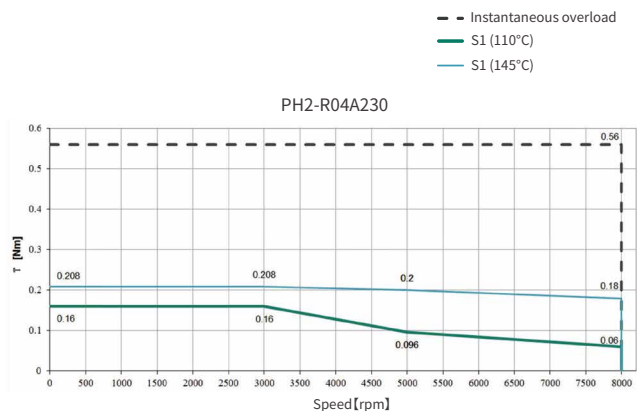
Rated working time	continuously	Ambient temperature	-10~+40°C
Insulation class	F	Relative humidity	10~90%
Housing	Fully enclosed, self-cooling	Number of poles	10
Protection class	IP65	Certification	CE、UL
Installation	IMB5(IMV1,IMV3)	Note: The resolution is 20bit while using ServoSense protocol, and only available with CDHD series servo drives; 17bit while using Tamagawa protocol.	
Motor feedback type	SensAR magnetic absolute encoder		
Encoder protocol	ServoSense、Tamagawa *		

			PH2-R04A230	PH2-R04B230
Rated torque	M_n	$N \cdot m$	0.16	0.32
Peak torque	T_{max}	$N \cdot m$	0.56	1.12
Rated speed	n_N	min^{-1}	3000	3000
Maximum speed	n_{max}	min^{-1}	8000	8000
Rated power	P_N	kW	0.05	0.1
Rated current	I_N	A_{rms}	1.15	1.4
Maximum current	I_{max}	A_{rms}	4.3	4.9
Rated winding voltage	U_n	V_{AC}	220	220
Maximum winding voltage	U_{max}	V_{DC}	340	340
Maximum voltage to ground		V_{AC}	240	240
Voltage constant	K_{eu-v}	V_{rms}/k_{rpm}	9.6	15.6
Torque constant	K_t	$N \cdot m/A_{rms}$	0.139	0.229
Winding resistance	$R_{20\ u-v}$	Ohm	9.54	8.72
Winding inductance	L_{u-v}	mH	4.5	4.4
Rotor inertia (without brake)	J_M	$\times 10^{-4} kg \cdot m^2$	0.055	0.1
Rotor inertia (with brake)	J_M	$\times 10^{-4} kg \cdot m^2$	0.057	0.102
Mass (without brake)	m	Kg	0.34	0.49
Mass (with brake)	m	Kg	0.54	0.69
Thermal time constant		min^{-1}	7	9
Maximum radial load		N	78	78
Maximum axial load		N	54	54

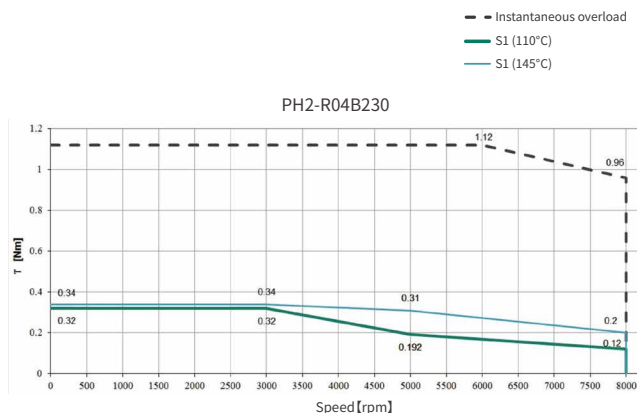


PRHD2-R40 220VAC Torque

PRHD2-R40 220VAC Speed Diagram

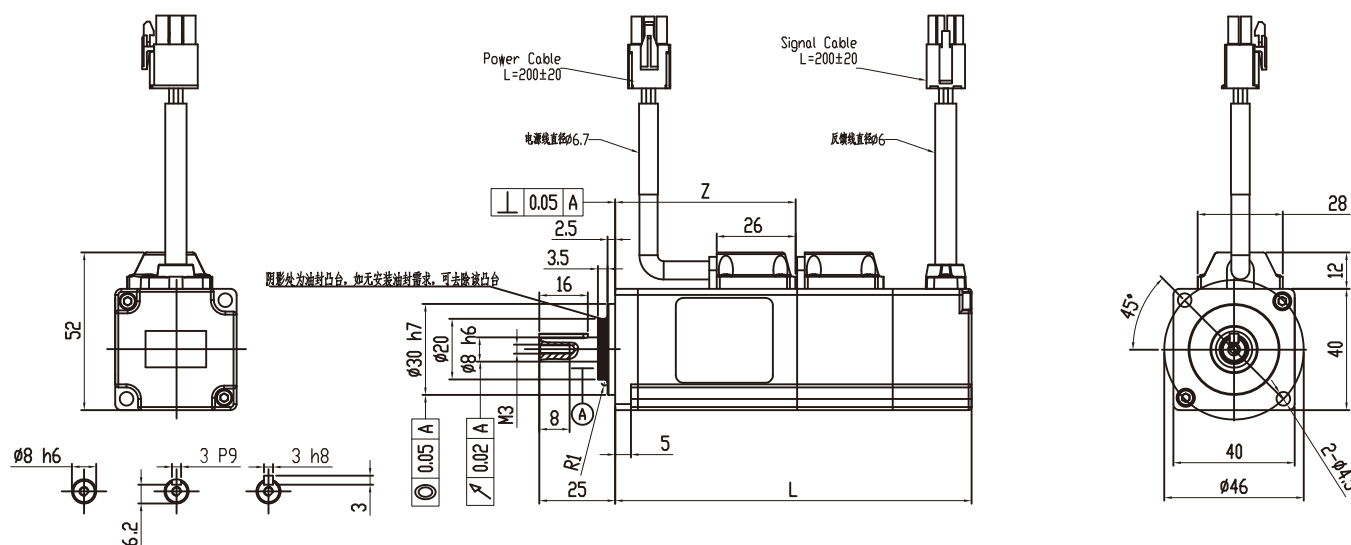


- * 1. Cooling plate: 6063 aluminum alloy surface, black anodizing, 240mmx240mmx6mm; testing ambient temperature 25°C
- * 2. S1 (110°C) continuous working system, winding temperature $\leq 110^\circ\text{C}$
- * 3. S1(145°C) continuous working system, winding temperature $\leq 145^\circ\text{C}$ (UL1004-1F insulation)
- * 4. Instantaneous overload time $\leq 3\text{s}$
- * 5. The above TS curve test has no oil seal. If an oil seal is added, it needs to be derated.



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PRHD2-R40 220VAC Dimension



TYPE	L(mm)	L(mm)+Brake	Z(mm)	Z(mm)+Brake
PH2-R04A230	56	90	35.5	35.5
PH2-R04B230	71.4	105.5	51.5	51.5

PRHD2-R60 Series

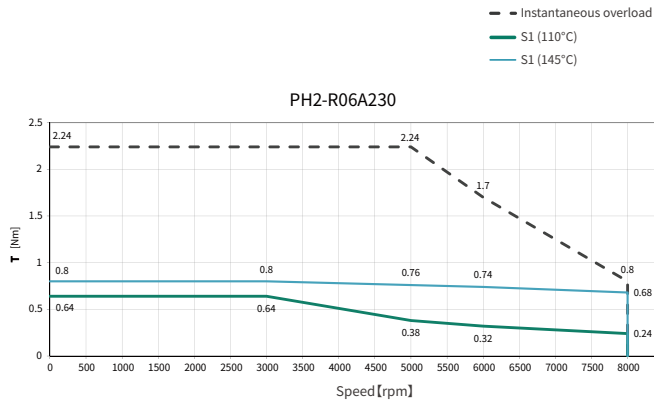


Rated working time	continuously	Ambient temperature	-10~+40°C
Insulation class	F	Relative humidity	10~90%
Housing	Fully enclosed, self-cooling	Number of poles	10
Protection class	IP65	Certification	CE、UL
Installation	IMB5(IMV1,IMV3)	Note: The resolution is 20bit while using ServoSense protocol, and only available with CDHD series servo drives; 17bit while using Tamagawa protocol.	
Motor feedback type	SensAR magnetic absolute encoder		
Communication protocol	ServoSense、Tamagawa *		

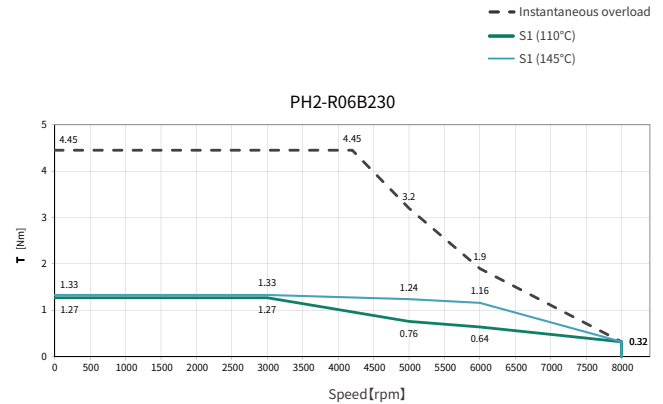
			PH2-R06A230	PH2-R06B230
Rated torque	M_n	N·m	0.64	1.27
Peak torque	T_{max}	N·m	2.24	4.45
Rated speed	nN	min ⁻¹	3000	3000
Maximum speed	n_{max}	min ⁻¹	8000	8000
Rated power	P_N	kW	0.2	0.4
Rated current	I_N	A_{rms}	2.2	3.4
Maximum current	I_{max}	A_{rms}	8.5	12.5
Rated winding voltage	U_n	V_{AC}	220	220
Maximum winding voltage	U_{max}	V_{DC}	340	340
Maximum voltage to ground		V_{AC}	240	240
Voltage constant	K_{eu-v}	V_{rms}/k_{rpm}	19.5	25.6
Torque constant	K_t	N·m/ A_{rms}	0.29	0.373
Maximum torque ripple	$\Delta T/T$	%	3	3
Winding resistance	$R_{20\ u-v}$	Ohm	4.56	2.81
Winding inductance	L_{u-v}	mH	8.6	6.23
Rotor inertia (without brake)	J_M	$\times 10^{-4} \text{ kg}\cdot\text{m}^2$	0.21	0.42
Rotor inertia (with brake)	J_M	$\times 10^{-4} \text{ kg}\cdot\text{m}^2$	0.226	0.436
Mass (without brake)	m	Kg	0.88	1.20
Mass (with brake)	m	Kg	1.38	1.70
Thermal time constant		min ⁻¹	8	10
Maximum radial load		N	245	245
Maximum axial load		N	75	75

PRHD2-R60 220VAC Torque

PRHD2-R60 220VAC Speed Diagram

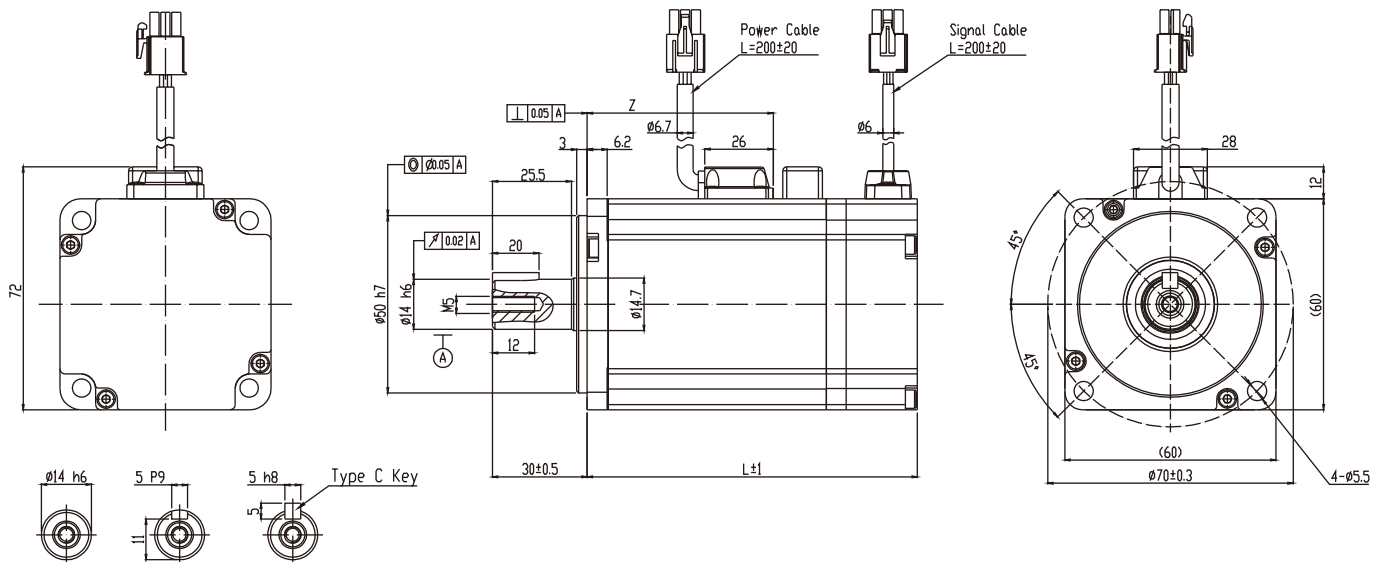


- * 1. Cooling plate: 6063 aluminum alloy surface, black anodizing, 180mmx180mmx5mm; testing ambient temperature 25°C
- * 2. S1 (110°C) continuous working system, winding temperature $\leq 110^{\circ}\text{C}$
- * 3. S1(145°C) continuous working system, winding temperature $\leq 145^{\circ}\text{C}$ (UL1004-1F insulation)
- * 4. Instantaneous overload time $\leq 3\text{s}$
- * 5. The above TS curve test has no oil seal. If an oil seal is added, it needs to be derated.



- * 1. Cooling plate: 6063 aluminum alloy surface, black anodizing, 180mmx180mmx5mm; testing ambient temperature 25°C
- * 2. S1 (110°C) continuous working system, winding temperature $\leq 110^{\circ}\text{C}$
- * 3. S1(145°C) continuous working system, winding temperature $\leq 145^{\circ}\text{C}$ (UL1004-1F insulation)
- * 4. Instantaneous overload time $\leq 3\text{s}$
- * 5. The above TS curve test has no oil seal. If an oil seal is added, it needs to be derated.

PRHD2-R60 220VAC Dimension



TYPE	L(mm)	L(mm)+Brake	Z(mm)	Z(mm)+Brake
PH2-R06A230	69.5	94	51.5	51.5
PH2-R06B230	86.5	116	68.5	68.5

PRHD2-R80 Series

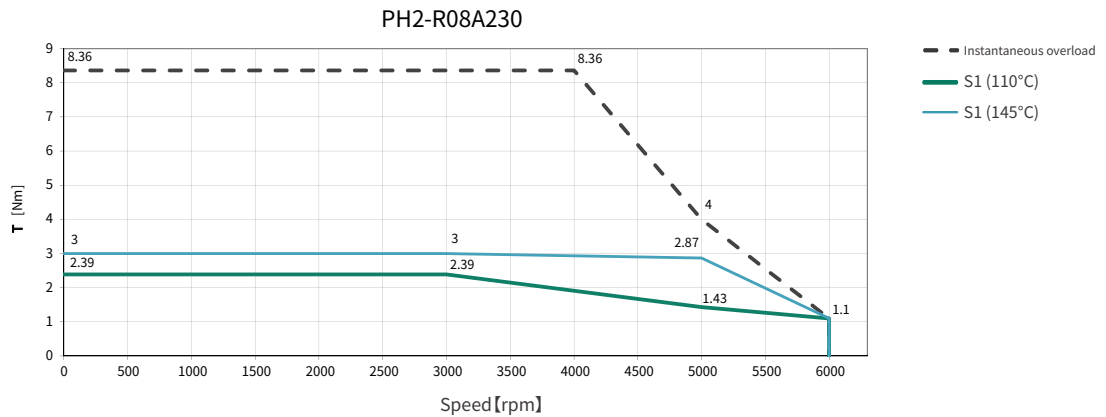
220VAC specification



Rated working time	Continuously	ambient temperature	-10~+40°C
Insulation class	F	Relative humidity	10~90%
Housing	Fully enclosed, self-cooling	Number of poles	10
Protection class	IP65	Certification	CE、UL
Installation	IMB5(IMV1,IMV3)	Note: The resolution is 20bit while using ServoSense protocol, and only available with CDHD series servo drives; 17bit while using Tamagawa protocol.	
Motor feedback	SensAR magnetic absolute encoder		
Communication protocol	ServoSense、Tamagawa *		

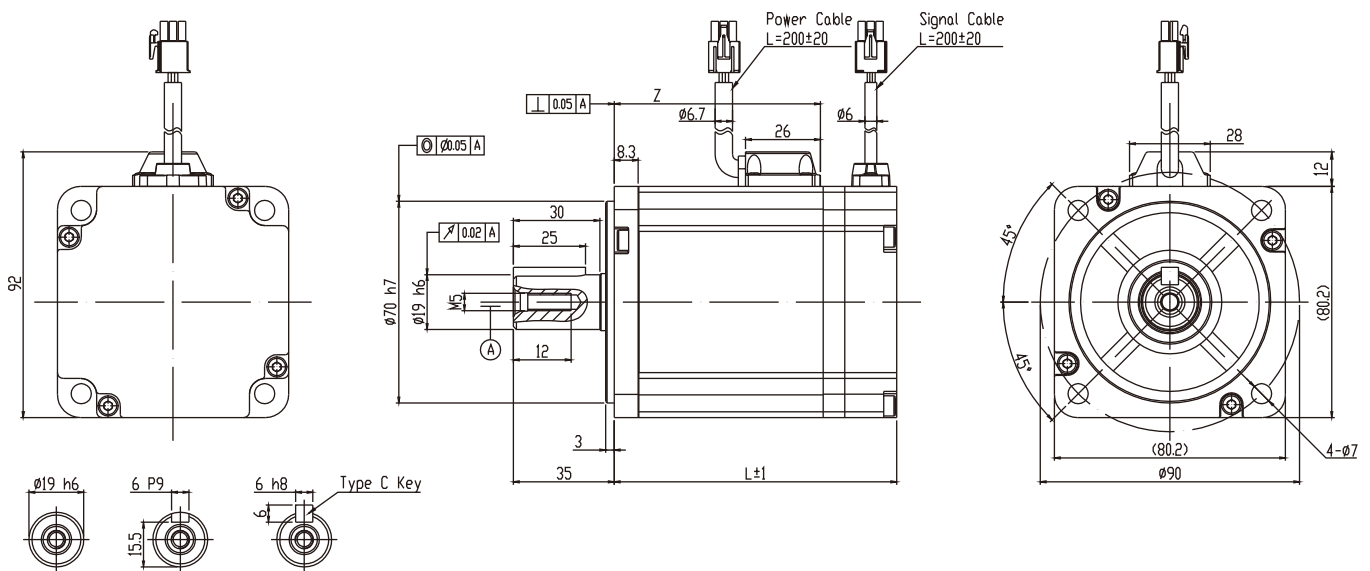
			PH2-R08A230
Rated torque	M_n	$N \cdot m$	2.39
Peak torque	T_{max}	$N \cdot m$	8.36
Rated speed	n_N	min^{-1}	3000
Maximum speed	n_{max}	min^{-1}	6000
Rated power	P_N	kW	0.75
Rated current	I_N	A_{rms}	4.5
Maximum current	I_{max}	A_{rms}	18.0
Rated winding voltage	U_n	V_{AC}	220
Maximum winding voltage	U_{max}	V_{DC}	340
Maximum voltage to ground		V_{AC}	240
Voltage constant	K_{eu-v}	V_{rms}/k_{rpm}	33.5
Torque constant	K_t	$N \cdot m/A_{rms}$	0.53
Maximum torque ripple	$\Delta T/T$	%	3
Winding resistance	$R_{20\ u-v}$	Ohm	1.2
Winding inductance	L_{u-v}	mH	4.1
Rotor inertia (without brake)	J_M	$\times 10^{-4} kg \cdot m^2$	1.53
Rotor inertia (with brake)	J_M	$\times 10^{-4} kg \cdot m^2$	1.58
Mass (without brake)	m	Kg	2.2
Mass (with brake)	m	Kg	2.8
Thermal time constant		min^{-1}	15
Maximum radial load		N	392
Maximum axial load		N	147

PRHD2-R80 220VAC Speed Diagram



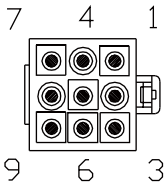
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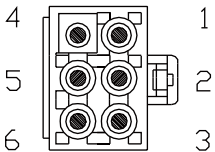
PRHD2-R80 220VAC Dimension

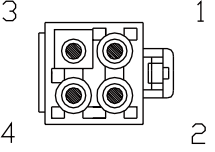


TYPE	L(mm)	L(mm)+Brake	Z(mm)	Z(mm)+Brake
PH2-R08A230	98	127	71.5	73

Motor wiring connection

AMP-172169-1	Feedback Pin definition									
	AMP-9P	1	2	3	4	5	6	7	8	9
	Wire color	Green	Yellow	/	Black	/	Brown	White	Shield	/
	Pin definition	Date+	Date-	/	Vbat	/	VCC	GND	Shield	/

AMP-172168-1	Power Pin definition (With Brake)						
	AMP-6P	1	2	3	4	5	6
	Wire color	Red	White	Yellow	Black	Yellow/Green	Yellow
	Pin definition	U	V	Brake_24V	W	PE	Brake_0V

AMP-172167-1	Power Pin definition (Without Brake)				
	AMP-6P	1	2	3	4
	Wire color	Red	White	Black	Yellow/Green
	Pin definition	U	V	W	PE

A grayscale background image of an industrial robotic arm, likely a CNC machine, with various mechanical components and wiring visible. The image is partially covered by a dark green diagonal overlay on the left and bottom right.

PRH2-R

SERIES

A High Performance Permanent
Magnet Synchronous Servo Motor



SERVOTRONIX
always in motion™



Servotronics Motion
official account

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