

Orientalmotor

Servo Motors

KXR Series

Specifications and Dimensions

COMING SOON

KXR Series Product Line

● Motor

◇ 400 W

Without Holding Brake

With Holding Brake

◇ 750 W

Without Holding Brake

With Holding Brake



● Driver

◇ EtherCAT Compatible

Single-Phase/Three-Phase 200-240 VAC



Gearheads and Hollow Rotary Actuators Product Line

Gear head and hollow rotary actuator are available that can be combined with the motor.
Using a single manufacturer reduces the time and effort required for selection, design, and purchasing.

● PS Gearhead



· Planetary Gear Mechanism

· High Permissible Torque

· Low Backlash (15 arcmin)

Item	Applicable Motor Output Power [W]	Frame Size [mm]	Gear Ratio	Maximum Speed [r/min]	Rated Torque [N·m]
	400	90	5, 10, 25	1100 (Gear ratio 5)	4.5, 9.5, 23.5
	750	90	5	550 (Gear ratio 10)	9.5
	750	120	10, 25	220 (Gear ratio 25)	19, 49

● Hollow Rotary Actuator DGI Series

Frame Size 200 mm



Diameter of Hollow Section
φ100 mm

· Large Diameter

The hollow hole allows for easy routing of complex wiring and piping.

· High Strength

Permissible Axial Load

DGN170: 3000 N

DGN200: 4000 N

Example: DGN200

Item	Applicable Motor Output Power [W]	Frame Size [mm]	Gear Ratio	Maximum Input Speed [r/min]	Permissible Torque [N·m]
	400	170	18	5500	16
	750	200			30

● Refer to each page below for combining with each product.

· PS Gearhead: from page 10

· DGI Series: from page 14

Product Line

Motors, drivers, and connection cables must be ordered separately.

Motor

Output Power	Product Name (Without Holding Brake)	Product Name (With Holding Brake)
400 W	KXRM640AC	KXRM640MC
750 W	KXRM875AC	KXRM875MC

Cable

Use the flexible connection cable in application where the cable is bent and flexed.

An extension cable and flexible extension cable are also available to extend the connection cable.

The connection cables that are for the motor and encoder need to be ordered separately.

Note

· Up to three cables can be used for connection between the motor and driver.

· The maximum extension distance between the motor and driver is 50 m.

Connection Cables

Type	Length L (m)	Product Name
Motor	3	CC030X1FB-M
	5	CC050X1FB-M
	7	CC070X1FB-M
	10	CC100X1FB-M
	15	CC150X1FB-M
	20	CC200X1FB-M
	30	CC300X1FB-M
	50	CC500X1FB-M
Encoder	3	CC030X1F-E
	5	CC050X1F-E
	7	CC070X1F-E
	10	CC100X1F-E
	15	CC150X1F-E
	20	CC200X1F-E
	30	CC300X1F-E
	50	CC500X1F-E

Extension Cables

Type	Length L (m)	Product Name
Motor	5	CC050X1FBT-M
	10	CC100X1FBT-M
	15	CC150X1FBT-M
	20	CC200X1FBT-M
	30	CC300X1FBT-M
	40	CC400X1FBT-M
Encoder	5	CC050X1FT-E
	10	CC100X1FT-E
	15	CC150X1FT-E
	20	CC200X1FT-E
	30	CC300X1FT-E
	40	CC400X1FT-E

Driver

EtherCAT Compatible

Power Supply Input	Product Name
Single-Phase/Three-Phase 200-240 VAC	K1800-D

Flexible Connection Cables

Type	Length L (m)	Product Name
Motor	3	CC030X1RB-M
	5	CC050X1RB-M
	7	CC070X1RB-M
	10	CC100X1RB-M
	15	CC150X1RB-M
	20	CC200X1RB-M
	30	CC300X1RB-M
	50	CC500X1RB-M
Encoder	3	CC030X1R-E
	5	CC050X1R-E
	7	CC070X1R-E
	10	CC100X1R-E
	15	CC150X1R-E
	20	CC200X1R-E
	30	CC300X1R-E
	50	CC500X1R-E

Flexible Extension Cables

Type	Length L (m)	Product Name
Motor	5	CC050X1RBT-M
	10	CC100X1RBT-M
	15	CC150X1RBT-M
	20	CC200X1RBT-M
	30	CC300X1RBT-M
	40	CC400X1RBT-M
Encoder	5	CC050X1RT-E
	10	CC100X1RT-E
	15	CC150X1RT-E
	20	CC200X1RT-E
	30	CC300X1RT-E
	40	CC400X1RT-E

List of Combinations

Motor				Driver		Connection Cable *		Connection Cable *
Output Power	Without Holding Brake	With Holding Brake				Motor		Encoder
400 W	KXRM640AC	KXRM640MC	+	K1800-D	+	CC◇◇◇X1FB-M (CC◇◇◇X1RB-M)	+	CC◇◇◇X1F-E (CC◇◇◇X1R-E)
750 W	KXRM875AC	KXRM875MC						

*Figures in parentheses () indicate flexible cable.

● The box ◇ in the product name indicates a number representing the cable length.

Motor Specifications

Motor Product Name	Without Holding Brake		KXRM640AC		KXRM875AC	
	With Holding Brake		KXRM640MC		KXRM875MC	
Driver Product Name			K1800-D			
Rated Output Power		W	400		750	
Rated Speed		r/min	3000			
Maximum Speed		r/min	7000			
Rated Torque		N·m	1.27		2.39	
Maximum Instantaneous Torque		N·m	4.46		8.36	
Rotor Inertia		J: kg·m ²	0.381×10 ⁻⁴ (0.412×10 ⁻⁴) *1		1.17×10 ⁻⁴ (1.28×10 ⁻⁴) *1	
Permissible Inertia		J: kg·m ²	35 times the rotor inertia or less*2		5000 r/min or less: 35 times the rotor inertia or less*2 6000 r/min: 25 times the rotor inertia or less*2 7000 r/min: 15 times the rotor inertia or less*2	
Resolution		P/R	36,000			
Power Supply Input	Main Power Supply	Input Voltage	Single-Phase/Three-Phase 200-240 VAC −15 to +10 % 50/60 Hz			
		Rated Current	A	Single-Phase: 5.3 Three-Phase: 3.0		Single-Phase: 8.8 Three-Phase: 4.9
	Control Power Supply	Input Voltage	Single-Phase 200-240 VAC −15 to +10 % 50/60 Hz			
		Rated Current	A	0.13		
Holding Brake		Type	Power Off Activated Type			
		Static Friction Torque	N·m	1.27		2.39

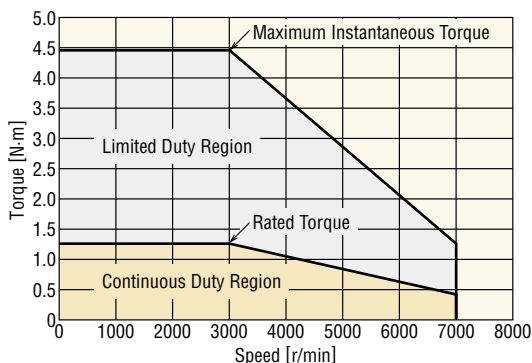
*1 The value in parentheses () indicates the specifications when the holding brake motor is connected.

*2 The value is the rotor inertia for the motor without holding brake.

Speed — Torque Characteristics

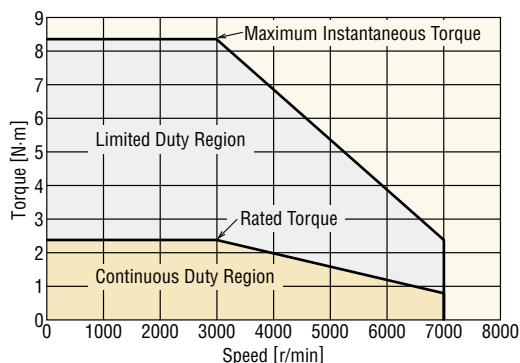
KXRM640□C

Power Supply Input: Single-Phase/Three-Phase 200-240 VAC



KXRM875□C

Power Supply Input: Single-Phase/Three-Phase 200-240 VAC



Note

● If the total length of the cable for motor exceeds 20 m when a single-phase power supply is used for the driver, the voltage drop increases and the limited duty region decreases. (**KXRM875□C** only)

● The box □ in the product name indicates the configuration either **A** (without holding brake) or **M** (with holding brake).

Communication Specifications

EtherCAT

Communication Standards	IEC 61158 Type 12 CAN application protocol over EtherCAT (CoE) IEC61800-7 CiA 402 Drive Profile
Physical Layer	100BASE-TX (IEEE802.3)
Communication Connector	RJ45×2 (Shielded) ECAT IN: EtherCAT Input ECAT OUT: EtherCAT Output
Communication Cable	Ethernet Category 5 (100BASE-TX) or Higher Twisted-Pair Cable
Cable Length	Between Nodes: Up to 100 m
Network Topology	Line
Transmission Rate	100 Mbps
Number of Connected Nodes	Up to 65,535 nodes
Sync Manager	SM0: Mailbox output SM1: Mailbox input SM2: Process data output SM3: Process data input
Synchronization Mode	DC (SYNC0 event synchronization) SM2 event synchronization Free Run
Communication Cycle	DC: 250 μs, 500 μs, or 1 to 10 ms (in 1 ms increments) SM2: 1 ms or more Free Run: 1 ms or more
Process Data	Variable PDO mapping
Mailbox (CoE)	SDO request, SDO response, SDO information, Emergency message
LED Status	EtherCAT communicating: L/A × 2 (Green) EtherCAT communication status: RUN × 1 (Green) EtherCAT error status: ERR × 1 (Red)
CiA402 Drive Profile	pp: Profile position mode pv: Profile velocity mode tq: Profile torque mode hm: Homing mode csp: Cyclic synchronous position mode csv: Cyclic synchronous velocity mode

General Specifications

		Motor	Driver
Operating Environment (In operation)	Ambient Temperature	0 to +40 °C (non-freezing)*	0 to +55 °C (non-freezing) *
	Ambient Humidity	85 % or less (non-condensing)	85 % or less (non-condensing)
	Atmosphere	No corrosive gas or no flammable gas. No exposure to water or oil. Area free of excessive amount of dust. Cannot be used in radioactive materials, magnetic field, vacuum or other special environments.	No corrosive gas or no flammable gas. No exposure to water or oil. Area free of excessive amount of dust, iron particles or the like. Cannot be used in radioactive materials, magnetic field, vacuum or other special environments.
	Altitude	Up to 1000 m above sea level	Up to 1000 m above sea level
	Altitude	Up to 1000 m above sea level	Up to 1000 m above sea level
Storage Condition Shipping Environment	Ambient Temperature	−20 to +60 °C (non-freezing)	−25 to +70 °C (non-freezing)
	Ambient Humidity	85 % or less (non-condensing)	85 % or less (non-condensing)
	Atmosphere	No corrosive gas or no flammable gas. No exposure to water or oil. Area free of excessive amount of dust. Cannot be used in radioactive materials, magnetic field, vacuum or other special environments.	No corrosive gas or no flammable gas. No exposure to water or oil. Area free of excessive amount of dust, iron particles or the like. Cannot be used in radioactive materials, magnetic field, vacuum or other special environments.
	Altitude	Up to 3000 m above sea level	Up to 3000 m above sea level
	Altitude	Up to 3000 m above sea level	Up to 3000 m above sea level

*Based on the measurement and evaluation conditions of Oriental Motor.

■ Permissible Radial Load and Permissible Axial Load

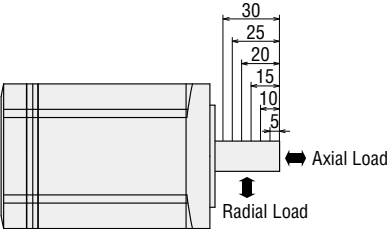
Unit: N

Product Name	Permissible Radial Load							Permissible Axial Load
	Distance From Shaft End [mm]							
	0	5	10	15	20	25	30	
KXRM640	230	245	262	281	304	—	—	98
KXRM875	376	392	408	426	446	467	491	147

● The product names are listed such that the product names are distinguishable.

● Radial Load and Axial Load

Distance From Shaft End [mm]



■ Rotation Direction

This indicates the rotation direction when viewed from the output shaft side.



■ Dimensions (Unit: mm [in.])

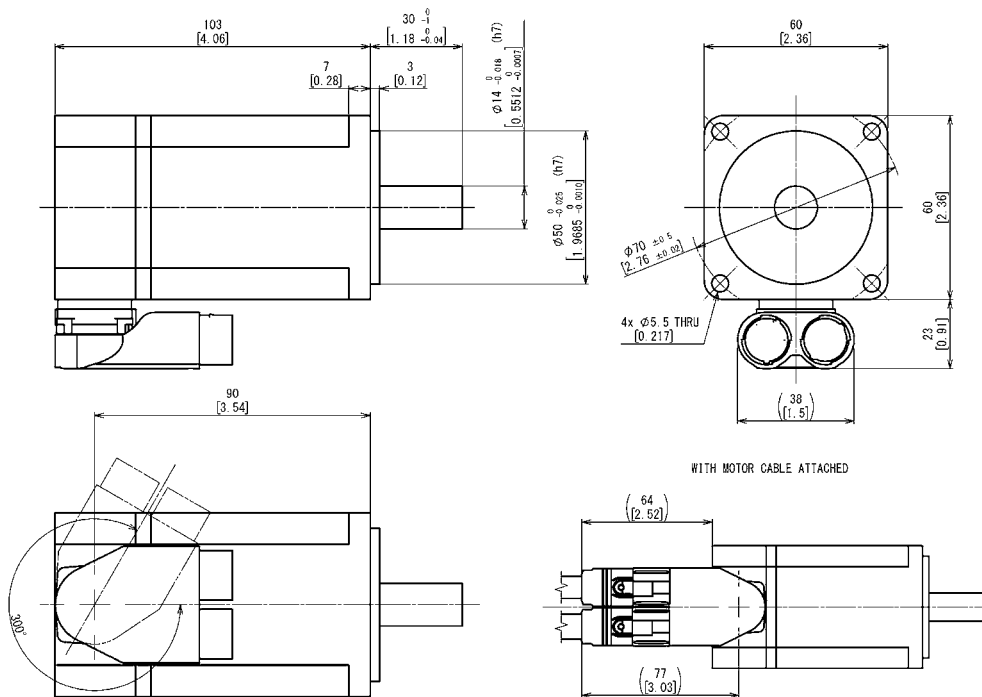
Dimensions for motor only.

Refer to page 12 for the dimensions of **PS** gearhead and page 15 for the dimensions of the **DGII** Series.

● Motor

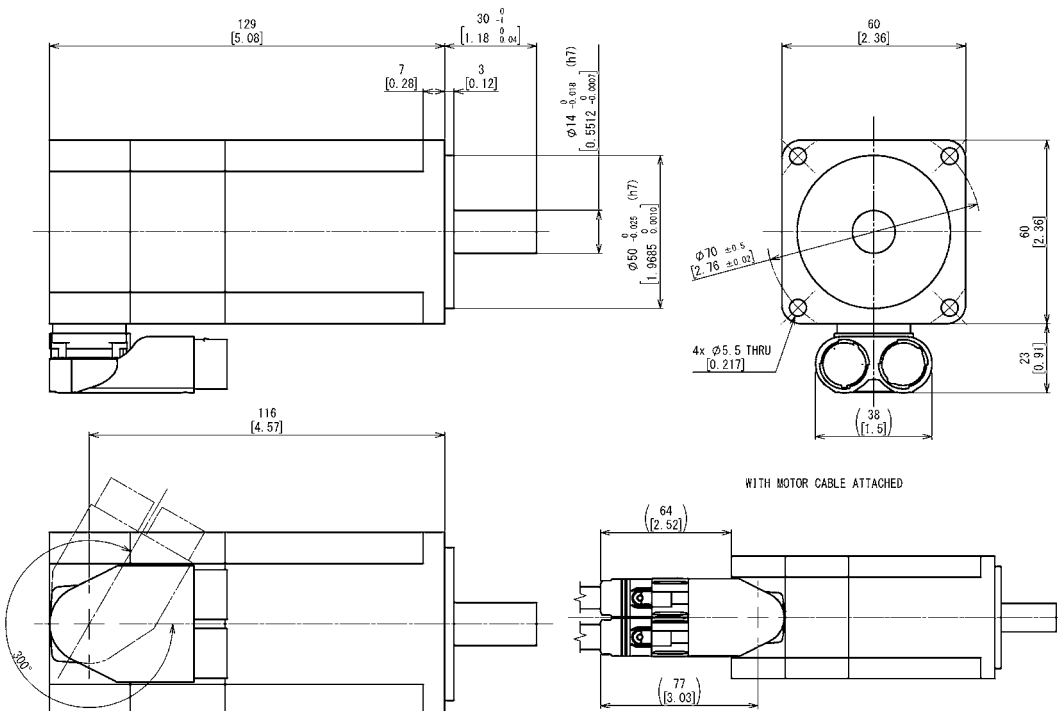
◇ KXRM640AC

Mass: 1.3 kg



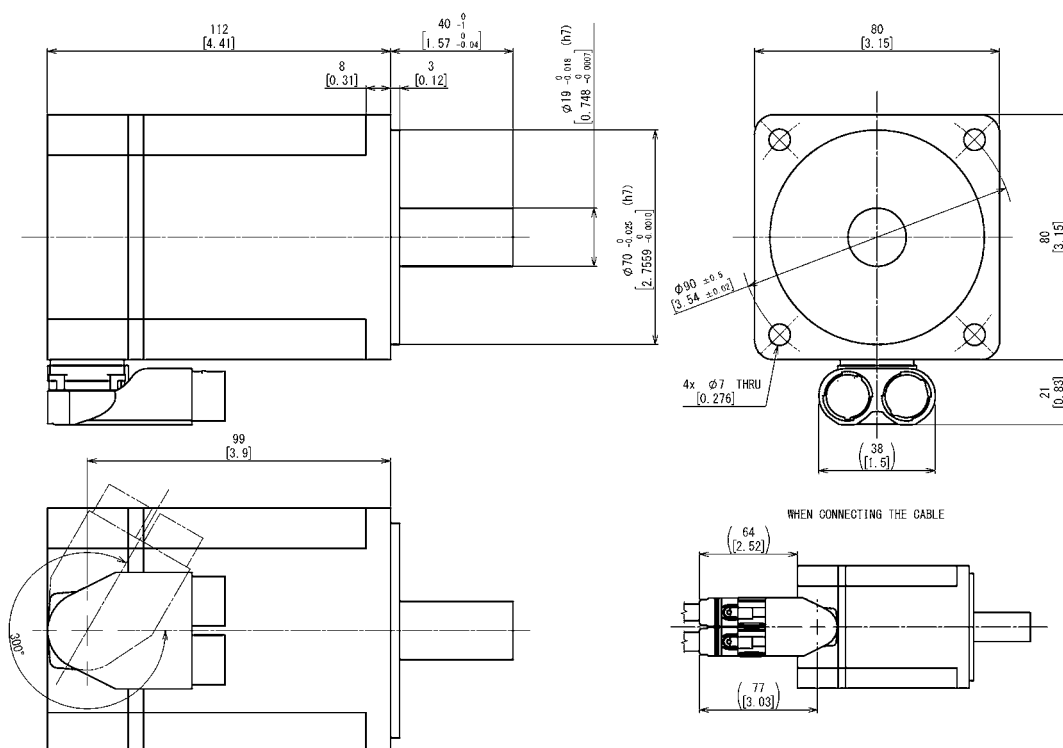
◇ KXRM640MC

Mass: 1.6 kg



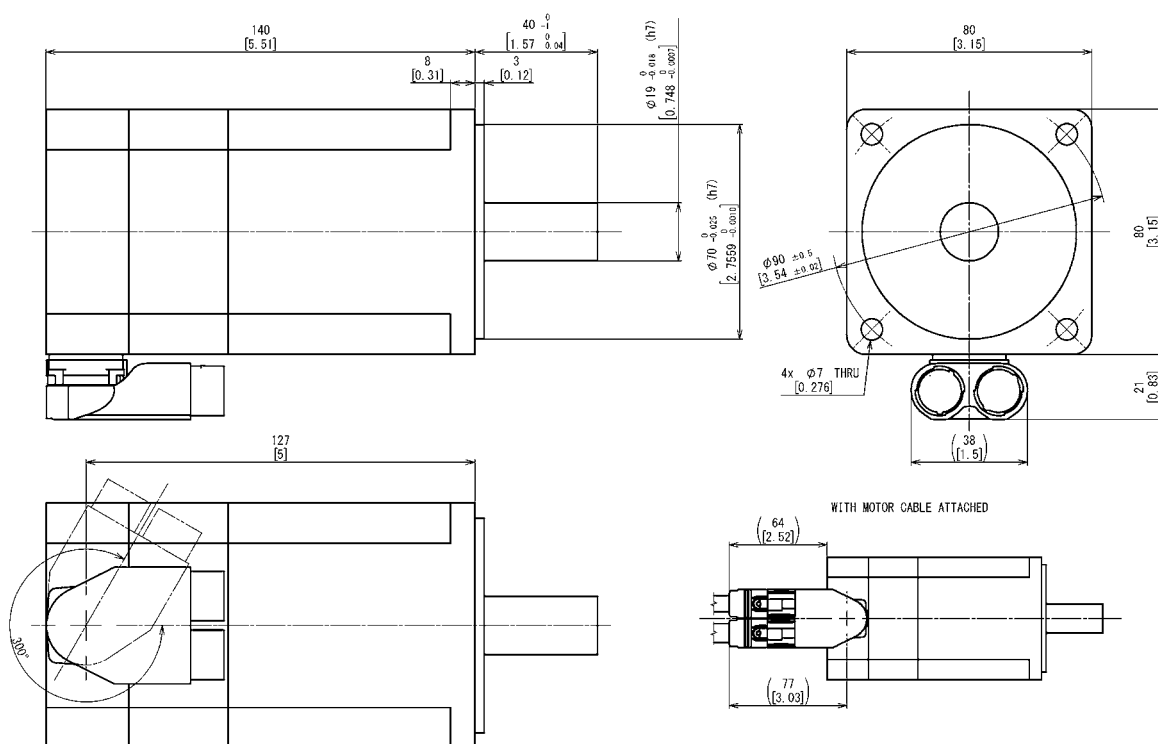
◇KXRM875AC

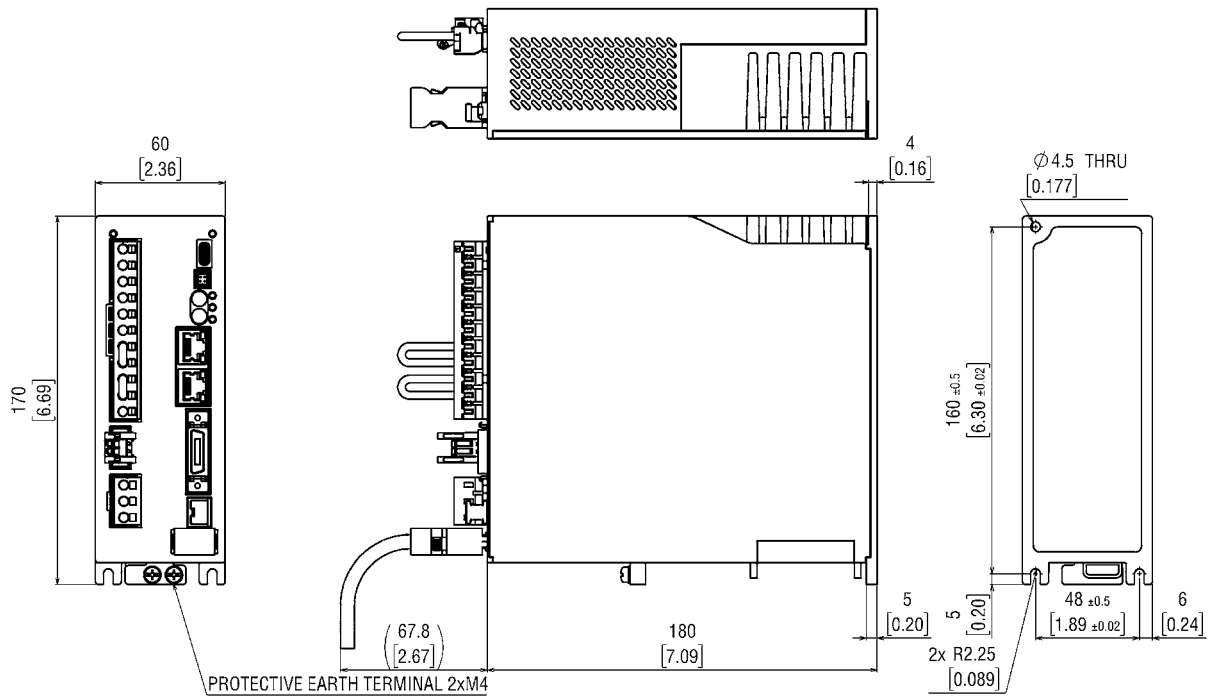
Mass: 2.4 kg



◇KXRM875MC

Mass: 3 kg

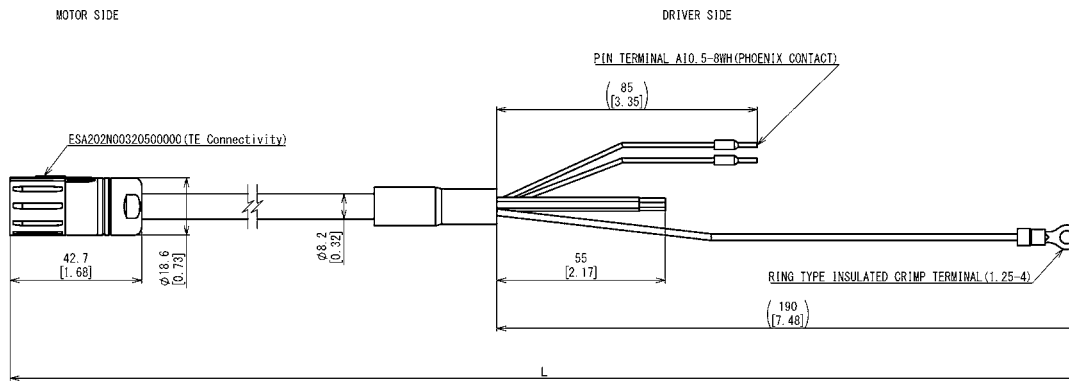




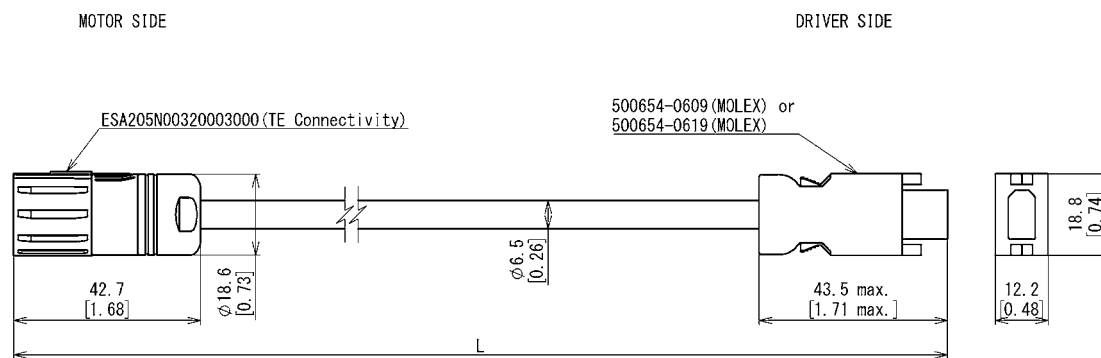
● Connection Cables / Flexible Connection Cables

Refer to "■ Product Line" on page 2 for the cable length (L).

◇ Motor



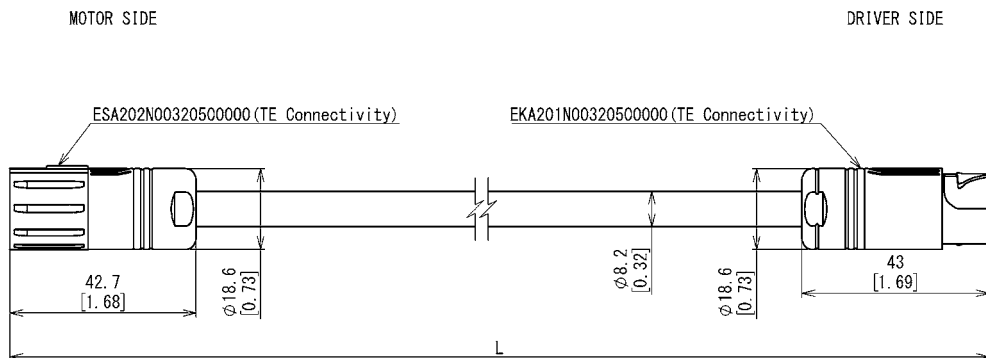
◇ Encoder



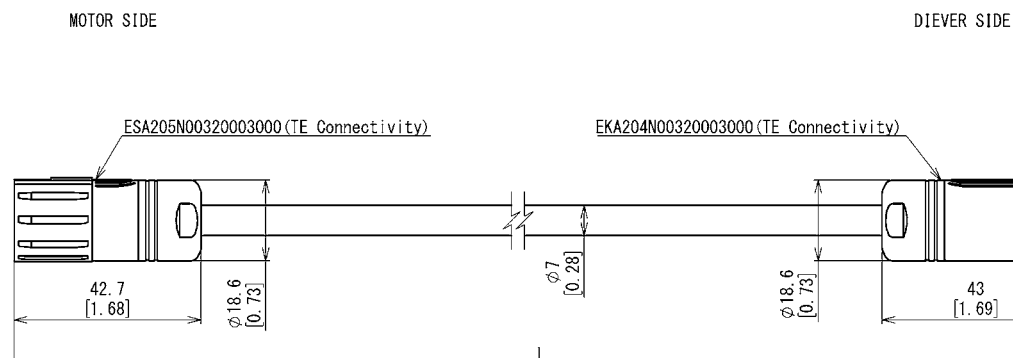
● Extension Cables / Flexible Extension Cables

Refer to "■ Product Line" on page 2 for the cable length (L).

◇ Motor



◇ Encoder



PS Gearhead



Product Line

Motors and drivers must be ordered separately.

Gear Ratio	Applicable Motor KXRM640	Applicable Motor KXRM875
	Product Name	Product Name
5	PSN90-5	PSN90-5B
10	PSN90-10	PSN120-10
25	PSN90-25	PSN120-25



List of Combinations

400 W

Motor		+	Gearhead		
Without Holding Brake	With Holding Brake		Gear Ratio 5	Gear Ratio 10	Gear Ratio 25
KXRM640AC	KXRM640MC		PSN90-5	PSN90-10	PSN90-25

750 W

Motor		+	Gearhead		
Without Holding Brake	With Holding Brake		Gear Ratio 5	Gear Ratio 10	Gear Ratio 25
KXRM875AC	KXRM875MC		PSN90-5B	PSN120-10	PSN120-25

Specifications

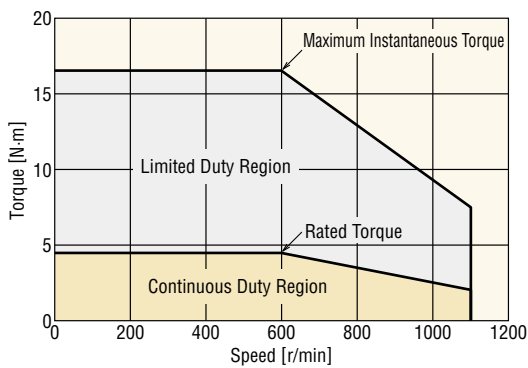
Gearhead Product Name		PSN90-5	PSN90-10	PSN90-25	PSN90-5B	PSN120-10	PSN120-25
Gear Ratio		5	10	25	5	10	25
Rated Torque	N·m	4.5	9.5	23.5	9.5	19	49
Maximum Instantaneous Torque	N·m	16.5	34.5	83.5	34	68	172
Speed Range	r/min	0 to 1100	0 to 550	0 to 220	0 to 1100	0 to 550	0 to 220
Inertia*	J: kg·m ²	0.166×10^{-4}	0.129×10^{-4}	0.165×10^{-4}	0.800×10^{-4}	0.812×10^{-4}	0.807×10^{-4}
Backlash	arcmin	15 (0.25°)					

*This is the value of the internal inertia of the gearhead converted to the motor shaft.

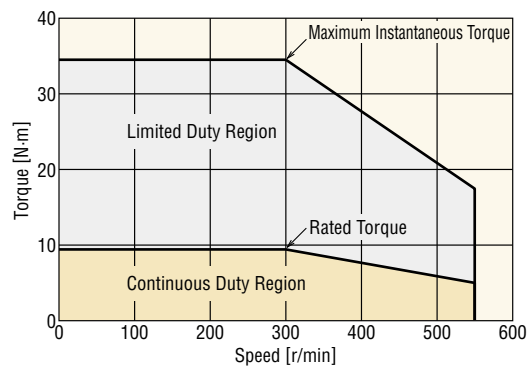
Speed - Torque Characteristics

400 W

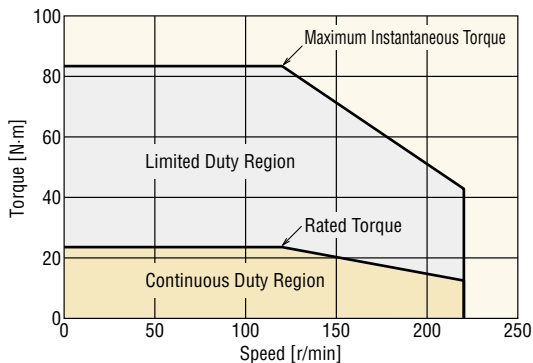
PSN90-5



PSN90-10

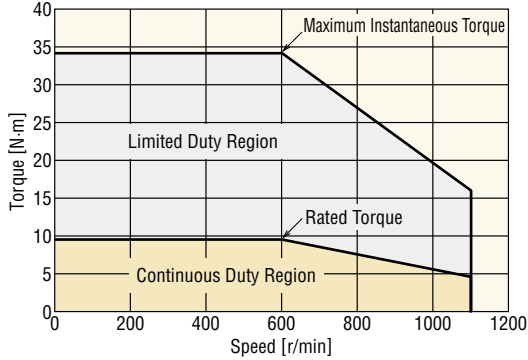


PSN90-25

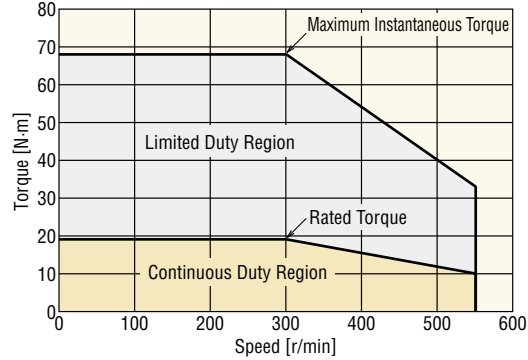


● 750 W

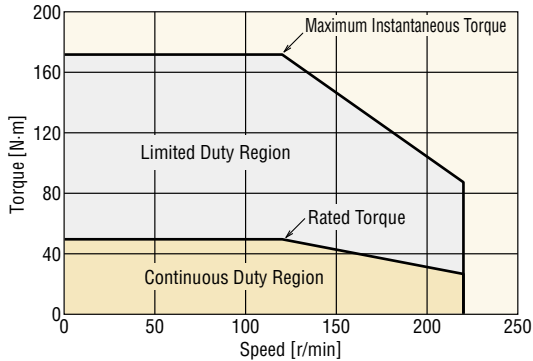
● PSN90-5B



● PSN120-10



● PSN120-25



■ General Specifications

Operating Environment (In operation)	Ambient Temperature	0 to +40 °C (non-freezing)*
	Ambient Humidity	85 % or less (non-condensing)
	Atmosphere	No corrosive gas, dust, water or oil
	Altitude	Up to 1000 m above sea level
Storage Condition	Ambient Temperature	−20 to +60 °C (non-freezing)
Shipping Environment	Ambient Humidity	85 % or less (non-condensing)
	Atmosphere	No corrosive gas, dust, water or oil
	Altitude	Up to 3000 m above sea level

*Based on measurement conditions of Oriental Motor.

■ Permissible Radial Load and Permissible Axial Load

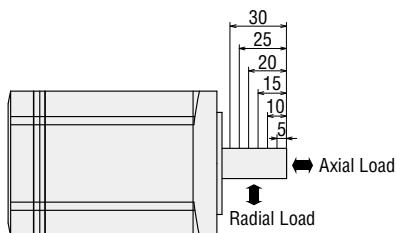
Unit: N

Product Name	Permissible Radial Load					Permissible Axial Load
	Distance From Shaft End [mm]					
	0	5	10	15	20	
PSN90-5	380	420	470	540	630	600
PSN90-10	480	530	590	680	790	600
PSN90-25	650	720	810	920	1070	600
PSN90-5B	380	420	470	540	630	600
PSN120-10	970	1040	1130	1230	1350	1200
PSN120-25	1320	1420	1530	1670	1830	1200

● The permissible value is the value that satisfies 10000 hours of life when either radial load or axial load is applied at an input speed of 3000 r/min.

● Radial Load and Axial Load

Distance From Shaft End [mm]



■ Rotation Direction

The gearhead output shaft rotates in the same direction to the rotation of the motor output shaft.

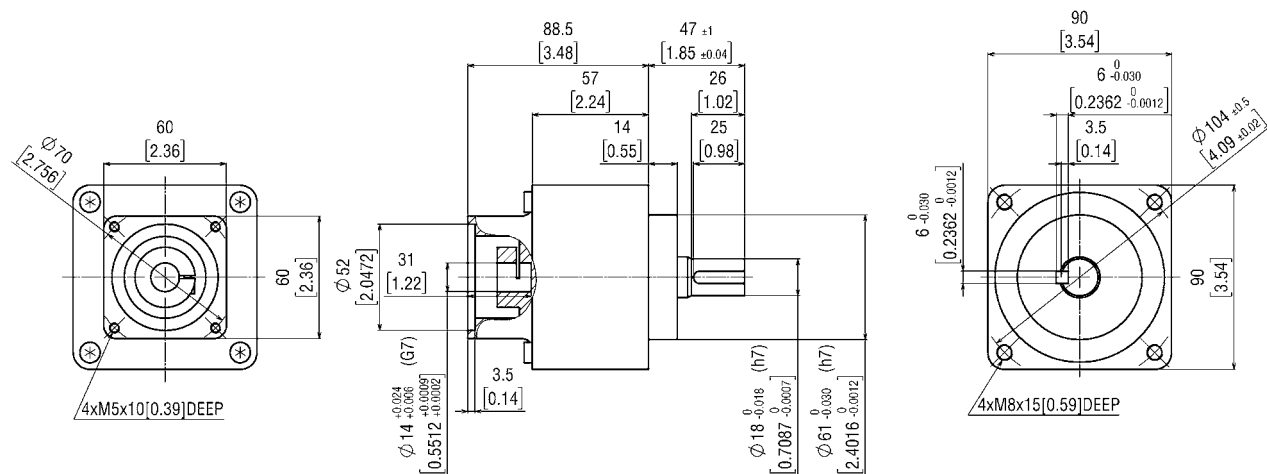
■ Dimensions (Unit: mm [in.])

Dimensions for gearhead only.
Refer to page 6 for the motor.

● 400 W

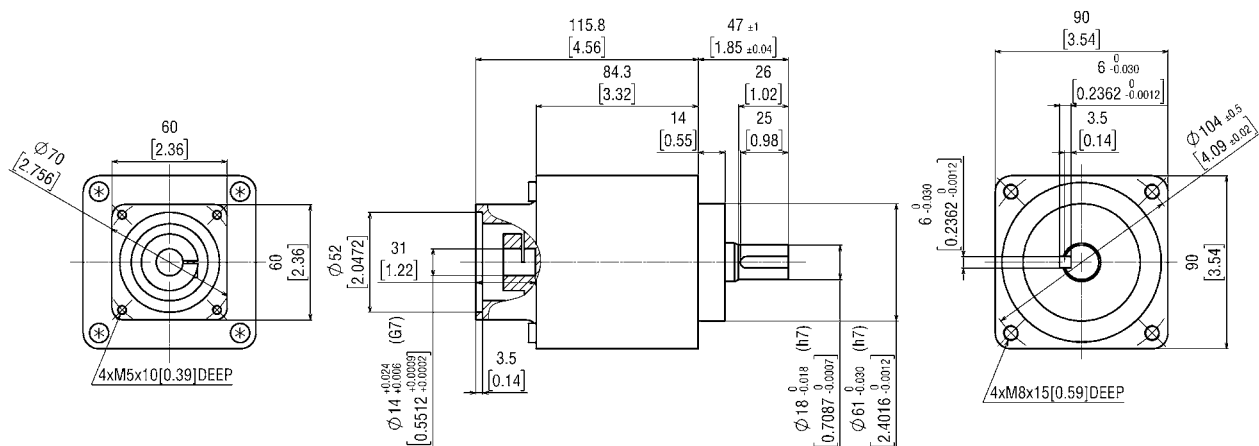
◇ **PSN90-5, PSN90-10**

Mass: 2 kg



◇ **PSN90-25**

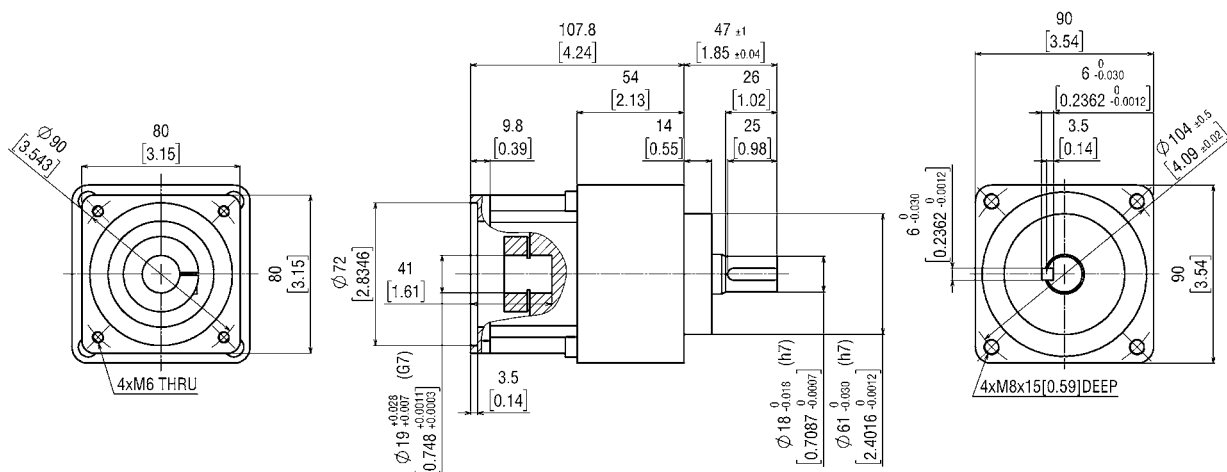
Mass: 2.8 kg



● 750 W

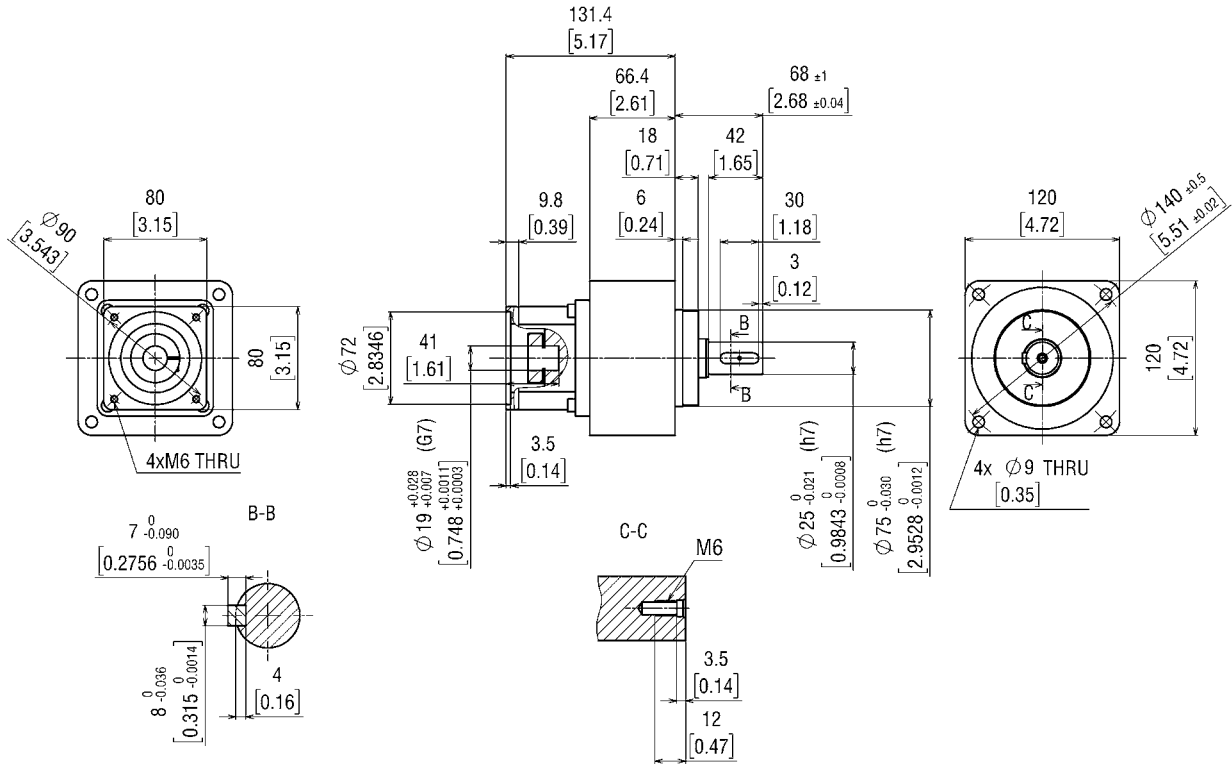
◇ **PSN90-5B**

Mass: 2.4 kg



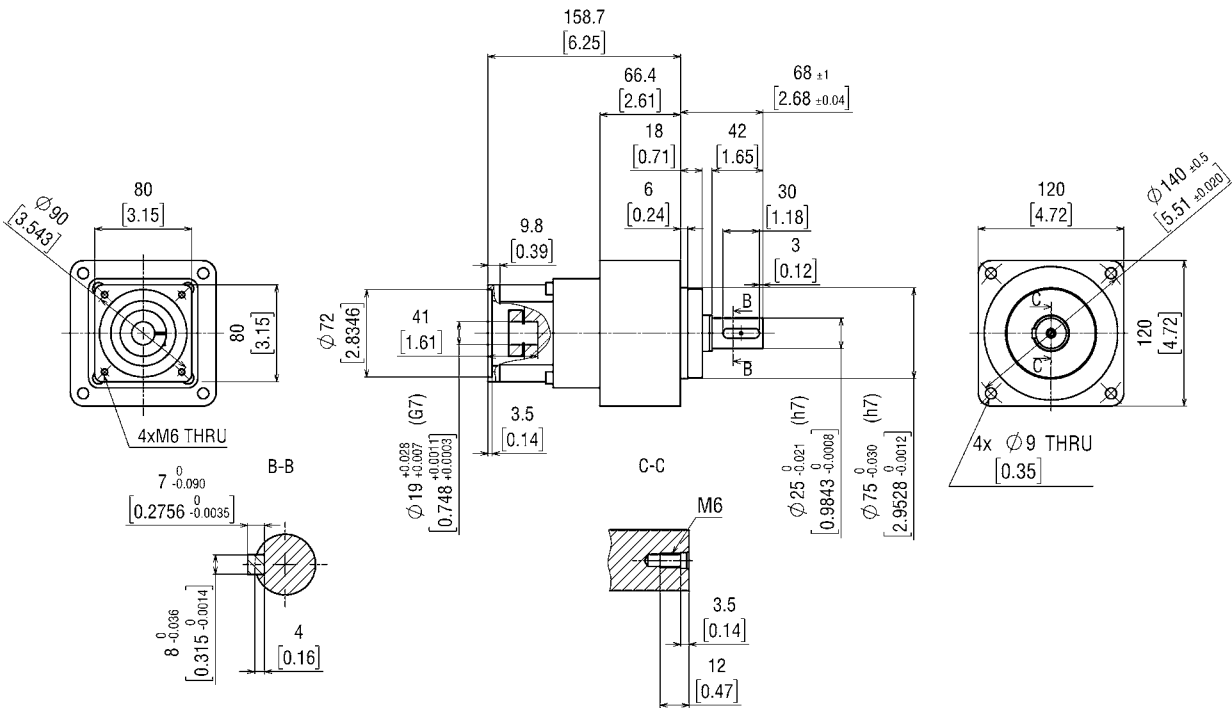
◆PSN120-10

Mass: 4.5 kg



◆PSN120-25

Mass: 5.3 kg



Hollow Rotary Actuator

DGII Series Hollow Rotary Gearhead



Product Line



Applicable Motor KXRM640	Applicable Motor KXRM875
Product Name DGN170R2-18	Product Name DGN200R2-18

List of Combinations

400 W

Motor		+	DGII Series Hollow Rotary Gearhead DGN170R2-18
Without Holding Brake	With Holding Brake		
KXRM640AC	KXRM640MC		

750 W

Motor		+	DGII Series Hollow Rotary Gearhead DGN200R2-18
Without Holding Brake	With Holding Brake		
KXRM875AC	KXRM875MC		

Specifications

Actuator Product Name		DGN170R2-18	DGN200R2-18
Frame Size	mm	170	200
Type of Output Table Supporting Bearing		Cross-Roller Bearing	
Inertia *1	J: kg·m ²	243×10^{-7}	1400×10^{-7}
Gear Ratio		18	
Permissible Torque	N·m	16	30
Maximum Instantaneous Torque	N·m	30	50
Lost Motion *2	arcmin	3 (0.05°)	
Maximum Input Speed	r/min	5500	
Permissible Axial Load	N	3000	4000
Permissible Moment *3	N·m	300	500
Runout of Output Table Surface	mm	0.015	0.015
Runout of Output Table Inner (Outer) Diameter	mm	0.015	0.030
Parallelism of Output Table	mm	0.030	0.050

*1 This is the value of the internal inertia of the gearhead converted to the motor shaft.

*2 Based on measurement conditions of Oriental Motor.

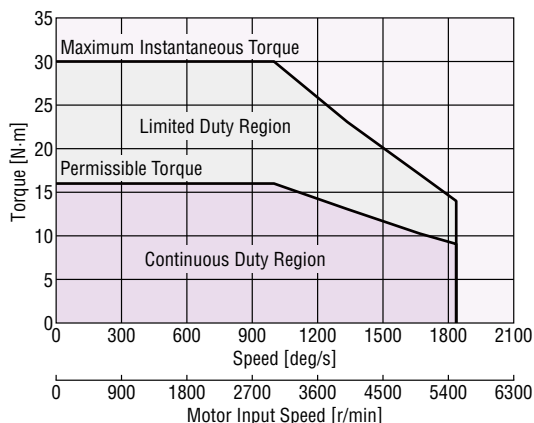
*3 The value is for an input speed of 3000 r/min.

Note

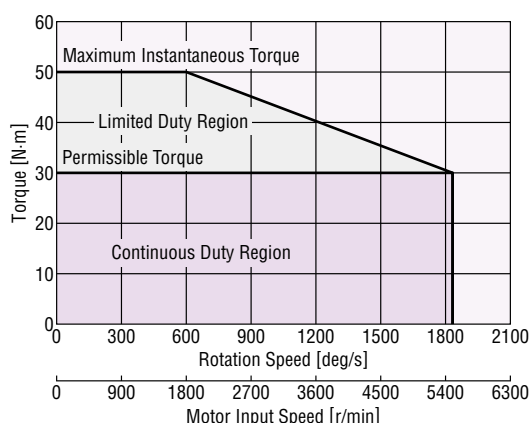
● The accuracy is measured at a constant temperature (normal ambient temperature) under a constant load.

Speed — Torque Characteristics

DGN170



DGN200



Note

● The characteristic data show the values at a constant temperature (normal ambient temperature).

General Specifications

Specifications		Actuator Section
Operating Environment (In operation)	Ambient Temperature	0 to +40 °C (non-freezing)
	Ambient Humidity	85 % or less (non-condensing)
	Altitude	Up to 1000 m above sea level
Storage Condition	Ambient Temperature	−20 to +60 °C (non-freezing)
	Ambient Humidity	85 % or less (non-condensing)
Shipping Environment	Altitude	Up to 3000 m above sea level

Rotation Direction

The output table rotates in the opposite direction to the rotation of the motor output shaft.

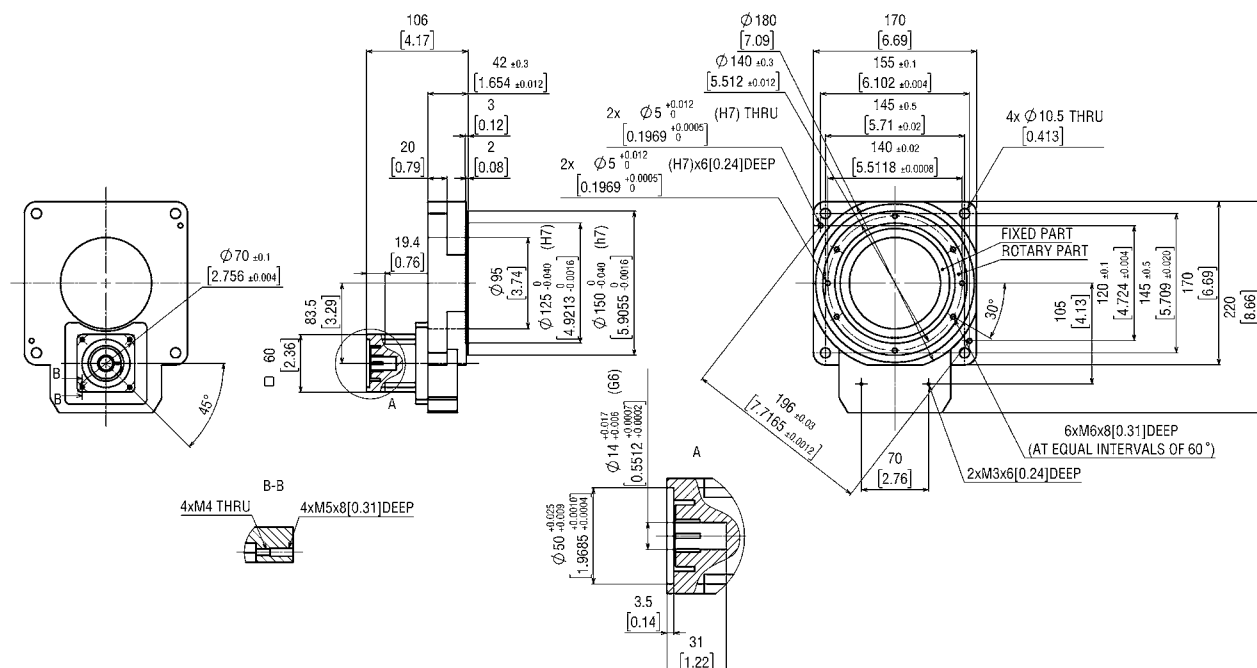
Dimensions (Unit: mm [in.])

Dimensions for actuator only.

Refer to page 6 for the motor.

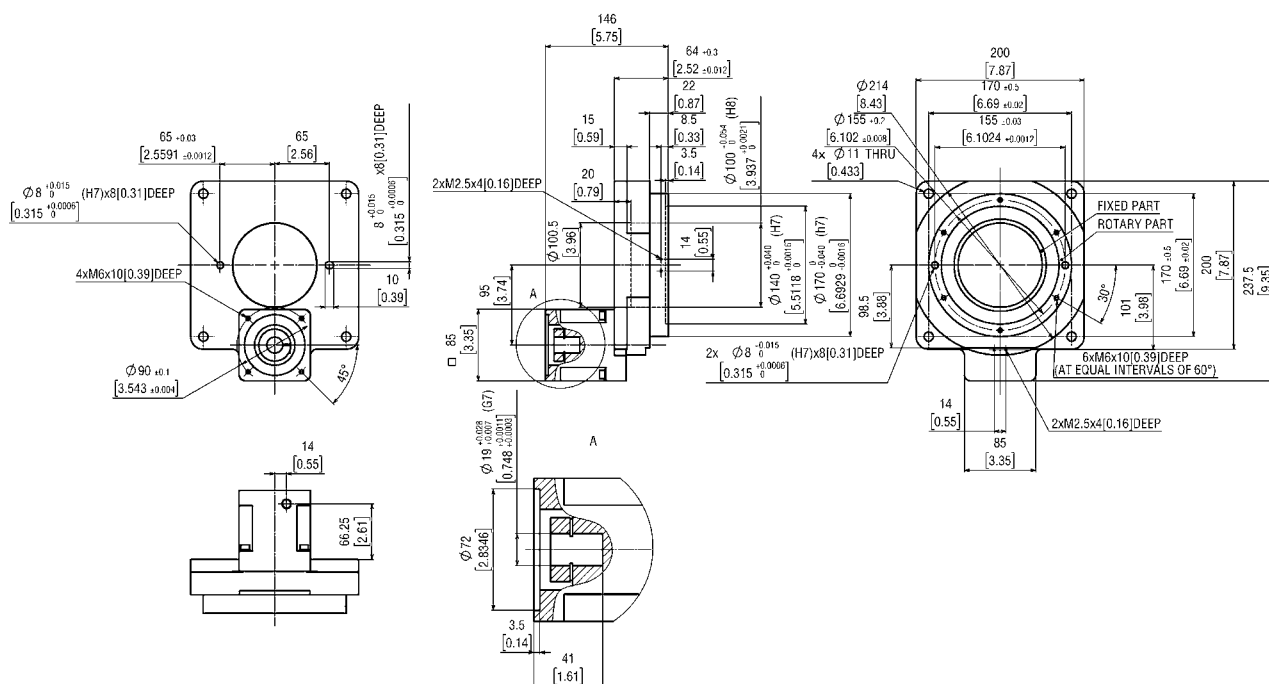
DGN170R2-18

Mass: 4.2 kg



DGN200R2-18

Mass: 8 kg



Orientalmotor

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