Innovation in Motion
TSUBAKI

TSUBAKI
GEAR MOTORS
40 W–5.5 kW



Helical Gear / Hypoid Gear / Worm Gear

Full Lineup of IE3 Motor Compatible Models

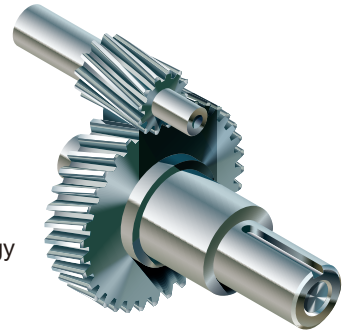
TSUBAKI ECO LINK

High-end-spec gear solutions— Ultimate in function, quality, and performance

Helical Gear

Low noise, high efficiency

This parallel-shaft gear motor offers low noise, high efficiency, and easy installation. It's light, compact, and highly functional. Of course, Tsubaki's state-of-the-art technology ensures the motor is silent, highly efficient, and easy to maintain.



Parallel shaft

Motor 0.1 kW–2.2 kW

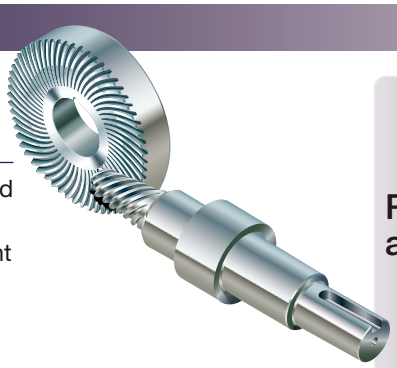
Reduction ratio 1/5–1/200

- Foot mount
- Face mount
- Flange mount

Hypoid Gear

Compact design

Offering highly efficient startup and operation, as well as excellent space savings. The reduced height allows it to be installed in a wider range of applications.



Right-angle

Motor 40 W–5.5 kW

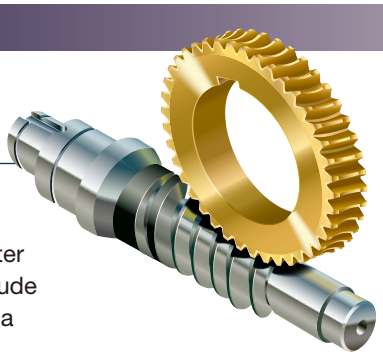
Reduction ratio 1/5–1/1200

- Hollow shaft
- Foot mount
- Face mount

Worm Gear

Silent, self-locking

This right-angle gear motor uses single-step reduction for a high reduction ratio, and it has a shorter length. Outstanding features include silence, a self-lock function, and a robust gear structure.



Right-angle

Motor 0.1 kW–5.5 kW

Reduction ratio 1/10–1/300

- Hollow shaft
- Foot mount
- Face mount



Tsubaki small-sized gear motors bring together our wealth of know-how and advanced technologies. Choose a high-end-spec gear solution that offers the ideal function, quality, and performance for your application.

Gear Motor TA Series

0.1 kW–0.4 kW



Gear Motor TR Series

0.75 kW–2.2 kW



Hypoid Motor TA Series

0.1 kW–0.4 kW



Hypoid Motor TR Series

0.75 kW–5.5 kW



Hypoid Motor Mini Series

40 W–90 W



Croise Motor CSMA Series

0.1 kW–0.55 kW

CSMR Series

0.75 kW–5.5 kW



Croise Motor HCMA Series

0.1 kW–0.55 kW

HCMR Series

0.75 kW–5.5 kW



Wide range of applications

Choose from our extensive lineup for the product that fits your exact application and usage conditions.

- Inverter motor
- Clutch/brake
- Rotary encoder
- SHOCK GUARD
- SHOCK RELAY
- Outdoor use
- Waterproof

Available colors

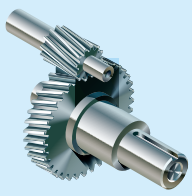
Standard	C0	C1	C2	C3

Use three criteria to choose the product that's right for you

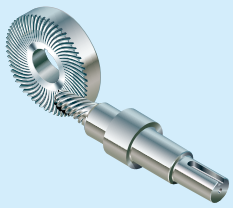
Basic specifications

Tsubaki small-sized gear motors respond to the exacting needs of all fields and industries. Depending on your needs, make selections based on three criteria—the type of gear, motor, and output—and we'll provide you with a small-sized gear motor made just for you.

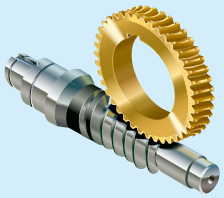
1 Gear type (three)



• Helical gear
(Low noise, high efficiency)



• Hypoid gear
(Extremely compact)



• Worm gear
(Practically silent, self-locking)

2 Motor type

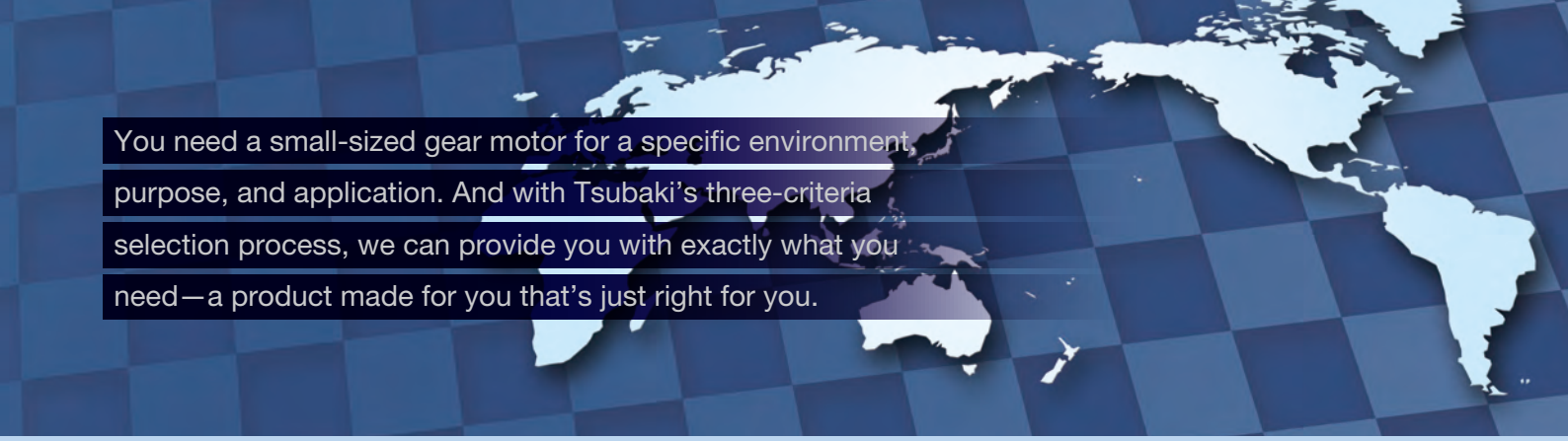
- Standard
- Highly efficient motor (IE3)
- Inverter
- Adapter flange
- Compliant with various country standards

3 Output type

Shaft allocation
- Parallel 
- Right angle 

Output shaft
- Hollow shaft 
- Solid shaft 

- Foot mounting
- Shaft mounting
- Face mounting
- Flange mounting



You need a small-sized gear motor for a specific environment, purpose, and application. And with Tsubaki's three-criteria selection process, we can provide you with exactly what you need—a product made for you that's just right for you.

Plus α Series

The optimal combination of Tsubaki proprietary technologies—with regards to motor type, rotation detection, overload protection, and other factors—goes into making a small-sized gear motor that is ideal for your usage environment and application. You can choose the Plus α Series to further optimize the product to the application at hand.

Plus α

Overload protection device

- SHOCK RELAY
- SHOCK GUARD

Rotation signal detection

- Rotary encoder
- Pulsacion

Other

- Hollow-shaft keyless model (with POWER-LOCK)

See pp 5–6 for details.

Just Fit Models

Tsubaki's Just Fit Models incorporate any of a wide range of specifications that customers need to realize products that are custom-made to meet the specialized needs of any and every industry.

JFM
Just Fit Model

The Just Fit Model logo shows that a product has specifications custom-made to the needs of a particular industry.

- Waterproof
- Food contact
- Food conveyor
- Heat-resistant
- Cold-resistant
- International compliance

See pp 7–8 for details.

Plus α Series—Add functions and value to your small-sized gear motor

Plus α Series

SHOCK RELAY type

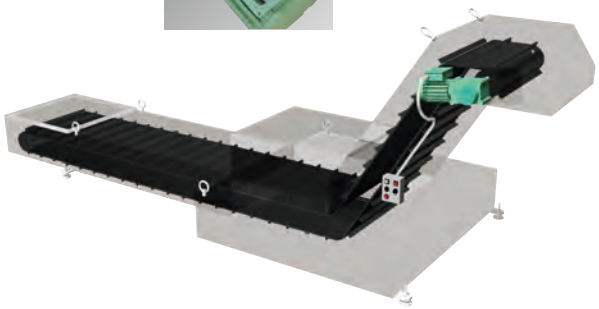


A reducer is equipped with an electric overload protection device. In case the motor current exceeds the set value due to an overload, SHOCK RELAY functions after a given time to stop the motor directly, thus protecting the machinery.

Features



- The Shock Relay is built into the motor's terminal box, meaning no extra control panel is needed
- The motor is instantly and directly stopped upon detection of the motor's current, so no sequence circuit is needed
- Trip signal (1c contact) output can be utilized, for example, for an alarm lamp or to stop the motor
- After eliminating the cause of the overload, the motor restarts simply by turning on the power
- Compliant with CE



SHOCK GUARD type



A product can be equipped with a mechanical overload protection device (SHOCK GUARD) developed exclusively for the hollow output shaft. In case of unexpected overload, SHOCK GUARD activates to protect the machinery device.

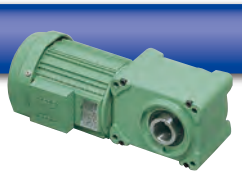
Features

- After the cause of the overload is eliminated, the motor automatically re-engages and starts operation
- Unique alignment of the ball and pocket gives a one-to-one combination of engaging positions
- Simply rotate the adjustment nuts to adjust the trip torque
- If combined with non-contact SHOCK GUARD sensors, an overload can be detected and the motor can be stopped or an alarm set off



We can add proprietary Tsubaki technologies to your small-sized gear motor to give it added value in the form of overload protection, rotation detection, fewer parts, and space saving. The result is the optimal solution for any and every application.

Pulsacion type



The motor has an integrated sensor that detects a permanent magnetic pole located on the motor shaft as a pulse string. With dimensions nearly identical to those of standard gear motors, the product can be used outdoors and under wet conditions.

Features

- Ideal for detecting digital signals for things such as speed control, position control, and speed display
- The encoder is directly installed in the motor shaft, so no coupling connection is needed

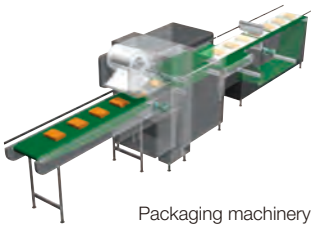
■ Application



Automated stacker crane

Applications
- Multi-story warehouses
- Stacker cranes
- Multi-story parking lots
- Conveyors

Setting distance of work movement



Packaging machinery

Applications
- Automated machinery
- Constant-size cutter
- Printers
- Packaging machinery

Rotary encoder type

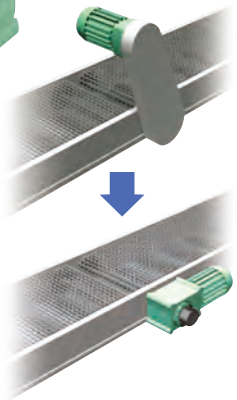


By incorporating a rotary encoder on the motor shaft and utilizing the rotation signals of a gear motor, various processes can be automated and operation streamlined.

Hollow-Shaft POWER-LOCK type



A special hollow shaft with POWER-LOCK enables keyless locking. Mounting and unmounting are easy, and there's no need for phase focusing. This reduces the number of machinery device parts and saves space.



Features

- There's no need for a keyway on the driven shaft
- Mounting and unmounting of the reducer are easy
- There's no backlash with the driven shaft
- A special safety cap is available
- Reduces the number of parts and operational man-hours

Just Fit Models—For equipment that's a perfect fit

JFM
Just Fit Model

The Just Fit Model logo shows that a product has specifications custom-made to the needs of a particular industry.

Waterproof specifications

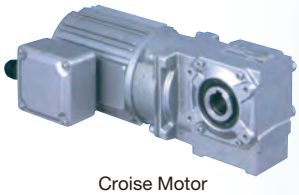
Our product lineup boasts waterproof specifications with an IP65 rating. This means they can be subject to splashing and can be washed directly with water.

Options

- Stainless steel shaft
- With brake
- Fin-less motor frames



Gear Motor TA Series



Croise Motor



Hypoid Motor TA Series

Food contact and food conveyor specifications

Our products use the H1 food-grade lubricant, certified by NSF International. You therefore get safety and reliability in applications where food is being conveyed.

- Uses H1 food-grade lubricant for food machinery
- Aluminum diecast terminal box
- Antibacterial powder coating
- Long-life oil seal
- Fin-less motor frame for easy cleaning (Food conveyor specifications only)

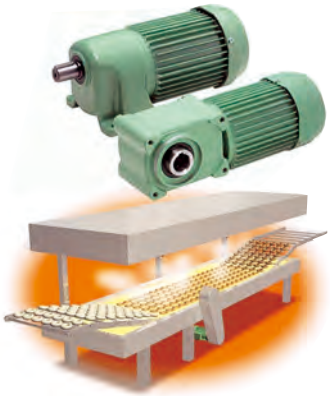


Hypoid Motor TA Series

Tsubaki has an extensive lineup of Just Fit Model products with international specifications that comply with standards for things like waterproofness, food processing applications, and specific country regulations. We provide solutions that meet your exact device needs.

Heat-/cold-resistant specifications

Heat resistance at between 0°C and 60°C, cold resistance at between –30°C and 40°C. Each product proves its worth in specific environments.



Heat resistance



Cold resistance





International compliance specifications

Our motors conform to international standards such as CE in Europe, UL in the US, and CCC in China.

Europe: CE compliant

Products exported to Europe must bear CE marking to show that they satisfy the safety requirements of applicable EC directives.

US, Canada: UL compliant

UL (Underwriters Laboratories) is an American third-party organization that tests and approves products for consumer safety. Our C-UR model has been approved by UL, as well as by the CSA (Canadian Standards Association).

Triple 200

Triple 200 is a Tsubaki motor specification that satisfies all the requirements of CE, UL, and CCC, so that customers don't need to worry about complying with each of these standards separately.

China: CCC compliant

Motors 1.1 kW and smaller exported to China must bear the CCC mark to show that they satisfy the CCC system for product quality standardization.

Motor output	Type	
40 W–90 W	Right-angle	
0.1 kW–0.55 kW	Parallel	
	Right-angle	
		
0.75 kW–5.5 kW	Parallel	
	Right-angle	
		

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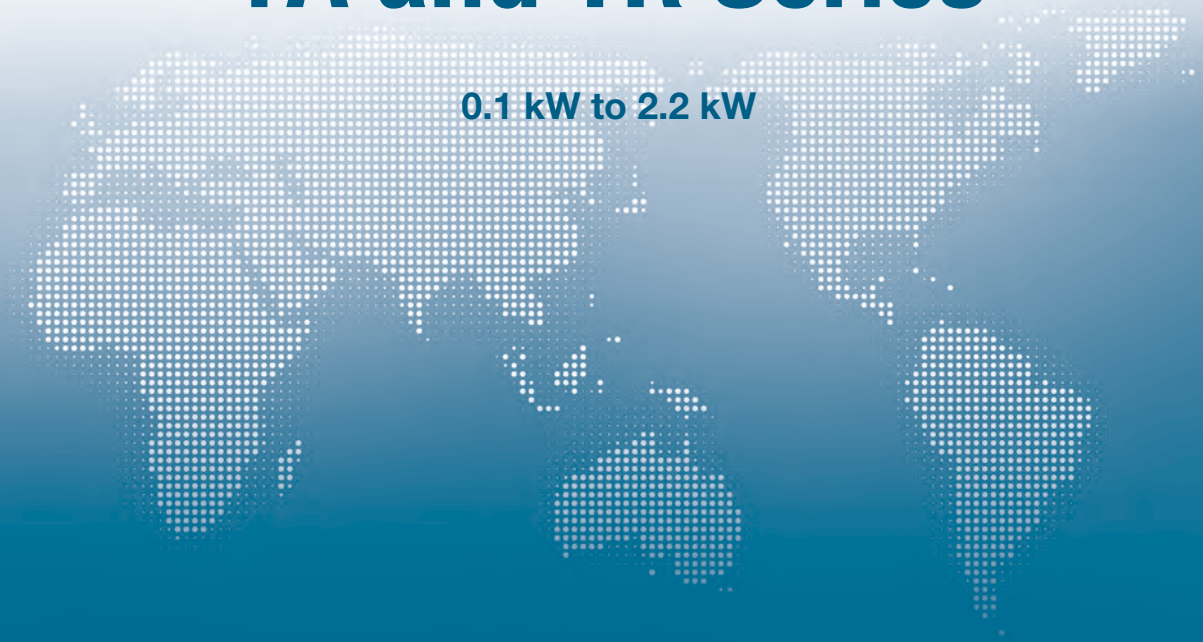
Hypoid Motor Mini Series Motor output: 40 W–90 W	**p. 190**	• Hollow shaft • Face mount • Foot mount	Nomenclature ····· p. 193 Specification chart, outline dimensions ··· p. 194
Gear Motor TA Series Motor output: 0.1 kW–0.4 kW	**p. 012**	• Foot mount • Face mount • Flange mount	Nomenclature ····· p. 15 Model lineup ····· p. 16 Specification chart, outline dimensions ··· p. 18 Adapter, inline reducer ····· p. 32
Hypoid Motor TA Series Motor output: 0.1 kW–0.4 kW	**p. 048**	• Hollow shaft • Face mount • Foot mount	Nomenclature ····· p. 51 Model lineup ····· p. 52 Specification chart, outline dimensions ··· p. 54 Adapter, inline reducer ····· p. 94
Croise Motor CSMA and HCMA Series Motor output: 0.1 kW–0.55 kW	**p. 112**	• Hollow shaft • Face mount • Foot mount	Nomenclature ····· p. 115 Model lineup ····· p. 117 Specification chart, outline dimensions ··· p. 119
Gear Motor TR Series Motor output: 0.75 kW–2.2 kW	**p. 012**	• Foot mount • Face mount • Flange mount	Nomenclature ····· p. 15 Model lineup ····· p. 16 Specification chart, outline dimensions ··· p. 18 Adapter, inline reducer ····· p. 32
Hypoid Motor TR Series Motor output: 0.75 kW–5.5 kW	**p. 048**	• Hollow shaft • Face mount • Foot mount	Nomenclature ····· p. 51 Model lineup ····· p. 52 Specification chart, outline dimensions ··· p. 54 Adapter, inline reducer ····· p. 94
Croise Motor CSMR and HCMR Series Motor output: 0.75 kW–5.5 kW	**p. 112**	• Hollow shaft • Face mount • Foot mount	Nomenclature ····· p. 115 Model lineup ····· p. 117 Specification chart, outline dimensions ··· p. 119
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Notes

GEAR MOTOR

TA and TR Series

0.1 kW to 2.2 kW



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GEAR MOTOR
TA and TR Series Features

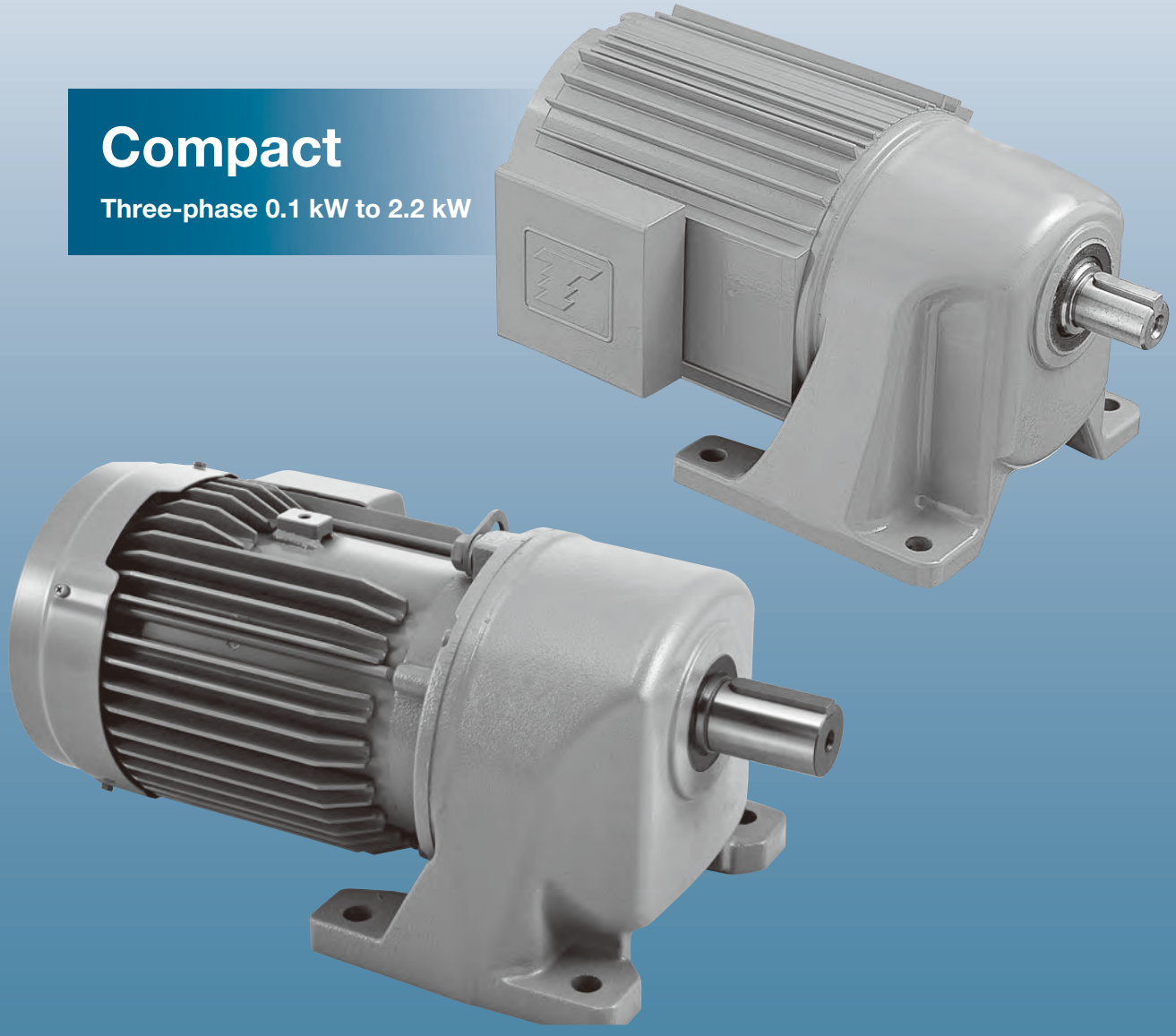
Gear Motor TA and TR Series Features

Reducer basics

0.75 kW to 2.2 kW: IE3

Compact

Three-phase 0.1 kW to 2.2 kW



Helical Gear, Parallel Shaft

1 Low noise, long life

With our proven experience in low-noise design and manufacturing technologies, we have achieved low-noise, long-life gear motors.

2 Compact, light weight

An aluminum-frame motor results in smaller, lighter gear motors.

3 Extensive applications

Our gear motors come in a wide range of outputs and reduction ratios—from 1/5 to 1/200—to meet a variety of application needs.

4 Environmentally friendly

The use of electrostatic powder coating has improved the coating quality and, since it uses no thinner, has reduced VOC emissions (for three-phase models below 0.75 kW and 1/75). By switching from using wood and bolts in packaging to using cardboard boxes and film wrapping instead (for products weighing less than 30 kg), we have helped customers reduce the amount of waste they generate.

5 Usability

Frame numbers are shown on model numbers. Tap processing is standard on the output shaft edges. Face mounting is also available as standard, which allows easy securing of bolts by pushing them from the output shaft side through screw holes located on a mounting surface of the gear case.

6 Inverter motor equipped (0.1 kW to 0.4 kW)

The inverter-compatible motor can be directly connected, and it can be furnished with the same dimensions as standard motors. Even in the low frequency range (6 Hz and more), continuous operation at 100% constant torque is possible. The more-than 0.75 kW model with IE3 motor has the same characteristics as the inverter motor model.

7 Range of options

We can provide you with any of a number of proprietary options to match the product to fields such as environment, food processing, and bread making.

Nomenclature

GMTA040-28L75□□□□□□
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

GMTR220-42F30B□□□□□
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product series name	GMTA	0.1 kW–0.4 kW
	GMTR	0.75 kW–2.2 kW
② Motor capacity (example)	010	Three-phase 0.1 kW
	220	Three-phase 2.2 kW
③ Frame number (example)	38	Frame number 38
④ Mounting type	L	Foot mount
	U	Face mount
	F	Flange mount
⑤ Reduction ratio (example)	200	1/200
⑥ Specification code	No code	Without B or BE
	B	Brake type
	FI	Adapter type
	BE	Encoder type with brake
	SR	SHOCK RELAY specifications
⑦ Option code A Refer to "Combination of specification codes and option codes A."	Z	Inverter motor type (0.1 kW–0.4 kW)
	W	Outdoor type
	WC	Outdoor type (with brake, 0.2 kW–0.75 kW)
	J	Waterproof specifications
	V	400V class
	V1	380V 50Hz (0.1 kW–0.4 kW)
	V2	380V 60Hz
	V3	415V 50Hz
	V4	460V 60Hz
	N	200V class Europe (Global series Note 1)
	N2	200V class North America (Global series Note 1)
	N3	200V class China (Global series Note 1)
	PN3	200V class China (resin terminal box) (Global series Note 1)
	HN3	200V class China (hard terminal box) (Global series Note 1)
	WN3	200V class China, outdoor (Global series Note 1)
	VN	400V class Europe (Global series Note 1)
	VN2	400V class North America (Global series Note 1)
	VN3	400V class China (Global series Note 1)
	PVN3	400V class China (resin terminal box) (Global series Note 1)
	HVN3	400V class China (hard terminal box) (Global series Note 1)
	WVN3	400V class China, outdoor (Global series Note 1)
	N8	200V class South Korea (Global series Note 1)
	VN8	400V class South Korea (Global series Note 1)
	H	Hard terminal box
	Q	One-touch manual release type
	M	Manual shaft type
	A1	Heat-resistant specifications
	A2	Cold-resistant specifications
⑧ Option code B	P1	Terminal box position 90° swing (Note 2)
	P2	Terminal box position 180° swing (Note 2)
	P3	Terminal box position 270° swing (Note 2)
	P4	Terminal box position 60° swing (Note 2)
	P5	Terminal box position 120° swing (Note 2)
	P6	Terminal box position 240° swing (Note 2)
	P7	Terminal box position 300° swing (Note 2)
	D1	Terminal box outlet direction 90° swing (0.1 kW–0.4 kW) (Note 2)
	D2	Terminal box outlet direction 180° swing (0.1 kW–0.4 kW) (Note 2)
	D3	Terminal box outlet direction 270° swing (0.1 kW–0.4 kW) (Note 2)
	F1	Terminal box outlet direction 90° swing (0.75 kW–5.5 kW) (Note 2)
	F2	Terminal box outlet direction 180° swing (0.75 kW–5.5 kW) (Note 2)
	F3	Terminal box outlet direction 270° swing (0.75 kW–5.5 kW) (Note 2)
	C0	Paint color: Light gray (Munsell N7.5)
	C1	Paint color: Light silver metallic
	C2	Paint color: Ivory white
	C3	Paint color: Dark silver metallic

Combination of specification codes and option codes A

0.1 kW–0.4 kW

Specification code: None

Z	ZW	ZWV
	ZJ	ZJV
	ZV	ZVH
	ZH	
W	WN	
	WV	WV1
		WV2
		WV3
		WV4
		WVN
J	JV	JV1
		JV2
		JV3
		JV4
V	VH	
	VN	
	VN2	
	V1	V1H
	V2	V2H
	V3	V3H
	V4	V4H
	VH	
N		
N2		
PN3	PVN3	
HN3	HVN3	
WN3	WVN3	
H		
A1		
A2		

Specification code: B

W	WV	
WC	WCV	
Z	ZV	ZVH
		ZVQ
		ZVM
	ZH	ZHQ
		ZHM
	ZQ	ZQM
	ZM	
V	VN	
	VH	VHQ
		VHM
	VQ	VQM
	VM	
	V1	V1H
	V2	V2H
	V3	V3H
	V4	V4H
N		
N2		
PN3	PVN3	
HN3	HVN3	
H	HQ	HQM
	HM	
Q	QM	
M		
A1		
A2		

Specification code: BE

Z	ZV	ZVH
V	VH	
H		

Specification code: SR

N

0.75 kW–2.2 kW

Specification code: None

W	WV	
	WV3	
	WN	WVN
V	VN	
	V3	
N		
A1		
A2		

Specification code: B

V	VQ
	V3
Q	

Specification code: BE

V

Note: Combinations of outdoor type with brake and waterproof type are made-to-order products. Motor specifications differ from those of standard products. Please contact us for details.

Note 1: Refer to pages 252–256 for voltages of global series products.
Note 2: Refer to the next page for details on terminal box positions and outlet directions.

Model Lineup

Three-phase motor: Foot mount type

	5	10	15	20	25	30	40	50	60	75	100	120	165	200
0.1kW	18L								24L					
0.2kW	18L					24L					28L			
0.4kW	24L					28L					38L			
0.75kW	28L					38L					42L			
1.5kW	38L						42L							
2.2kW	42L													

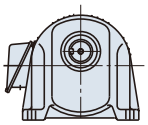
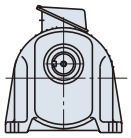
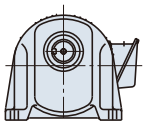
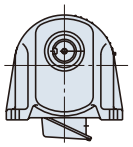
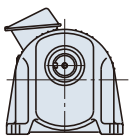
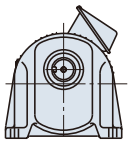
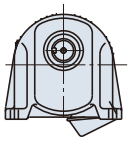
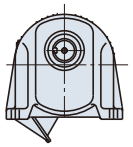
Three-phase motor: Face mount type, flange mount type

	5	10	15	20	25	30	40	50	60	75	100	120	165	200
0.1kW	18U								24U					
0.2kW	18U					24U					28U			
0.4kW	24U					28U					38U			
0.75kW	28U					38U					42F			
1.5kW	38U						42F							
2.2kW	42F													

Note: 1.5 kW motors with reduction ratios of 1/15 and 1/50 and 2.2 kW motors with reduction ratios of 1/15 and 1/25 are made-to-order products.

Terminal box positions and lead outlet directions

1. Terminal box position codes

Standard	P1 (90° swing)	P2 (180° swing)	P3 (270° swing)
			
All models	1.5 kW, 2.2 kW	0.1 kW, 0.2 kW 0.4 kW, 1.5 kW 2.2 kW	1.5 kW, 2.2 kW
P4 (60° swing)	**P5 (120° swing)**	**P6 (240° swing)**	**P7 (300° swing)**
			
0.1 kW, 0.2 kW 0.4 kW	0.1 kW, 0.2 kW 0.4 kW, 0.75 kW	0.1 kW, 0.2 kW 0.4 kW, 0.75 kW	0.1 kW, 0.2 kW 0.4 kW

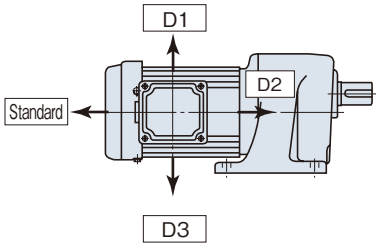
Note 1: The above diagrams are typical examples. The position of the terminal box will vary depending on the model number. Please confirm dimensions.
Note 2: On the 0.75 kW, 1/5–1/25 foot mount types, the motor protrudes from the mounting surface in the P5 position.
Note 3: The P6 and P7 positions may not be possible for the 0.1 kW and 0.2 kW foot mount types.

2. Terminal box outlet direction

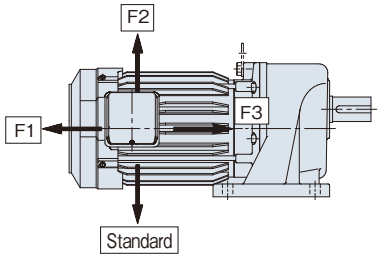
The positions shown below are obtained by sequentially swinging the lead outlet clockwise, as viewed facing the terminal box, by 90 degrees from the standard position of the lead outlet.

0.1 kW to 0.4 kW: Outdoor type, hard terminal box

Note: For standard motors (with resin terminal box), change the direction of the lead outlet by changing the terminal box top cover mounting direction.



0.75 kW to 2.2 kW: Standard model, outdoor terminal box



Specifications

Motor	Output	Three-phase: 0.1, 0.2, 0.4 kW: IE1, 0.75, 1.5, 2.2 kW: IE3
		Non-brake type, Brake type
	Power supply	0.1 kW–2.2 kW, 200/200/220 V, 50/60/60 Hz
	Number of poles	4
	Protection	0.1 kW: Totally enclosed type (IP44), 0.2 kW–2.2 kW: Totally enclosed external fan type (IP44)
	Cooling	0.1 kW: Self-cooled type (IC410), 0.2 kW–2.2 kW: Self-managed type (IC411)
	Startup	—
	Rating	S1 (continuous)
	Insulation	0.1 kW–0.4 kW: 120 (E), 0.75 kW: 155 (F), 1.5 kW–2.2 kW: 130 (B)
	Brake	Non-excitation operation, DC electromagnetic brake
Reducer	Reduction ratio	1/5 to 1/200
	Lubrication	Grease
	Start end keyway	New JIS key (JISB1301-1976): Output shaft key attached (Ordinary-class keyway)
	Output shaft end	Tapped
Ambient conditions	Installation place	Indoor not exposed to dust or water
	Temperature	−20℃ to 40℃
	Humidity	Less than 85% (non condensing)
	Altitude	Elevations below 1000 m
	Atmosphere	Free from corrosive gases, explosive gases, and steam
	Mounting direction	No limitations on mounting angles: horizontal, vertical, or inclined
Paint color		Munsell 2.5G 6/3

Note: The protective construction for the brake type is IP20.

Motor Specifications (0.1 kW–0.4 kW)

Number of phases	Output	Number of poles	Frequency Hz	Voltage V	Rated current A	Rated revolution r/min	AC-side brake current Reference value at 20℃
Three-phase	0.1kW	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	0.12
	0.2kW				1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	0.12
	0.4kW				2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	0.16

Motor Specifications (0.75 kW–5.5 kW)

Number of phases	Output	Number of poles	Frequency Hz	Voltage V	Rated current A	Rated revolution r/min	Energy efficiency %	Efficiency class IE code	AC-side brake current Reference value at 20℃
Three-phase	0.75kW	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	83.9/86.4/86.4 (83.6/83.9/86.4/86.4)	IE3	0.17
	1.5kW				6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1450/1745/1755 (1445/1450/1745/1755)	86.9/88.6/89.1 (86.7/86.9/88.6/89.1)		0.10
	2.2kW				9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	88.2/89.9/90.2 (88.1/88.2/89.9/90.2)		0.10

Note 1: The values in parentheses under "Rated current" and "Rated revolution" for 0.1 kW–0.4 kW are for 400/400/440 V.
Note 2: The values in parentheses under "Rated current" and "Rated revolution" for 0.75 kW–2.2 kW are for 380/400/400/440 V.
Note 3: For the brake-type models, the brake current shown above is added for the phase where the brake lead wire is connected to the motor lead wire. The AC-side brake current is for 200 V AC 60 Hz.
Note 4: The specifications for 0.75 kW–2.2 kW are the IE3 motor specifications for the Japanese market.
Please refer to other information to confirm that products comply with global voltage requirements.

Specification Chart

Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min 50Hz	Output shaft revolution r/min 60Hz	Allowable output shaft torque 50Hz N·m	Allowable output shaft torque 50Hz {kgf·m}	Allowable output shaft torque 60Hz N·m	Allowable output shaft torque 60Hz {kgf·m}	Allowable output shaft O.H.L. N	Allowable output shaft O.H.L. {kgf}	Page and drawing number of outline dimensions Foot mount	Page and drawing number of outline dimensions Flange mount
GMTA010	5	0.1	18	1/5	2	300	360	2.8	{0.29}	2.4	{0.24}	274	{ 28}	20-1	26-1
	10			1/10		150	180	5.7	{0.58}	4.8	{0.49}	431	{ 44}	20-2	26-2
	15			1/15		100	120	8.6	{0.88}	7.2	{0.73}	568	{ 58}		
	20			1/20		75	90	11.8	{ 1.2}	9.5	{0.97}	686	{ 70}		
	25			1/25		60	72	14.7	{ 1.5}	11.8	{ 1.2}	804	{ 82}		
	30			1/30		50	60	17.6	{ 1.8}	14.7	{ 1.5}	902	{ 92}		
	40			1/40		37.5	45	22.5	{ 2.3}	19.6	{ 2.0}	1098	{ 112}		
	50			1/50		30	36	28.4	{ 2.9}	23.5	{ 2.4}	1264	{ 129}		
	60		24	1/60	3	25	30	34.3	{ 3.5}	28.4	{ 2.9}	1431	{ 146}	20-3	26-3
	75			1/75		20	24	43.1	{ 4.4}	36.3	{ 3.7}	1666	{ 170}		
	100			1/100		15	18	56.8	{ 5.8}	48.0	{ 4.9}	2009	{ 205}		
	120			1/120		12.5	15	68.6	{ 7.0}	56.8	{ 5.8}	2274	{ 232}		
	165			1/165		9.1	10.9	94.1	{ 9.6}	78.4	{ 8.0}	2813	{ 287}		
	200			1/200		7.5	9	115	{11.7}	95.1	{ 9.7}	3195	{ 326}		
GMTA020	5	0.2	18	1/5	2	300	360	5.7	{0.58}	4.7	{0.48}	431	{ 44}	21-1	27-1
	10			1/10		150	180	11.8	{ 1.2}	9.5	{0.97}	686	{ 70}	21-2	27-2
	15			1/15		100	120	17.6	{ 1.8}	14.7	{ 1.5}	902	{ 92}		
	20			1/20		75	90	22.5	{ 2.3}	19.6	{ 2.0}	1098	{ 112}		
	25			1/25		60	72	28.4	{ 2.9}	23.5	{ 2.4}	1264	{ 129}		
	30		24	1/30		50	60	34.3	{ 3.5}	28.4	{ 2.9}	1431	{ 146}		
	40			1/40		37.5	45	46.1	{ 4.7}	38.2	{ 3.9}	1735	{ 177}		
	50			1/50	3	30	36	56.8	{ 5.8}	48.0	{ 4.9}	2009	{ 205}	21-3	27-3
	60			1/60		25	30	68.6	{ 7.0}	56.8	{ 5.8}	2274	{ 232}		
	75			1/75		20	24	86.2	{ 8.8}	71.5	{ 7.3}	2636	{ 269}		
	100		28	1/100		15	18	115	{11.7}	95.1	{ 9.7}	3195	{ 326}		
	120			1/120		12.5	15	137	{14.0}	115	{11.7}	3606	{ 368}		
	165			1/165		9.1	10.9	189	{19.3}	158	{16.1}	4459	{ 455}	21-4	27-4
	200			1/200		7.5	9	218	{22.2}	181	{18.5}	4822	{ 492}		
GMTA040	5	0.4	24	1/5	2	300	360	12.1	{ 1.23}	10.0	{ 1.02}	686	{ 70}		
	10			1/10		150	180	24.5	{ 2.5}	20.6	{ 2.1}	1098	{ 112}	22-1	28-1
	15			1/15		100	120	36.3	{ 3.7}	30.4	{ 3.1}	1431	{ 146}		
	20			1/20		75	90	48.0	{ 4.9}	40.2	{ 4.1}	1735	{ 177}		
	25			1/25		60	72	60.8	{ 6.2}	50.0	{ 5.1}	2009	{ 205}		
	30		28	1/30		50	60	72.5	{ 7.4}	60.8	{ 6.2}	2274	{ 232}		
	40			1/40		37.5	45	94.1	{ 9.6}	78.4	{ 8.0}	2754	{ 281}		
	50			1/50		30	36	118	{ 12.0}	98.0	{ 10.0}	3195	{ 326}	22-2	28-2
	60			1/60		25	30	140	{ 14.3}	118	{ 12.0}	3606	{ 368}		
	75			1/75	3	20	24	175	{ 17.9}	146	{ 14.9}	4185	{ 427}		
	100		38	1/100		15	18	234	{ 23.9}	195	{ 19.9}	5076	{ 518}		
	120			1/120		12.5	15	281	{ 28.7}	234	{ 23.9}	5733	{ 585}		
	165			1/165		9.1	10.9	364	{ 37.1}	303	{ 30.9}	6664	{ 680}	22-3	28-3
	200			1/200		7.5	9	389	{ 39.7}	324	{ 33.1}	6684	{ 682}		

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For actual reduction ratio, refer to the specification chart for the adapter-equipped/inline reducer type on pages 35-36.

Specification Chart

Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions	
								N·m	{kgf·m}	N·m	{kgf·m}				
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	Foot mount	Flange mount
GMTR075	5	0.75	28	1/5	2	300	360	22.6	{ 2.31 }	18.8	{ 1.92}	1049	{ 107}	23 – 1	29 – 1
	10			1/10		150	180	45.1	{ 4.6}	38.2	{ 3.9}	1666	{ 170}		
	15			1/15		100	120	67.6	{ 6.9}	56.8	{ 5.8}	2176	{ 222}		
	20			1/20		75	90	91.1	{ 9.3}	75.5	{ 7.7}	2636	{ 269}		
	25			1/25		60	72	114	{ 11.6}	94.1	{ 9.6}	3058	{ 312}		
	30		38	1/30		50	60	136	{ 13.9}	114	{ 11.6}	3459	{ 353}	23 – 2	29 – 2
	40			1/40	3	37.5	45	175	{ 17.9}	146	{ 14.9}	4185	{ 427}		
	50			1/50		30	36	220	{ 22.4}	183	{ 18.7}	4861	{ 496}		
	60			1/60		25	30	264	{ 26.9}	220	{ 22.4}	5488	{ 560}		
	75			1/75		20	24	300	{ 30.6}	250	{ 25.5}	5792	{ 591}		
	100		42	1/100		15	18	439	{ 44.8}	369	{ 37.7}	7301	{ 745}	23 – 3	29 – 3
	120			1/120		12.5	15	527	{ 53.8}	439	{ 44.8}	8242	{ 841}		
	165			1/165		9.1	10.9	724	{ 73.9}	604	{ 61.6}	9800	{1000}		
	200			1/200		7.5	9	735	{ 75.0}	※613	※{ 62.5}	9800	{1000}		
GMTR150	5	1.5	38	1/5	2	300	360	45.3	{ 4.62 }	37.7	{ 3.85}	1666	{ 170}	24 – 1	30 – 1
	10			1/10		150	180	91.1	{ 9.3}	75.5	{ 7.7}	2548	{ 260}		
	15			1/15		100	120	136	{ 13.9}	114	{ 11.6}	3342	{ 341}		
	20			1/20		75	90	181	{ 18.5}	151	{ 15.4}	4047	{ 413}		
	25			1/25		60	72	226	{ 23.1}	189	{ 19.3}	4694	{ 479}		
	30			1/30		50	60	272	{ 27.8}	226	{ 23.1}	5302	{ 541}		
	40		42	1/40	3	37.5	45	351	{ 35.8}	293	{ 29.9}	6292	{ 642}	24 – 2	30 – 2
	50			1/50		30	36	439	{ 44.8}	366	{ 37.3}	7301	{ 745}		
	60			1/60		25	30	527	{ 53.8}	439	{ 44.8}	8242	{ 841}		
	75			1/75		20	24	659	{ 67.2}	549	{ 56.0}	9565	{ 976}		
GMTR220	5	2.2	42	1/5	2	300	360	66.6	{ 6.8}	55.9	{ 5.7}	2078	{ 212}	25 – 1	31 – 1
	10			1/10		150	180	133	{ 13.6}	111	{ 11.3}	3293	{ 336}		
	15			1/15		100	120	200	{ 20.4}	167	{ 17.0}	4312	{ 440}		
	20			1/20		75	90	266	{ 27.1}	221	{ 22.6}	5223	{ 533}		
	25			1/25		60	72	332	{ 33.9}	277	{ 28.3}	6066	{ 619}		
	30			1/30		50	60	399	{ 40.7}	332	{ 33.9}	6850	{ 699}		

Note 1: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
Note 2: The models marked with ※ are ones for which torque is limited.
For actual reduction ratio, refer to the specification chart for the adapter-equipped/inline reducer type on pages 35–36.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.1kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	Totally enclosed (IP44)	Self-cooled (IC410)	Continuous	120(E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

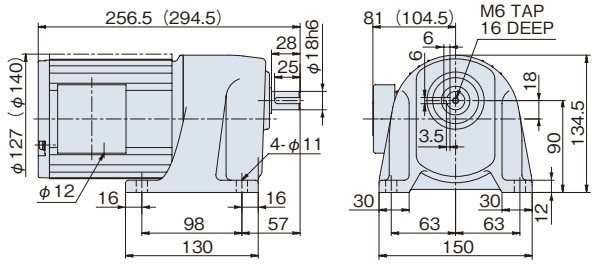
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTA010	5	0.1	18	1/5	2	300	360	2.8	{0.29}	2.4	{0.24}	274	{ 28}	1
	10			1/10		150	180	5.7	{0.58}	4.8	{0.49}	431	{ 44}	
	15			1/15		100	120	8.6	{0.88}	7.2	{0.73}	568	{ 58}	
	20			1/20		75	90	11.8	{ 1.2}	9.5	{0.97}	686	{ 70}	
	25			1/25		60	72	14.7	{ 1.5}	11.8	{ 1.2}	804	{ 82}	
	30			1/30		50	60	17.6	{ 1.8}	14.7	{ 1.5}	902	{ 92}	2
	40			1/40		37.5	45	22.5	{ 2.3}	19.6	{ 2.0}	1098	{ 112}	
	50			1/50		30	36	28.4	{ 2.9}	23.5	{ 2.4}	1264	{ 129}	
	60		24	1/60	3	25	30	34.3	{ 3.5}	28.4	{ 2.9}	1431	{ 146}	
	75			1/75		20	24	43.1	{ 4.4}	36.3	{ 3.7}	1666	{ 170}	
	100			1/100		15	18	56.8	{ 5.8}	48.0	{ 4.9}	2009	{ 205}	3
	120			1/120		12.5	15	68.6	{ 7.0}	56.8	{ 5.8}	2274	{ 232}	
	165			1/165		9.1	10.9	94.1	{ 9.6}	78.4	{ 8.0}	2813	{ 287}	
	200			1/200		7.5	9	115	{11.7}	95.1	{ 9.7}	3195	{ 326}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 35. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

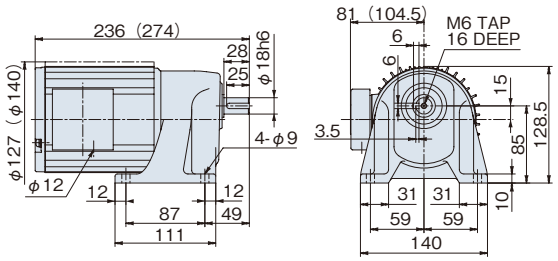
GMTA010-18L5 (B) — 1

Reduction ratio : 5	Approx. weight : 6.6 (8.4) kg



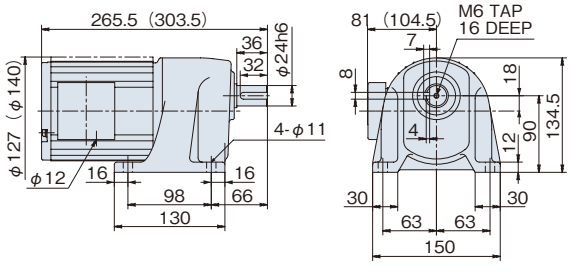
GMTA010-18L10 – 50 (B) — 2

Reduction ratio : 10, 15, 20, 25, 30, 40, 50	Approx. weight : 5.4 (7.0) kg

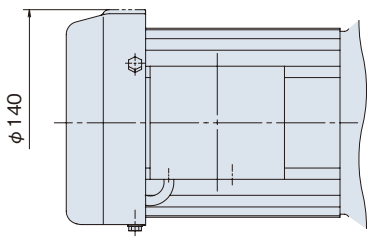


GMTA010-24L60 – 200 (B) — 3

Reduction ratio : 60, 75, 100, 120, 165, 200	Approx. weight : 6.8 (8.4) kg



Motor of brake-equipped model



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The brake-equipped models are equipped with a fan cover. Refer to the diagram on this page for the shape of the fan cover.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.2kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

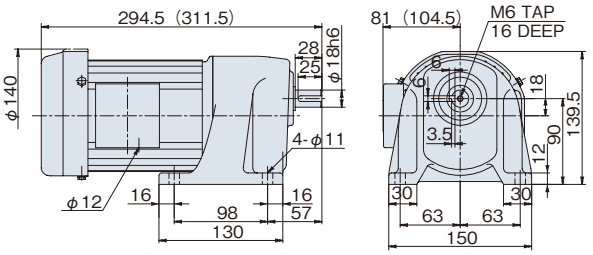
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTA020	5	0.2	18	1/5	2	300	360	5.7	{0.58}	4.7	{0.48}	431	{ 44}	1
	10			1/10		150	180	11.8	{ 1.2}	9.5	{0.97}	686	{ 70}	2
	15			1/15		100	120	17.6	{ 1.8}	14.7	{ 1.5}	902	{ 92}	
	20			1/20		75	90	22.5	{ 2.3}	19.6	{ 2.0}	1098	{ 112}	
	25			1/25		60	72	28.4	{ 2.9}	23.5	{ 2.4}	1264	{ 129}	
	30		24	1/30		50	60	34.3	{ 3.5}	28.4	{ 2.9}	1431	{ 146}	3
	40			1/40	3	37.5	45	46.1	{ 4.7}	38.2	{ 3.9}	1735	{ 177}	
	50			1/50		30	36	56.8	{ 5.8}	48.0	{ 4.9}	2009	{ 205}	
	60			1/60		25	30	68.6	{ 7.0}	56.8	{ 5.8}	2274	{ 232}	
	75			1/75		20	24	86.2	{ 8.8}	71.5	{ 7.3}	2636	{ 269}	
	100		28	1/100		15	18	115	{11.7}	95.1	{ 9.7}	3195	{ 326}	4
	120			1/120		12.5	15	137	{14.0}	115	{11.7}	3606	{ 368}	
	165			1/165		9.1	10.9	189	{19.3}	158	{16.1}	4459	{ 455}	
	200			1/200		7.5	9	218	{22.2}	181	{18.5}	4822	{ 492}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 35. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

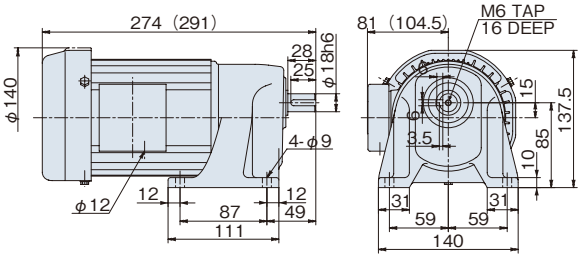
GMTA020-18L5 (B) — 1

Reduction ratio : 5 | Approx. weight : 6.7 (8.8) kg



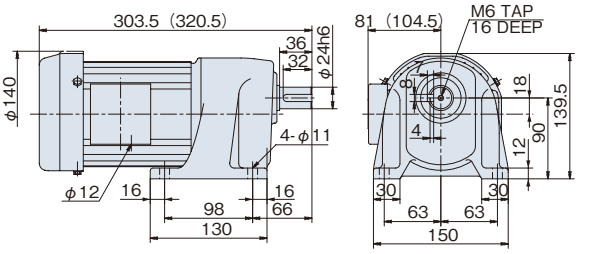
GMTA020-18L10 – 25 (B) — 2

Reduction ratio : 10 ,15, 20, 25 | Approx. weight : 5.5 (7.6) kg



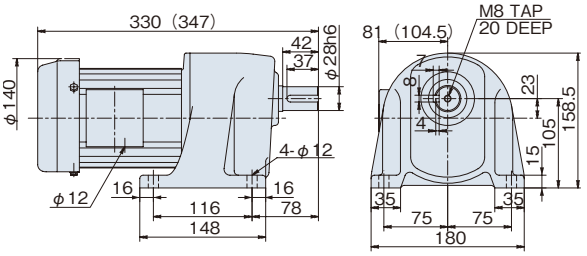
GMTA020-24L30 – 75 (B) — 3

Reduction ratio : 30, 40, 50, 60, 75 | Approx. weight : 6.9 (9.0) kg



GMTA020-28L100 – 200 (B) — 4

Reduction ratio : 100, 120, 165, 200 | Approx. weight : 9.3 (11.3) kg



Note: The values in parentheses are for brake-equipped models.

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Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.4kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

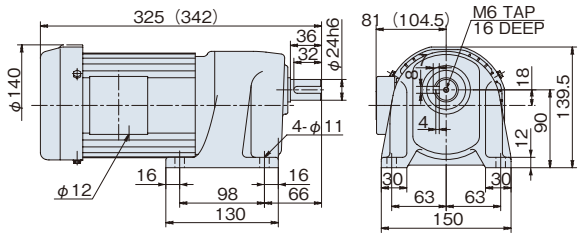
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTA040	5	0.4	24	1/5	2	300	360	12.1	{ 1.23}	10.0	{ 1.02}	686	{ 70}	1
	10			1/10		150	180	24.5	{ 2.5}	20.6	{ 2.1}	1098	{ 112}	
	15			1/15		100	120	36.3	{ 3.7}	30.4	{ 3.1}	1431	{ 146}	
	20			1/20		75	90	48.0	{ 4.9}	40.2	{ 4.1}	1735	{ 177}	
	25			1/25		60	72	60.8	{ 6.2}	50.0	{ 5.1}	2009	{ 205}	
	30		28	1/30		50	60	72.5	{ 7.4}	60.8	{ 6.2}	2274	{ 232}	2
	40			1/40	3	37.5	45	94.1	{ 9.6}	78.4	{ 8.0}	2754	{ 281}	
	50			1/50		30	36	118	{ 12.0}	98.0	{ 10.0}	3195	{ 326}	
	60			1/60		25	30	140	{ 14.3}	118	{ 12.0}	3606	{ 368}	
	75			1/75		20	24	175	{ 17.9}	146	{ 14.9}	4185	{ 427}	
	100		38	1/100		15	18	234	{ 23.9}	195	{ 19.9}	5076	{ 518}	3
	120			1/120		12.5	15	281	{ 28.7}	234	{ 23.9}	5733	{ 585}	
	165			1/165		9.1	10.9	364	{ 37.1}	303	{ 30.9}	6664	{ 680}	
	200			1/200		7.5	9	389	{ 39.7}	324	{ 33.1}	6684	{ 682}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 35. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

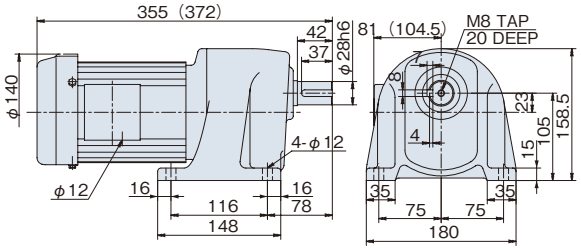
GMTA040-24L5 – 25 (B) 1

Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 7.5 (10.0) kg



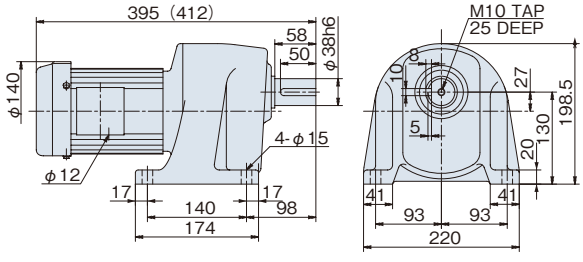
GMTA040-28L30 – 75 (B) 2

Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 10.0 (12.5) kg



GMTA040-38L100 – 200 (B) 3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 14.0 (16.5) kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake Type	Brake Rated torque (of motor torque)	Brake Insulation
0.75kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	155 (F)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

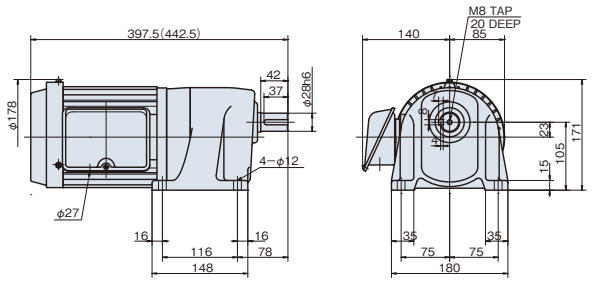
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min 50Hz	Output shaft revolution r/min 60Hz	Allowable output shaft torque 50Hz N·m	Allowable output shaft torque 50Hz {kgf·m}	Allowable output shaft torque 60Hz N·m	Allowable output shaft torque 60Hz {kgf·m}	Allowable output shaft O.H.L. N	Allowable output shaft O.H.L. {kgf}	Drawing number of outline dimensions
GMTR075	5	0.75	28	1/5	2	300	360	22.6	{ 2.31 }	18.8	{ 1.92}	1049	{ 107}	1
	10			1/10		150	180	45.1	{ 4.6}	38.2	{ 3.9}	1666	{ 170}	
	15			1/15		100	120	67.6	{ 6.9}	56.8	{ 5.8}	2176	{ 222}	
	20			1/20		75	90	91.1	{ 9.3}	75.5	{ 7.7}	2636	{ 269}	
	25			1/25		60	72	114	{ 11.6}	94.1	{ 9.6}	3058	{ 312}	
	30		38	1/30		50	60	136	{ 13.9}	114	{ 11.6}	3459	{ 353}	2
	40			1/40	3	37.5	45	175	{ 17.9}	146	{ 14.9}	4185	{ 427}	
	50			1/50		30	36	220	{ 22.4}	183	{ 18.7}	4861	{ 496}	
	60			1/60		25	30	264	{ 26.9}	220	{ 22.4}	5488	{ 560}	
	75			1/75		20	24	300	{ 30.6}	250	{ 25.5}	5792	{ 591}	
	100		42	1/100		15	18	439	{ 44.8}	369	{ 37.7}	7301	{ 745}	3
	120			1/120		12.5	15	527	{ 53.8}	439	{ 44.8}	8242	{ 841}	
	165			1/165		9.1	10.9	724	{ 73.9}	604	{ 61.6}	9800	{1000}	
	200			1/200		7.5	9	735	{ 75.0}	※613	※{ 62.5}	9800	{1000}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio. For the actual reduction ratio, refer to page 36. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

Outline Dimensions

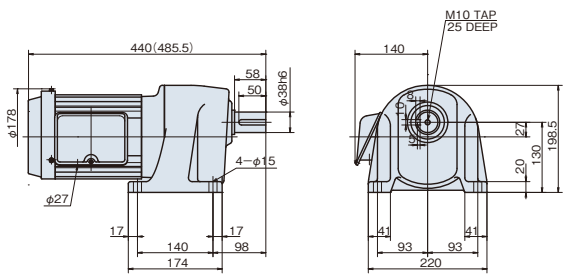
GMTR075-28L5 – 25 (B) 1

Reduction ratio : 5, 10, 15, 20, 25 | Approx. weight : 19.0(22.0)kg



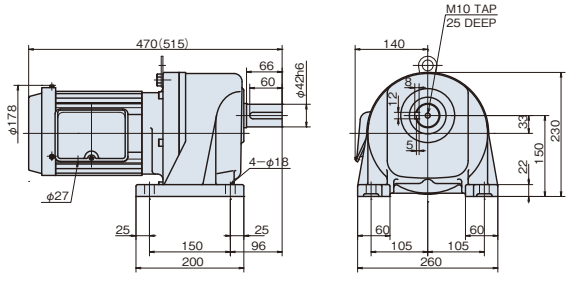
GMTR075-38L30 – 75 (B) 2

Reduction ratio : 30, 40, 50, 60, 75 | Approx. weight : 23.0(26.0)kg



GMTR075-42L100 – 200 (B) 3

Reduction ratio : 100, 120, 165, 200 | Approx. weight : 47.0(50.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: On the GMTR075-28L5–25, the motor protrudes from the mounting surface in the terminal box P5 position.

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Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
1.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1440/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

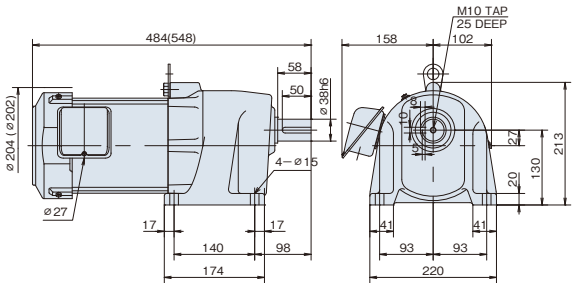
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTR150	5	1.5	38	1/5	2	300	360	45.3	{ 4.62 }	37.7	{ 3.85}	1666	{ 170}	1
	10			1/10		150	180	91.1	{ 9.3}	75.5	{ 7.7}	2548	{ 260}	
	15			1/15		100	120	136	{ 13.9}	114	{ 11.6}	3342	{ 341}	
	20			1/20		75	90	181	{ 18.5}	151	{ 15.4}	4047	{ 413}	
	25			1/25		60	72	226	{ 23.1}	189	{ 19.3}	4694	{ 479}	
	30			1/30		50	60	272	{ 27.8}	226	{ 23.1}	5302	{ 541}	
	40		42	1/40	3	37.5	45	351	{ 35.8}	293	{ 29.9}	6292	{ 642}	2
	50			1/50		30	36	439	{ 44.8}	366	{ 37.3}	7301	{ 745}	
	60			1/60		25	30	527	{ 53.8}	439	{ 44.8}	8242	{ 841}	
	75			1/75		20	24	659	{ 67.2}	549	{ 56.0}	9565	{ 976}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 36. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

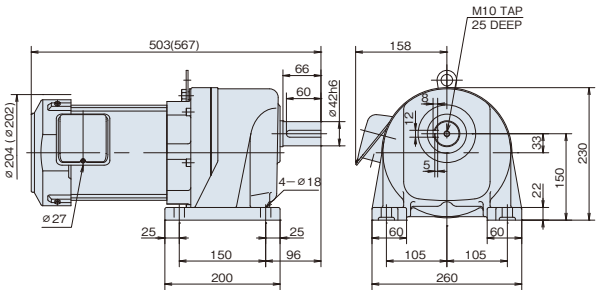
GMTR150-38L5 – 30 (B) 1

Reduction ratio : 5, 10, 15, 20, 25, 30 | Approx. weight : 30.0 (35.0) kg



GMTR150-42L40 – 75 (B) 2

Reduction ratio : 40, 50, 60, 75 | Approx. weight : 51.0 (56.0) kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
2.2kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTR220	5	2.2	42	1/5	2	300	360	66.6	{ 6.8}	55.9	{ 5.7}	2078	{ 212}	1
	10			1/10		150	180	133	{ 13.6}	111	{ 11.3}	3293	{ 336}	
	15			1/15		100	120	200	{ 20.4}	167	{ 17.0}	4312	{ 440}	
	20			1/20		75	90	266	{ 27.1}	221	{ 22.6}	5223	{ 533}	
	25			1/25		60	72	332	{ 33.9}	277	{ 28.3}	6066	{ 619}	
	30			1/30		50	60	399	{ 40.7}	332	{ 33.9}	6850	{ 699}	

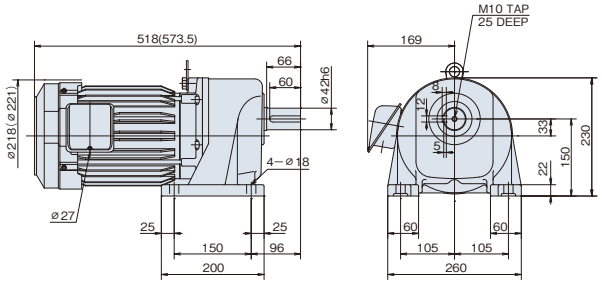
Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 36. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

GMTR220-42L5 – 30 (B)

1

Reduction ratio : 5, 10, 15, 20, 25, 30 | Approx. weight : 57.0(64.0)kg



Note: The values in parentheses are for brake-equipped models.

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Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake Type	Brake Rated torque (of motor torque)	Brake Insulation
0.1kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	Totally enclosed (IP44)	Self-cooled (IC410)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

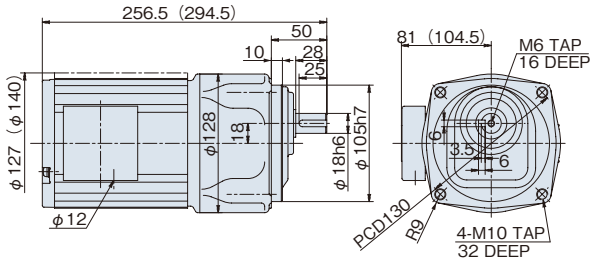
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min 50Hz	Output shaft revolution r/min 60Hz	Allowable output shaft torque 50Hz N·m	Allowable output shaft torque 50Hz {kgf·m}	Allowable output shaft torque 60Hz N·m	Allowable output shaft torque 60Hz {kgf·m}	Allowable output shaft O.H.L. N	Allowable output shaft O.H.L. {kgf}	Drawing number of outline dimensions
GMTA010	5	0.1	18	1/5	2	300	360	2.8	{0.29}	2.4	{0.24}	274	{ 28}	1
	10			1/10		150	180	5.7	{0.58}	4.8	{0.49}	431	{ 44}	2
	15			1/15		100	120	8.6	{0.88}	7.2	{0.73}	568	{ 58}	
	20			1/20		75	90	11.8	{ 1.2}	9.5	{0.97}	686	{ 70}	
	25			1/25		60	72	14.7	{ 1.5}	11.8	{ 1.2}	804	{ 82}	
	30			1/30		50	60	17.6	{ 1.8}	14.7	{ 1.5}	902	{ 92}	
	40			1/40		37.5	45	22.5	{ 2.3}	19.6	{ 2.0}	1098	{ 112}	
	50			1/50		30	36	28.4	{ 2.9}	23.5	{ 2.4}	1264	{ 129}	
	60		24	1/60	3	25	30	34.3	{ 3.5}	28.4	{ 2.9}	1431	{ 146}	3
	75			1/75		20	24	43.1	{ 4.4}	36.3	{ 3.7}	1666	{ 170}	
	100			1/100		15	18	56.8	{ 5.8}	48.0	{ 4.9}	2009	{ 205}	
	120			1/120		12.5	15	68.6	{ 7.0}	56.8	{ 5.8}	2274	{ 232}	
	165			1/165		9.1	10.9	94.1	{ 9.6}	78.4	{ 8.0}	2813	{ 287}	
	200			1/200		7.5	9	115	{11.7}	95.1	{ 9.7}	3195	{ 326}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 35. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

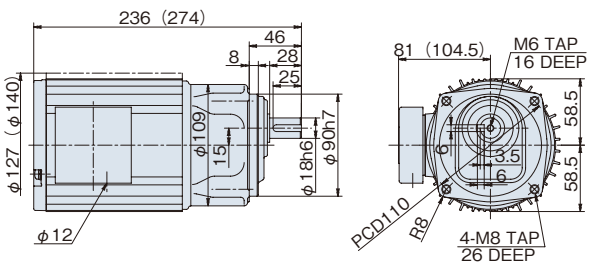
GMTA010-18U5 (B) 1

Reduction ratio : 5 | Approx. weight : 6.6 (8.2) kg



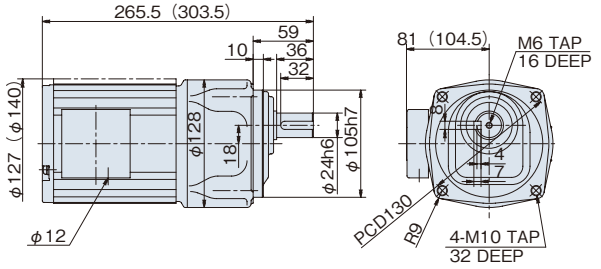
GMTA010-18U10 – 50 (B) 2

Reduction ratio : 10, 15, 20, 25, 30, 40, 50 | Approx. weight : 5.2 (6.8) kg

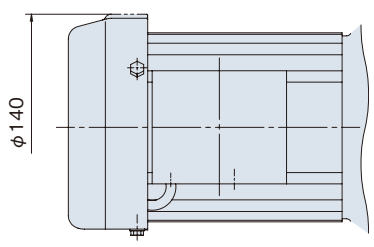


GMTA010-24U60 – 200 (B) 3

Reduction ratio : 60, 75, 100, 120, 165, 200 | Approx. weight : 6.6 (8.4) kg



Motor of brake-equipped model



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The brake-equipped models are equipped with a fan cover.
Refer to the diagram on this page for the shape of the fan cover.

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Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.2kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

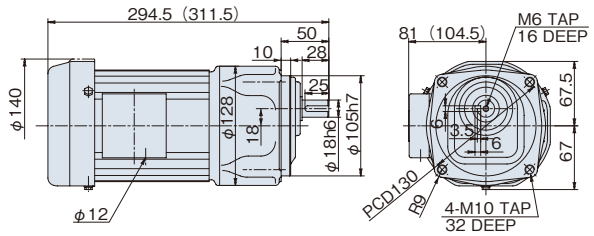
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTA020	5	0.2	18	1/5	2	300	360	5.7	{0.58}	4.7	{0.48}	431	{ 44}	1
	10			1/10		150	180	11.8	{ 1.2}	9.5	{0.97}	686	{ 70}	2
	15			1/15		100	120	17.6	{ 1.8}	14.7	{ 1.5}	902	{ 92}	
	20			1/20		75	90	22.5	{ 2.3}	19.6	{ 2.0}	1098	{ 112}	
	25			1/25		60	72	28.4	{ 2.9}	23.5	{ 2.4}	1264	{ 129}	
	30		24	1/30		50	60	34.3	{ 3.5}	28.4	{ 2.9}	1431	{ 146}	3
	40			1/40	3	37.5	45	46.1	{ 4.7}	38.2	{ 3.9}	1735	{ 177}	
	50			1/50		30	36	56.8	{ 5.8}	48.0	{ 4.9}	2009	{ 205}	
	60			1/60		25	30	68.6	{ 7.0}	56.8	{ 5.8}	2274	{ 232}	
	75			1/75		20	24	86.2	{ 8.8}	71.5	{ 7.3}	2636	{ 269}	
	100		28	1/100		15	18	115	{11.7}	95.1	{ 9.7}	3195	{ 326}	4
	120			1/120		12.5	15	137	{14.0}	115	{11.7}	3606	{ 368}	
	165			1/165		9.1	10.9	189	{19.3}	158	{16.1}	4459	{ 455}	
	200			1/200		7.5	9	218	{22.2}	181	{18.5}	4822	{ 492}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 35. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

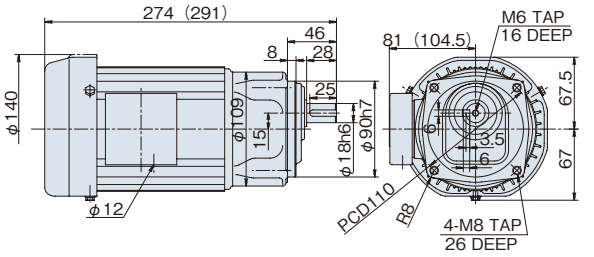
GMTA020-18U5 (B) — 1

Reduction ratio : 5 | Approx. weight : 6.7 (8.8) kg



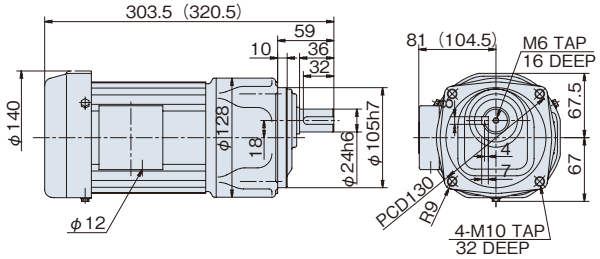
GMTA020-18U10 – 25 (B) — 2

Reduction ratio : 10, 15, 20, 25 | Approx. weight : 5.3 (7.4) kg



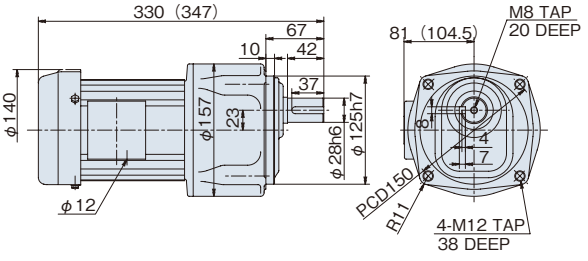
GMTA020-24U30 – 75 (B) — 3

Reduction ratio : 30, 40, 50, 60, 75 | Approx. weight : 6.7 (8.8) kg



GMTA020-28U100 – 200 (B) — 4

Reduction ratio : 100, 120, 165, 200 | Approx. weight : 9.1 (11.3) kg



Note 1: The values in parentheses are for brake-equipped models.

Nomenclature Page 15
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Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.4kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

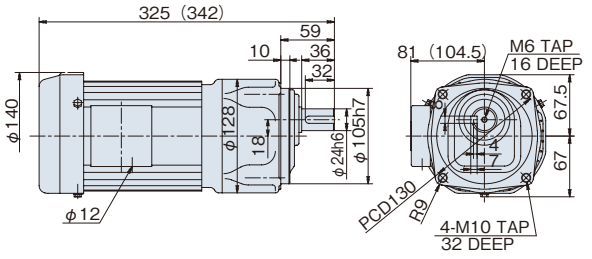
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTA040	5	0.4	24	1/5	2	300	360	12.1	{ 1.23}	10.0	{ 1.02}	686	{ 70}	1
	10			1/10		150	180	24.5	{ 2.5}	20.6	{ 2.1}	1098	{ 112}	
	15			1/15		100	120	36.3	{ 3.7}	30.4	{ 3.1}	1431	{ 146}	
	20			1/20		75	90	48.0	{ 4.9}	40.2	{ 4.1}	1735	{ 177}	
	25			1/25		60	72	60.8	{ 6.2}	50.0	{ 5.1}	2009	{ 205}	
	30		28	1/30		50	60	72.5	{ 7.4}	60.8	{ 6.2}	2274	{ 232}	2
	40			1/40	3	37.5	45	94.1	{ 9.6}	78.4	{ 8.0}	2754	{ 281}	
	50			1/50		30	36	118	{ 12.0}	98.0	{ 10.0}	3195	{ 326}	
	60			1/60		25	30	140	{ 14.3}	118	{ 12.0}	3606	{ 368}	
	75			1/75		20	24	175	{ 17.9}	146	{ 14.9}	4185	{ 427}	
	100		38	1/100		15	18	234	{ 23.9}	195	{ 19.9}	5076	{ 518}	3
	120			1/120		12.5	15	281	{ 28.7}	234	{ 23.9}	5733	{ 585}	
	165			1/165		9.1	10.9	364	{ 37.1}	303	{ 30.9}	6664	{ 680}	
	200			1/200		7.5	9	389	{ 39.7}	324	{ 33.1}	6684	{ 682}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 35. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

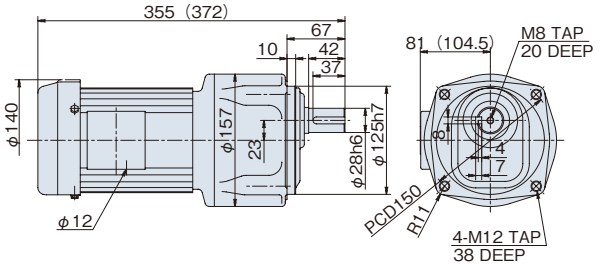
GMTA040-24U5 – 25 (B) 1

Reduction ratio : 5, 10, 15, 20, 25 | Approx. weight : 7.3 (10.0) kg



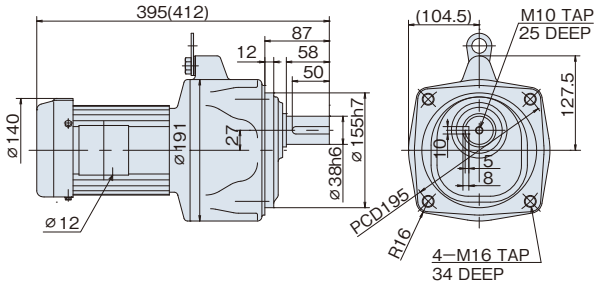
GMTA040-28U30 – 75 (B) 2

Reduction ratio : 30, 40, 50, 60, 75 | Approx. weight : 10.0 (12.5) kg



GMTA040-38U100 – 200 (B) 3

Reduction ratio : 100, 120, 165, 200 | Approx. weight : 20.0 (22.0) kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake Type	Brake Rated torque (of motor torque)	Brake Insulation
0.75kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	155 (F)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

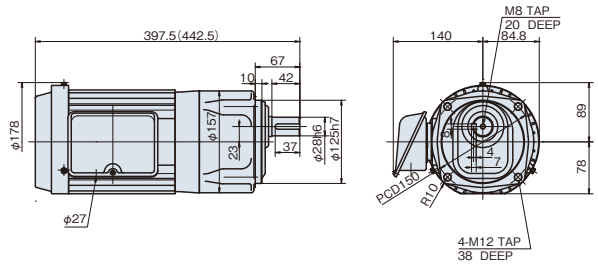
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min 50Hz	Output shaft revolution r/min 60Hz	Allowable output shaft torque 50Hz N·m	Allowable output shaft torque 50Hz {kgf·m}	Allowable output shaft torque 60Hz N·m	Allowable output shaft torque 60Hz {kgf·m}	Allowable output shaft O.H.L. N	Allowable output shaft O.H.L. {kgf}	Drawing number of outline dimensions
GMTR075	5	0.75	28	1/5	2	300	360	22.6	{ 2.31 }	18.8	{ 1.92}	1049	{ 107}	1
	10			1/10		150	180	45.1	{ 4.6}	38.2	{ 3.9}	1666	{ 170}	
	15			1/15		100	120	67.6	{ 6.9}	56.8	{ 5.8}	2176	{ 222}	
	20			1/20		75	90	91.1	{ 9.3}	75.5	{ 7.7}	2636	{ 269}	
	25			1/25		60	72	114	{ 11.6}	94.1	{ 9.6}	3058	{ 312}	
	30		38	1/30		50	60	136	{ 13.9}	114	{ 11.6}	3459	{ 353}	2
	40			1/40	3	37.5	45	175	{ 17.9}	146	{ 14.9}	4185	{ 427}	
	50			1/50		30	36	220	{ 22.4}	183	{ 18.7}	4861	{ 496}	
	60			1/60		25	30	264	{ 26.9}	220	{ 22.4}	5488	{ 560}	
	75			1/75		20	24	300	{ 30.6}	250	{ 25.5}	5792	{ 591}	
	100		42	1/100		15	18	439	{ 44.8}	369	{ 37.7}	7301	{ 745}	3
	120			1/120		12.5	15	527	{ 53.8}	439	{ 44.8}	8242	{ 841}	
	165			1/165		9.1	10.9	724	{ 73.9}	604	{ 61.6}	9800	{1000}	
	200			1/200		7.5	9	735	{ 75.0}	※613	※{ 62.5}	9800	{1000}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio. For the actual reduction ratio, refer to page 36. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

Outline Dimensions

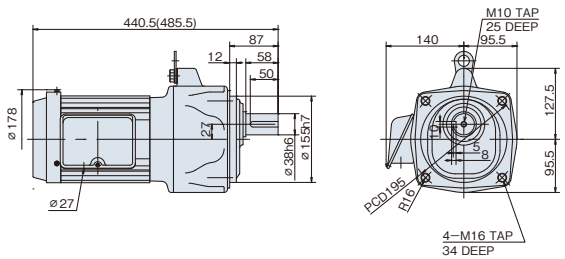
GMTR075-28U5 – 25 (B) 1

Reduction ratio : 5, 10, 15, 20, 25 | Approx. weight : 19.0(22.0)kg



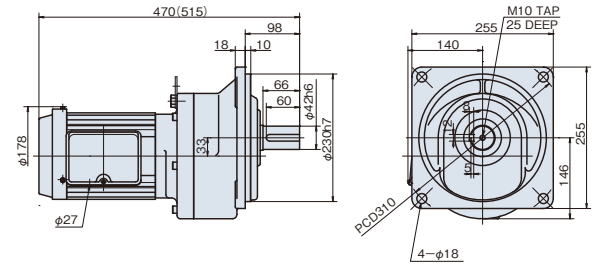
GMTR075-38U30 – 75 (B) 2

Reduction ratio : 30, 40, 50, 60, 75 | Approx. weight : 23.0(26.0)kg



GMTR075-42F100 – 200 (B) 3

Reduction ratio : 100, 120, 165, 200 | Approx. weight : 47.0(50.0)kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
1.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

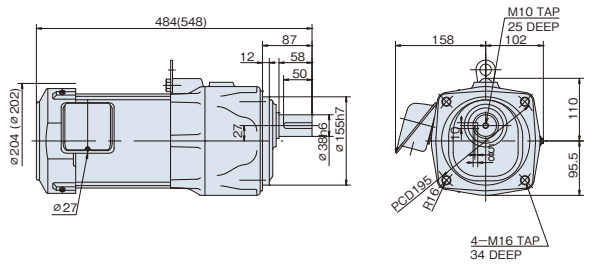
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTR150	5	1.5	38	1/5	2	300	360	45.3	{ 4.62}	37.7	{ 3.85}	1666	{ 170}	1
	10			1/10		150	180	91.1	{ 9.3}	75.5	{ 7.7}	2548	{ 260}	
	15			1/15		100	120	136	{ 13.9}	114	{ 11.6}	3342	{ 341}	
	20			1/20		75	90	181	{ 18.5}	151	{ 15.4}	4047	{ 413}	
	25			1/25		60	72	226	{ 23.1}	189	{ 19.3}	4694	{ 479}	
	30			1/30		50	60	272	{ 27.8}	226	{ 23.1}	5302	{ 541}	
	40		42	1/40	3	37.5	45	351	{ 35.8}	293	{ 29.9}	6292	{ 642}	2
	50			1/50		30	36	439	{ 44.8}	366	{ 37.3}	7301	{ 745}	
	60			1/60		25	30	527	{ 53.8}	439	{ 44.8}	8242	{ 841}	
	75			1/75		20	24	659	{ 67.2}	549	{ 56.0}	9565	{ 976}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 36. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

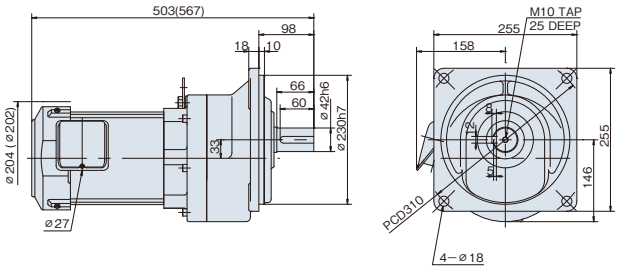
GMTR150-38U5 – 30 (B) 1

Reduction ratio : 5, 10, 15, 20, 25, 30 | Approx. weight : 37.0 (42.0) kg



GMTR150-42F40 – 75 (B) 2

Reduction ratio : 40, 50, 60, 75 | Approx. weight : 52.0 (57.0) kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
2.2kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

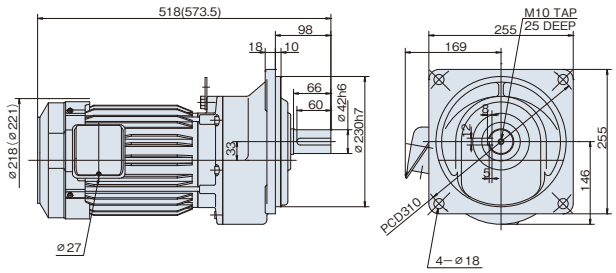
Model number		Motor output kW	Frame number	Nominal reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
GMTR220	5	2.2	42	1/5	2	300	360	66.6	{ 6.8}	55.9	{ 5.7}	2078	{ 212}	1
	10			1/10		150	180	133	{ 13.6}	111	{ 11.3}	3293	{ 336}	
	15			1/15		100	120	200	{ 20.4}	167	{ 17.0}	4312	{ 440}	
	20			1/20		75	90	266	{ 27.1}	221	{ 22.6}	5223	{ 533}	
	25			1/25		60	72	332	{ 33.9}	277	{ 28.3}	6066	{ 619}	
	30			1/30		50	60	399	{ 40.7}	332	{ 33.9}	6850	{ 699}	

Note 1: The nominal reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the motor synchronous revolution rate by the nominal reduction ratio.
For the actual reduction ratio, refer to page 36. Calculate the actual output revolution rate from the motor's rated revolution rate.

Outline Dimensions

GMTR220-42F5 – 30 (B) 1

Reduction ratio : 5, 10, 15, 20, 25, 30 | Approx. weight : 59.0 (66.0) kg



Note: The values in parentheses are for brake-equipped models.

Nomenclature Page 15 Technical Information Page 202

GEAR MOTOR

TA Series

CONTENTS

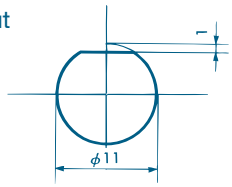
Adapter Type, Inline Reducer Type
Nomenclature, Model Lineup ····· Page 33
Dimensions of Input Section, Specifications ····· Page 34
Specification Chart ····· Page 35
Outline Dimensions ····· Page 37
(Foot Mount Type, Face Mount Type, Flange Mount Type)

Adapter Type

0.1 kW to 2.2 kW

1. Reducer with adapter flange allows motor to be attached
   - Non-Tsubaki motors as well
   - Explosion-proof motors
   - Other special motors

2. Applicable to IEC or JEM standard flange motors
   - Compatible with keyless D-cut shafts under 0.2 kW



3. If you require compatibility with servomotors or DC motors with special flange dimensions or shaft dimensions, please contact Tsubaki.

Inline Reducer Type

0.1 kW to 2.2 kW

Reducer with reducer part of gear motor separated.
Use in following cases:

1. When a parallel, high-efficiency reducer is necessary
2. When a reducer is driven by a device other than special motors or electric motors
3. When input revolution speed is different from the motor revolution speed

Nomenclature

Adapter Type

GRTA150-38L30FI□□

① ② ③ ④ ⑤ ⑥ ⑦

Inline Reducer Type

GRTA040-38U200□□

① ② ③ ④ ⑤ ⑦

① Product series name	GRTA	Inline reducer type, adapter type
② Motor capacity (example)	150	1.5 kW or equivalent
③ Frame number (example)	38	Frame number 38
④ Mounting type	L	Foot mount
	U	Face mount
	F	Flange mount
⑤ Reduction ratio (example)	30	1/30
⑥ Specification code	No code	Inline reducer type
	FI	Adapter type
⑦ Option code B Former supplementary code	C0	Paint color: Light gray (Munsell N7.5)
	C1	Paint color: Light silver metallic
	C2	Paint color: Ivory white
	C3	Paint color: Dark silver metallic

Model Lineup

Adapter type, inline reducer type (Foot mount type)

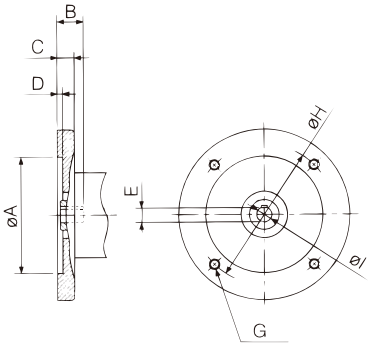
	5	10	15	20	25	30	40	50	60	75	100	120	165	200
0.1kW	18L								24L					
0.2kW	18L					24L					28L			
0.4kW	24L					28L					38L			
0.75kW	28L					38L					42L			
1.5kW	38L						42L							
2.2kW	42L													

Adapter type, inline reducer type (Face mount, flange mount type)

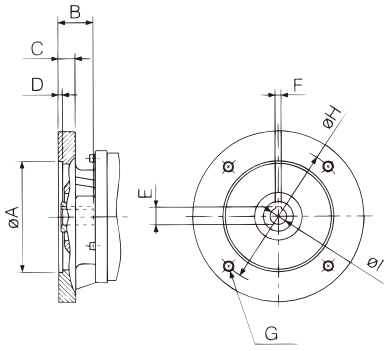
	5	10	15	20	25	30	40	50	60	75	100	120	165	200
0.1kW	18U								24U					
0.2kW	18U					24U					28U			
0.4kW	24U					28U					38U			
0.75kW	28U					38U					42F			
1.5kW	38U						42F							
2.2kW	42F													

Dimensions of Input Section: Adapter Type

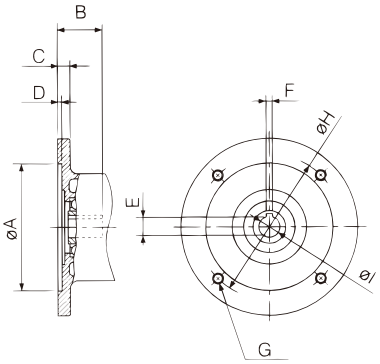
0.1 kW to 0.2kW (D-cut shaft)



0.4 kW to 0.75 kW



1.5 kW to 2.2 kW

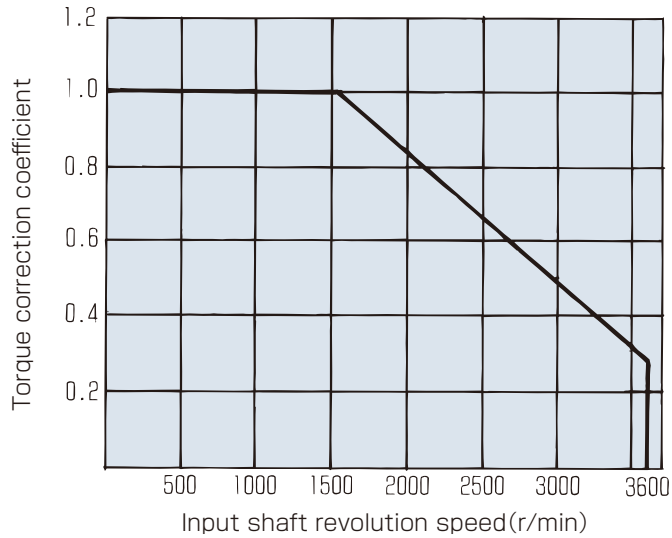


Motor output	A	B	C	D	E	F	G	H	I
0.1 kW	110G7	25	14	5	10	–	4-M8	130	11F7
0.2 kW	110G7	25	14	5	10	–	4-M8	130	11F7
0.4 kW	110G7	32	14	5	16.3	5	4-M8	130	14F7
0.75 kW	130G7	42	20	5	21.8	6	4-M10	165	19F7
1.5 kW	130G7	52	16	5	27.3	8	4-M10	165	24F7
2.2 kW	180G7	62	20	5	31.3	8	4-M12	215	28F7

Relation between Input Shaft Revolution Speed and Allowable Output Shaft Torque

The allowable output shaft torque shown in the specification chart is for input shaft revolution speeds of 1500 r/min (50 Hz) or 1800 r/min (60 Hz). When the input shaft revolution speed is other than these, the values shown in the specification chart should be multiplied by the torque correction coefficient shown in the figure below to obtain the allowable output shaft torque.

Allowable output shaft torque correction coefficient by input shaft revolution speed



(Example)

When the GRTA010-18L50 is used at an input shaft revolution speed of 2500 r/min. According to the figure to the left, the correction coefficient for an input shaft revolution speed of 2500 r/min is 0.65.

Allowable output shaft torque = 28.4 × 0.65 = 18.46N
{2.9 × 0.65 = 1.88kgf·m}

Allowable output shaft O.H.L. = 1264 × 0.65 = 821.6N
{129 × 0.65 = 838kgf}

Allowable input shaft O.H.L. = 96.0 × 0.65 = 62.4N
{9.8 × 0.65 = 6.37kgf}

Note 1: The correction coefficient shown in the figure above is also applied to the allowable input/output shaft O.H.L.
Note 2: For the inertia ratio and allowable starting frequency, refer to Table 3 on page 206.
Note 3: If the device is to be used as a step-up gear, please contact us.

Specification Chart

Model number		4P motor capacity equivalence kW	Frame number	Nominal reduction ratio	Actual reduction ratio	Number of reduction steps	Allowable output shaft torque				Allowable O.H.L.		Allowable output shaft O.H.L.		Page and drawing number of outline dimensions	
							N·m	{kgf·m}	N·m	{kgf·m}	Inline type input shaft					
							50Hz : 1500r/min		60Hz : 1800r/min		N	{kgf}	N	{kgf}	Foot mount	Flange mount
GRTA010	5	0.1 kW	18	1/5	1/ 4.932 (5.031)	2	2.8	{0.29}	2.4	{0.24}	96.0	{9.8}	274	{ 28}	37-1	42-1
	10			1/10	1/ 9.953 (9.779)		5.7	{0.58}	4.8	{0.49}			431	{ 44}		
	15			1/15	1/ 15.027 (14.800)		8.6	{0.88}	7.2	{0.73}			568	{ 58}		
	20			1/20	1/ 20.417 (19.821)		11.8	{ 1.2}	9.5	{0.97}			686	{ 70}	37	42
	25			1/25	1/ 25.461 (24.843)		14.7	{ 1.5}	11.8	{ 1.2}			804	{ 82}	2	2
	30			1/30	1/ 29.944		17.6	{ 1.8}	14.7	{ 1.5}			902	{ 92}		
	40			1/40	1/ 40.153		22.5	{ 2.3}	19.6	{ 2.0}			1098	{ 112}		
	50			1/50	1/ 49.817		28.4	{ 2.9}	23.5	{ 2.4}			1264	{ 129}		
	60		24	1/60	1/ 57.829	3	34.3	{ 3.5}	28.4	{ 2.9}			1431	{ 146}		
	75			1/75	1/ 75.252		43.1	{ 4.4}	36.3	{ 3.7}			1666	{ 170}		
	100			1/100	1/ 99.644		56.8	{ 5.8}	48.0	{ 4.9}			2009	{ 205}	37	42
	120			1/120	1/122.160		68.6	{ 7.0}	56.8	{ 5.8}			2274	{ 232}	3	3
	165			1/165	1/172.821		94.1	{ 9.6}	78.4	{ 8.0}			2813	{ 287}		
	200			1/200	1/197.213		115	{11.7}	95.1	{ 9.7}			3195	{ 326}		
GRTA020	5	0.2 kW	18	1/5	1/ 5.023 (5.031)	2	5.7	{0.58}	4.7	{0.48}	147	{15}	431	{ 44}	38-1	43-1
	10			1/10	1/ 10.066 (9.779)		11.8	{ 1.2}	9.5	{0.97}			686	{ 70}		
	15			1/15	1/ 15.079 (14.800)		17.6	{ 1.8}	14.7	{ 1.5}			902	{ 92}	38	43
	20			1/20	1/ 20.118 (19.821)		22.5	{ 2.3}	19.6	{ 2.0}			1098	{ 112}	2	2
	25			1/25	1/ 25.333 (24.843)		28.4	{ 2.9}	23.5	{ 2.4}			1264	{ 129}		
	30		24	1/30	1/ 29.571 (29.464)		34.3	{ 3.5}	28.4	{ 2.9}			1431	{ 146}		
	40			1/40	1/ 39.030		46.1	{ 4.7}	38.2	{ 3.9}			1735	{ 177}		
	50			1/50	1/ 49.407	3	56.8	{ 5.8}	48.0	{ 4.9}			2009	{ 205}	38	43
	60			1/60	1/ 59.417		68.6	{ 7.0}	56.8	{ 5.8}			2274	{ 232}	3	3
	75			1/75	1/ 72.286		86.2	{ 8.8}	71.5	{ 7.3}			2636	{ 269}		
	100		28	1/100	1/ 97.785		115	{11.7}	95.1	{ 9.7}			3195	{ 326}		
	120			1/120	1/120.653		137	{14.0}	115	{11.7}			3606	{ 368}		
	165			1/165	1/160.136		189	{19.3}	158	{16.1}			4459	{ 455}	38	43
	200			1/200	1/194.775		218	{22.2}	181	{18.5}			4822	{ 492}	4	4
GRTA040	5	0.4 kW	24	1/5	1/ 4.950	2	12.1	{ 1.23}	10.0	{ 1.02}	235	{24}	686	{ 70}		
	10			1/10	1/ 10.313		24.5	{ 2.5}	20.6	{ 2.1}			1098	{ 112}		
	15			1/15	1/ 15.125		36.3	{ 3.7}	30.4	{ 3.1}			1431	{ 146}	39	44
	20			1/20	1/ 19.388		48.0	{ 4.9}	40.2	{ 4.1}			1735	{ 177}	1	1
	25			1/25	1/ 24.750		60.8	{ 6.2}	50.0	{ 5.1}			2009	{ 205}		
	30		28	1/30	1/ 30.875		72.5	{ 7.4}	60.8	{ 6.2}			2274	{ 232}		
	40			1/40	1/ 40.519	3	94.1	{ 9.6}	78.4	{ 8.0}			2754	{ 281}		
	50			1/50	1/ 50.909		118	{ 12.0}	98.0	{ 10.0}			3195	{ 326}	39	44
	60			1/60	1/ 60.000		140	{ 14.3}	118	{ 12.0}			3606	{ 368}	2	2
	75			1/75	1/ 73.247		175	{ 17.9}	146	{ 14.9}			4185	{ 427}		
	100		38	1/100	1/101.544		234	{ 23.9}	195	{ 19.9}			5076	{ 518}		
	120			1/120	1/117.113		281	{ 28.7}	234	{ 23.9}			5733	{ 585}		
	165			1/165	1/160.705		364	{ 37.1}	303	{ 30.9}			6664	{ 680}	39	44
	200			1/200	1/192.560		389	{ 39.7}	324	{ 33.1}			6684	{ 682}	3	3

Note: The actual reduction ratios of the three-phase-motor-type gear motors and CB gear motors are shown in parentheses.

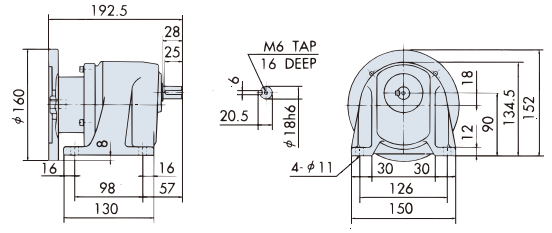
Model number		4P motor capacity equivalence kW	Frame number	Nominal reduction ratio	Actual reduction ratio	Number of reduction steps	Allowable output shaft torque				Allowable O.H.L. Inline type input shaft		Allowable output shaft O.H.L.		Page and drawing number of outline dimensions	
							N·m	{kgf·m}	N·m	{kgf·m}	N	{kgf}	N	{kgf}	Foot mount	Flange mount
							50Hz : 1500r/min		60Hz : 1800r/min							
GRTA075	5	0.75 kW	28	1/5	1/ 5.061	2	22.6	{ 2.31}	18.8	{ 1.92}	353	{36}	1049	{ 107}	40-1	45-1
	10			1/10	1/ 10.159		45.1	{ 4.6}	38.2	{ 3.9}			1666	{ 170}		
	15			1/15	1/ 14.694		67.6	{ 6.9}	56.8	{ 5.8}			2176	{ 222}		
	20			1/20	1/ 19.948		91.1	{ 9.3}	75.5	{ 7.7}			2636	{ 269}		
	25			1/25	1/ 25.397		114	{ 11.6}	94.1	{ 9.6}			3058	{ 312}		
	30		38	1/30	1/ 30.381		136	{ 13.9}	114	{ 11.6}			3459	{ 353}	40-2	45-2
	40			1/40	1/ 40.635	3	175	{ 17.9}	146	{ 14.9}			4185	{ 427}		
	50			1/50	1/ 49.143		220	{ 22.4}	183	{ 18.7}			4861	{ 496}		
	60			1/60	1/ 60.082		264	{ 26.9}	220	{ 22.4}			5488	{ 560}		
	75			1/75	1/ 74.667		300	{ 30.6}	250	{ 25.5}			5792	{ 591}		
	100		42	1/100	1/ 96.280		439	{ 44.8}	369	{ 37.7}			7301	{ 745}	40-3	45-3
	120			1/120	1/ 122.500		527	{ 53.8}	439	{ 44.8}			8242	{ 841}		
	165			1/165	1/ 160.820		724	{ 73.9}	604	{ 61.6}			9800	{1000}		
	200			1/200	1/ 197.979		735	{ 75.0}	613	{ 62.5}			9800	{1000}		
GRTA150	5	1.5 kW	38	1/5	1/ 5.000	2	45.3	{ 4.62}	37.7	{ 3.85}	568	{58}	1666	{ 170}	41-1	46-1
	10			1/10	1/ 10.000		91.1	{ 9.3}	75.5	{ 7.7}			2548	{ 260}		
	15			1/15	1/ 15.000		136	{ 13.9}	114	{ 11.6}			3342	{ 341}		
	20			1/20	1/ 19.615		181	{ 18.5}	151	{ 15.4}			4047	{ 413}		
	25			1/25	1/ 24.091		226	{ 23.1}	189	{ 19.3}			4694	{ 479}		
	30			1/30	1/ 30.000		272	{ 27.8}	226	{ 23.1}			5302	{ 541}		
	40		42	1/40	1/ 39.253	3	351	{ 35.8}	293	{ 29.9}			6292	{ 642}	41-2	46-2
	50			1/50	1/ 48.704		439	{ 44.8}	366	{ 37.3}			7301	{ 745}		
	60			1/60	1/ 61.492		527	{ 53.8}	439	{ 44.8}			8242	{ 841}		
	75			1/75	1/ 72.859		659	{ 67.2}	549	{ 56.0}			9565	{ 976}		
GRTA220	5	2.2 kW	42	1/5	1/ 5.000	2	66.6	{ 6.8}	55.9	{ 5.7}	735	{75}	2078	{ 212}	41-3	46-3
	10			1/10	1/ 9.870		133	{ 13.6}	111	{ 11.3}			3293	{ 336}		
	15			1/15	1/ 14.454		200	{ 20.4}	167	{ 17.0}			4312	{ 440}		
	20			1/20	1/ 20.659		266	{ 27.1}	221	{ 22.6}			5223	{ 533}		
	25			1/25	1/ 25.455		332	{ 33.9}	277	{ 28.3}			6066	{ 619}		
	30			1/30	1/ 29.143		399	{ 40.7}	332	{ 33.9}			6850	{ 699}		

Outline Dimensions Foot Mount Type

0.1 kW: Adapter type

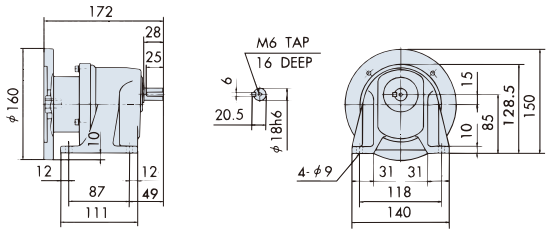
GRTA010-18L5FI — 1

Reduction ratio : 5	Approx. weight : 6.2kg



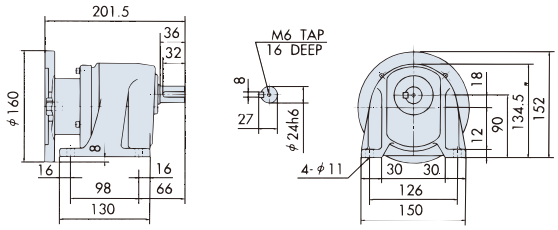
GRTA010-18L10 – 50FI — 2

Reduction ratio : 10, 15, 20, 25, 30, 40, 50	Approx. weight : 4.8kg



GRTA010-24L60 – 200FI — 3

Reduction ratio : 60, 75, 100, 120, 165, 200	Approx. weight : 6.2kg

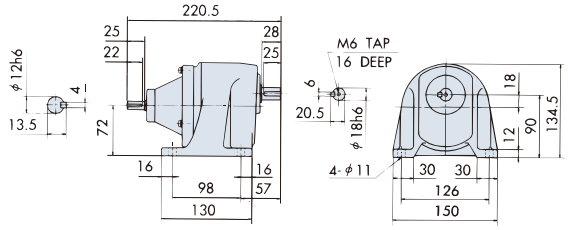


Note: For the dimensions of the input section, refer to page 34.

0.1 kW: Inline reducer type

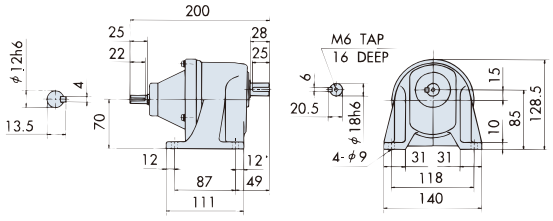
GRTA010-18L5 — 1

Reduction ratio : 5	Approx. weight : 3.8kg



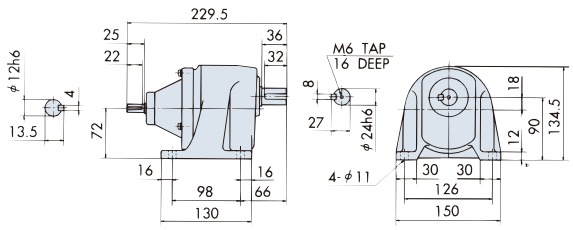
GRTA010-18L10 – 50 — 2

Reduction ratio : 10, 15, 20, 25, 30, 40, 50	Approx. weight : 2.6kg



GRTA010-24L60 – 200 — 3

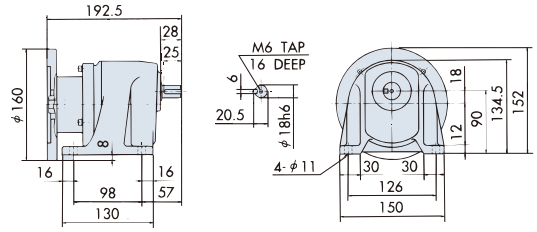
Reduction ratio : 60, 75, 100, 120, 165, 200	Approx. weight : 4.0kg



0.2 kW: Adapter type

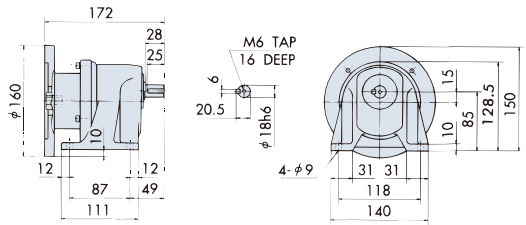
GRTA020-18L5FI 1

Reduction ratio : 5	Approx. weight : 6.2kg



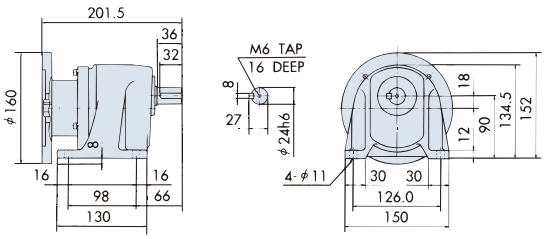
GRTA020-18L10 – 25FI 2

Reduction ratio : 10, 15, 20, 25	Approx. weight : 4.8kg



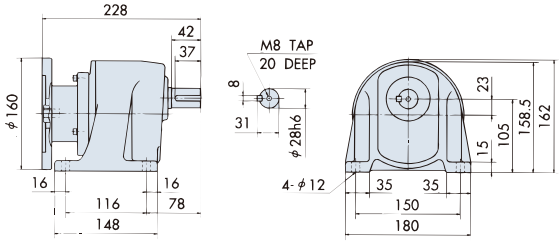
GRTA020-24L30 – 75FI 3

Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 6.2kg



GRTA020-28L100 – 200FI 4

Reduction ratio : 100, 120, 165, 200	Approx. weight : 8.6kg

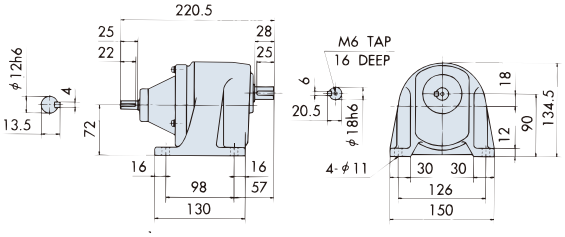


Note: For the dimensions of the input section, refer to page 34.

0.2 kW: Inline reducer type

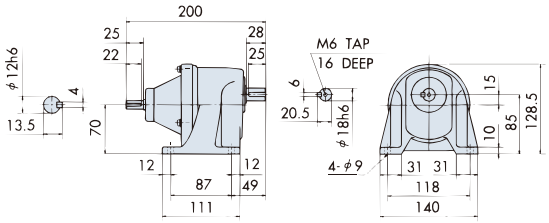
GRTA020-18L5 1

Reduction ratio : 5	Approx. weight : 3.8kg



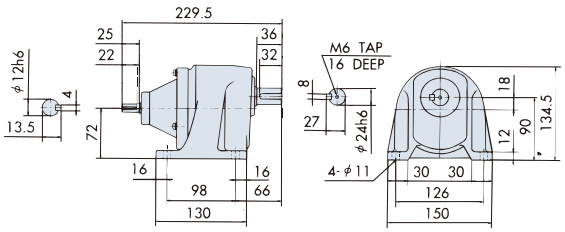
GRTA020-18L10 – 25 2

Reduction ratio : 10, 15, 20, 25	Approx. weight : 2.6kg



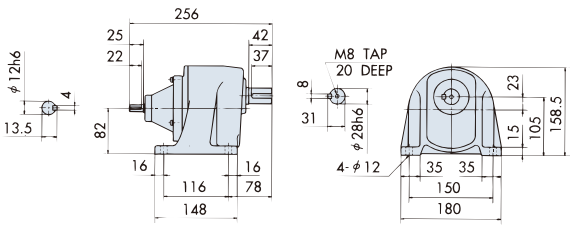
GRTA020-24L30 – 75 3

Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 4.0kg



GRTA020-28L100 – 200 4

Reduction ratio : 100, 120, 165, 200	Approx. weight : 6.2kg



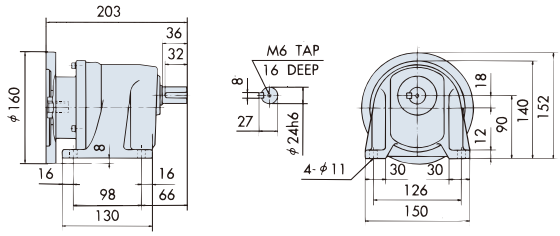
Outline Dimensions Foot Mount Type

0.4 kW: Adapter type

GRTA040-24L5 – 25FI

1

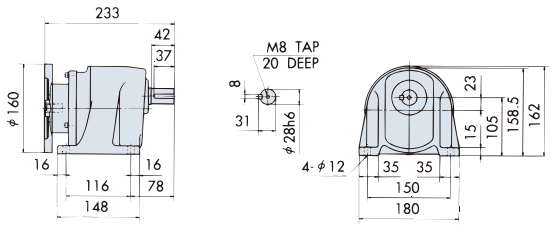
Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 6.6kg



GRTA040-28L30 – 75FI

2

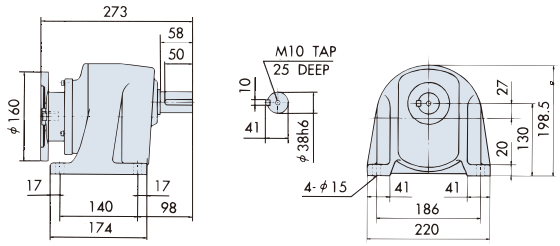
Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 9.0kg



GRTA040-38L100 – 200FI

3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 13.0kg



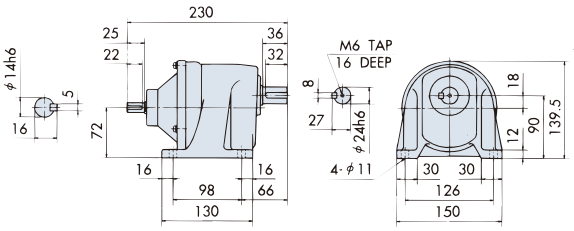
Note: For the dimensions of the input section, refer to page 34.

0.4 kW: Inline reducer type

GRTA040-24L5 – 25

1

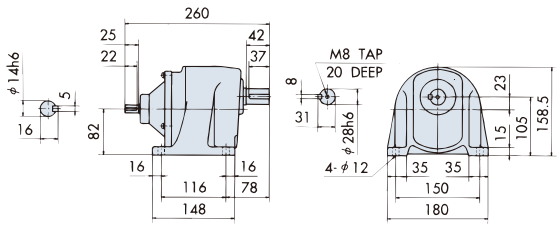
Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 4.0kg



GRTA040-28L30 – 75

2

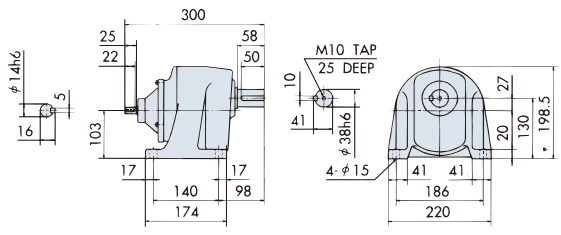
Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 6.4kg



GRTA040-38L100 – 200

3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 10.5kg

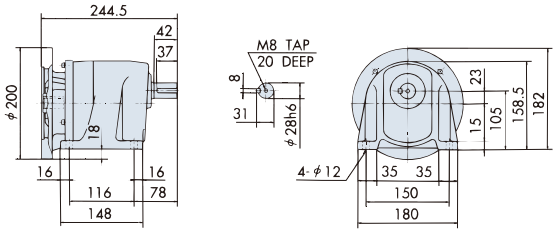


0.75 kW: Adapter type

GRTA075-28L5 – 25FI

1

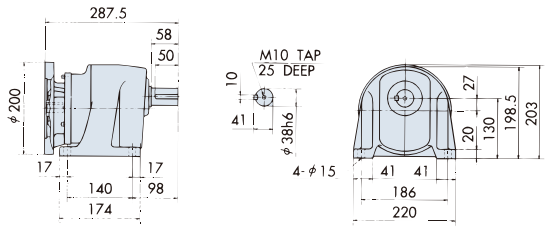
Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 11.5kg



GRTA075-38L30 – 75FI

2

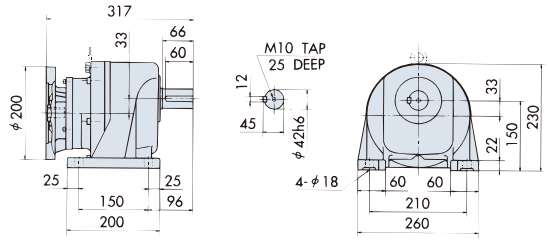
Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 15.5kg



GRTA075-42L100 – 200FI

3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 37.0kg



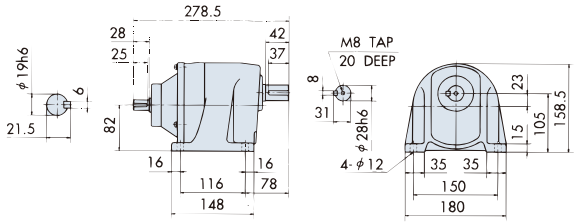
Note: For the dimensions of the input section, refer to page 34.

0.75 kW: Inline reducer type

GRTA075-28L5 – 25

1

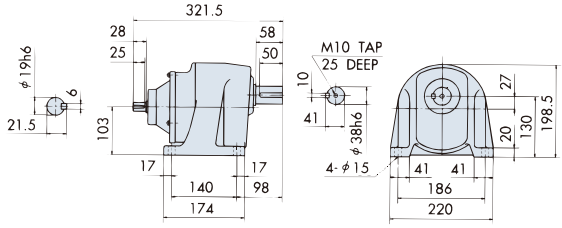
Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 7.4kg



GRTA075-38L30 – 75

2

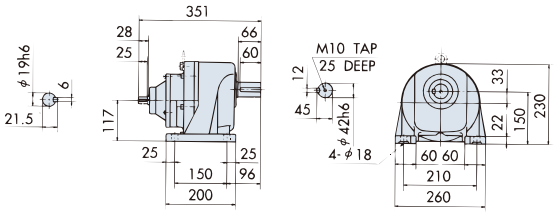
Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 11.5kg



GRTA075-42L100 – 200

3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 32.9kg



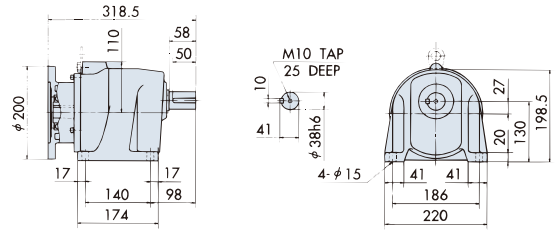
Outline Dimensions Foot Mount Type

1.5 kW: Adapter type

GRTA150-38L5 – 30FI

1

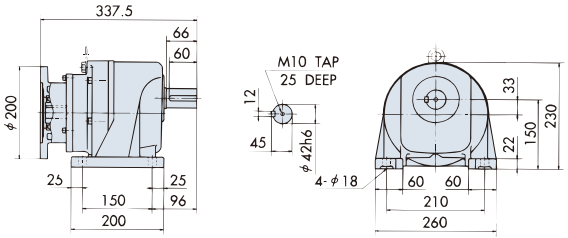
Reduction ratio : 5, 10, 15, 20, 25, 30	Approx. weight : 19.0kg



GRTA150-42L40 – 75FI

2

Reduction ratio : 40, 50, 60, 75	Approx. weight : 40.0kg



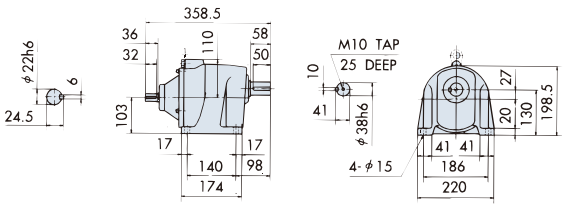
Note: For the dimensions of the input section, refer to page 34.

1.5 kW: Inline reducer type

GRTA150-38L5 – 30

1

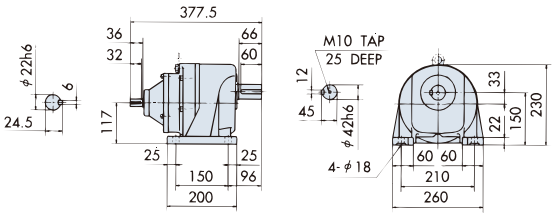
Reduction ratio : 5, 10,15, 20, 25, 30	Approx. weight : 16.0kg



GRTA150-42L40 – 75

2

Reduction ratio : 40, 50, 60, 75	Approx. weight : 37.0kg

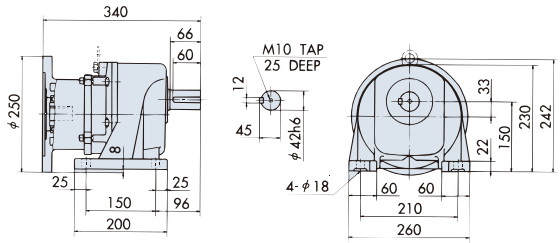


2.2 kW: Adapter type

GRTA220-42L5 – 30FI

3

Reduction ratio : 5, 10, 15, 20, 25, 30	Approx. weight : 40.0kg

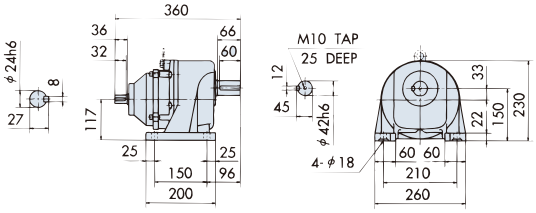


2.2 kW: Inline reducer type

GRTA220-42L5 – 30

3

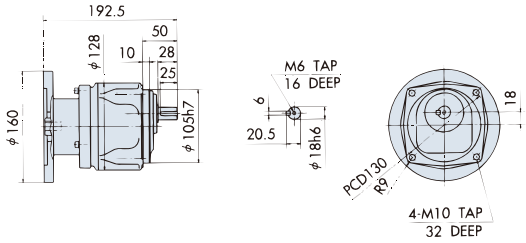
Reduction ratio : 5, 10, 15, 20, 25, 30	Approx. weight : 32.0kg



0.1 kW: Adapter type

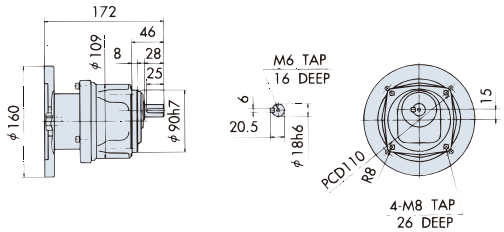
GRTA010-18U5FI 1

Reduction ratio : 5	Approx. weight : 6.0kg



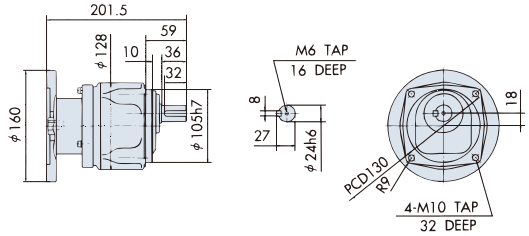
GRTA010-18U10 – 50FI 2

Reduction ratio : 10, 15, 20, 25 , 30, 40, 50	Approx. weight : 4.6kg



GRTA010-24U60 – 200FI 3

Reduction ratio : 60, 75, 100, 120, 165, 200	Approx. weight : 6.2kg

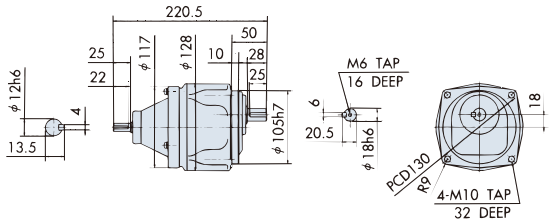


Note: For the dimensions of the input section, refer to page 34.

0.1 kW: Inline reducer type

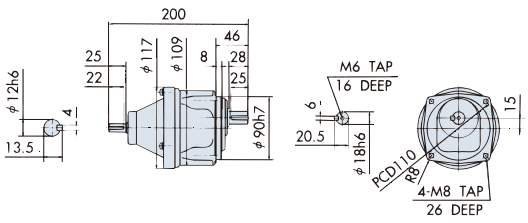
GRTA010-18U5 1

Reduction ratio :5	Approx. weight : 3.6kg



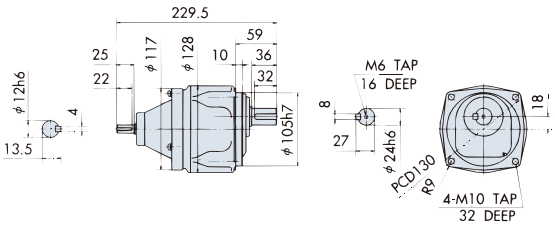
GRTA010-18U10 – 50 2

Reduction ratio :10, 15, 20, 25, 30, 40, 50	Approx. weight : 2.4kg



GRTA010-24U60 – 200 3

Reduction ratio :60, 75, 100, 120, 165, 200	Approx. weight : 3.8kg

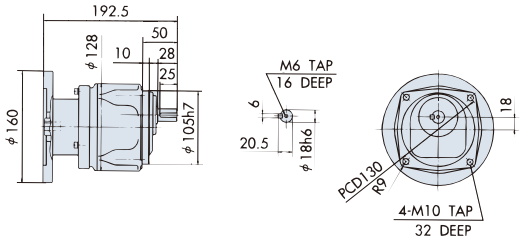


Outline Dimensions Face/Flange Mount Type

0.2 kW: Adapter type

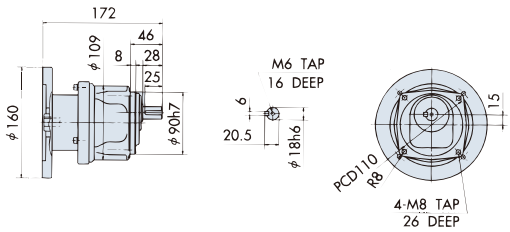
GRTA020-18U5FI 1

Reduction ratio : 5	Approx. weight : 6.0kg



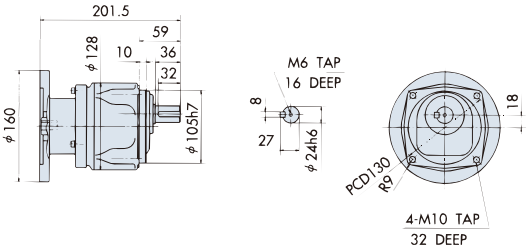
GRTA020-18U10 – 25FI 2

Reduction ratio : 10, 15, 20, 25	Approx. weight : 4.6kg



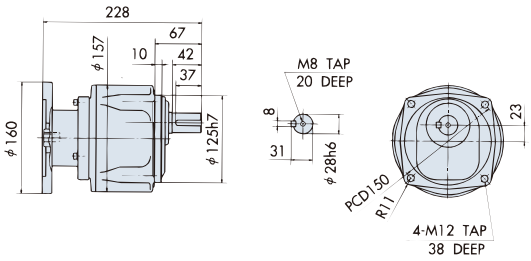
GRTA020-24U30 – 75FI 3

Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 6.2kg



GRTA020-28U100 – 200FI 4

Reduction ratio : 100, 120, 165, 200	Approx. weight : 8.6kg

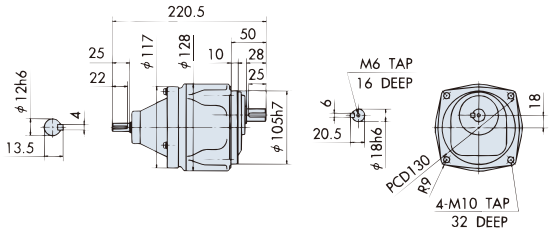


Note: For the dimensions of the input section, refer to page 34.

0.2 kW: Inline reducer type

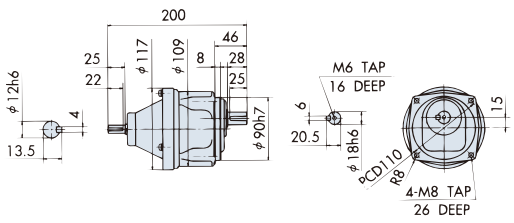
GRTA020-18U5 1

Reduction ratio : 5	Approx. weight : 3.6kg



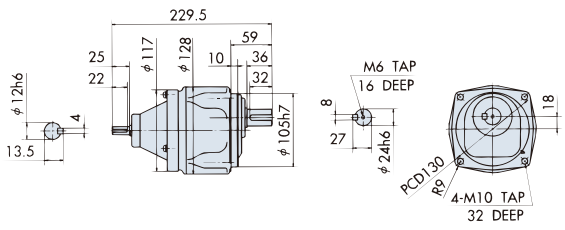
GRTA020-18U10 – 25 2

Reduction ratio : 10, 15, 20, 25	Approx. weight : 2.4kg



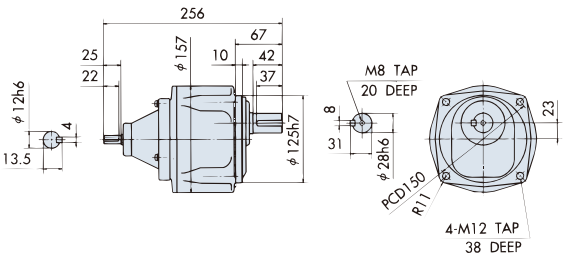
GRTA020-24U30 – 75 3

Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 3.8kg



GRTA020-28U100 – 200 4

Reduction ratio : 100, 120, 165, 200	Approx. weight : 6.2kg

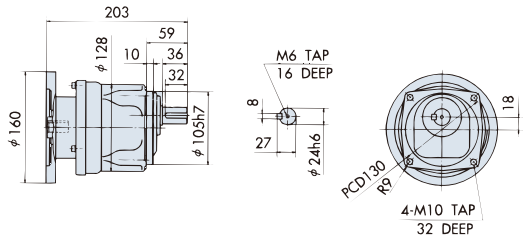


0.4 kW: Adapter type

GRTA040-24U5 – 25FI

1

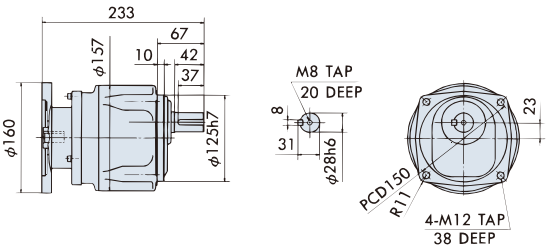
Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 6.6kg



GRTA040-28U30 – 75FI

2

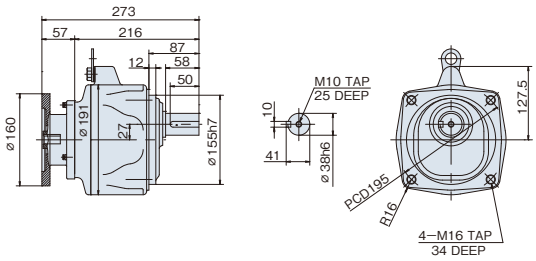
Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 9.0kg



GRTA040-38U100 – 200FI

3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 19.5kg



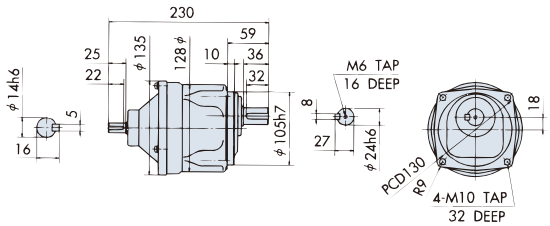
Note: For the dimensions of the input section, refer to page 34.

0.4 kW: Inline reducer type

GRTA040-24U5 – 25

1

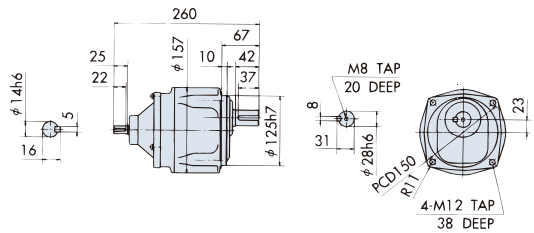
Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 3.8kg



GRTA040-28U30 – 75

2

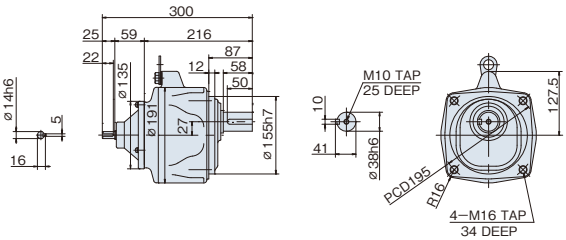
Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 6.4kg



GRTA040-38U100 – 200

3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 16.5kg



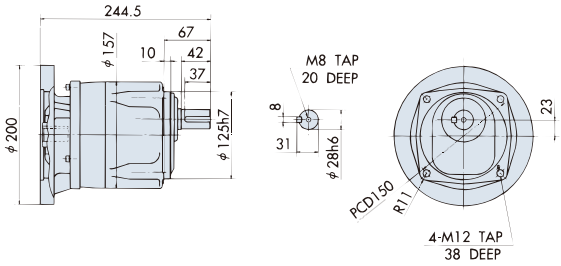
Outline Dimensions Face/Flange Mount Type

0.75 kW: Adapter type

GRTA075-28U5 – 25FI

1

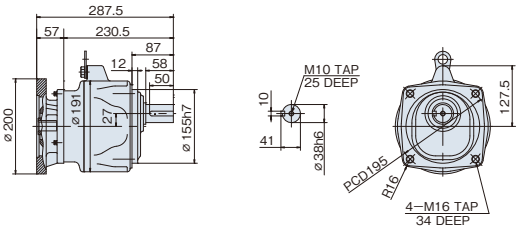
Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 11.5kg



GRTA075-38U30 – 75FI

2

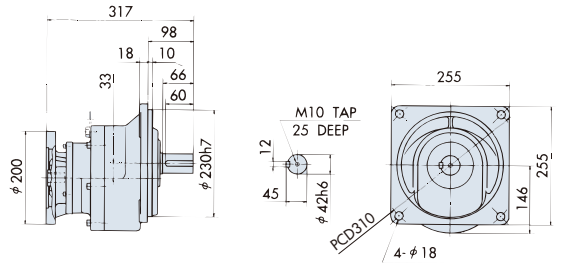
Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 21.5kg



GRTA075-42F100 – 200FI

3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 39.0kg



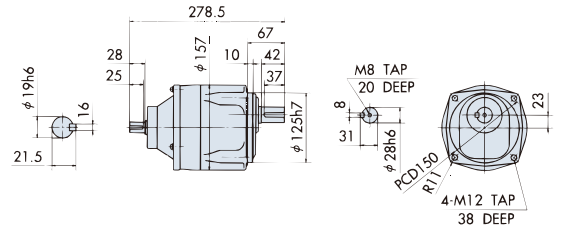
Note: For the dimensions of the input section, refer to page 34.

0.75 kW: Inline reducer type

GRTA075-28U5 – 25

1

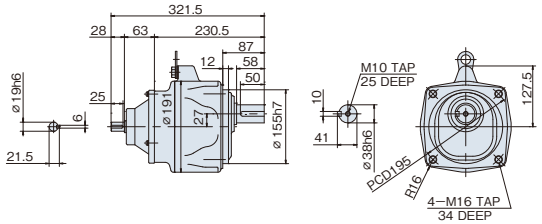
Reduction ratio : 5, 10, 15, 20, 25	Approx. weight : 7.4kg



GRTA075-38U30 – 75

2

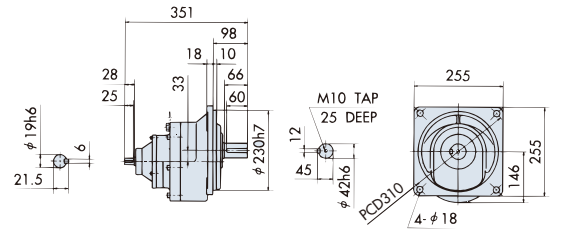
Reduction ratio : 30, 40, 50, 60, 75	Approx. weight : 17.5kg



GRTA075-42F100 – 200

3

Reduction ratio : 100, 120, 165, 200	Approx. weight : 36.9kg

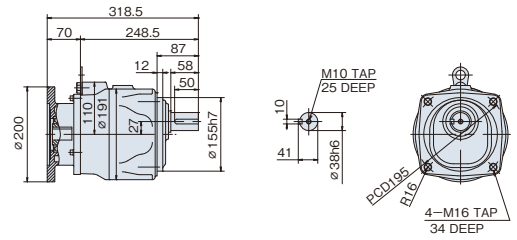


1.5 kW: Adapter type

GRTA150-38U5 – 30FI

1

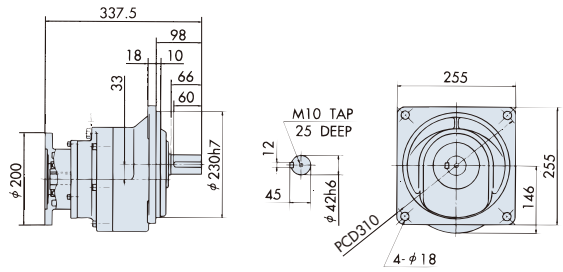
Reduction ratio : 5, 10, 15, 20, 25, 30	Approx. weight : 26.0kg



GRTA150-42F40 – 75FI

2

Reduction ratio : 40, 50, 60, 75	Approx. weight : 41.0kg



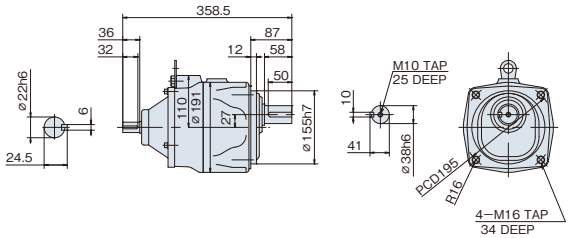
Note: For the dimensions of the input section, refer to page 34.

1.5 kW: Inline reducer type

GRTA150-38U5 – 30

1

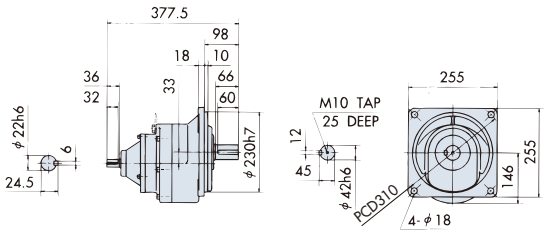
Reduction ratio : 5, 10,15, 20, 25, 30	Approx. weight : 23.0kg



GRTA150-42F40 – 75

2

Reduction ratio : 40, 50, 60, 75	Approx. weight : 38.0kg

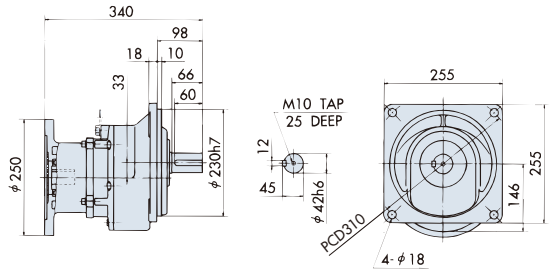


2.2 kW: Adapter type

GRTA220-42F5 – 30FI

3

Reduction ratio : 5, 10, 15, 20, 25, 30	Approx. weight : 42.0kg



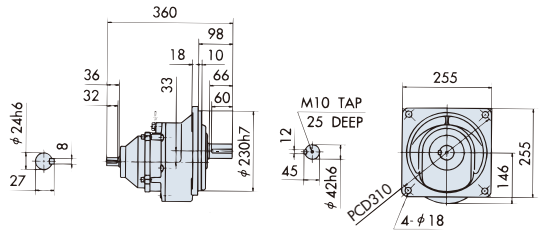
Note: For the dimensions of the input section, refer to page 34.

2.2 kW: Inline reducer type

GRTA220-42F5 – 30

3

Reduction ratio : 5, 10, 15, 20, 25, 30	Approx. weight : 34.0kg



Notes

HYPOID MOTOR

TA and TR Series

0.1 kW to 5.5 kW



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Face Mount Type ····· Page 69
Foot Mount Type ····· Page 81

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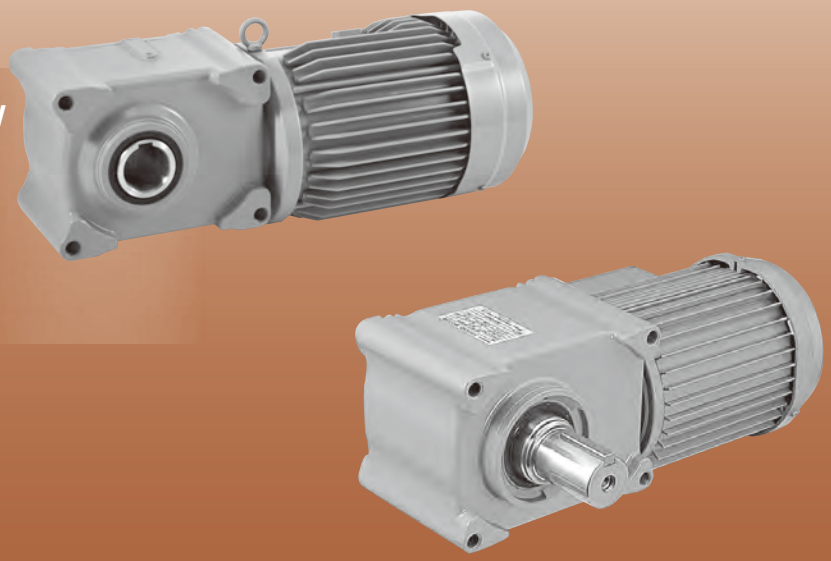
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- Selection
- Technical Data
- Options
- Plus α Series
- Just Fit Models
- Handling

HYPOID MOTOR
TA and TR Series Features

Hypoid Motor TA and TR Series Features

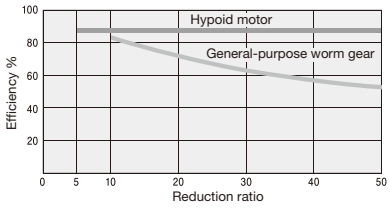
0.75 kW to 5.5 kW: IE3

Three-phase 0.1 kW to 5.5 kW Hypoid gears and right-angle reducer result in space savings and a single product with multiple uses.



1 High efficiency

Less sliding and greater efficiency compared to a worm gear. At the same output, there is less power consumption and greater cost effectiveness.



2 Low noise

Tsubaki's know-how in gear motor processing technology ensures low noise and high reliability.

3 Usability

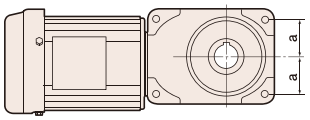
The grease is already encapsulated so it's ready to use. It can be installed in any direction. Tap processing is standard on the output shaft edges. For the hollow type shaft, the torque arm and shaft edge cover are available as options.

4 Inverter motor equipped (0.1 kW to 0.4 kW)

The inverter-compatible motor can be directly connected. Even in the low frequency range (6 Hz and more), continuous operation at 100% constant torque is possible. Dimensions are exactly the same as those of the standard model. See page 288 for details.
The more-than 0.75 kW model with IE3 motor has the same characteristics as the inverter motor model.

5 Compact

Emphasis has been placed on reducing the height of the hypoid motor so as to create a low, compact reducer.



Mounting pitches "a" are identical

Space savings

Mounted inside of conveyor belt



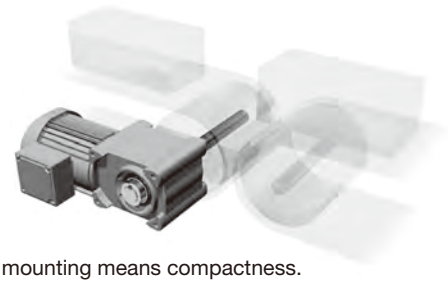
Mounted outside of conveyor belt



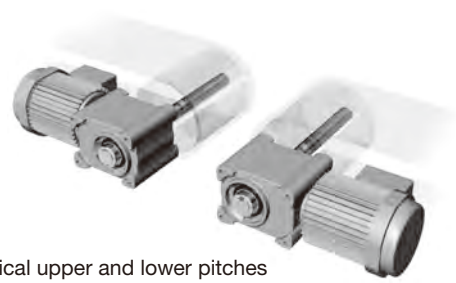
Multiple drive



Multi-fit system



Face mounting means compactness.
Minimal dead space means it's easy to move.



Identical upper and lower pitches
means two can be installed in a mirror configuration.

Three ways to attach the main unit

Mounted outside of conveyor belt



Mounted inside of conveyor belt



Mounted on shaft

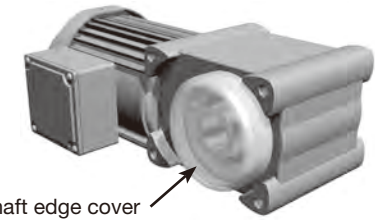


Options

Mounted on shaft with torque arm



Security with safety shaft edge cover



Nomenclature

HMTA010-38L1200L□□□□□□
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

HMTR550-55H40B□□□□□
① ② ③ ④ ⑤ ⑦ ⑧ ⑨

① Product series name	HMTA HMTR HRTA	0.1 kW–0.4 kW 0.75 kW–5.5 kW Inline reducer and adapter type
② Motor capacity (example)	010 150	Three-phase 0.1 kW Three-phase 1.5 kW
③ Frame number (example)	38 55	Frame number 38 Frame number 55
④ Mounting type	L U H	Foot mount Face mount Hollow shaft
⑤ Reduction ratio (example)	1200 200	1/1200 1/200
⑥ Shaft arrangement	L T R S No code	Output shaft located to the left as viewed from the motor side Output shaft located on both sides Output shaft located to the right as viewed from the motor side Output shaft located on one side (face side: for face mount type only) Hollow shaft type
⑦ Specification code	No code B FI BE K SR	Without B or BE Brake type Adapter type Encoder type with brake POWER-LOCK type (for hollow shaft type with standard shaft hole diameter only) SHOCK RELAY specifications (0.1 kW–0.4 kW only)
⑧ Option code A (Order of priority) Refer to "Combination of specification codes and option codes A."	Z W WC J V V1 V2 V3 V4 N N2 N3 PN3 HN3 WN3 VN VN2 VN3 PVN3 HVN3 WVN3 N8 VN8 H Q M A1 A2	Inverter motor type (0.1 kW–0.4 kW only) Outdoor type Outdoor type (with brake, 0.2 kW–0.75 kW only) Waterproof specifications (0.1 kW–0.75 kW only) 400V class 380V 50Hz (0.1 kW–0.4 kW only) 380V 60Hz 415V 50Hz 460V 60Hz (0.1 kW–0.4 kW only) 200V class Europe 200V class North America 200V class China 200V class China (resin terminal box) 200V class China (hard terminal box) 200V class China, outdoor 400V class Europe 400V class North America 400V class China 400V class China (resin terminal box) 400V class China (hard terminal box) 400V class China, outdoor 200V class South Korea 400V class South Korea Hard terminal box (0.1 kW–0.75 kW only) One-touch manual release type Manual shaft type Heat-resistant specifications (0.1 kW–0.75 kW only) Cold-resistant specifications (0.1 kW–0.75 kW only) } Global series Note 1
⑨ Option code B Former supplementary code Note: May be combined arbitrarily with option codes A.	P1 P2 P3	Terminal box position 90° swing Terminal box position 180° swing Terminal box position 270° swing
	D1 D2 D3 F1 F2 F3	Terminal box outlet direction 90° swing (0.1 kW–0.4 kW) Terminal box outlet direction 180° swing (0.1 kW–0.4 kW) Terminal box outlet direction 270° swing (0.1 kW–0.4 kW) Terminal box outlet direction 90° swing (0.75 kW–5.5 kW) Terminal box outlet direction 180° swing (0.75 kW–5.5 kW) Terminal box outlet direction 270° swing (0.75 kW–5.5 kW) } Note 2
	C0 C1 C2 C3	Paint color: Light gray (Munsell N7.5) Paint color: Light silver metallic Paint color: Ivory white Paint color: Dark silver metallic
	S1 S2 S3 S4 S5 S6 S7	Hollow shaft hole diameter ϕ20 Hollow shaft hole diameter ϕ25 Hollow shaft hole diameter ϕ30 Hollow shaft hole diameter ϕ35 Hollow shaft hole diameter ϕ40 Hollow shaft hole diameter ϕ45 Hollow shaft hole diameter ϕ50

Combination of specification codes and option codes A

0.1 kW–0.4 kW

Specification code: None

Z	ZW	ZWV
	ZJ	ZJV
	ZV	ZVH
	ZH	
W	WN	
	WV	WV1
		WV2
		WV3
		WV4
		WVN
J	JV	JV1
		JV2
		JV3
		JV4
V	VH	
	VN	
	VN2	
	V1	V1H
	V2	V2H
	V3	V3H
	V4	V4H
	VH	
N		
N2		
PN3	PVN3	
HN3	HVN3	
WN3	WVN3	
H		
A1		
A2		

Specification code: B

W	WV	
WC	WCV	
Z	ZV	ZVH
		ZVQ
		ZVM
	ZH	ZHQ
		ZHM
	ZQ	ZQM
	ZM	
V	VN	
	VH	VHQ
		VHM
	VQ	VQM
	VM	
	V1	V1H
	V2	V2H
	V3	V3H
	V4	V4H
N		
N2		
PN3	PVN3	
HN3	HVN3	
H	HQ	HQM
	HM	
Q	QM	
M		
A1		
A2		

Specification code: BE

Z	ZV	
V	VH	
H		

Specification code: SR

N

Specification code: K

Z	ZW	ZWV
	ZJ	ZJV
W	WV	WV1
		WV2
		WV3
		WV4
J	JV	JV1
		JV2
		JV3
		JV4
V	VN	
	VN2	
PN3	PVN3	
HN3	HVN3	
WN3	WVN3	
	VH	
	V1	V1H
	V2	V2H
	V3	V3H
	V4	V4H

Note: Combinations of outdoor type with brake and waterproof type are made-to-order products. Motor specifications differ from those of standard products.

0.75 kW–5.5 kW

Specification code: None

W	WV
	WV3
V	
	V3
	VN
N	
A1	
A2	

Specification code: B

V	VQ
V3	
Q	

Specification code: K

W	WV
	WV3
V	
	V3

Specification code: BE

V

Note: Combinations of outdoor type with brake and waterproof type are made-to-order products. Motor specifications differ from those of standard products.

Note 1: Refer to pages 252–256 for voltages of global series products.
Note 2: Refer to the next page for details on terminal box positions and outlet directions.

Model Lineup

Three-phase motor: Hollow shaft type (Non-brake type, brake type)

	5	7.5	10	12.5	15	20	25	30	40	50	60	80	100	120	160	200	300	360	480	600	720	960	1200
0.1kW	20H														30H					35H			
0.2kW	20H												30H				35H			45H			
0.4kW	30H										35H						45H			55H			
0.75kW	35H										45H						55H						
1.5kW	45H												55H										
2.2kW	45H												55H										
3.7kW	55H																						
5.5kW	55H																						

Note: Reduction ratios 1/7.5 and 1/12.5 are for 0.1 kW–0.75 kW models.

Three-phase motor: Face mount type (Non-brake type, brake type)

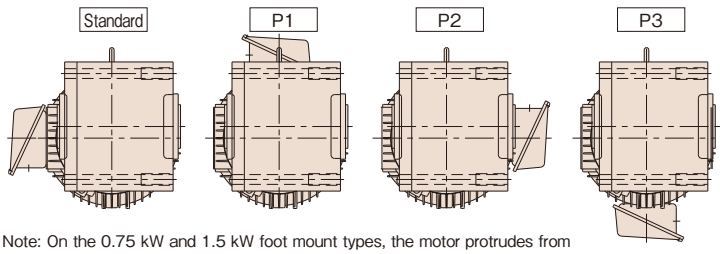
	5	10	15	20	25	30	40	50	60	80	100	120	160	200	300	360	480	600	720	960	1200
0.1kW	22U												24U		28U			38U			
0.2kW	22U										28U				38U			42U			
0.4kW	28U								38U						42U			50U			
0.75kW	38U								42U						50U						
1.5kW	42U										50U										
2.2kW	42U										50U										
3.7kW	50U																				
5.5kW	50U																				

Three-phase motor: Foot mount type (Non-brake type, brake type)

	5	10	15	20	25	30	40	50	60	80	100	120	160	200	300	360	480	600	720	960	1200
0.1kW	22L												24L		28L			38L			
0.2kW	22L										28L				38L			42L			
0.4kW	28L								38L						42L			50L			
0.75kW	38L								42L						50L						
1.5kW	42L										50L										
2.2kW	42L										50L										
3.7kW	50L																				
5.5kW	50L																				

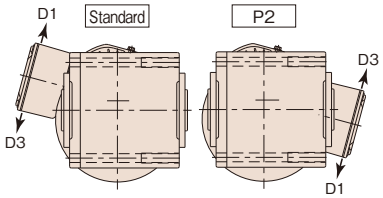
Terminal box positions and lead outlet directions

1. Terminal box position codes



Note: On the 0.75 kW and 1.5 kW foot mount types, the motor protrudes from the mounting surface when the terminal box is at a position other than the standard position.

Note: On 0.1 kW and 0.2 kW models with reduction ratios of 1/300 to 1/2000, the terminal box inclines 15° horizontally, as shown in the figure below. (D1 and D3 are for outdoor types and models with a hard terminal box.)

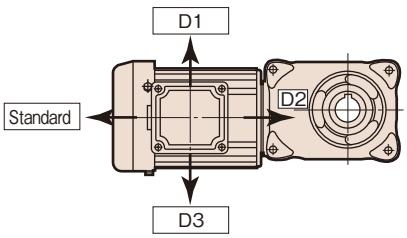


2. Terminal box outlet direction

The positions shown below are obtained by sequentially swinging the lead outlet clockwise, as viewed facing the terminal box, by 90 degrees from the standard position of the lead outlet.

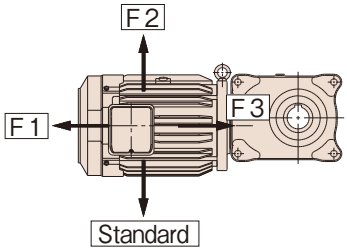
0.1 kW to 0.4 kW: Outdoor type, hard terminal box

Note: For standard motors (with resin terminal box), change the direction of the lead outlet by changing the terminal box top cover mounting direction.



0.75 kW to 5.5 kW: Standard model, outdoor terminal box

Note: On 0.75 kW non-brake types and 1.5 kW–2.2 kW brake types, changing the lead outlet direction will change the center of the terminal box.



Specifications

Motor	Output	Three-phase: 0.1, 0.2, 0.4 kW: IE1, 0.75, 1.5, 2.2, 3.7, 5.5 kW: IE3
		Non-brake type, Brake type
	Power supply	0.1 kW–5.5 kW, 200/200/220 V, 50/60/60 Hz
	Number of poles	4
	Protection	0.1 kW: Totally enclosed type (IP44), 0.2 kW–5.5 kW: Totally enclosed external fan type (IP44)
	Cooling	0.1 kW: Self-cooled type (IC410), 0.2 kW–5.5 kW: Self-managed type (IC411)
	Startup	—
	Rating	S1 (continuous)
	Insulation	0.1 kW–0.4 kW: 120 (E), 0.75 kW: 155 (F), 1.5 kW–5.5 kW: 130 (B)
	Brake	Non-excitation operation, DC electromagnetic brake
Reducer	Reduction ratio	1/5 to 1/1200
	Lubrication	Grease
	Start end keyway	New JIS key (JISB1301-1976): Output shaft key attached (Ordinary-class keyway, except hollow shaft type)
	Output shaft end	Tapped (except hollow shaft type)
Ambient conditions	Installation place	Indoor not exposed to dust or water
	Temperature	−20℃ to 40℃
	Humidity	Less than 85% (non condensing)
	Altitude	Elevations below 1000 m
	Atmosphere	Free from corrosive gases, explosive gases, and steam
	Mounting direction	No limitations on mounting angles: horizontal, vertical, or inclined
Paint color		Munsell 2.5G 6/3

Note: The protective construction for the brake type is IP20.

Motor Specifications (0.1 kW–0.4 kW)

Number of phases	Output	Number of poles	Frequency Hz	Voltage V	Rated current A	Rated revolution r/min	AC-side brake current Reference value at 20℃
Three-phase	0.1kW	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	0.12
	0.2kW				1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	0.12
	0.4kW				2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	0.16

Motor Specifications (0.75 kW–5.5 kW)

Number of phases	Output	Number of poles	Frequency Hz	Voltage V	Rated current A	Rated revolution r/min	Energy efficiency %	Efficiency class IE code	AC-side brake current Reference value at 20℃
Three-phase	0.75kW	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	83.9/86.4/86.4 (83.6/83.9/86.4/86.4)	IE3	0.17
	1.5kW				6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1450/1745/1755 (1445/1450/1745/1755)	86.9/88.6/89.1 (86.7/86.9/88.6/89.1)		0.10
	2.2kW				9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	88.2/89.9/90.2 (88.1/88.2/89.9/90.2)		0.10
	3.7kW				15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1445/1450/1745/1755)	89.2/89.8/90.7 (88.6/89.2/89.8/90.7)		0.08
	5.5kW				22.6/20.8/20.0 (11.3/11.3/10.4/10.0)	1465/1760/1765 (1460/1465/1760/1765)	91.2/92.1/92.4 (91.2/91.2/92.1/92.4)		0.10

Note 1: The values in parentheses under "Rated current" and "Rated revolution" for 0.1 kW–0.4 kW are for 400/400/440 V.
Note 2: The values in parentheses under "Rated current" and "Rated revolution" for 0.75 kW–5.5 kW are for 380/400/400/440 V.
Note 3: For the brake-type models, the brake current shown above is added for the phase where the brake lead wire is connected to the motor lead wire. The AC-side brake current is for 200 V AC 60 Hz.
Note 4: The specifications for 0.75 kW–5.5 kW are the IE3 motor specifications for the Japanese market.
Please refer to other information to confirm that products comply with global voltage requirements.

Specification Chart

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
							N·m	{kgf·m}	N·m	{kgf·m}					
				L·U·H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount
HMTA 010	5	0.1	1/5	2	300	360	2.7	{0.28}	2.4	{0.24}	588	{60}	58 | 1	70 | 1	82 | 1
	7.5		1/7.5		200	240	4.2	{0.43}	3.4	{0.35}	784	{80}			
	10		1/10		150	180	5.6	{0.57}	4.6	{0.47}	980	{100}			
	12.5		1/12.5		120	144	7.0	{0.71}	5.8	{0.59}	1029	{105}			
	15		1/15		100	120	8.3	{0.85}	7.0	{0.71}	1078	{110}			
	20		1/20		75	90	10.8	{1.1}	9.3	{0.95}	1176	{120}			
	25		1/25		60	72	13.7	{1.4}	11.8	{1.2}	1274	{130}			
	30		1/30		50	60	16.7	{1.7}	13.7	{1.4}	1421	{145}			
	40		1/40		37.5	45	22.5	{2.3}	18.6	{1.9}	1617	{165}			
	50		1/50		30	36	27.4	{2.8}	23.5	{2.4}	1862	{190}			
	60		1/60	3	25	30	31.4	{3.2}	26.5	{2.7}	2009	{205}			
	80		1/80		18.8	22.5	42.1	{4.3}	35.3	{3.6}	2254	{230}			
	100		1/100		15	18	52.9	{5.4}	44.1	{4.5}	2548	{260}			
	120		1/120		12.5	15	63.7	{6.5}	52.9	{5.4}	2793	{285}			
	160		1/160		9.4	11.3	84.3	{8.6}	70.6	{7.2}	3332	{340}	58 | 2	70 | 2	82 | 2
	200		1/200		7.5	9	106	{10.8}	88.2	{9.0}	3332	{340}			
	300		1/300	4	5	6	129	{13.2}	108	{11.0}	3332	{340}	58 | 3	70 | 3	82 | 3
	360		1/360		4.2	5	156	{15.9}	129	{13.2}	3332	{340}			
	480		1/480		3.1	3.8	※169	※{17.2}	※169	※{17.2}	3332	{340}			
	600		1/600		2.5	3	260	{26.5}	217	{22.1}	4410	{450}	58 | 4	70 | 4	82 | 4
	720		1/720		2.1	2.5	312	{31.8}	260	{26.5}	4410	{450}			
	960		1/960		1.6	1.9	※374	※{38.2}	346	{35.3}	4410	{450}			
	1200		1/1200		1.3	1.5	※374	※{38.2}	※374	※{38.2}	4410	{450}			
HMTA 020	5	0.2	1/5	2	300	360	5.6	{0.57}	4.6	{0.47}	588	{60}	60 | 1	72 | 1	84 | 1
	7.5		1/7.5		200	240	8.3	{0.85}	7.0	{0.71}	784	{80}			
	10		1/10		150	180	10.8	{1.1}	9.3	{0.95}	980	{100}			
	12.5		1/12.5		120	144	13.7	{1.4}	11.8	{1.2}	1029	{105}			
	15		1/15		100	120	16.7	{1.7}	13.7	{1.4}	1078	{110}			
	20		1/20		75	90	22.5	{2.3}	18.6	{1.9}	1176	{120}			
	25		1/25		60	72	27.4	{2.8}	23.5	{2.4}	1274	{130}			
	30		1/30	3	50	60	31.4	{3.2}	26.5	{2.7}	1421	{145}			
	40		1/40		37.5	45	42.1	{4.3}	35.3	{3.6}	1617	{165}			
	50		1/50		30	36	52.9	{5.4}	44.1	{4.5}	1862	{190}			
	60		1/60		25	30	66.6	{6.8}	54.9	{5.6}	2009	{205}			
	80		1/80		18.8	22.5	84.3	{8.6}	70.6	{7.2}	2254	{230}			
	100		1/100		15	18	106	{10.8}	88.2	{9.0}	2548	{260}	60 | 2	72 | 2	84 | 2
	120		1/120		12.5	15	126	{12.9}	106	{10.8}	2793	{285}			
	160		1/160		9.4	11.3	169	{17.2}	140	{14.3}	3332	{340}			
	200		1/200		7.5	9	※169	※{17.2}	※169	※{17.2}	3332	{340}			
	300		1/300	4	5	6	260	{26.5}	217	{22.1}	4410	{450}	60 | 3	72 | 3	84 | 3
	360		1/360		4.2	5	312	{31.8}	260	{26.5}	4410	{450}			
	480		1/480		3.1	3.8	※374	※{38.2}	※312	※{31.8}	4410	{450}			
	600		1/600		2.5	3	506	{51.6}	432	{44.1}	6272	{640}	60 | 4	72 | 4	84 | 4
	720		1/720		2.1	2.5	607	{61.9}	519	{53.0}	6272	{640}			
	960		1/960		1.6	1.9	※621	※{63.4}	※621	※{63.4}	6272	{640}			
	1200		1/1200		1.3	1.5	※621	※{63.4}	※621	※{63.4}	6272	{640}			

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate (page 53).
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.
Note 5: Reduction ratios 1/7.5 and 1/12.5 are for hollow shaft, three-phase motor types (non-brake or brake type) only.

Specification Chart

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
							N·m	{kgf·m}	N·m	{kgf·m}					
				L·U·H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount
HMTA 040	5	0.4	1/5	2	300	360	10.8	{1.1}	9.3	{0.95}	931	{95}	62 1	74 1	86 1
	7.5		1/7.5		200	240	16.7	{1.7}	13.7	{1.4}	1254	{128}			
	10		1/10		150	180	22.5	{2.3}	18.6	{1.9}	1568	{160}			
	12.5		1/12.5		120	144	27.4	{2.8}	23.5	{2.4}	1646	{168}			
	15		1/15		100	120	33.3	{3.4}	27.4	{2.8}	1715	{175}			
	20		1/20		75	90	44.1	{4.5}	37.2	{3.8}	1862	{190}			
	25		1/25		60	72	55.9	{5.7}	46.1	{4.7}	2009	{205}			
	30		1/30		50	60	66.6	{6.8}	55.9	{5.7}	2205	{225}			
	40		1/40	3	37.5	45	84.3	{8.6}	70.6	{7.2}	2450	{250}			
	50		1/50		30	36	106	{10.8}	88.2	{9.0}	2793	{285}			
	60		1/60		25	30	126	{12.9}	106	{10.8}	3038	{310}	62 2	74 2	86 2
	80		1/80		18.8	22.5	169	{17.2}	141	{14.4}	3479	{355}			
	100		1/100		15	18	212	{21.6}	176	{18.0}	3920	{400}			
	120		1/120		12.5	15	254	{25.9}	212	{21.6}	4410	{450}			
	160		1/160		9.4	11.3	338	{34.5}	281	{28.7}	4410	{450}			
	200		1/200		7.5	9	※374	※{38.2}	※312	※{31.8}	4410	{450}			
	300		1/300	4	5	6	519	{53.0}	432	{44.1}	6272	{640}	62 3	74 3	86 3
	360		1/360		4.2	5	621	{63.4}	519	{53.0}	6272	{640}			
	480		1/480		3.1	3.8	※621	※{63.4}	※621	※{63.4}	6272	{640}			
	600		1/600		2.5	3	1029	{105}	869	{88.7}	9800	{1000}	62 4	74 4	86 4
	720		1/720		2.1	2.5	※1176	※{120}	1029	{105}	9800	{1000}			
	960		1/960		1.6	1.9	※1176	※{120}	※1176	※{120}	9800	{1000}			
	1200		1/1200		1.3	1.5	※1176	※{120}	※1176	※{120}	9800	{1000}			
HMTR 075	5	0.75	1/5	2	300	360	20.6	{2.1}	17.6	{1.8}	1519	{155}	64 1	76 1	88 1
	7.5		1/7.5		200	240	31.4	{3.2}	26.5	{2.7}	1862	{190}			
	10		1/10		150	180	42.1	{4.3}	34.3	{3.5}	2205	{225}			
	12.5		1/12.5		120	144	51.9	{5.3}	43.1	{4.4}	2303	{235}			
	15		1/15		100	120	62.7	{6.4}	51.9	{5.3}	2401	{245}			
	20		1/20		75	90	83.3	{8.5}	69.6	{7.1}	2646	{270}			
	25		1/25		60	72	104	{10.6}	87.2	{8.9}	2891	{295}			
	30		1/30		50	60	125	{12.8}	104	{10.6}	3136	{320}			
	40		1/40	3	37.5	45	159	{16.2}	132	{13.5}	3626	{370}			
	50		1/50		30	36	198	{20.2}	165	{16.8}	4116	{420}			
	60		1/60		25	30	238	{24.3}	198	{20.2}	4508	{460}	64 2	76 2	88 2
	80		1/80		18.8	22.5	317	{32.3}	264	{26.9}	5390	{550}			
	100		1/100		15	18	396	{40.4}	330	{33.7}	6272	{640}			
	120		1/120		12.5	15	475	{48.5}	396	{40.4}	6272	{640}			
	160		1/160		9.4	11.3	621	{63.4}	517	{52.8}	6272	{640}			
	200		1/200		7.5	9	※621	※{63.4}	※621	※{63.4}	6272	{640}			
	300		1/300	4	5	6	973	{99.3}	807	{82.3}	9800	{1000}	64 3	76 3	88 3
	360		1/360		4.2	5	1166	{119}	973	{99.3}	9800	{1000}			
	480		1/480		3.1	3.8	※1176	※{120}	※1176	※{120}	9800	{1000}			

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate (page 53).
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.
Note 5: Reduction ratios 1/7.5 and 1/12.5 are for hollow shaft, three-phase motor types (non-brake or brake type) only.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
							N·m	{kgf·m}	N·m	{kgf·m}					
				L·U·H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount
HMTR 150	5	1.5	1/5	2	300	360	41.2	{4.2}	34.3	{3.5}	2058	{210}	65 – 1	77 – 1	89 – 1
	10		1/10		150	180	83.3	{8.5}	69.6	{7.1}	2842	{290}			
	15		1/15		100	120	124	{12.7}	104	{10.6}	3234	{330}			
	20		1/20		75	90	166	{16.9}	138	{14.1}	3626	{370}			
	25		1/25		60	72	208	{21.2}	173	{17.7}	4018	{410}			
	30		1/30		50	60	249	{25.4}	208	{21.2}	4508	{460}			
	40		1/40	3	37.5	45	317	{32.3}	264	{26.9}	5292	{540}			
	50		1/50		30	36	396	{40.4}	330	{33.7}	6076	{620}			
	60		1/60		25	30	475	{48.5}	396	{40.4}	6272	{640}			
	80		1/80		18.8	22.5	634	{64.7}	528	{53.9}	6272	{640}			
	100		1/100		15	18	792	{80.8}	661	{67.4}	9800	{1000}	65 – 2	77 – 2	89 – 2
	120		1/120		12.5	15	951	{97.0}	792	{80.8}	9800	{1000}			
	160		1/160		9.4	11.3	※1176	※{120}	1058	{108}	9800	{1000}			
	200		1/200		7.5	9	※1176	※{120}	※1176	※{120}	9800	{1000}			
HMTR 220	5	2.2	1/5	2	300	360	60.8	{6.2}	51.0	{5.2}	3038	{310}	66 – 1	78 – 1	90 – 1
	10		1/10		150	180	122	{12.4}	102	{10.4}	3822	{390}			
	15		1/15		100	120	182	{18.6}	152	{15.5}	4214	{430}			
	20		1/20		75	90	244	{24.9}	203	{20.7}	4606	{470}			
	25		1/25	3	60	72	290	{29.6}	242	{24.7}	4998	{510}			
	30		1/30		50	60	349	{35.6}	290	{29.6}	5390	{550}			
	40		1/40		37.5	45	465	{47.4}	387	{39.5}	5782	{590}			
	★50		★1/50		30	36	581	{59.3}	484	{49.4}	6076	{620}			
	60		1/60		25	30	697	{71.1}	581	{59.3}	6272	{640}			
	80		1/80		18.8	22.5	930	{94.9}	774	{79.0}	9800	{1000}	66 – 2	78 – 2	90 – 2
	100		1/100		15	18	※1068	※{109}	968	{98.8}	9800	{1000}			
	120		1/120		12.5	15	※1176	※{120}	1166	{119}	9800	{1000}			
HMTR 370	5	3.7	1/5	2	300	360	103	{10.5}	85.3	{8.7}	4900	{500}	67 – 1	79 – 1	91 – 1
	10		1/10		150	180	205	{20.9}	171	{17.4}	5880	{600}			
	15		1/15		100	120	308	{31.4}	256	{26.1}	6860	{700}			
	20		1/20		75	90	410	{41.8}	341	{34.8}	7742	{790}			
	25		1/25	3	60	72	489	{49.9}	407	{41.5}	8134	{830}			
	30		1/30		50	60	586	{59.8}	489	{49.9}	8428	{860}			
	40		1/40		37.5	45	782	{79.8}	652	{66.5}	8820	{900}			
	50		1/50		30	36	977	{99.7}	814	{83.1}	9114	{930}			
	60		1/60		25	30	1176	{120}	977	{99.7}	9408	{960}			
HMTR 550	5	5.5	1/5	2	300	360	152	{15.5}	126	{12.9}	4900	{500}	68 – 1	80 – 1	92 – 1
	10		1/10		150	180	305	{31.1}	254	{25.9}	5880	{600}			
	15		1/15		100	120	457	{46.6}	380	{38.8}	6860	{700}			
	20		1/20		75	90	609	{62.1}	508	{51.8}	7742	{790}			
	25		1/25	3	60	72	726	{74.1}	606	{61.8}	8134	{830}			
	30		1/30		50	60	871	{88.9}	726	{74.1}	8428	{860}			
	40		1/40		37.5	45	1166	{119}	968	{98.8}	8820	{900}			

Note 1: The actual reduction ratio is shown as the reduction ratio. Note that on the 2.2 kW, 1/50 model (marked with ★), the actual reduction ratio is 1/49.286.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate (page 53).
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.

Specification Chart

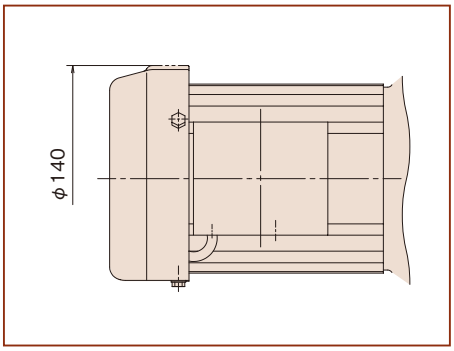
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.1kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	Totally enclosed (IP44)	Self-cooled (IC410)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA010	5	0.1	1/5	2	300	360	2.7	{0.28}	2.4	{0.24}	588	{60}	1
	7.5		1/7.5		200	240	4.2	{0.43}	3.4	{0.35}	784	{80}	
	10		1/10		150	180	5.6	{0.57}	4.6	{0.47}	980	{100}	
	12.5		1/12.5		120	144	7.0	{0.71}	5.8	{0.59}	1029	{105}	
	15		1/15		100	120	8.3	{0.85}	7.0	{0.71}	1078	{110}	
	20		1/20		75	90	10.8	{1.1}	9.3	{0.95}	1176	{120}	
	25		1/25		60	72	13.7	{1.4}	11.8	{1.2}	1274	{130}	
	30		1/30		50	60	16.7	{1.7}	13.7	{1.4}	1421	{145}	
	40		1/40		37.5	45	22.5	{2.3}	18.6	{1.9}	1617	{165}	
	50		1/50		30	36	27.4	{2.8}	23.5	{2.4}	1862	{190}	
	60		1/60	3	25	30	31.4	{3.2}	26.5	{2.7}	2009	{205}	
	80		1/80		18.8	22.5	42.1	{4.3}	35.3	{3.6}	2254	{230}	
	100		1/100		15	18	52.9	{5.4}	44.1	{4.5}	2548	{260}	
	120		1/120		12.5	15	63.7	{6.5}	52.9	{5.4}	2793	{285}	
	160		1/160		9.4	11.3	84.3	{8.6}	70.6	{7.2}	3332	{340}	2
	200		1/200		7.5	9	106	{10.8}	88.2	{9.0}	3332	{340}	
	300		1/300	4	5	6	129	{13.2}	108	{11.0}	3332	{340}	
	360		1/360		4.2	5	156	{15.9}	129	{13.2}	3332	{340}	3
	480		1/480		3.1	3.8	※169	※{17.2}	※169	※{17.2}	3332	{340}	
	600		1/600		2.5	3	260	{26.5}	217	{22.1}	4410	{450}	
	720		1/720		2.1	2.5	312	{31.8}	260	{26.5}	4410	{450}	4
	960		1/960		1.6	1.9	※374	※{38.2}	346	{35.3}	4410	{450}	
	1200		1/1200		1.3	1.5	※374	※{38.2}	※374	※{38.2}	4410	{450}	

Note 1: The actual reduction ratio is shown as the reduction ratio.
(They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

Motor of brake-equipped model



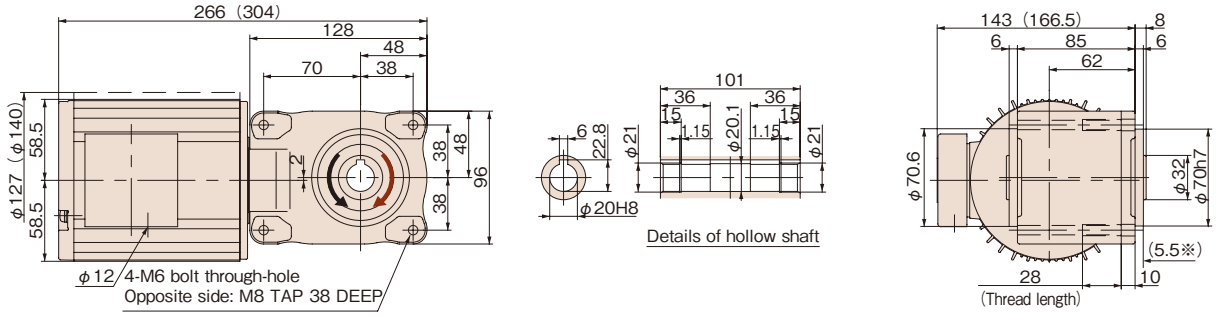
Outline Dimensions

HMTA010-20H5 – 120(B)

1/5–1/50 ↺ 、1/60–1/120 ↻ **1**

Reduction ratio : 5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120

Approx. weight : 5.7 (7.7) kg

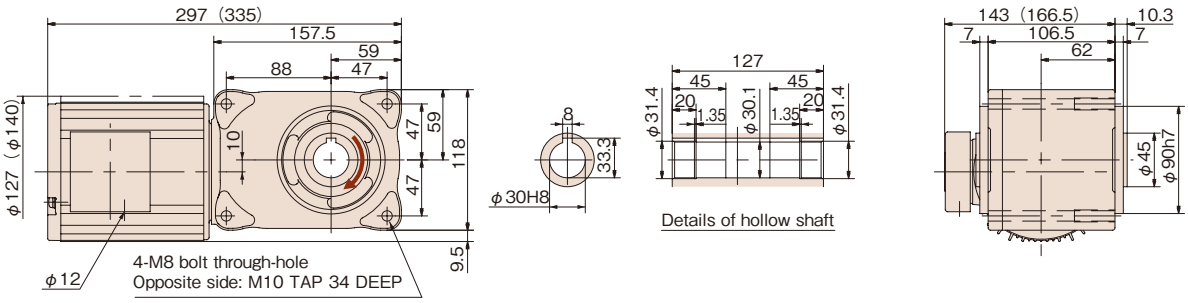


HMTA010-30H160 – 200(B)

2

Reduction ratio : 160, 200

Approx. weight : 9.0 (10.6) kg

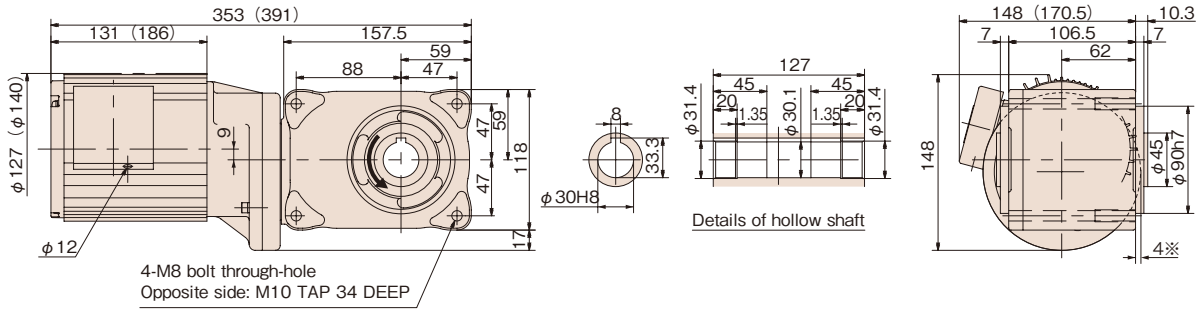


HMTA010-30H300 – 480(B)

3

Reduction ratio : 300, 360, 480

Approx. weight : 11.1 (12.7) kg

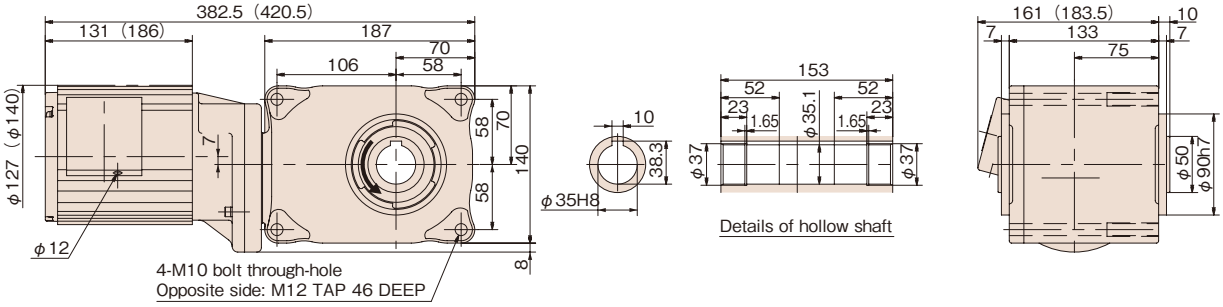


HMTA010-35H600 – 1200(B)

4

Reduction ratio : 600, 720, 960, 1200

Approx. weight : 14.0 (15.6) kg



Note 1: The values in parentheses are for brake-equipped models with a fan cover. Refer to the previous page for the shape of the fan cover.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.2kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA020	5	0.2	1/5	2	300	360	5.6	{0.57}	4.6	{0.47}	588	{60}	1
	7.5		1/7.5		200	240	8.3	{0.85}	7.0	{0.71}	784	{80}	
	10		1/10		150	180	10.8	{1.1}	9.3	{0.95}	980	{100}	
	12.5		1/12.5		120	144	13.7	{1.4}	11.8	{1.2}	1029	{105}	
	15		1/15		100	120	16.7	{1.7}	13.7	{1.4}	1078	{110}	
	20		1/20		75	90	22.5	{2.3}	18.6	{1.9}	1176	{120}	
	25		1/25		60	72	27.4	{2.8}	23.5	{2.4}	1274	{130}	
	30		1/30	3	50	60	31.4	{3.2}	26.5	{2.7}	1421	{145}	
	40		1/40		37.5	45	42.1	{4.3}	35.3	{3.6}	1617	{165}	
	50		1/50		30	36	52.9	{5.4}	44.1	{4.5}	1862	{190}	
	60		1/60		25	30	63.7	{6.5}	52.9	{5.4}	2009	{205}	
	80		1/80		18.8	22.5	84.3	{8.6}	70.6	{7.2}	2254	{230}	2
	100		1/100		15	18	106	{10.8}	88.2	{9.0}	2548	{260}	
	120		1/120		12.5	15	126	{12.9}	106	{10.8}	2793	{285}	
	160		1/160		9.4	11.3	169	{17.2}	140	{14.3}	3332	{340}	
	200		1/200		7.5	9	*169	*{17.2}	*169	*{17.2}	3332	{340}	
	300		1/300	4	5	6	260	{26.5}	217	{22.1}	4410	{450}	3
	360		1/360		4.2	5	312	{31.8}	260	{26.5}	4410	{450}	
	480		1/480		3.1	3.8	*374	*{38.2}	*312	*{31.8}	4410	{450}	
	600		1/600		2.5	3	506	{51.6}	432	{44.1}	6272	{640}	4
	720		1/720		2.1	2.5	607	{61.9}	519	{53.0}	6272	{640}	
	960		1/960		1.6	1.9	*621	*{63.4}	*621	*{63.4}	6272	{640}	
	1200		1/1200		1.3	1.5	*621	*{63.4}	*621	*{63.4}	6272	{640}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

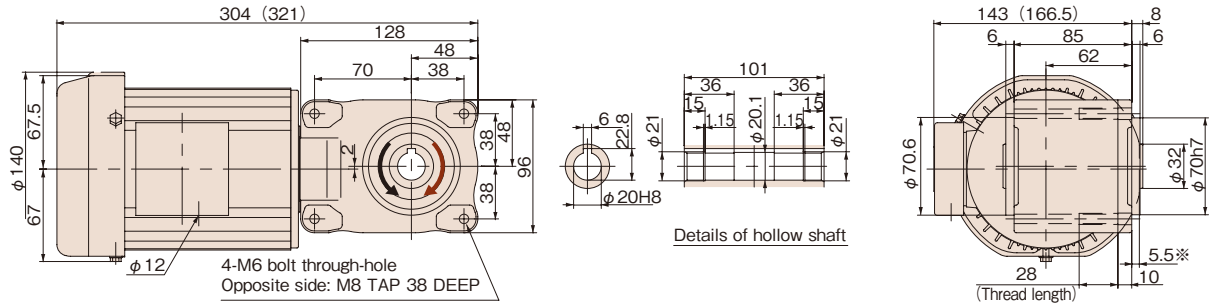
Outline Dimensions

HMTA020-20H5 – 60 (B)

1/5–1/25 ↺ 、1/30–1/60 ↻ **1**

Reduction ratio : 5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60

Approx. weight : 6.2 (8.0) kg

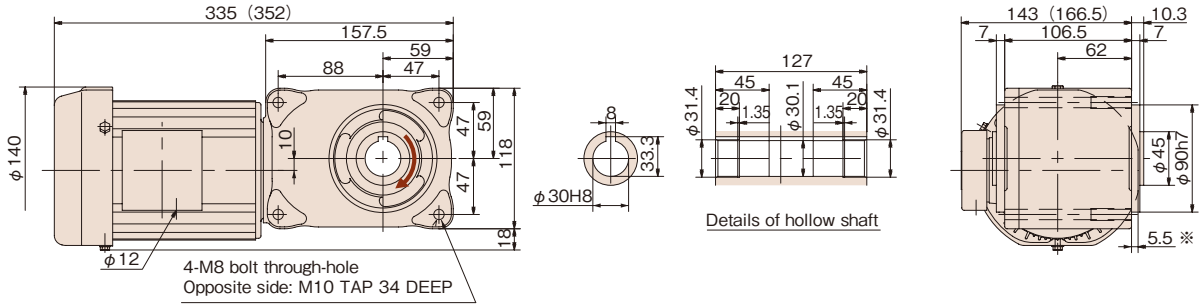


HMTA020-30H80 – 200 (B)

2

Reduction ratio : 80, 100, 120, 160, 200

Approx. weight : 8.8 (10.9) kg

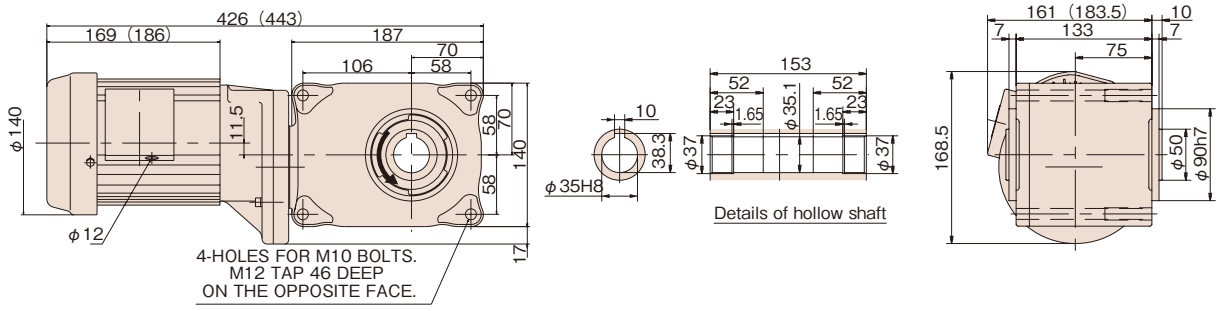


HMTA020-35H300 – 480 (B)

3

Reduction ratio : 300, 360, 480

Approx. weight : 14.0 (16.1) kg

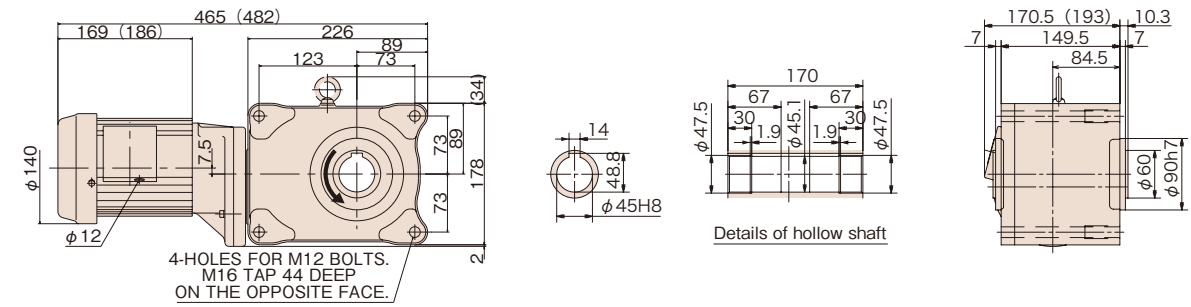


HMTA020-45H600 – 1200 (B)

4

Reduction ratio : 600, 720, 960, 1200

Approx. weight : 21.3 (23.4) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.4kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA040	5	0.4	1/5	2	300	360	10.8	{1.1}	9.3	{0.95}	931	{95}	1
	7.5		1/7.5		200	240	16.7	{1.7}	13.7	{1.4}	1254	{128}	
	10		1/10		150	180	22.5	{2.3}	18.6	{1.9}	1568	{160}	
	12.5		1/12.5		120	144	27.4	{2.8}	23.5	{2.4}	1646	{168}	
	15		1/15		100	120	33.3	{3.4}	27.4	{2.8}	1715	{175}	
	20		1/20		75	90	44.1	{4.5}	37.2	{3.8}	1862	{190}	
	25		1/25		60	72	55.9	{5.7}	46.1	{4.7}	2009	{205}	
	30		1/30		50	60	66.6	{6.8}	55.9	{5.7}	2205	{225}	
	40		1/40	3	37.5	45	84.3	{8.6}	70.6	{7.2}	2450	{250}	
	50		1/50		30	36	106	{10.8}	88.2	{9.0}	2793	{285}	
	60		1/60		25	30	126	{12.9}	106	{10.8}	3038	{310}	2
	80		1/80		18.8	22.5	169	{17.2}	141	{14.4}	3479	{355}	
	100		1/100		15	18	212	{21.6}	176	{18.0}	3920	{400}	
	120		1/120		12.5	15	254	{25.9}	212	{21.6}	4410	{450}	
	160		1/160		9.4	11.3	338	{34.5}	281	{28.7}	4410	{450}	
	200		1/200		7.5	9	※374	※{38.2}	※312	※{31.8}	4410	{450}	
	300		1/300	4	5	6	519	{53.0}	432	{44.1}	6272	{640}	3
	360		1/360		4.2	5	621	{63.4}	519	{53.0}	6272	{640}	
	480		1/480		3.1	3.8	※621	※{63.4}	※621	※{63.4}	6272	{640}	
	600		1/600		2.5	3	1029	{105}	869	{88.7}	9800	{1000}	4
	720		1/720		2.1	2.5	※1176	※{120}	1029	{105}	9800	{1000}	
	960		1/960		1.6	1.9	※1176	※{120}	※1176	※{120}	9800	{1000}	
	1200		1/1200		1.3	1.5	※1176	※{120}	※1176	※{120}	9800	{1000}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

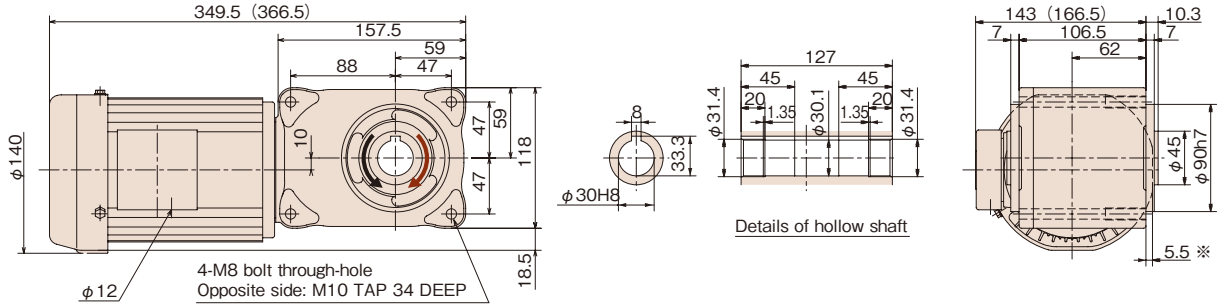
Outline Dimensions

HMTA040-30H5 – 50 (B)

1/5–1/30 ↺ 、1/40–1/50 ↻ **1**

Reduction ratio : 5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50

Approx. weight : 9.4 (11.7) kg

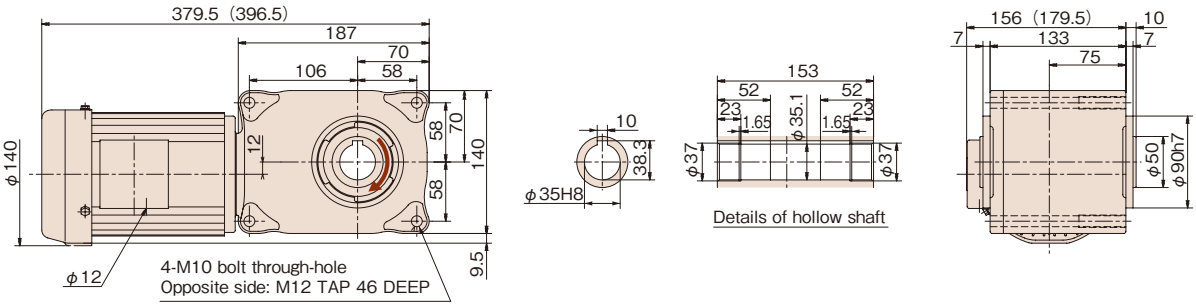


HMTA040-35H60 – 200 (B)

2

Reduction ratio : 60, 80, 100, 120, 160, 200

Approx. weight : 14.2 (16.5) kg

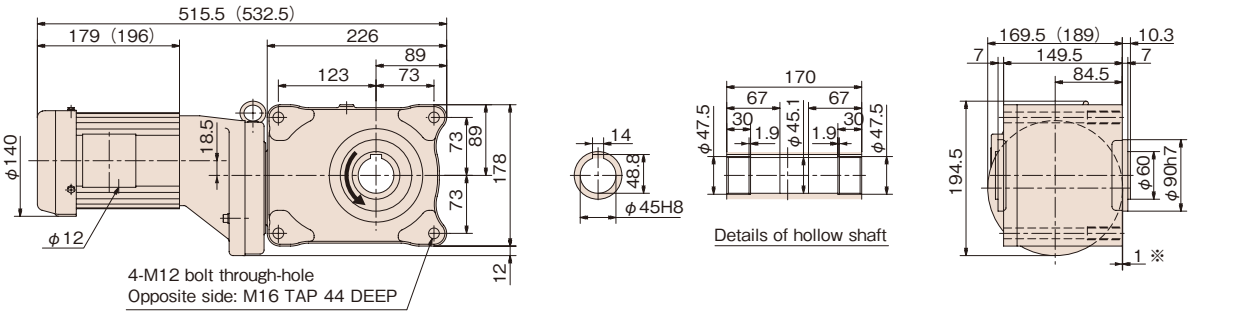


HMTA040-45H300 – 480 (B)

3

Reduction ratio : 300, 360, 480

Approx. weight : 26.2 (28.5) kg

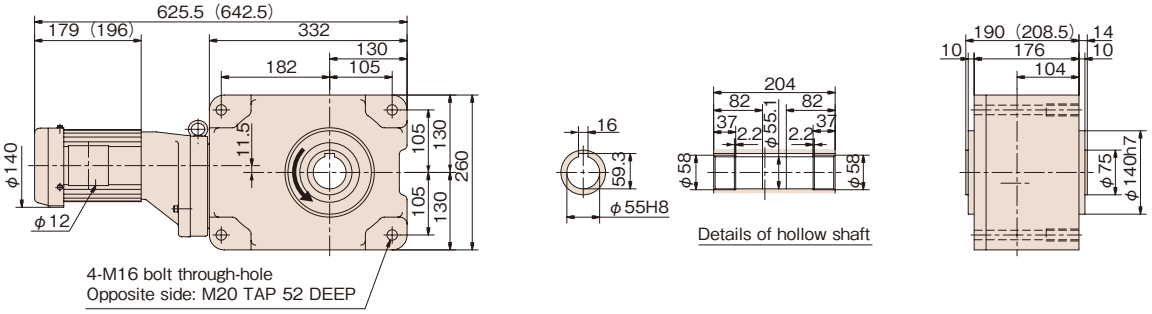


HMTA040-55H600 – 1200 (B)

4

Reduction ratio : 600, 720, 960, 1200

Approx. weight : 52.8 (55.1) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.75kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	155 (F)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR075	5	0.75	1/5	2	300	360	20.6	{2.1}	17.6	{1.8}	1519	{155}	1
	7.5		1/7.5		200	240	31.4	{3.2}	26.5	{2.7}	1862	{190}	
	10		1/10		150	180	42.1	{4.3}	34.3	{3.5}	2205	{225}	
	12.5		1/12.5		120	144	51.9	{5.3}	41.3	{4.4}	2303	{235}	
	15		1/15		100	120	62.7	{6.4}	51.9	{5.3}	2401	{245}	
	20		1/20		75	90	83.3	{8.5}	69.6	{7.1}	2646	{270}	
	25		1/25		60	72	104	{10.6}	87.2	{8.9}	2891	{295}	
	30		1/30		50	60	125	{12.8}	104	{10.6}	3136	{320}	
	40		1/40	3	37.5	45	159	{16.2}	132	{13.5}	3626	{370}	
	50		1/50		30	36	198	{20.2}	165	{16.8}	4116	{420}	
	60		1/60		25	30	238	{24.3}	198	{20.2}	4508	{460}	2
	80		1/80		18.8	22.5	317	{32.3}	264	{26.9}	5390	{550}	
	100		1/100		15	18	396	{40.4}	330	{33.7}	6272	{640}	
	120		1/120		12.5	15	475	{48.5}	396	{40.4}	6272	{640}	
	160		1/160		9.4	11.3	621	{63.4}	517	{52.8}	6272	{640}	
	200		1/200		7.5	9	※621	※{63.4}	※621	※{63.4}	6272	{640}	
	300		1/300	4	5	6	973	{99.3}	807	{82.3}	9800	{1000}	3
	360		1/360		4.2	5	1166	{119}	973	{99.3}	9800	{1000}	
	480		1/480		3.1	3.8	※1176	※{120}	※1176	※{120}	9800	{1000}	

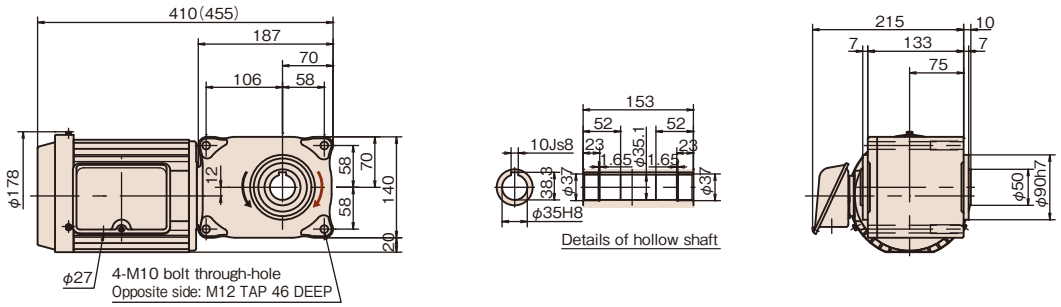
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

Outline Dimensions

HMTR075-35H5 – 50(B)

1/5–1/30 ↺ 、1/40–1/50 ↻ **1**

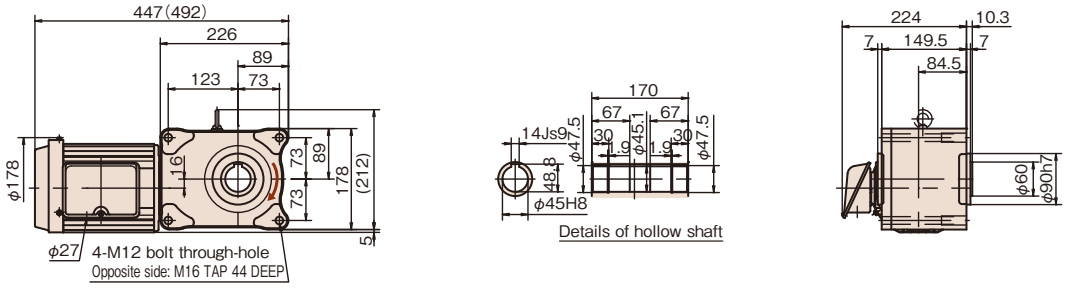
Reduction ratio : 5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50	Approx. weight : 20.0(23.0)kg



HMTR075-45H60 – 200(B)

2

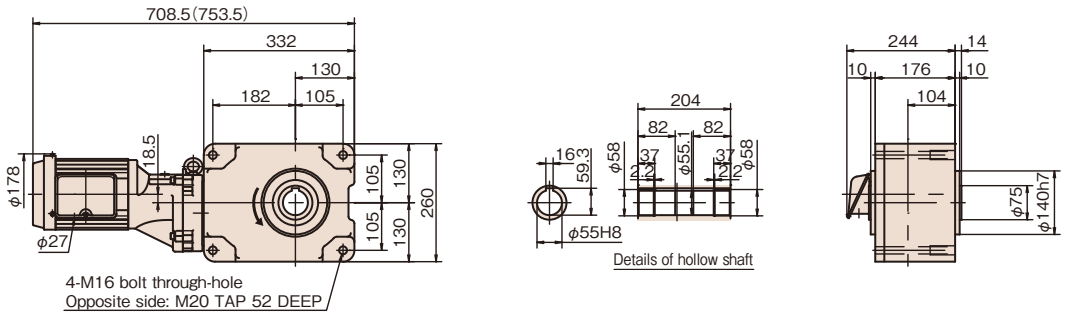
Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 27.0(30.0)kg



HMTR075-55H300 – 480(B)

3

Reduction ratio : 300, 360, 480	Approx. weight : 64.0(67.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
1.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR150	5	1.5	1/5	2	300	360	41.2	{4.2}	34.3	{3.5}	2058	{210}	1
	10		1/10		150	180	83.3	{8.5}	69.6	{7.1}	2842	{290}	
	15		1/15		100	120	124	{12.7}	104	{10.6}	3234	{330}	
	20		1/20		75	90	166	{16.9}	138	{14.1}	3626	{370}	
	25		1/25		60	72	208	{21.2}	173	{17.7}	4018	{410}	
	30		1/30		50	60	249	{25.4}	208	{21.2}	4508	{460}	
	40		1/40	3	37.5	45	317	{32.3}	264	{26.9}	5292	{540}	
	50		1/50		30	36	396	{40.4}	330	{33.7}	6076	{620}	
	60		1/60		25	30	475	{48.5}	396	{40.4}	6272	{640}	
	80		1/80		18.8	22.5	634	{64.7}	528	{53.9}	6272	{640}	
	100		1/100		15	18	792	{80.8}	661	{67.4}	9800	{1000}	2
	120		1/120		12.5	15	951	{97.0}	792	{80.8}	9800	{1000}	
	160		1/160		9.4	11.3	※1176	※{120}	1058	{108}	9800	{1000}	
	200		1/200		7.5	9	※1176	※{120}	※1176	※{120}	9800	{1000}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

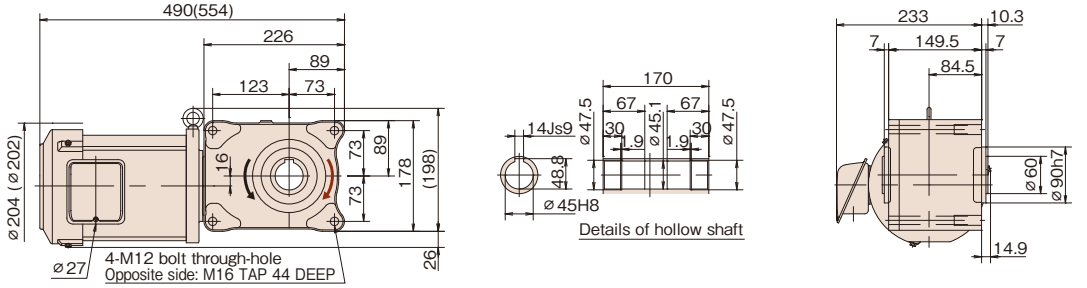
Outline Dimensions

HMTR150-45H5 – 80(B)

1/5–1/30 ↻ 、1/40–1/80 ↺ **1**

Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50, 60, 80

Approx. weight : 32.0(41.0)kg

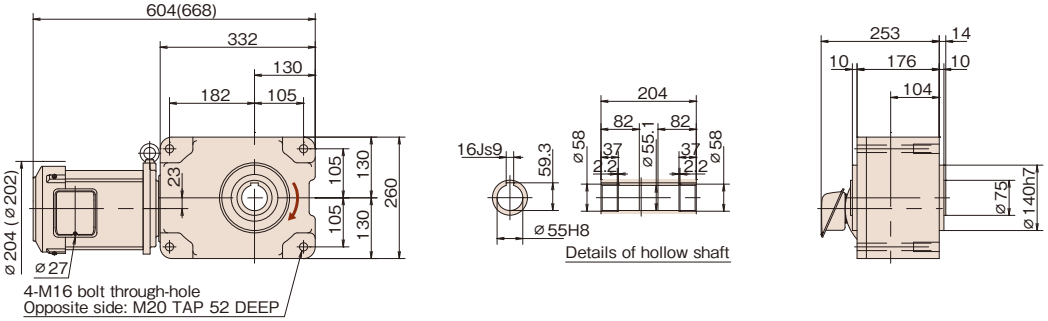


HMTR150-55H100 – 200(B)

2

Reduction ratio : 100, 120, 160, 200

Approx. weight : 61.0(69.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	nsulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
2.2kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR220	5	2.2	1/5	2	300	360	60.8	{6.2}	51.0	{5.2}	3038	{310}	1
	10		1/10		150	180	122	{12.4}	102	{10.4}	3822	{390}	
	15		1/15		100	120	182	{18.6}	152	{15.5}	4214	{430}	
	20		1/20		75	90	244	{24.9}	203	{20.7}	4606	{470}	
	25		1/25	3	60	72	290	{29.6}	242	{24.7}	4998	{510}	
	30		1/30		50	60	349	{35.6}	290	{29.6}	5390	{550}	
	40		1/40		37.5	45	465	{47.4}	387	{39.5}	5782	{590}	
	★50		★1/50		30	36	581	{59.3}	484	{49.4}	6076	{620}	
	60		1/60		25	30	697	{71.1}	581	{59.3}	6272	{640}	
	80		1/80		18.8	22.5	930	{94.9}	774	{79.0}	9800	{1000}	2
	100		1/100		15	18	※1068	※{109}	968	{98.8}	9800	{1000}	
	120		1/120		12.5	15	※1176	※{120}	1166	{119}	9800	{1000}	

Note 1: The actual reduction ratio is shown as the reduction ratio. Note that on the 2.2 kW, 1/50 model (marked with ★), the actual reduction ratio is 1/49.286.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

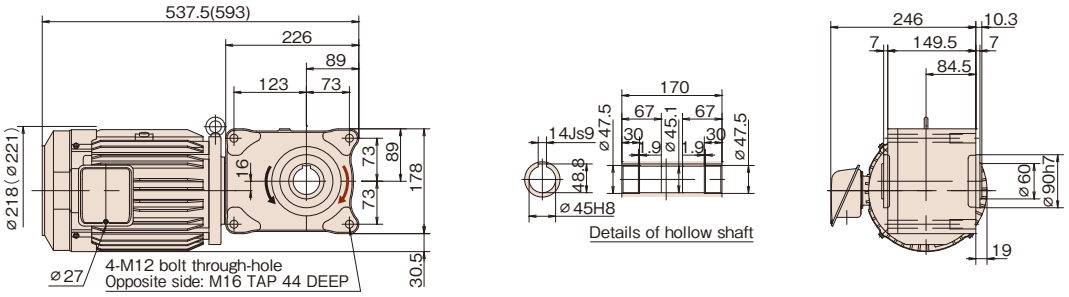
Outline Dimensions

HMTR220-45H5 – 60 (B)

1/5–1/20 ↺ 、1/25–1/60 ↻ **1**

Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50, 60

Approx. weight : 43.0(48.0)kg

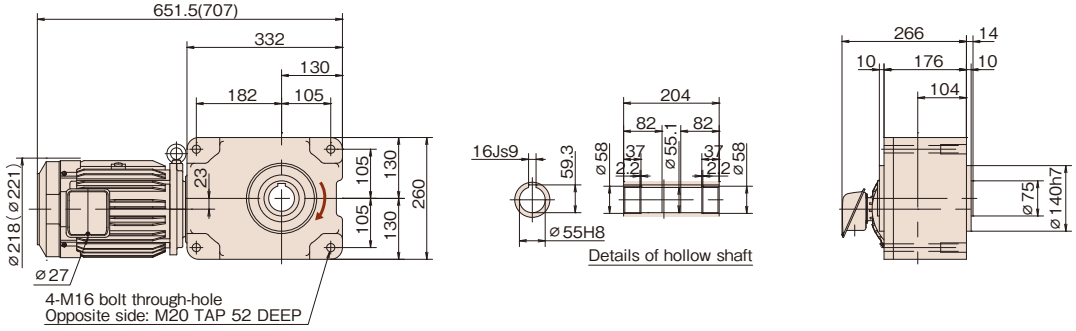


HMTR220-55H80 – 120 (B)

2

Reduction ratio : 80, 100, 120

Approx. weight : 69.0(76.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
3.7kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR370	5	3.7	1/5	2	300	360	103	{10.5}	85.3	{8.7}	4900	{500}	1
	10		1/10		150	180	205	{20.9}	171	{17.4}	5880	{600}	
	15		1/15		100	120	308	{31.4}	256	{26.1}	6860	{700}	
	20		1/20		75	90	410	{41.8}	341	{34.8}	7742	{790}	
	25		1/25	3	60	72	489	{49.9}	407	{41.5}	8134	{830}	
	30		1/30		50	60	586	{59.8}	489	{49.9}	8428	{860}	
	40		1/40		37.5	45	782	{79.8}	652	{66.5}	8820	{900}	
	50		1/50		30	36	977	{99.7}	814	{83.1}	9114	{930}	
	60		1/60		25	30	1176	{120}	977	{99.7}	9408	{960}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.

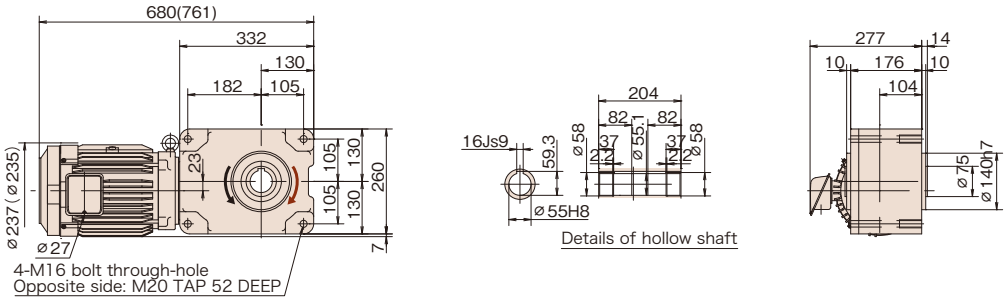
Outline Dimensions

HMTR370-55H5 – 60 (B)

1/5–1/20 ↺ 、1/25–1/60 ↻ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60

Approx. weight : 80.0 (90.0) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
5.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.
Note 3: The ratings of the 400 V-class brake-equipped models marked with ※ are 50/60/60 Hz and 400 V class.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				H	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR550	5	5.5	1/5	2	300	360	152	{15.5}	126	{12.9}	4900	{500}	1
	10		1/10		150	180	305	{31.1}	254	{25.9}	5880	{600}	
	15		1/15		100	120	457	{46.6}	380	{38.8}	6860	{700}	
	20		1/20		75	90	609	{62.1}	508	{51.8}	7742	{790}	
	25		1/25	3	60	72	726	{74.1}	606	{61.8}	8134	{830}	
	30		1/30		50	60	871	{88.9}	726	{74.1}	8428	{860}	
	40		1/40		37.5	45	1166	{119}	968	{98.8}	8820	{900}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.

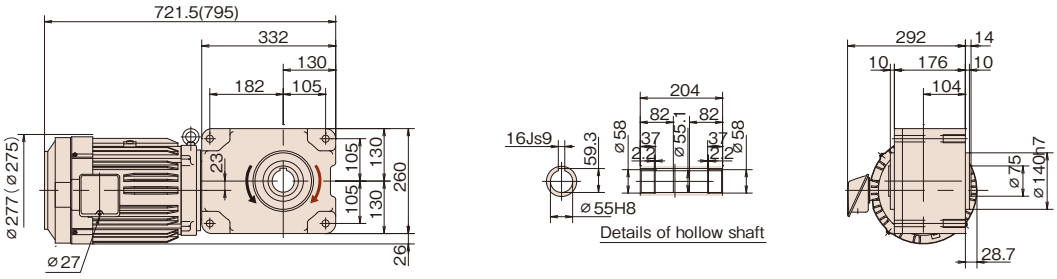
Outline Dimensions

HMTR550-55H5 – 40 (B)

1/5–1/20 、1/25–1/40 **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40

Approx. weight : 93.0(108.0)kg



Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.
Note 4: On 400 V-class brake-equipped models, the DC module (HD-120MH1) is placed separately. See page 217 for dimensions.

Specification Chart

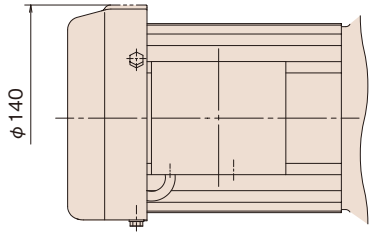
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.1kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	Totally enclosed (IP44)	Self-cooled (IC410)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA010	5	0.1	1/5	2	300	360	2.7	{0.28}	2.4	{0.24}	588	{60}	1
	10		1/10		150	180	5.6	{0.57}	4.6	{0.47}	980	{100}	
	15		1/15		100	120	8.3	{0.85}	7.0	{0.71}	1078	{110}	
	20		1/20		75	90	10.8	{1.1}	9.3	{0.95}	1176	{120}	
	25		1/25		60	72	13.7	{1.4}	11.8	{1.2}	1274	{130}	
	30		1/30		50	60	16.7	{1.7}	13.7	{1.4}	1421	{145}	
	40		1/40		37.5	45	22.5	{2.3}	18.6	{1.9}	1617	{165}	
	50		1/50		30	36	27.4	{2.8}	23.5	{2.4}	1862	{190}	
	60		1/60	3	25	30	31.4	{3.2}	26.5	{2.7}	2009	{205}	
	80		1/80		18.8	22.5	42.1	{4.3}	35.3	{3.6}	2254	{230}	
	100		1/100		15	18	52.9	{5.4}	44.1	{4.5}	2548	{260}	
	120		1/120		12.5	15	63.7	{6.5}	52.9	{5.4}	2793	{285}	
	160		1/160		9.4	11.3	84.3	{8.6}	70.6	{7.2}	3332	{340}	2
	200		1/200		7.5	9	106	{10.8}	88.2	{9.0}	3332	{340}	
	300		1/300	4	5	6	129	{13.2}	108	{11.0}	3332	{340}	3
	360		1/360		4.2	5	156	{15.9}	129	{13.2}	3332	{340}	
	480		1/480		3.1	3.8	※169	※{17.2}	※169	※{17.2}	3332	{340}	
	600		1/600		2.5	3	260	{26.5}	217	{22.1}	4410	{450}	4
	720		1/720		2.1	2.5	312	{31.8}	260	{26.5}	4410	{450}	
	960		1/960		1.6	1.9	※374	※{38.2}	346	{35.3}	4410	{450}	
	1200		1/1200		1.3	1.5	※374	※{38.2}	※374	※{38.2}	4410	{450}	

Note 1: The actual reduction ratio is shown as the reduction ratio.
(They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Motor of brake-equipped model

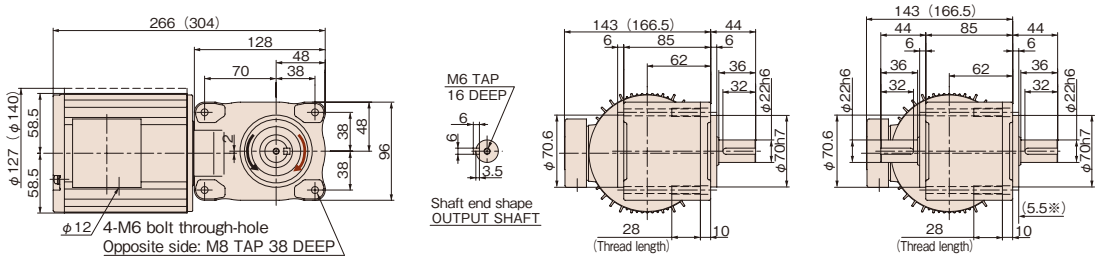


Outline Dimensions

HMTA010-22U5 – 120ⓈⓉ(B)

1/5–1/50 ↺ 、1/60–1/120 ↻ **1**

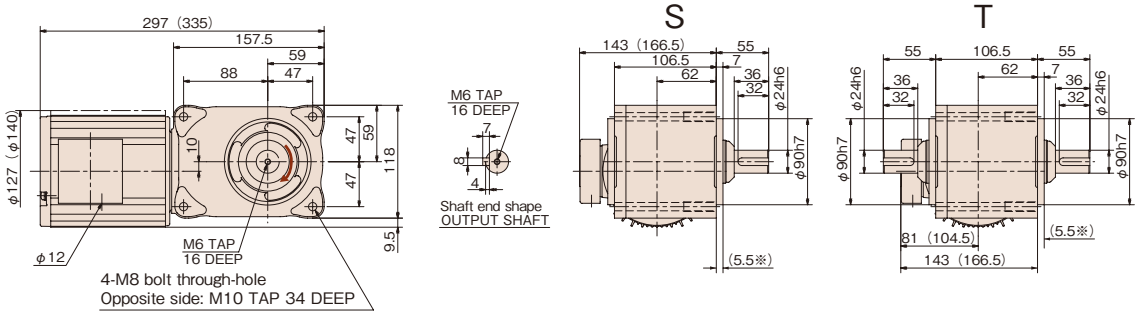
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120 | Approx. weight : 6.2 (8.2) kg



HMTA010-24U160 – 200ⓈⓉ(B)

2

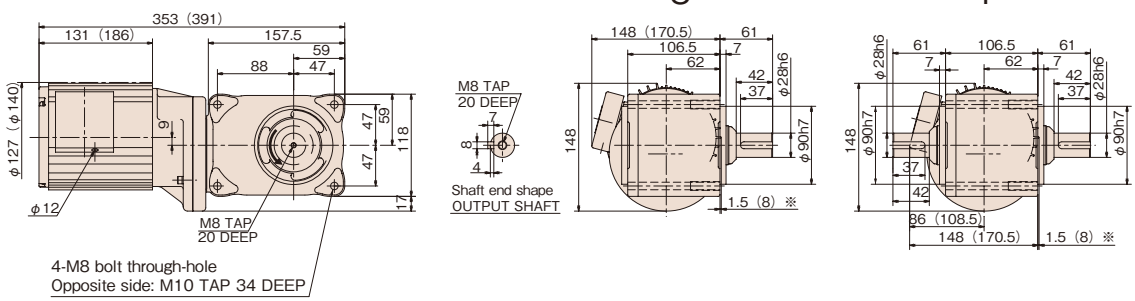
Reduction ratio : 160, 200 | Approx. weight : 10.0 (11.7) kg



HMTA010-28U300 – 480ⓈⓉ(B)

3

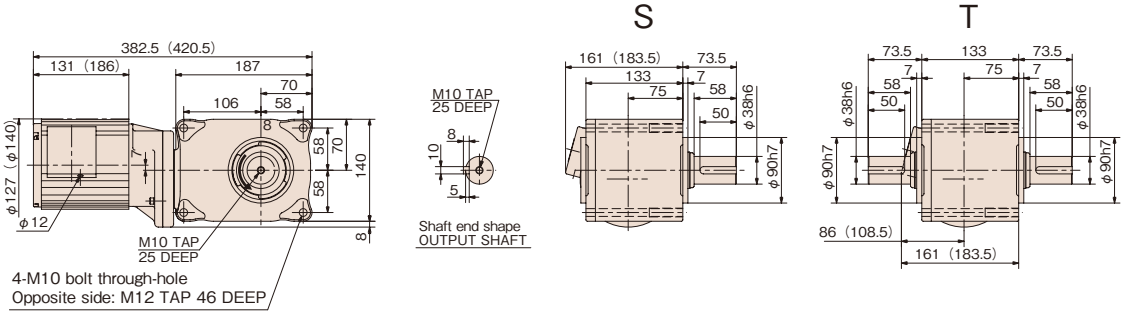
Reduction ratio : 300, 360, 480 | Approx. weight : 12.1 (13.7) kg



HMTA010-38U600 – 1200ⓈⓉ(B)

4

Reduction ratio : 600, 720, 960, 1200 | Approx. weight : 15.8 (17.4) kg



Note 1: The values in parentheses are for brake-equipped models with a fan cover. Refer to the previous page for the shape of the fan cover.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.2kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA020	5	0.2	1/5	2	300	360	5.6	{0.57}	4.6	{0.47}	588	{60}	1
	10		1/10		150	180	10.8	{1.1}	9.3	{0.95}	980	{100}	
	15		1/15		100	120	16.7	{1.7}	13.7	{1.4}	1078	{110}	
	20		1/20		75	90	22.5	{2.3}	18.6	{1.9}	1176	{120}	
	25		1/25		60	72	27.4	{2.8}	23.5	{2.4}	1274	{130}	
	30		1/30	3	50	60	31.4	{3.2}	26.5	{2.7}	1421	{145}	
	40		1/40		37.5	45	42.1	{4.3}	35.3	{3.6}	1617	{165}	
	50		1/50		30	36	52.9	{5.4}	44.1	{4.5}	1862	{190}	
	60		1/60		25	30	63.7	{6.5}	52.9	{5.4}	2009	{205}	
	80		1/80		18.8	22.5	84.3	{8.6}	70.6	{7.2}	2254	{230}	2
	100		1/100		15	18	106	{10.8}	88.2	{9.0}	2548	{260}	
	120		1/120		12.5	15	126	{12.9}	106	{10.8}	2793	{285}	
	160		1/160		9.4	11.3	169	{17.2}	140	{14.3}	3332	{340}	
	200		1/200		7.5	9	*169	*{17.2}	*169	*{17.2}	3332	{340}	
	300		1/300	4	5	6	260	{26.5}	217	{22.1}	4410	{450}	3
	360		1/360		4.2	5	312	{31.8}	260	{26.5}	4410	{450}	
	480		1/480		3.1	3.8	*374	*{38.2}	*312	*{31.8}	4410	{450}	
	600		1/600		2.5	3	506	{51.6}	432	{44.1}	6272	{640}	4
	720		1/720		2.1	2.5	607	{61.9}	519	{53.0}	6272	{640}	
	960		1/960		1.6	1.9	*621	*{63.4}	*621	*{63.4}	6272	{640}	
	1200		1/1200		1.3	1.5	*621	*{63.4}	*621	*{63.4}	6272	{640}	

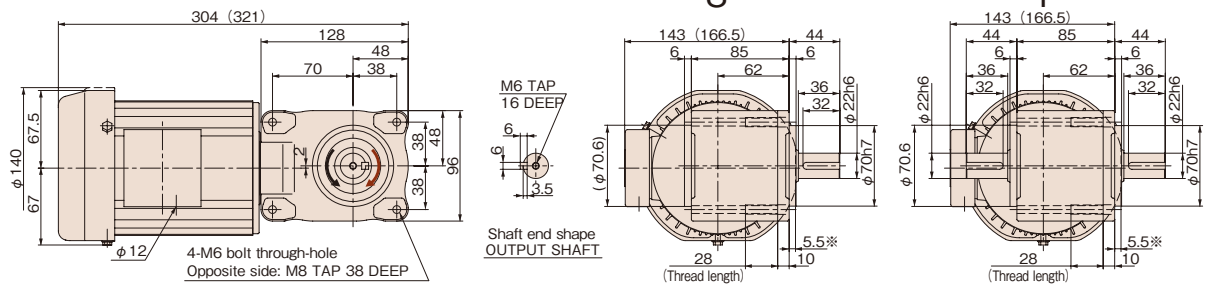
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTA020-22U5 – 60※(B)

1/5–1/25 ↺ 、1/30–1/60 ↻ **1**

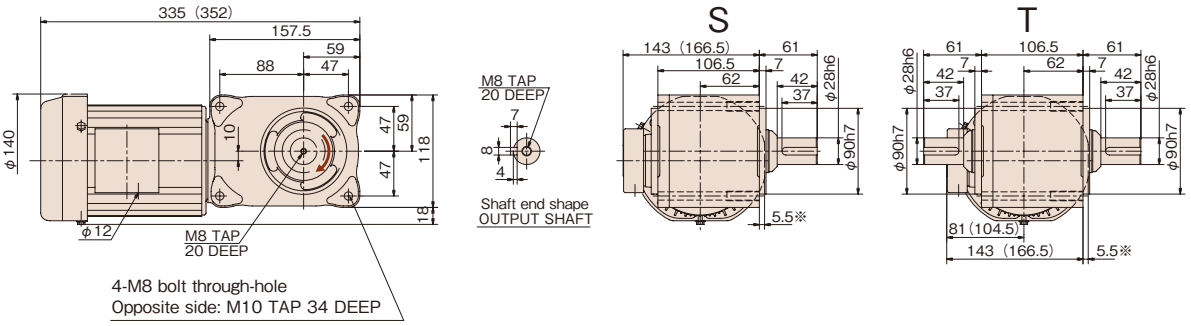
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60 | Approx. weight : 6.7 (8.5) kg



HMTA020-28U80 – 200※(B)

2

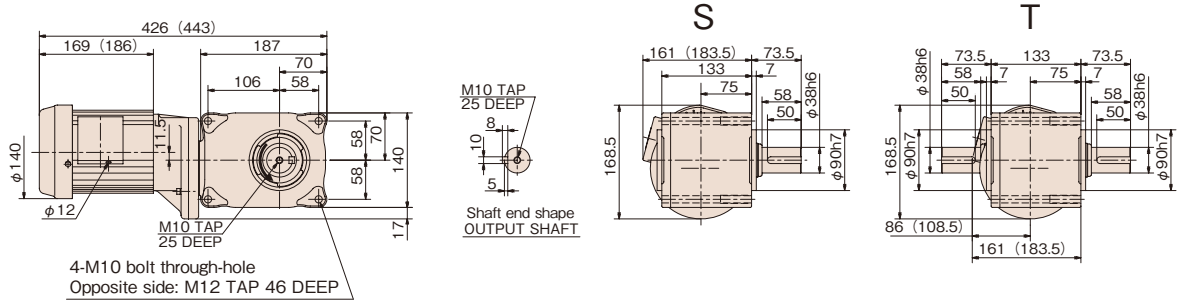
Reduction ratio : 80, 100, 120, 160, 200 | Approx. weight : 9.6 (11.8) kg



HMTA020-38U300 – 480※(B)

3

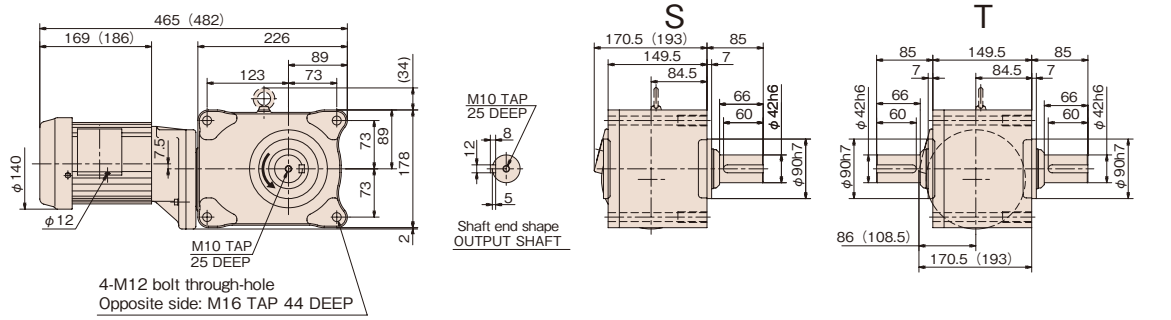
Reduction ratio : 300, 360, 480 | Approx. weight : 15.8 (17.9) kg



HMTA020-42U600 – 1200※(B)

4

Reduction ratio : 600, 720, 960, 1200 | Approx. weight : 25.3 (27.4) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.4kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA040	5	0.4	1/5	2	300	360	10.8	{1.1}	9.3	{0.95}	931	{95}	1
	10		1/10		150	180	22.5	{2.3}	18.6	{1.9}	1568	{160}	
	15		1/15		100	120	33.3	{3.4}	27.4	{2.8}	1715	{175}	
	20		1/20		75	90	44.1	{4.5}	37.2	{3.8}	1862	{190}	
	25		1/25		60	72	55.9	{5.7}	46.1	{4.7}	2009	{205}	
	30		1/30		50	60	66.6	{6.8}	55.9	{5.7}	2205	{225}	
	40		1/40	3	37.5	45	84.3	{8.6}	70.6	{7.2}	2450	{250}	
	50		1/50		30	36	106	{10.8}	88.2	{9.0}	2793	{285}	
	60		1/60		25	30	126	{12.9}	106	{10.8}	3038	{310}	2
	80		1/80		18.8	22.5	169	{17.2}	141	{14.4}	3479	{355}	
	100		1/100		15	18	212	{21.6}	176	{18.0}	3920	{400}	
	120		1/120		12.5	15	254	{25.9}	212	{21.6}	4410	{450}	
	160		1/160		9.4	11.3	338	{34.5}	281	{28.7}	4410	{450}	
	200		1/200		7.5	9	※374	※{38.2}	※312	※{31.8}	4410	{450}	
	300		1/300	4	5	6	519	{53.0}	432	{44.1}	6272	{640}	3
	360		1/360		4.2	5	621	{63.4}	519	{53.0}	6272	{640}	
	480		1/480		3.1	3.8	※621	※{63.4}	※621	※{63.4}	6272	{640}	
	600		1/600		2.5	3	1029	{105}	869	{88.7}	9800	{1000}	4
	720		1/720		2.1	2.5	※1176	※{120}	1029	{105}	9800	{1000}	
	960		1/960		1.6	1.9	※1176	※{120}	※1176	※{120}	9800	{1000}	
	1200		1/1200		1.3	1.5	※1176	※{120}	※1176	※{120}	9800	{1000}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

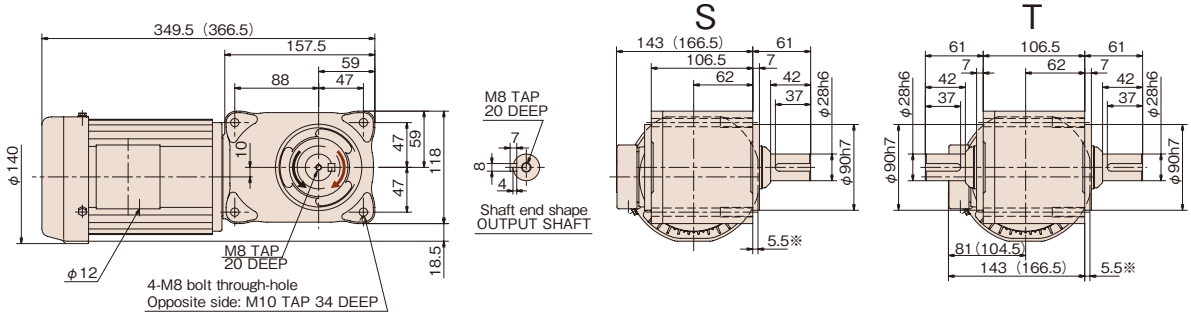
Outline Dimensions

HMTA040-28U5 – 50S,T(B)

1/5–1/30 ↺ 、1/40–1/50 ↻ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50

Approx. weight : 10.2 (12.7) kg

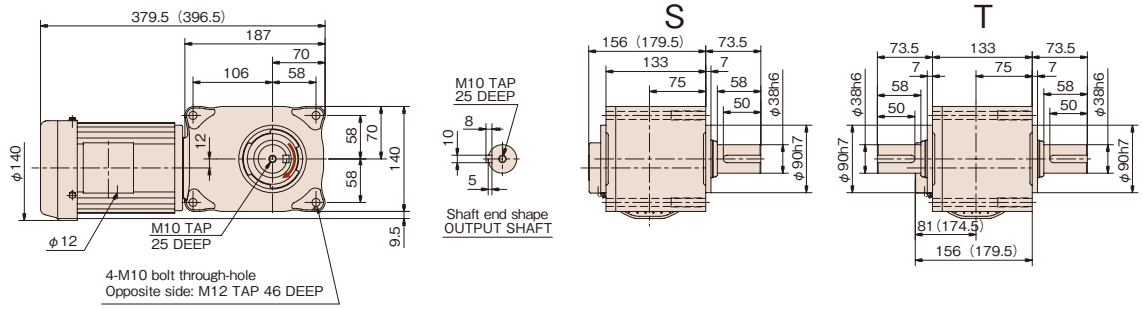


HMTA040-38U60 – 200S,T(B)

2

Reduction ratio : 60, 80, 100, 120, 160, 200

Approx. weight : 16.0 (18.5) kg

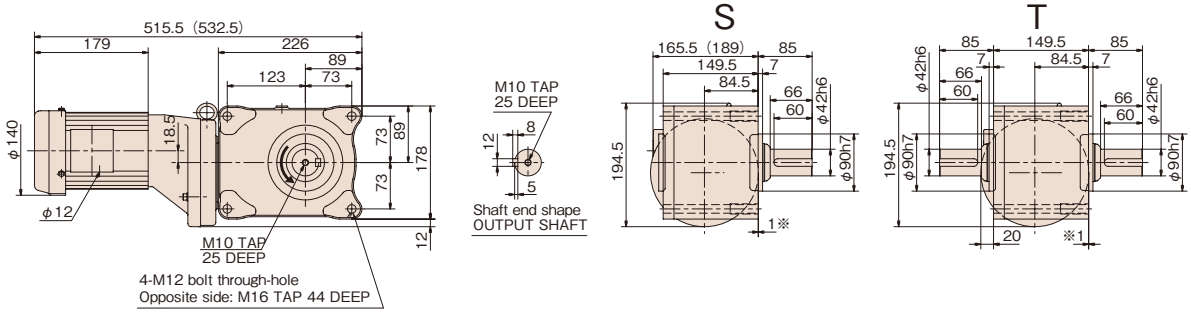


HMTA040-42U300 – 480S,T(B)

3

Reduction ratio : 300, 360, 480

Approx. weight : 30.2 (32.7) kg

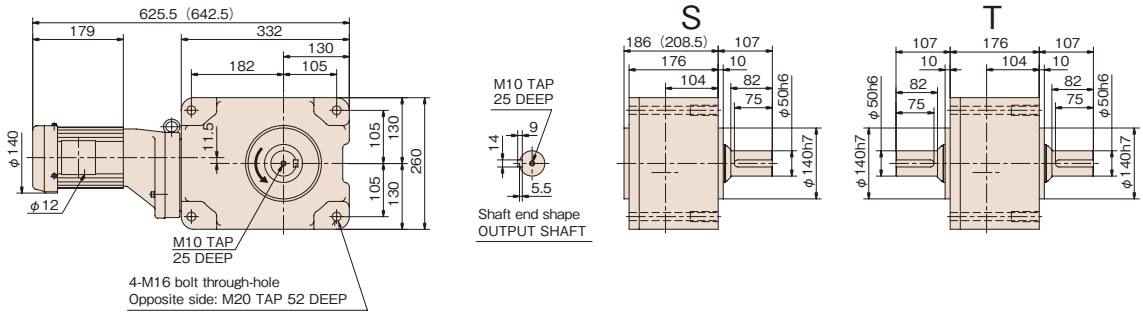


HMTA040-50U600 – 1200S,T(B)

4

Reduction ratio : 600, 720, 960, 1200

Approx. weight : 58.8 (61.3) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.75kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	155 (F)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR075	5	0.75	1/5	2	300	360	20.6	{2.1}	17.6	{1.8}	1519	{155}	1
	10		1/10		150	180	42.1	{4.3}	34.3	{3.5}	2205	{225}	
	15		1/15		100	120	62.7	{6.4}	51.9	{5.3}	2401	{245}	
	20		1/20		75	90	83.3	{8.5}	69.6	{7.1}	2646	{270}	
	25		1/25		60	72	104	{10.6}	87.2	{8.9}	2891	{295}	
	30		1/30		50	60	125	{12.8}	104	{10.6}	3136	{320}	
	40		1/40	3	37.5	45	159	{16.2}	132	{13.5}	3626	{370}	
	50		1/50		30	36	198	{20.2}	165	{16.8}	4116	{420}	
	60		1/60		25	30	238	{24.3}	198	{20.2}	4508	{460}	2
	80		1/80		18.8	22.5	317	{32.3}	264	{26.9}	5390	{550}	
	100		1/100		15	18	396	{40.4}	330	{33.7}	6272	{640}	
	120		1/120		12.5	15	475	{48.5}	396	{40.4}	6272	{640}	
	160		1/160		9.4	11.3	621	{63.4}	517	{52.8}	6272	{640}	
	200		1/200		7.5	9	※621	※{63.4}	※621	※{63.4}	6272	{640}	
	300		1/300	4	5	6	973	{99.3}	807	{82.3}	9800	{1000}	3
	360		1/360		4.2	5	1166	{119}	973	{99.3}	9800	{1000}	
	480		1/480		3.1	3.8	※1176	※{120}	※1176	※{120}	9800	{1000}	

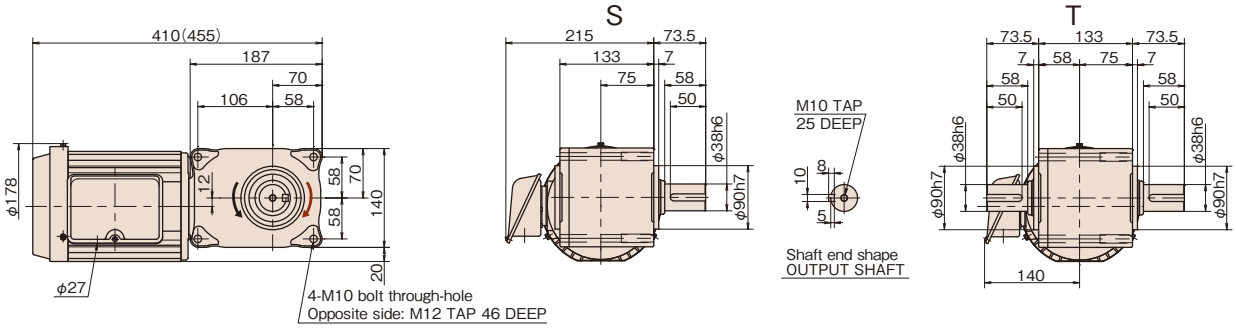
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTR075-38U5 – 50 (B)

1/5–1/30 、1/40–1/50 **1**

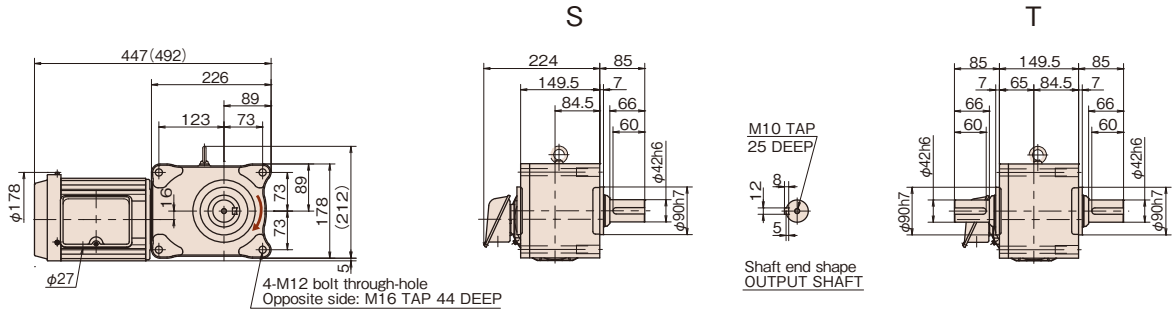
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 22.0(25.0)kg



HMTR075-42U60 – 200 (B)

2

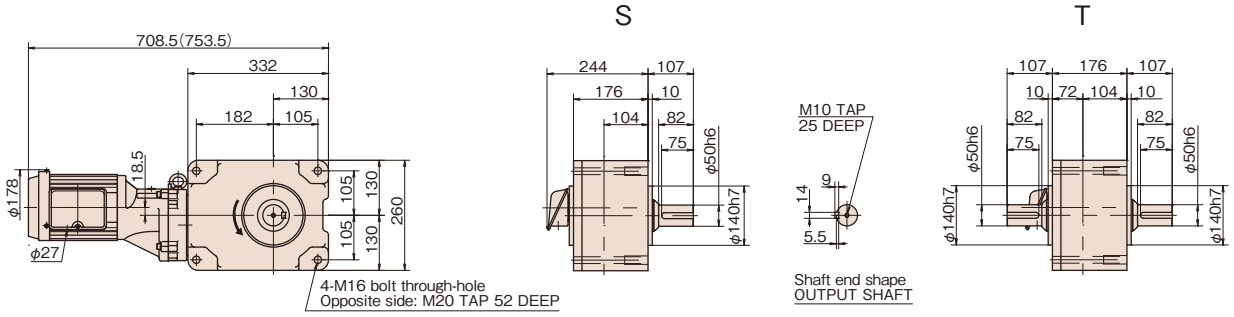
Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 29.0(32.0)kg



HMTR075-50U300 – 480 (B)

3

Reduction ratio : 300, 360, 480	Approx. weight : 66.0(69.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake Type	Brake Rated torque (of motor torque)	Brake Insulation
1.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR150	5	1.5	1/5	2	300	360	41.2	{4.2}	34.3	{3.5}	2058	{210}	1
	10		1/10		150	180	83.3	{8.5}	69.6	{7.1}	2842	{290}	
	15		1/15		100	120	124	{12.7}	104	{10.6}	3234	{330}	
	20		1/20		75	90	166	{16.9}	138	{14.1}	3626	{370}	
	25		1/25		60	72	208	{21.2}	173	{17.7}	4018	{410}	
	30		1/30		50	60	249	{25.4}	208	{21.2}	4508	{460}	
	40		1/40	3	37.5	45	317	{32.3}	264	{26.9}	5292	{540}	
	50		1/50		30	36	396	{40.4}	330	{33.7}	6076	{620}	
	60		1/60		25	30	475	{48.5}	396	{40.4}	6272	{640}	
	80		1/80		18.8	22.5	634	{64.7}	528	{53.9}	6272	{640}	
	100		1/100		15	18	792	{80.8}	661	{67.4}	9800	{1000}	2
	120		1/120		12.5	15	951	{97.0}	792	{80.8}	9800	{1000}	
	160		1/160		9.4	11.3	※1176	※{120}	1058	{108}	9800	{1000}	
	200		1/200		7.5	9	※1176	※{120}	※1176	※{120}	9800	{1000}	

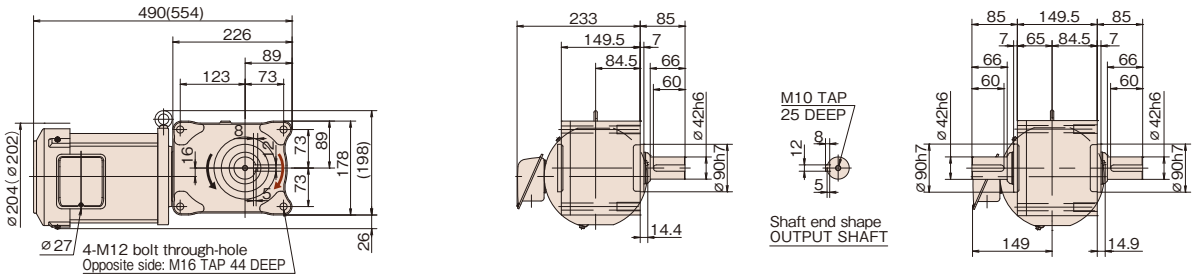
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTR150-42U5 – 80 § (B)

1/5–1/30 ↻ 、1/40–1/80 ↺ **1**

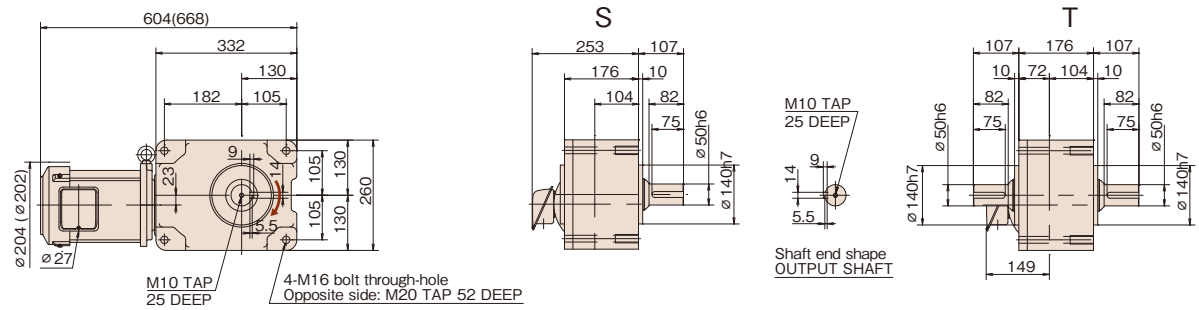
Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50, 60, 80 | Approx. weight : 36.0(44.0)kg



HMTR150-50U100 – 200 § (B)

2

Reduction ratio : 100, 120, 160, 200 | Approx. weight : 67.0(75.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
2.2kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR220	5	2.2	1/5	2	300	360	60.8	{6.2}	51.0	{5.2}	3038	{310}	1
	10		1/10		150	180	122	{12.4}	102	{10.4}	3822	{390}	
	15		1/15		100	120	182	{18.6}	152	{15.5}	4214	{430}	
	20		1/20		75	90	244	{24.9}	203	{20.7}	4606	{470}	
	25		1/25	3	60	72	290	{29.6}	242	{24.7}	4998	{510}	
	30		1/30		50	60	349	{35.6}	290	{29.6}	5390	{550}	
	40		1/40		37.5	45	465	{47.4}	387	{39.5}	5782	{590}	
	★50		★1/50		30	36	581	{59.3}	484	{49.4}	6076	{620}	
	60		1/60		25	30	697	{71.1}	581	{59.3}	6272	{640}	
	80		1/80		18.8	22.5	930	{94.9}	774	{79.0}	9800	{1000}	2
	100		1/100		15	18	※1068	※{109}	968	{98.8}	9800	{1000}	
	120		1/120		12.5	15	※1176	※{120}	1166	{119}	9800	{1000}	

Note 1: The actual reduction ratio is shown as the reduction ratio. Note that on the 2.2 kW, 1/50 model (marked with ★), the actual reduction ratio is 1/49.286.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

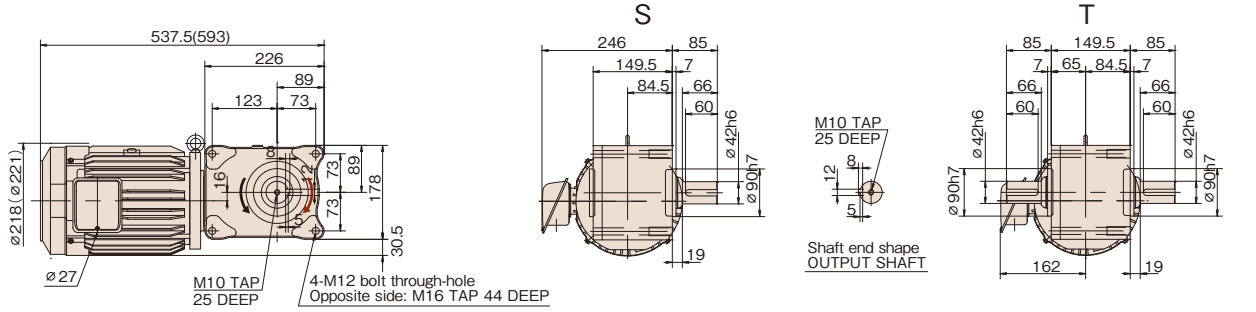
Outline Dimensions

HMTR220-42U5 – 60 § (B)

1/5–1/20 ↺ 、1/25–1/60 ↻ **1**

Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50, 60

Approx. weight : 47.0(52.0)kg

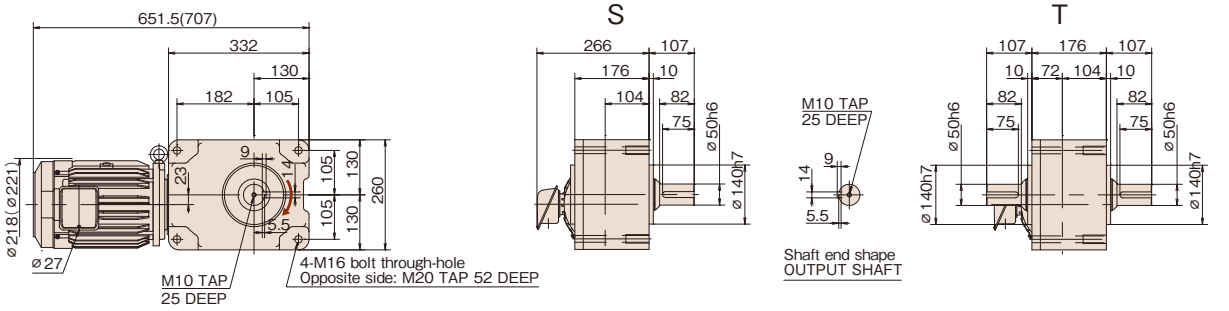


HMTR220-50U80 – 120 § (B)

2

Reduction ratio : 80, 100, 120

Approx. weight : 75.0(82.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
3.7kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR370	5	3.7	1/5	2	300	360	103	{10.5}	85.3	{8.7}	4900	{500}	1
	10		1/10		150	180	205	{20.9}	171	{17.4}	5880	{600}	
	15		1/15		100	120	308	{31.4}	256	{26.1}	6860	{700}	
	20		1/20		75	90	410	{41.8}	341	{34.8}	7742	{790}	
	25		1/25	3	60	72	489	{49.9}	407	{41.5}	8134	{830}	
	30		1/30		50	60	586	{59.8}	489	{49.9}	8428	{860}	
	40		1/40		37.5	45	782	{79.8}	652	{66.5}	8820	{900}	
	50		1/50		30	36	977	{99.7}	814	{83.1}	9114	{930}	
	60		1/60		25	30	1176	{120}	977	{99.7}	9408	{960}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

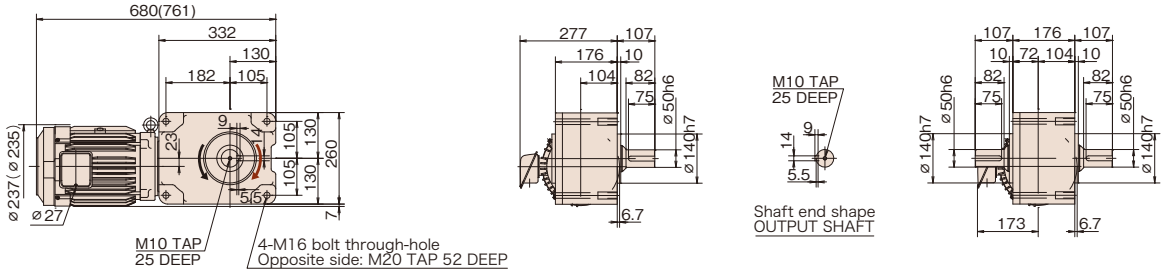
Outline Dimensions

HMTR370-50U5 – 60 ※(B)

1/5–1/20 、1/25–1/60 **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60

Approx. weight : 83.0(93.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
5.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	22.6/20.8/20.0 (11.3/11.3/10.4/10.0)	1465/1760/1765 (1460/1465/1760/1765)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

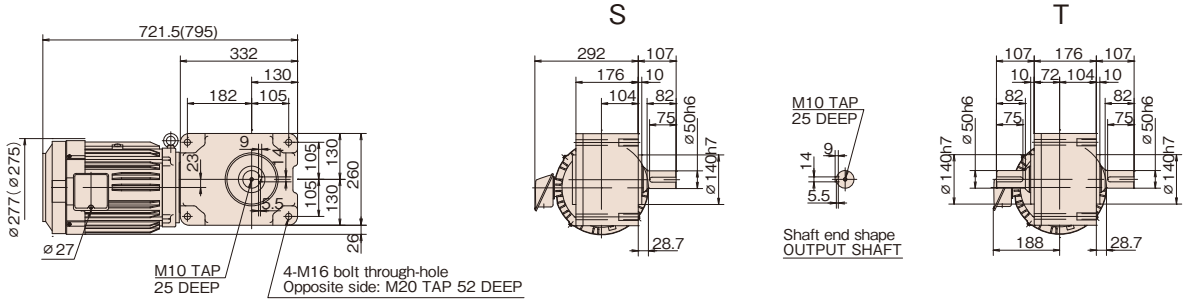
Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR550	5	5.5	1/5	2	300	360	152	{15.5}	126	{12.9}	4900	{500}	1
	10		1/10		150	180	305	{31.1}	254	{25.9}	5880	{600}	
	15		1/15		100	120	457	{46.6}	380	{38.8}	6860	{700}	
	20		1/20		75	90	609	{62.1}	508	{51.8}	7742	{790}	
	25		1/25	3	60	72	726	{74.1}	606	{61.8}	8134	{830}	
	30		1/30		50	60	871	{88.9}	726	{74.1}	8428	{860}	
	40		1/40		37.5	45	1166	{119}	968	{98.8}	8820	{900}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTR550-50U5 – 40 ※(B) 1/5–1/20 ↺ 、1/25–1/40 ↻ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40 | Approx. weight : 99.0(114.0)kg



Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.
Note 5: On 400 V-class brake-equipped models, the DC module (HD-120MH1) is placed separately. See page 217 for dimensions.

Specification Chart

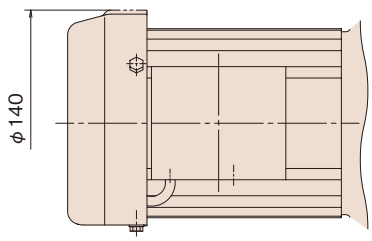
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.1kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	Totally enclosed (IP44)	Self-cooled (IC410)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				L	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA010	5	0.1	1/5	2	300	360	2.7	{0.28}	2.4	{0.24}	588	{60}	1
	10		1/10		150	180	5.6	{0.57}	4.6	{0.47}	980	{100}	
	15		1/15		100	120	8.3	{0.85}	7.0	{0.71}	1078	{110}	
	20		1/20		75	90	10.8	{1.1}	9.3	{0.95}	1176	{120}	
	25		1/25		60	72	13.7	{1.4}	11.8	{1.2}	1274	{130}	
	30		1/30		50	60	16.7	{1.7}	13.7	{1.4}	1421	{145}	
	40		1/40		37.5	45	22.5	{2.3}	18.6	{1.9}	1617	{165}	
	50		1/50		30	36	27.4	{2.8}	23.5	{2.4}	1862	{190}	
	60		1/60	3	25	30	31.4	{3.2}	26.5	{2.7}	2009	{205}	
	80		1/80		18.8	22.5	42.1	{4.3}	35.3	{3.6}	2254	{230}	
	100		1/100		15	18	52.9	{5.4}	44.1	{4.5}	2548	{260}	
	120		1/120		12.5	15	63.7	{6.5}	52.9	{5.4}	2793	{285}	
	160		1/160		9.4	11.3	84.3	{8.6}	70.6	{7.2}	3332	{340}	2
	200		1/200		7.5	9	106	{10.8}	88.2	{9.0}	3332	{340}	
	300		1/300	4	5	6	129	{13.2}	108	{11.0}	3332	{340}	3
	360		1/360		4.2	5	156	{15.9}	129	{13.2}	3332	{340}	
	480		1/480		3.1	3.8	※169	※{17.2}	※169	※{17.2}	3332	{340}	
	600		1/600		2.5	3	260	{26.5}	217	{22.1}	4410	{450}	4
	720		1/720		2.1	2.5	312	{31.8}	260	{26.5}	4410	{450}	
	960		1/960		1.6	1.9	※374	※{38.2}	346	{35.3}	4410	{450}	
	1200		1/1200		1.3	1.5	※374	※{38.2}	※374	※{38.2}	4410	{450}	

Note 1: The actual reduction ratio is shown as the reduction ratio.
(They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Motor of brake-equipped model

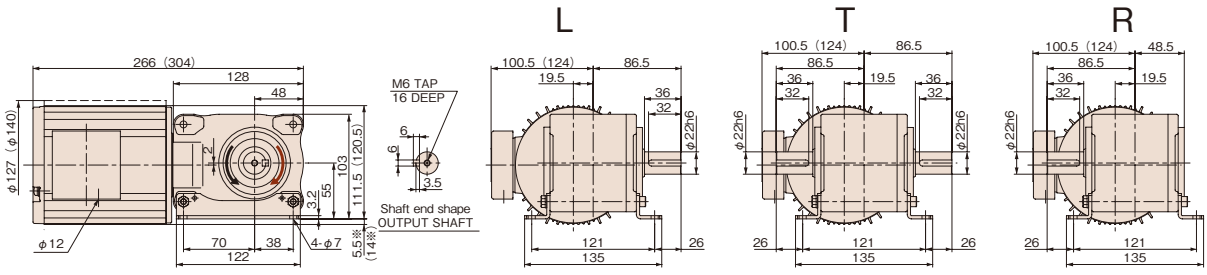


Outline Dimensions

HMTA010-22L5 – 120$^{L}_{R}$(B)

1/5–1/50 ↺ 、1/60–1/120 ↻ **1**

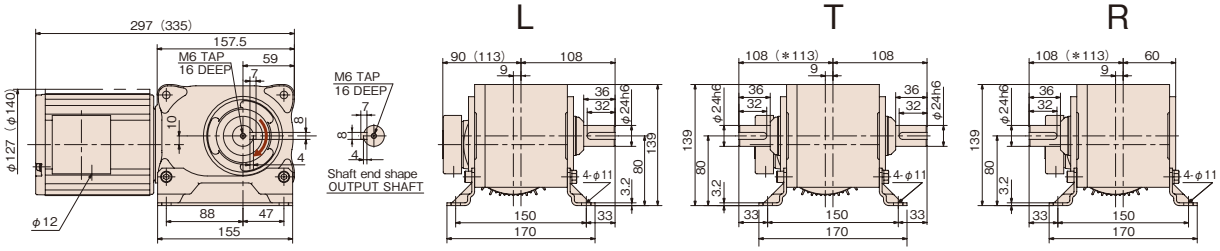
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120	Approx. weight : 6.5 (8.5) kg



HMTA010-24L160 – 200$^{L}_{R}$(B)

2

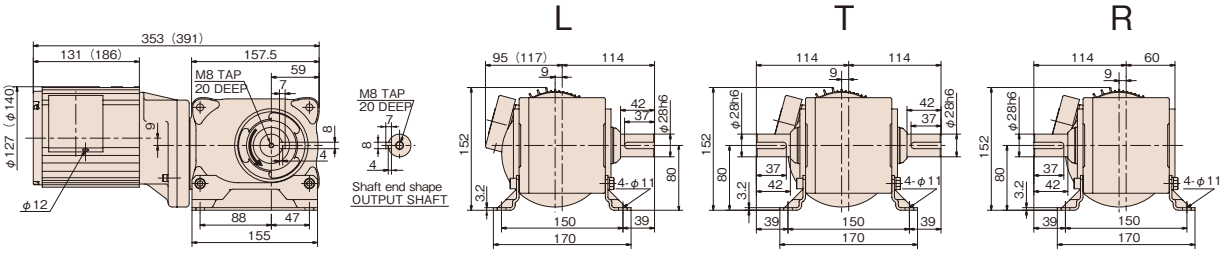
Reduction ratio : 160, 200	Approx. weight : 10.8 (12.4) kg



HMTA010-28L300 – 480$^{L}_{R}$(B)

3

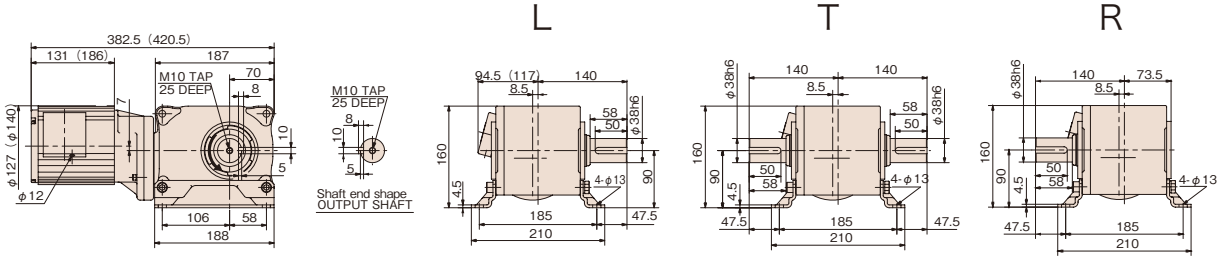
Reduction ratio : 300, 360, 480	Approx. weight : 13.0 (14.6) kg



HMTA010-38L600 – 1200$^{L}_{R}$(B)

4

Reduction ratio : 600, 720, 960, 1200	Approx. weight : 16.8 (18.4) kg



Note 1: The values in parentheses are for brake-equipped models with a fan cover. Refer to the previous page for the shape of the fan cover.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.2kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				U	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA020	5	0.2	1/5	2	300	360	5.6	{0.57}	4.6	{0.47}	588	{60}	1
	10		1/10		150	180	10.8	{1.1}	9.3	{0.95}	980	{100}	
	15		1/15		100	120	16.7	{1.7}	13.7	{1.4}	1078	{110}	
	20		1/20		75	90	22.5	{2.3}	18.6	{1.9}	1176	{120}	
	25		1/25		60	72	27.4	{2.8}	23.5	{2.4}	1274	{130}	
	30		1/30	3	50	60	31.4	{3.2}	26.5	{2.7}	1421	{145}	
	40		1/40		37.5	45	42.1	{4.3}	35.3	{3.6}	1617	{165}	
	50		1/50		30	36	52.9	{5.4}	44.1	{4.5}	1862	{190}	
	60		1/60		25	30	63.7	{6.5}	52.9	{5.4}	2009	{205}	
	80		1/80		18.8	22.5	84.3	{8.6}	70.6	{7.2}	2254	{230}	2
	100		1/100		15	18	106	{10.8}	88.2	{9.0}	2548	{260}	
	120		1/120		12.5	15	126	{12.9}	106	{10.8}	2793	{285}	
	160		1/160		9.4	11.3	169	{17.2}	140	{14.3}	3332	{340}	
	200		1/200		7.5	9	※169	※{17.2}	※169	※{17.2}	3332	{340}	
	300		1/300	4	5	6	260	{26.5}	217	{22.1}	4410	{450}	3
	360		1/360		4.2	5	312	{31.8}	260	{26.5}	4410	{450}	
	480		1/480		3.1	3.8	※374	※{38.2}	※312	※{31.8}	4410	{450}	
	600		1/600		2.5	3	506	{51.6}	432	{44.1}	6272	{640}	4
	720		1/720		2.1	2.5	607	{61.9}	519	{53.0}	6272	{640}	
	960		1/960		1.6	1.9	※621	※{63.4}	※621	※{63.4}	6272	{640}	
	1200		1/1200		1.3	1.5	※621	※{63.4}	※621	※{63.4}	6272	{640}	

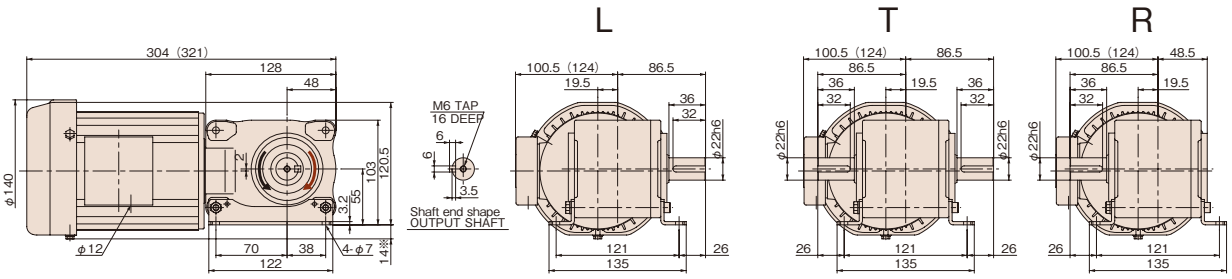
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTA020-22L5 – 60$^{L}_{R}$(B)

1/5–1/25 ↺ 、1/30–1/60 ↻ **1**

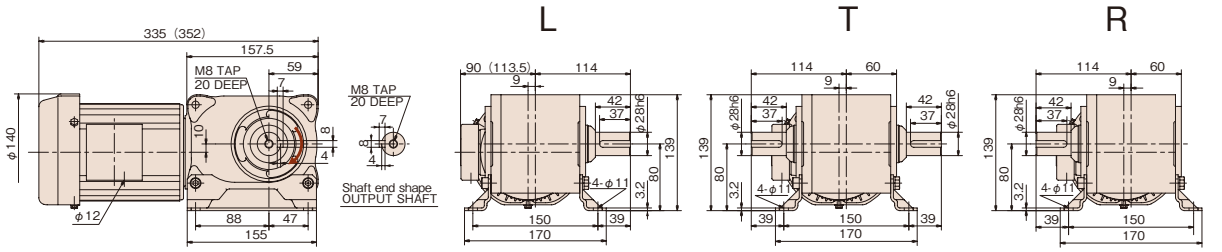
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60	Approx. weight : 6.8 (8.6) kg



HMTA020-28L80 – 200$^{L}_{R}$(B)

2

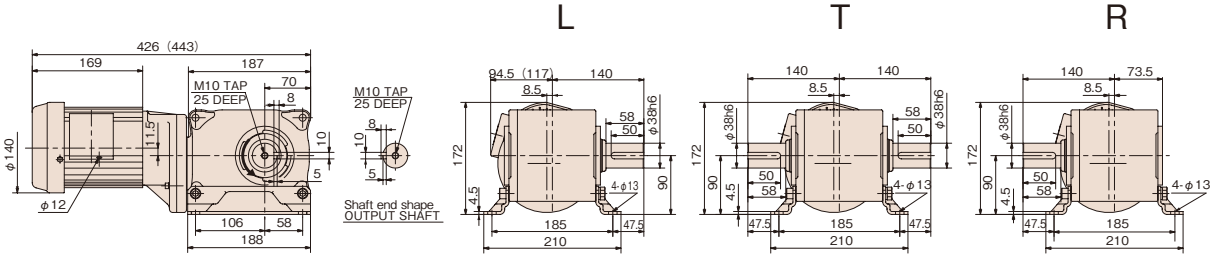
Reduction ratio : 80, 100, 120, 160, 200	Approx. weight : 10.4 (12.5) kg



HMTA020-38L300 – 480$^{L}_{R}$(B)

3

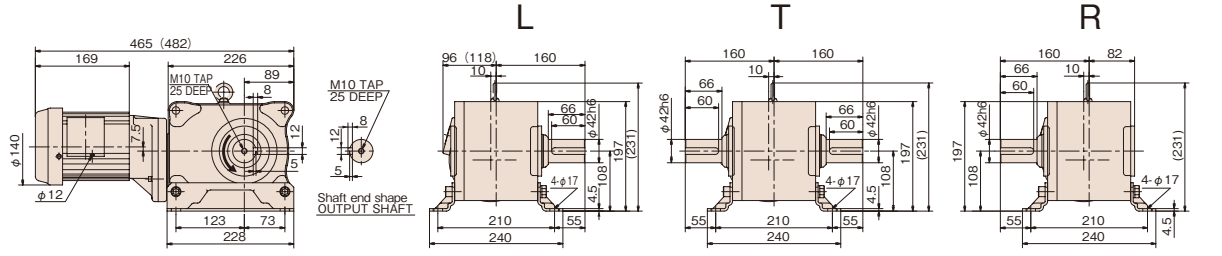
Reduction ratio : 300, 360, 480	Approx. weight : 16.8 (18.9) kg



HMTA020-42L600 – 1200$^{L}_{R}$(B)

4

Reduction ratio : 600, 720, 960, 1200	Approx. weight : 26.3 (28.4) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.4kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	Totally enclosed (IP44)	Self-managed (JC411)	Continuous	120 (E)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				L	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTA040	5	0.4	1/5	2	300	360	10.8	{1.1}	9.3	{0.95}	931	{95}	1
	10		1/10		150	180	22.5	{2.3}	18.6	{1.9}	1568	{160}	
	15		1/15		100	120	33.3	{3.4}	27.4	{2.8}	1715	{175}	
	20		1/20		75	90	44.1	{4.5}	37.2	{3.8}	1862	{190}	
	25		1/25		60	72	55.9	{5.7}	46.1	{4.7}	2009	{205}	
	30		1/30		50	60	66.6	{6.8}	55.9	{5.7}	2205	{225}	
	40		1/40		37.5	45	89.2	{9.1}	74.5	{7.6}	2450	{250}	
	50		1/50		30	36	112	{11.4}	93.1	{9.5}	2793	{285}	
	60		1/60	3	25	30	126	{12.9}	106	{10.8}	3038	{310}	2
	80		1/80		18.8	22.5	169	{17.2}	141	{14.4}	3479	{355}	
	100		1/100		15	18	212	{21.6}	176	{18.0}	3920	{400}	
	120		1/120		12.5	15	254	{25.9}	212	{21.6}	4410	{450}	
	160		1/160		9.4	11.3	338	{34.5}	281	{28.7}	4410	{450}	
	200		1/200		7.5	9	※374	※{38.2}	※312	※{31.8}	4410	{450}	
	300		1/300	4	5	6	519	{53.0}	432	{44.1}	6272	{640}	3
	360		1/360		4.2	5	621	{63.4}	519	{53.0}	6272	{640}	
	480		1/480		3.1	3.8	※621	※{63.4}	※621	※{63.4}	6272	{640}	
	600		1/600		2.5	3	1029	{105}	869	{88.7}	9800	{1000}	4
	720		1/720		2.1	2.5	※1176	※{120}	1029	{105}	9800	{1000}	
	960		1/960		1.6	1.9	※1176	※{120}	※1176	※{120}	9800	{1000}	
	1200		1/1200		1.3	1.5	※1176	※{120}	※1176	※{120}	9800	{1000}	

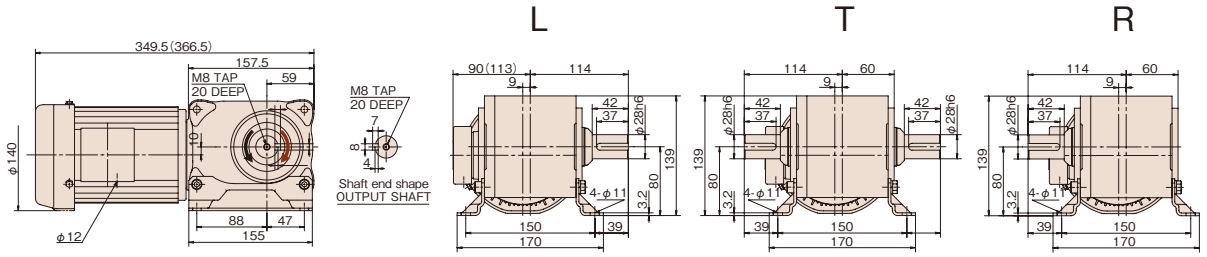
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTA040-28L5 – 50$^{L}_{R}$(B)

1/5–1/30 ↺ 、1/40–1/50 ↻ **1**

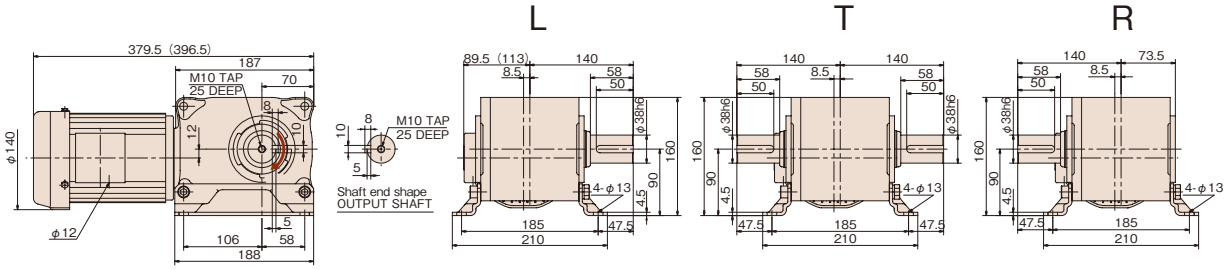
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 10.9 (13.4) kg



HMTA040-38L60 – 200$^{L}_{R}$(B)

2

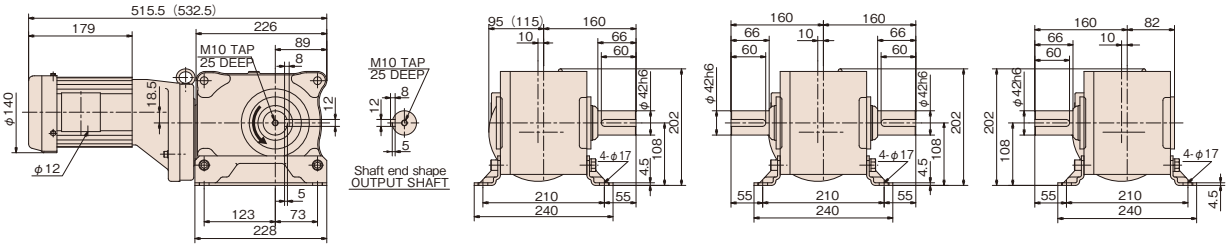
Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 16.8 (19.3) kg



HMTA040-42L300 – 480$^{L}_{R}$(B)

3

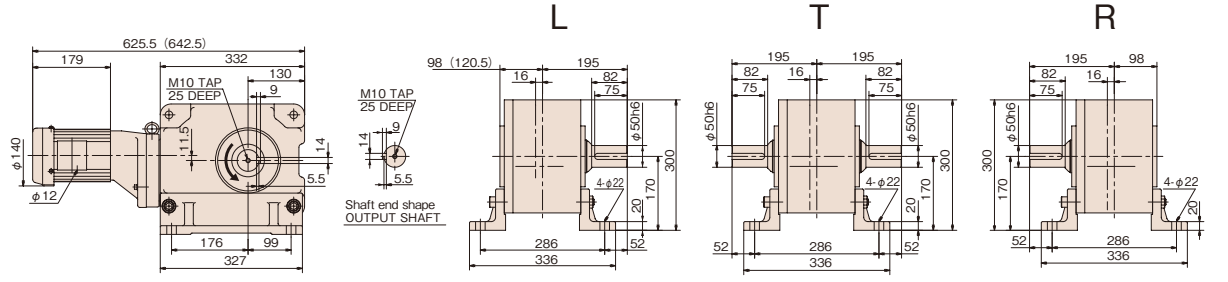
Reduction ratio : 300, 360, 480	Approx. weight : 31.7 (34.2) kg



HMTA040-50L600 – 1200$^{L}_{R}$(B)

4

Reduction ratio : 600, 720, 960, 1200	Approx. weight : 75.8 (78.3) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
0.75kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	155 (F)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				L	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR075	5	0.75	1/5	2	300	360	20.6	{2.1}	17.6	{1.8}	1519	{155}	1
	7.5		1/7.5		200	240	31.4	{3.2}	26.5	{2.7}	1862	{190}	
	10		1/10		150	180	42.1	{4.3}	34.3	{3.5}	2205	{225}	
	12.5		1/12.5		120	144	51.9	{5.3}	43.1	{4.4}	2303	{235}	
	15		1/15		100	120	62.7	{6.4}	51.9	{5.3}	2401	{245}	
	20		1/20		75	90	83.3	{8.5}	69.6	{7.1}	2646	{270}	
	25		1/25		60	72	104	{10.6}	87.2	{8.9}	2891	{295}	
	30		1/30		50	60	125	{12.8}	104	{10.6}	3136	{320}	
	40		1/40	3	37.5	45	167	{17.0}	139	{14.2}	3626	{370}	
	50		1/50		30	36	209	{21.3}	173	{17.7}	4116	{420}	
	60		1/60		25	30	238	{24.3}	198	{20.2}	4508	{460}	2
	80		1/80		18.8	22.5	317	{32.3}	264	{26.9}	5390	{550}	
	100		1/100		15	18	396	{40.4}	330	{33.7}	6272	{640}	
	120		1/120		12.5	15	475	{48.5}	396	{40.4}	6272	{640}	
	160		1/160		9.4	11.3	621	{63.4}	517	{52.8}	6272	{640}	
	200		1/200		7.5	9	※621	※{63.4}	※621	※{63.4}	6272	{640}	
	300		1/300	4	5	6	973	{99.3}	807	{82.3}	9800	{1000}	3
	360		1/360		4.2	5	1166	{119}	973	{99.3}	9800	{1000}	
	480		1/480		3.1	3.8	※1176	※{120}	※1176	※{120}	9800	{1000}	

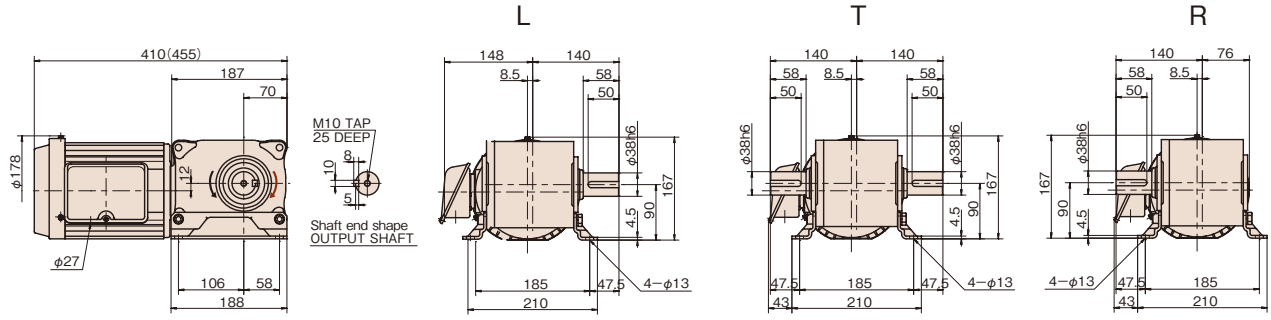
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTR075-38L5 – 50 L/T/R (B)

1/5–1/30 ↺ 、1/40–1/50 ↻ **1**

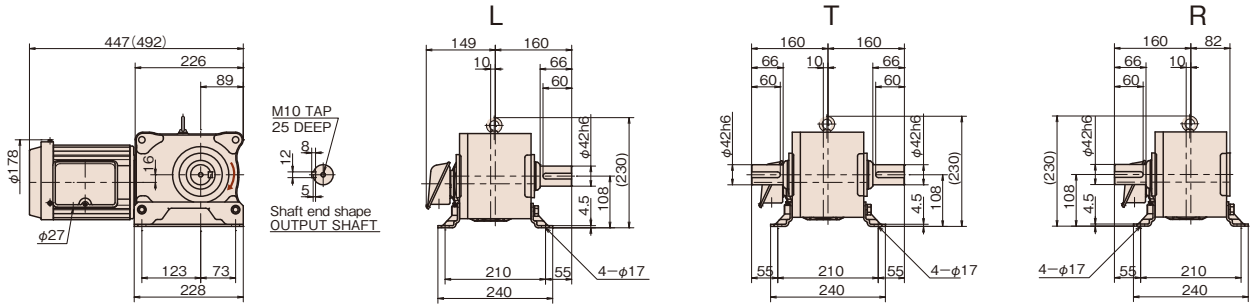
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 23.0(26.0)kg



HMTR075-42L60 – 200 L/T/R (B)

2

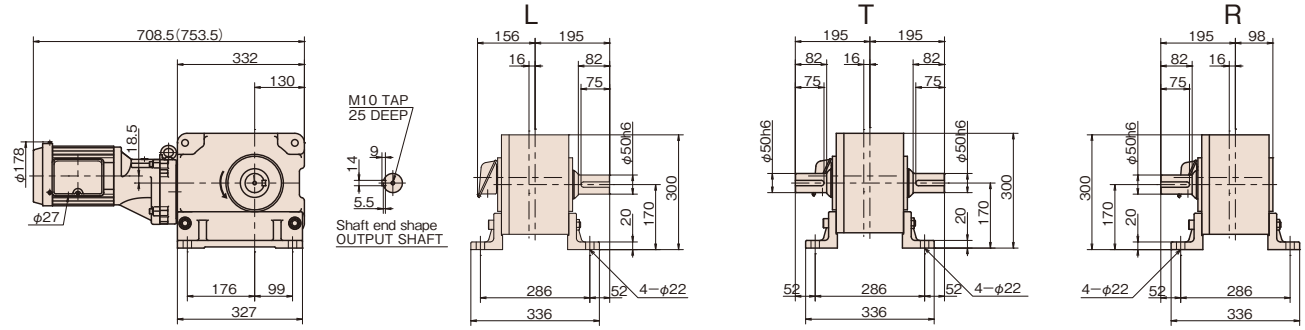
Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 30.0(33.0)kg



HMTR075-50L300 – 480 L/T/R (B)

3

Reduction ratio : 300, 360, 480	Approx. weight : 67.0(70.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.
Note 4: On HMTR075-38L5-50, the motor protrudes from the mounting surface when the terminal box is at a position other than the standard position.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
1.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1450/1745/1755 (1445/1440/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				L	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR150	5	1.5	1/5	2	300	360	41.2	{4.2}	34.3	{3.5}	2058	{210}	1
	10		1/10		150	180	83.3	{8.5}	69.6	{7.1}	2842	{290}	
	15		1/15		100	120	124	{12.7}	104	{10.6}	3234	{330}	
	20		1/20		75	90	166	{16.9}	138	{14.1}	3626	{370}	
	25		1/25		60	72	208	{21.2}	173	{17.7}	4018	{410}	
	30		1/30		50	60	249	{25.4}	208	{21.2}	4508	{460}	
	40		1/40	3	37.5	45	317	{32.3}	264	{26.9}	5292	{540}	
	50		1/50		30	36	396	{40.4}	330	{33.7}	6076	{620}	
	60		1/60		25	30	475	{48.5}	396	{40.4}	6272	{640}	
	80		1/80		18.8	22.5	634	{64.7}	528	{53.9}	6272	{640}	
	100		1/100		15	18	792	{80.8}	661	{67.4}	9800	{1000}	2
	120		1/120		12.5	15	951	{97.0}	792	{80.8}	9800	{1000}	
	160		1/160		9.4	11.3	※1176	※{120}	1058	{108}	9800	{1000}	
	200		1/200		7.5	9	※1176	※{120}	※1176	※{120}	9800	{1000}	

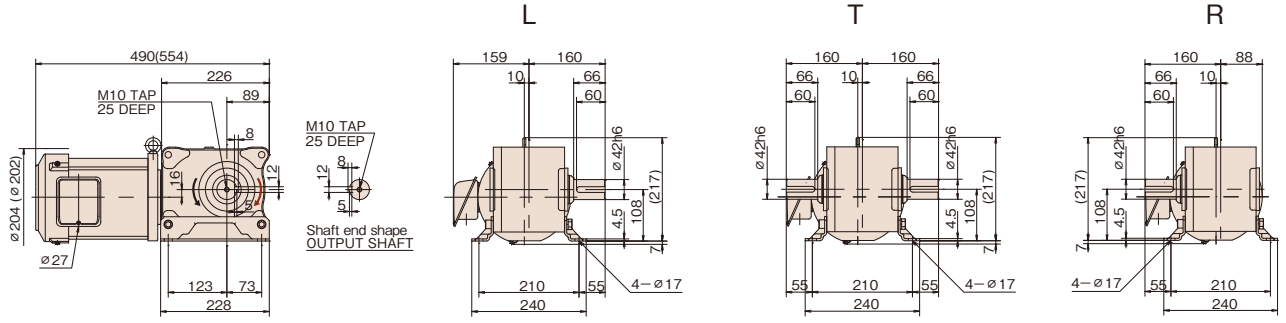
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTR150-42L5 – 80 L/R (B)

1/5–1/30 ↻ 、1/40–1/80 ↺ **1**

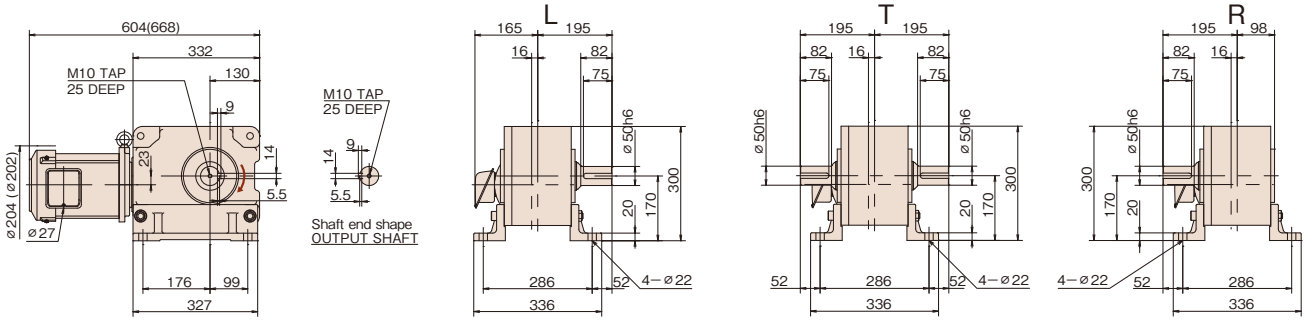
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80 | Approx. weight : 38.0(45.0)kg



HMTR150-50L100 – 200 L/R (B)

2

Reduction ratio : 100, 120, 160, 200 | Approx. weight : 68.0(76.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.
Note 4: On HMTR150-42L5-80, the motor protrudes from the mounting surface when the terminal box is at a position other than the standard position.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
2.2kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				L	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR220	5	2.2	1/5	2	300	360	60.8	{6.2}	51.0	{5.2}	3038	{310}	1
	10		1/10		150	180	122	{12.4}	102	{10.4}	3822	{390}	
	15		1/15		100	120	182	{18.6}	152	{15.5}	4214	{430}	
	20		1/20		75	90	244	{24.9}	203	{20.7}	4606	{470}	
	25		1/25	3	60	72	290	{29.6}	242	{24.7}	4998	{510}	
	30		1/30		50	60	349	{35.6}	290	{29.6}	5390	{550}	
	40		1/40		37.5	45	465	{47.4}	387	{39.5}	5782	{590}	
	★50		★1/50		30	36	581	{59.3}	484	{49.4}	6076	{620}	
	60		1/60		25	30	697	{71.1}	581	{59.3}	6272	{640}	
	80		1/80		18.8	22.5	930	{94.9}	774	{79.0}	9800	{1000}	2
	100		1/100		15	18	※1068	※{109}	968	{98.8}	9800	{1000}	
	120		1/120		12.5	15	※1176	※{120}	1166	{119}	9800	{1000}	

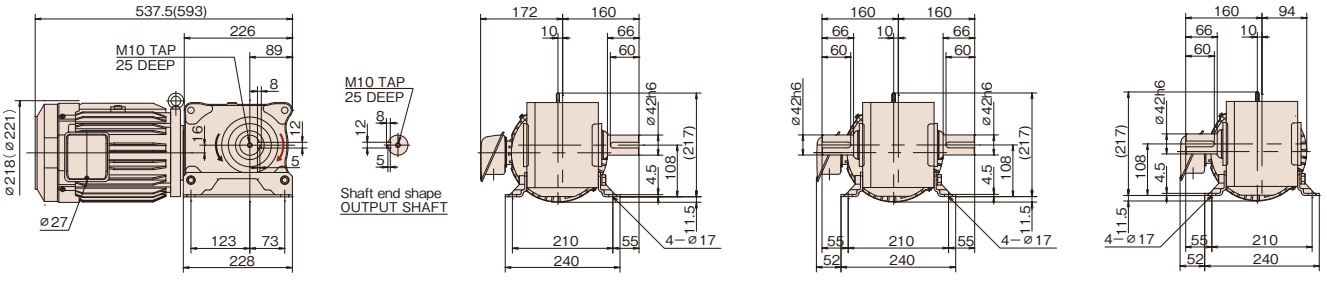
Note 1: The actual reduction ratio is shown as the reduction ratio. Note that on the 2.2 kW, 1/50 model (marked with ★), the actual reduction ratio is 1/49.286.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.
Note 4: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTR220-42L5 – 60 $\frac{L}{R}$(B)

1/5–1/20 ↺ 、1/25–1/60 ↻ **1**

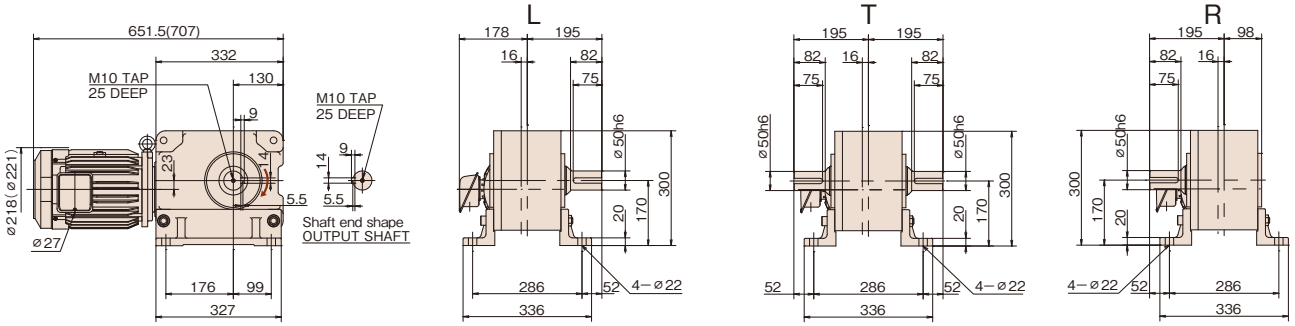
Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50, 60 | Approx. weight : 48.0(53.0)kg



HMTR220-50L80 – 120 $\frac{L}{R}$(B)

2

Reduction ratio : 80, 100, 120 | Approx. weight : 76.0(83.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 4: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Nomenclature Page 51
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Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
3.7kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				L	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR370	5	3.7	1/5	2	300	360	103	{10.5}	85.3	{8.7}	4900	{500}	1
	10		1/10		150	180	205	{20.9}	171	{17.4}	5880	{600}	
	15		1/15		100	120	308	{31.4}	256	{26.1}	6860	{700}	
	20		1/20		75	90	410	{41.8}	341	{34.8}	7742	{790}	
	25		1/25	3	60	72	489	{49.9}	407	{41.5}	8134	{830}	
	30		1/30		50	60	586	{59.8}	489	{49.9}	8428	{860}	
	40		1/40		37.5	45	782	{79.8}	652	{66.5}	8820	{900}	
	50		1/50		30	36	977	{99.7}	814	{83.1}	9114	{930}	
	60		1/60		25	30	1176	{120}	977	{99.7}	9408	{960}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

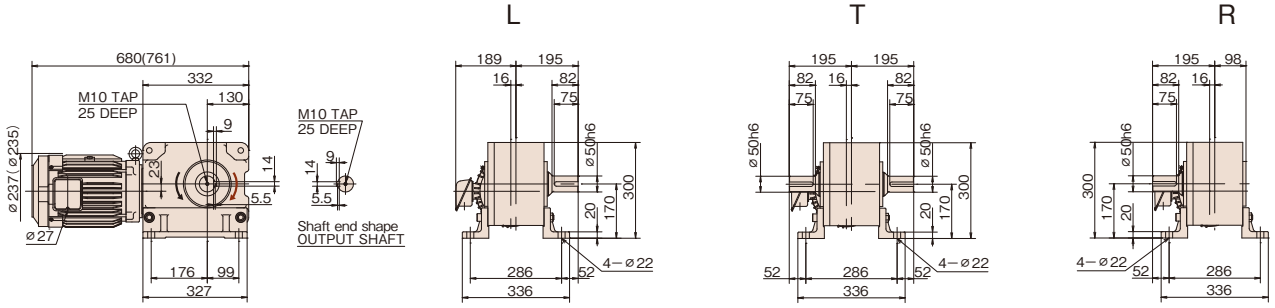
Outline Dimensions

HMTR370-50L5 – 60 $\frac{L}{R}$(B)

1/5–1/20 ↺ 、1/25–1/60 ↻ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60

Approx. weight : 84.0(94.0)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection type	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque (of motor torque)	Insulation
5.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	22.6/20.8/20.0 (11.3/11.3/10.4/10.0)	1465/1760/1765 (1460/1465/1760/1765)	Totally enclosed (IP44)	Self-managed (JC411)	S1 (Continuous)	130(B)	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.
Note 3: The ratings of the 400 V-class brake-equipped models marked with ※ are 50/60/60 Hz and 400/400/400 V.

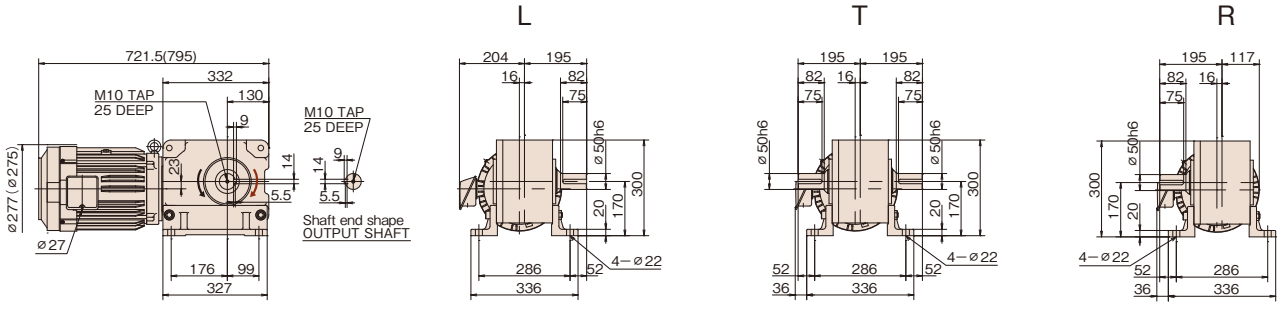
Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
							N·m	{kgf·m}	N·m	{kgf·m}			
				L	50Hz	60Hz	50Hz		60Hz		N	{kgf}	
HMTR550	5	5.5	1/5	2	300	360	152	{15.5}	126	{12.9}	4900	{500}	1
	10		1/10		150	180	305	{31.1}	254	{25.9}	5880	{600}	
	15		1/15		100	120	457	{46.6}	380	{38.8}	6860	{700}	
	20		1/20		75	90	609	{62.1}	508	{51.8}	7742	{790}	
	25		1/25	3	60	72	726	{74.1}	606	{61.8}	8134	{830}	
	30		1/30		50	60	871	{88.9}	726	{74.1}	8428	{860}	
	40		1/40		37.5	45	1166	{119}	968	{98.8}	8820	{900}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

HMTR550-50L5 – 40 $\frac{L}{R}$(B) 1/5–1/20 ⟆ 、1/25–1/40 ⟅ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40 | Approx. weight : 100.0(115.0)kg



Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 3: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.
Note 4: On 400 V-class brake-equipped models, the DC module (HD-120MH1) is placed separately. See page 217 for dimensions.

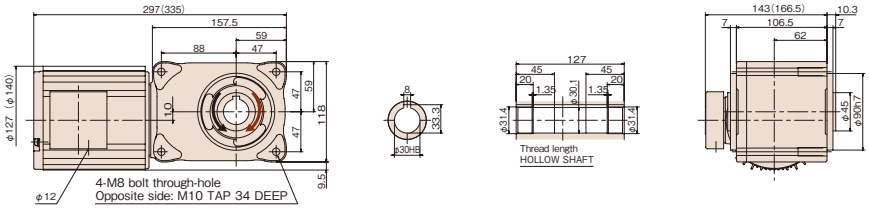
Three-phase 0.1 kW, 0.2 kW

HMTA010-30H5 – 200 (B) 1

1/5–1/60 ↻、1/80–1/200 ↻

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200

Approx. weight : 9.0 (10.6) kg

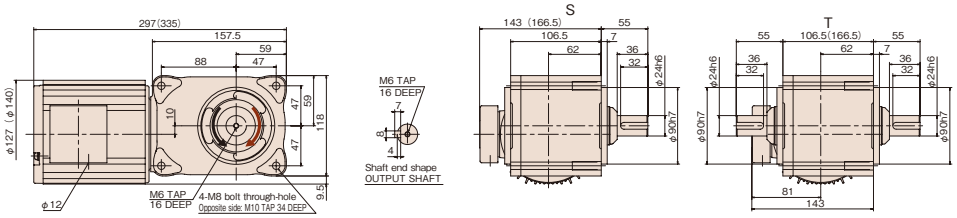


HMTA010-24U5 – 200 ⅘(B) 2

1/5–1/60 ↻、1/80–1/200 ↻

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200

Approx. weight : 10.0 (11.7) kg

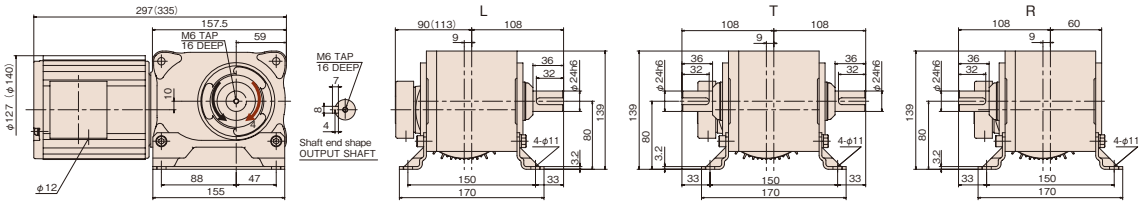


HMTA010-24L60 – 200 ⅕(B) 3

1/5–1/60 ↻、1/80–1/200 ↻

Reduction ratio : 60, 80, 100, 120, 160, 200

Approx. weight : 10.8 (12.4) kg

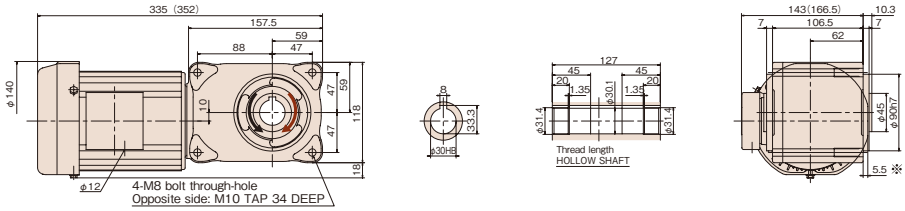


HMTA020-30H5 – 200 (B) 4

1/5–1/60 ↻、1/80–1/200 ↻

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200

Approx. weight : 8.8 (10.9) kg

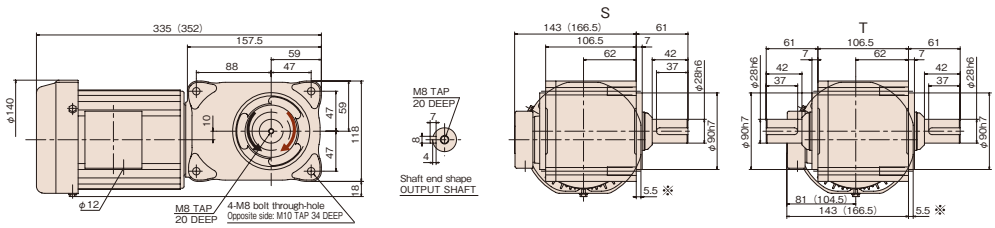


HMTA020-28U5 – 200 ⅘(B) 5

1/5–1/60 ↻、1/80–1/200 ↻

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200

Approx. weight : 9.6kg (11.7) kg

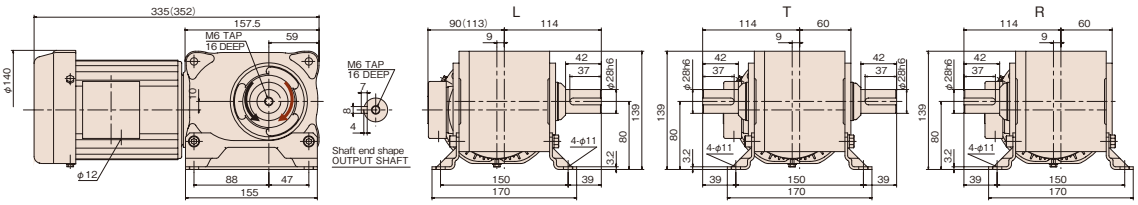


HMTA020-28L60 – 200 ⅕(B) 6

1/5–1/60 ↻、1/80–1/200 ↻

Reduction ratio : 60, 80, 100, 120, 160, 200

Approx. weight : 10.4 (12.5) kg



Note 1: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 2: The values in parentheses are for brake-equipped models, which come with a fan cover.

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HYPOID MOTOR

TA Series

CONTENTS

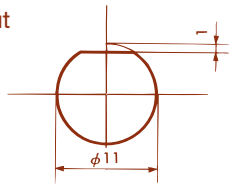
Adapter Type, Inline Reducer Type
Nomenclature, Model Lineup ····· Page 95
Dimensions of Input Section, Specifications ····· Page 96
Specification Chart ····· Page 97
Outline Dimensions ····· Page 99
(Hollow Shaft Type, Face Mount Type, Foot Mount Type)

Adapter Type

0.1 kW to 1.5 kW

1. Reducer with adapter flange allows motor to be attached
   - Non-Tsubaki motors as well
   - Explosion-proof motors
   - Other special motors

2. Applicable to IEC or JEM standard flange motors
   - Compatible with keyless D-cut shafts under 0.2 kW



3. If you require compatibility with servomotors or DC motors with special flange dimensions or shaft dimensions, please contact Tsubaki.

Inline Reducer Type

0.1 kW to 1.5 kW

Reducer with reducer part of hypoid motor separated.
Use in following cases:

1. When a right-angle, high-efficiency reducer is necessary
2. When a reducer is driven by a device other than special motors or electric motors
3. When input revolution speed is different from the motor revolution speed

Nomenclature

Adapter Type

HRTA075-38L5RFI□□

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Inline Reducer Type

HRTA010-30H200□□

① ② ③ ④ ⑤ ⑧

① Product series name	HRTA	Inline reducer type, adapter type
② Motor capacity (example)	075	0.75 kW
③ Frame number (example)	50	Frame number 50
④ Mounting type	L	Foot mount
	U	Face mount
	H	Hollow shaft
⑤ Reduction ratio (example)	5	1/5
⑥ Shaft arrangement	L	Output shaft located to the left as viewed from the input shaft
	T	Output shaft located on both sides
	R	Output shaft located to the right as viewed from the input shaft
	S	Output shaft located on one side (face side: for face mount type only)
⑦ Specification code	FI	Adapter type
	K	POWER-LOCK type
	No code	Inline reducer type
⑧ Option code B Former supplementary code	C0	Paint color: Light gray (Munsell N7.5)
	C1	Paint color: Light silver metallic
	C2	Paint color: Ivory white
	C3	Paint color: Dark silver metallic
	S1	Hollow shaft hole diameter ϕ20
	S2	Hollow shaft hole diameter ϕ25
	S3	Hollow shaft hole diameter ϕ30
	S4	Hollow shaft hole diameter ϕ35
	S5	Hollow shaft hole diameter ϕ40
	S6	Hollow shaft hole diameter ϕ45
	S7	Hollow shaft hole diameter ϕ50

Model Lineup

Adapter type, inline reducer type (Hollow shaft)

	5	10	15	20	25	30	40	50	60	80	100	120	160	200
0.1kW	30H													
0.2kW	30H													
0.4kW	30H								35H					
0.75kW	35H								45H					
1.5kW	45H													

Adapter type, inline reducer type (Face mount type)

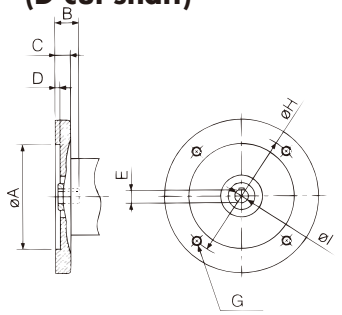
	5	10	15	20	25	30	40	50	60	80	100	120	160	200
0.1kW	24U													
0.2kW	28U													
0.4kW	28U								38U					
0.75kW	38U								42U					
1.5kW	42U													

Adapter type, inline reducer type (Foot mount type)

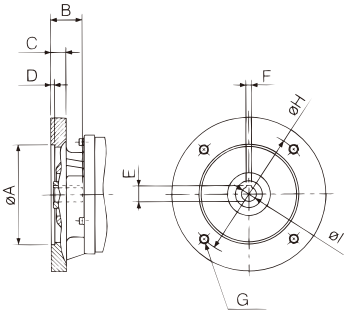
	5	10	15	20	25	30	40	50	60	80	100	120	160	200
0.1kW	24L													
0.2kW	28L													
0.4kW	28L								38L					
0.75kW	38L								42L					
1.5kW	42L													

Adapter Type Input Shaft Dimensions

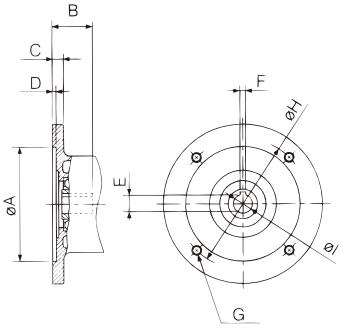
0.1 kW to 0.2kW (D-cut shaft)



0.4 kW to 0.75 kW



1.5 kW



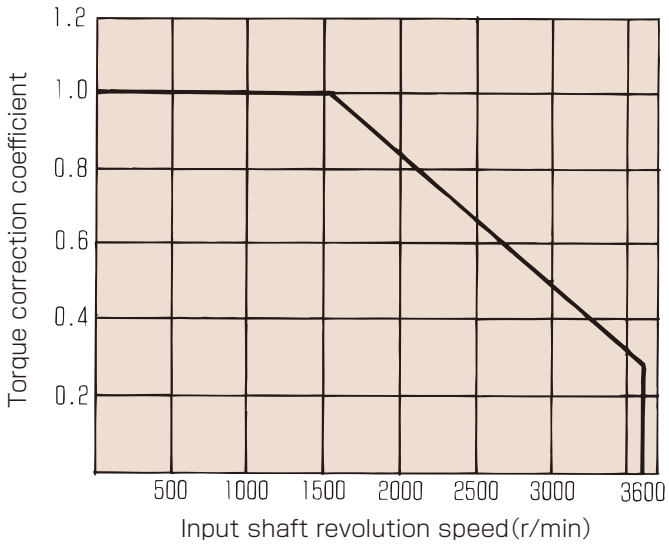
(mm)

Motor output	A	B	C	D	E	F	G	H	I
0.1 kW	110G7	25	14	5	10	–	4-M8	130	11F7
0.2 kW	110G7	25	14	5	10	–	4-M8	130	11F7
0.4 kW	110G7	32	14	5	16.3	5	4-M8	130	14F7
0.75 kW	130G7	42	20	5	21.8	6	4-M10	165	19F7
1.5 kW	130G7	52	16	5	27.3	8	4-M10	165	24F7

Relation between Input Shaft Revolution Speed and Allowable Output Shaft Torque

The allowable output shaft torque shown in the specification chart is for input shaft revolution speeds of 1500 r/min (50 Hz) or 1800 r/min (60 Hz). When the input shaft revolution speed is other than these, the values shown in the specification chart should be multiplied by the torque correction coefficient shown in the figure below to obtain the allowable output shaft torque.

Allowable output shaft torque correction coefficient by input shaft revolution speed



(Example)
When the HRTA010-24L50 is used at an input shaft revolution speed of 2500 r/min. According to the figure to the left, the correction coefficient for an input shaft revolution speed of 2500 r/min is 0.65.

Allowable output shaft torque = 27.4 × 0.65 = 17.81N
{2.8 × 0.65 = 1.82kgfm}
Allowable output shaft O.H.L. = 1862 × 0.65 = 1210.3N
{190 × 0.65 = 123.5kgf}
Allowable input shaft O.H.L. = 96.0 × 0.65 = 62.4N
{9.8 × 0.65 = 6.37kgf}

Note 1: The correction coefficient shown in the figure above is also applied to the allowable input/output shaft O.H.L.
Note 2: For the inertia ratio and allowable starting frequency, refer to Table 3 on page 206.
Note 3: If the device is to be used as a step-up gear, please contact us.

Specification Chart

Model number		4P motor capacity equivalence kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
							N·m	{kgf·m}	N·m	{kgf·m}							
				L·U·H	50Hz	60Hz	50Hz:1500r/min		60Hz:1800r/min		N	{kgf}	N	{kgf}	Hollow shaft	Face mount	Foot mount
HRTA 010	5	0.1 kW	1/5	2	300	360	2.7	{0.28}	2.4	{0.24}	96.0	{9.8}	588	{ 60}	99 100 1	103 104 1	107 108 1
	10		1/10		150	180	5.6	{0.57}	4.6	{0.47}			980	{100}			
	15		1/15		100	120	8.3	{0.85}	7.0	{0.71}			1078	{110}			
	20		1/20		75	90	10.8	{ 1.1}	9.3	{0.95}			1176	{120}			
	25		1/25		60	72	13.7	{ 1.4}	11.8	{1.2 }			1274	{130}			
	30		1/30		50	60	16.7	{ 1.7}	13.7	{1.4 }			1421	{145}			
	40		1/40		37.5	45	22.5	{ 2.3}	18.6	{1.9 }			1617	{165}			
	50		1/50		30	36	27.4	{ 2.8}	23.5	{2.4 }			1862	{190}			
	60		1/60		25	30	31.4	{ 3.2}	26.5	{2.7 }			2009	{205}			
	80		1/80	3	18.8	22.5	42.1	{ 4.3}	35.3	{3.6 }			2254	{230}			
	100		1/100		15	18	52.9	{ 5.4}	44.1	{4.5 }			2548	{260}			
	120		1/120		12.5	15	63.7	{ 6.5}	52.9	{5.4 }			2793	{285}			
	160		1/160		9.4	11.3	84.3	{ 8.6}	70.6	{7.2 }			3332	{340}			
	200		1/200		7.5	9	106	{10.8}	88.2	{9.0 }			3332	{340}			
HRTA 020	5	0.2 kW	1/5	2	300	360	5.6	{0.57}	4.6	{0.47}	147	{15}	588	{ 60}	99 100 2	103 104 2	107 108 2
	10		1/10		150	180	10.8	{ 1.1}	9.3	{0.95}			980	{100}			
	15		1/15		100	120	16.7	{ 1.7}	13.7	{ 1.4}			1078	{110}			
	20		1/20		75	90	22.5	{ 2.3}	18.6	{ 1.9}			1176	{120}			
	25		1/25		60	72	27.4	{ 2.8}	23.5	{ 2.4}			1274	{130}			
	30		1/30		50	60	33.3	{ 3.4}	27.4	{ 2.8}			1421	{145}			
	40		1/40		37.5	45	44.1	{ 4.5}	37.2	{ 3.8}			1617	{165}			
	50		1/50		30	36	55.9	{ 5.7}	46.1	{ 4.7}			1862	{190}			
	60		1/60		25	30	66.6	{ 6.8}	54.9	{ 5.6}			2009	{205}			
	80		1/80	3	18.8	22.5	84.3	{ 8.6}	70.6	{ 7.2}			2254	{230}			
	100		1/100		15	18	106	{10.8}	88.2	{ 9.0}			2548	{260}			
	120		1/120		12.5	15	126	{12.9}	106	{10.8}			2793	{285}			
	160		1/160		9.4	11.3	169	{17.2}	140	{14.3}			3332	{340}			
	200		1/200		7.5	9	※ 169	※{17.2}	※ 169	※{17.2}			3332	{340}			
HRTA 040	5	0.4 kW	1/5	2	300	360	10.8	{ 1.1}	9.3	{0.95}	235	{24}	931	{ 95}	99 100 3	103 104 3	109 110 1
	10		1/10		150	180	22.5	{ 2.3}	18.6	{ 1.9}			1568	{160}			
	15		1/15		100	120	33.3	{ 3.4}	27.4	{ 2.8}			1715	{175}			
	20		1/20		75	90	44.1	{ 4.5}	37.2	{ 3.8}			1862	{190}			
	25		1/25		60	72	55.9	{ 5.7}	46.1	{ 4.7}			2009	{205}			
	30		1/30		50	60	66.6	{ 6.8}	55.9	{ 5.7}			2205	{225}			
	40		1/40	3	37.5	45	84.3	{ 8.6}	70.6	{ 7.2}			2450	{250}			
	50		1/50		30	36	106	{10.8}	88.2	{ 9.0}			2793	{285}			
	60		1/60		25	30	126	{12.9}	106	{10.8}			3038	{310}	99 100 4	103 104 4	109 110 2
	80		1/80		18.8	22.5	169	{17.2}	141	{14.4}			3479	{355}			
	100		1/100		15	18	212	{21.6}	176	{18.0}			3920	{400}			
	120		1/120		12.5	15	254	{25.9}	212	{21.6}			4410	{450}			
	160		1/160		9.4	11.3	338	{34.5}	281	{28.7}			4410	{450}			
	200		1/200		7.5	9	※ 374	※{38.2}	312	{31.8}			4410	{450}			

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 5: The models marked with ※ are ones for which torque is limited.

Model number		4P motor capacity equivalence kW	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Allowable output shaft O.H.L.		Page and drawing number of the outline dimensions		
							N·m	{kgf·m}	N·m	{kgf·m}							
				L·U·H	50Hz	60Hz	50Hz:1500r/min		60Hz:1800r/min		N	{kgf}	N	{kgf}	Hollow shaft	Face mount	Foot mount
HRTA 075	5	0.75 kW	1/5	2	300	360	20.6	{ 2.1}	17.6	{ 1.8}	353	{36}	1519	{155}	101 102 | 1	105 106 | 1	109 110 | 3
	10		1/10		150	180	42.1	{ 4.3}	34.3	{ 3.5}			2205	{225}			
	15		1/15		100	120	62.7	{ 6.4}	51.9	{ 5.3}			2401	{245}			
	20		1/20		75	90	83.3	{ 8.5}	69.6	{ 7.1}			2646	{270}			
	25		1/25		60	72	104	{10.6}	87.2	{ 8.9}			2891	{295}			
	30		1/30		50	60	125	{12.8}	104	{10.6}			3136	{320}			
	40		1/40	3	37.5	45	159	{16.2}	132	{13.5}			3626	{370}			
	50		1/50		30	36	198	{20.2}	165	{16.8}			4116	{420}			
	60		1/60		25	30	238	{24.3}	198	{20.2}			4508	{460}	101 102 | 2	105 106 | 2	109 110 | 4
	80		1/80		18.8	22.5	317	{32.3}	264	{26.9}			5390	{550}			
	100		1/100		15	18	396	{40.4}	330	{33.7}			6272	{640}			
	120		1/120		12.5	15	475	{48.5}	396	{40.4}			6272	{640}			
	160		1/160		9.4	11.3	621	{63.4}	517	{52.8}			6272	{640}			
	200		1/200		7.5	9	※ 621	※ {63.4}	※621	※ {63.4}			6272	{640}			
HRTA 150	5	1.5 kW	1/5	2	300	360	41.2	{ 4.2}	34.3	{ 3.5}	568	{58}	2058	{210}	101 102 | 3	105 106 | 3	109 110 | 5
	10		1/10		150	180	83.3	{ 8.5}	69.6	{ 7.1}			2842	{290}			
	15		1/15		100	120	124	{12.7}	104	{10.6}			3234	{330}			
	20		1/20		75	90	166	{16.9}	138	{14.1}			3626	{370}			
	25		1/25		60	72	208	{21.2}	173	{17.7}			4018	{410}			
	30		1/30		50	60	249	{25.4}	208	{21.2}			4508	{460}			
	40		1/40	3	37.5	45	317	{32.3}	264	{26.9}			5292	{540}			
	50		1/50		30	36	396	{40.4}	330	{33.7}			6076	{620}			

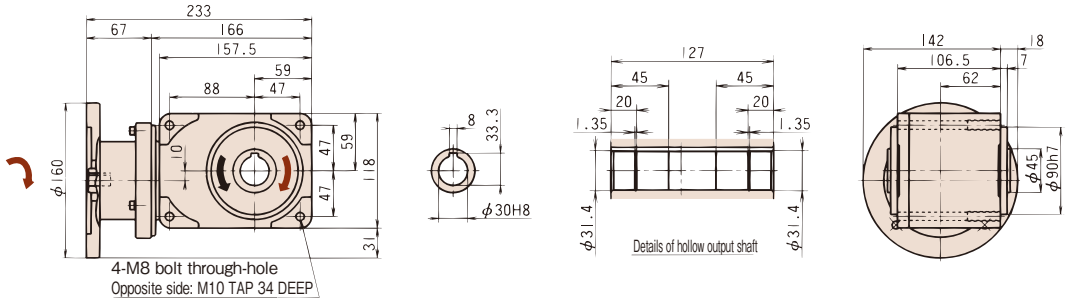
Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 5: The models marked with ※ are ones for which torque is limited.

0.1 kW: Adapter type

HRTA010-30H5 – 200FI

1/5–1/60 ↺ 、1/80–1/200 ↻ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 9.5kg

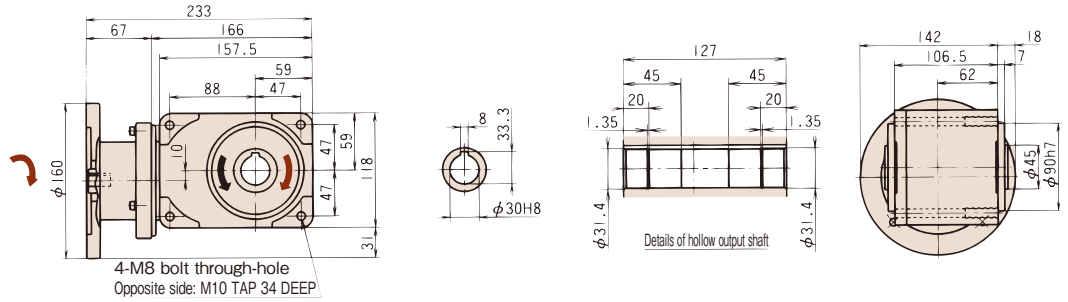


0.2 kW: Adapter type

HRTA020-30H5 – 200FI

1/5–1/60 ↺ 、1/80–1/200 ↻ **2**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 9.5kg

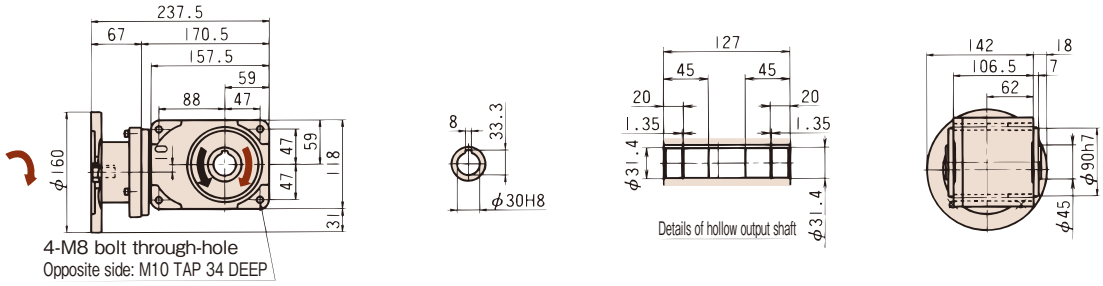


0.4 kW: Adapter type

HRTA040-30H5 – 50FI

1/5–1/30 ↺ 、1/40–1/50 ↻ **3**

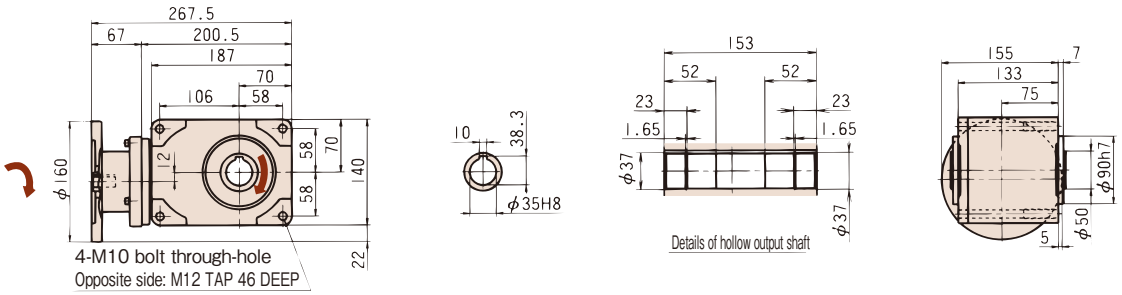
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 9.5kg



HRTA040-35H60 – 200FI

4

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 13.5kg



↻ is when the shaft is rotated clockwise as viewed from the input shaft side.

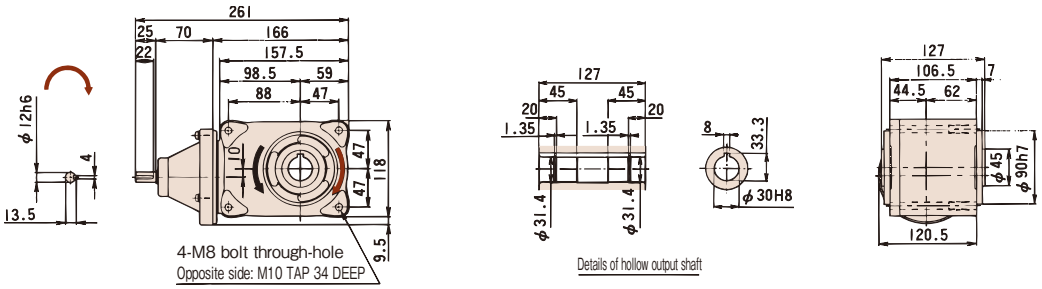
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0.1 kW: Inline reducer type

HRTA010-30H5 – 200

1/5–1/60 ↻ 、1/80–1/200 ↺ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200 | Approx. weight : 7.0kg

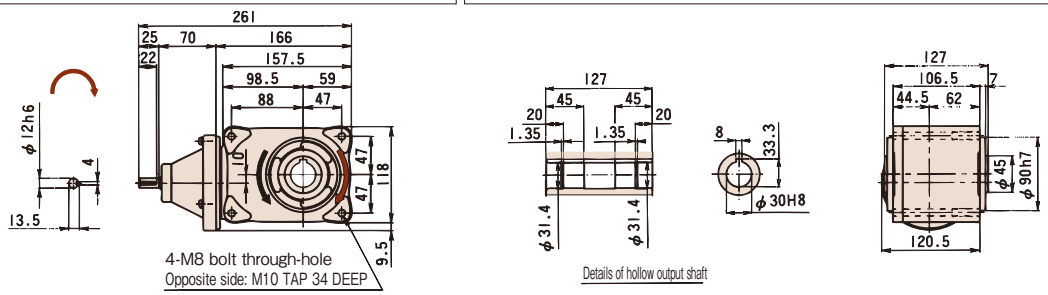


0.2 kW: Inline reducer type

HRTA020-30H5 – 200

1/5–1/60 ↻ 、1/80–1/200 ↺ **2**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200 | Approx. weight : 7.0kg

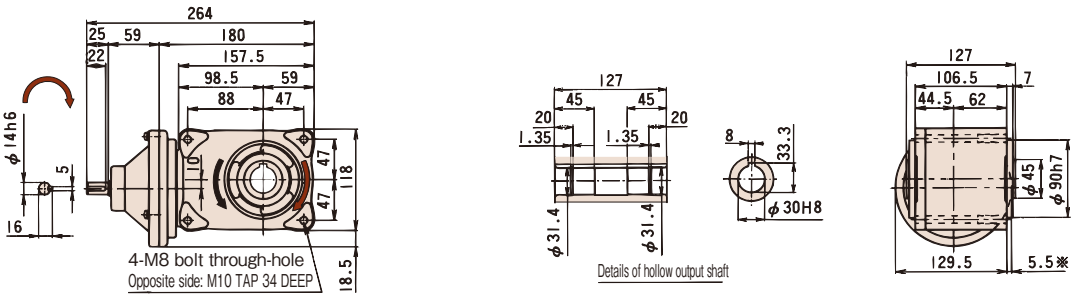


0.4 kW: Inline reducer type

HRTA040-30H5 – 50

1/5–1/30 ↻ 、1/40–1/50 ↺ **3**

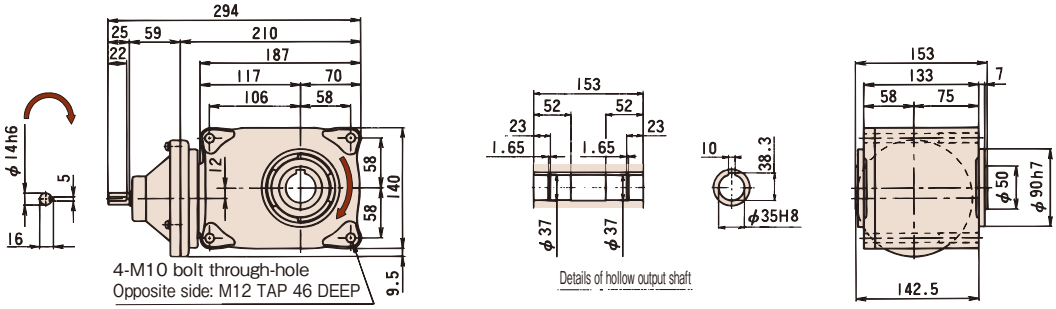
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50 | Approx. weight : 8.0kg



HRTA040-35H60 – 200

4

Reduction ratio : 60, 80, 100, 120, 160, 200 | Approx. weight : 12.0kg



Note: The dimension marked with ※ indicates that part of the input shaft bracket protrudes from the mounting surface.

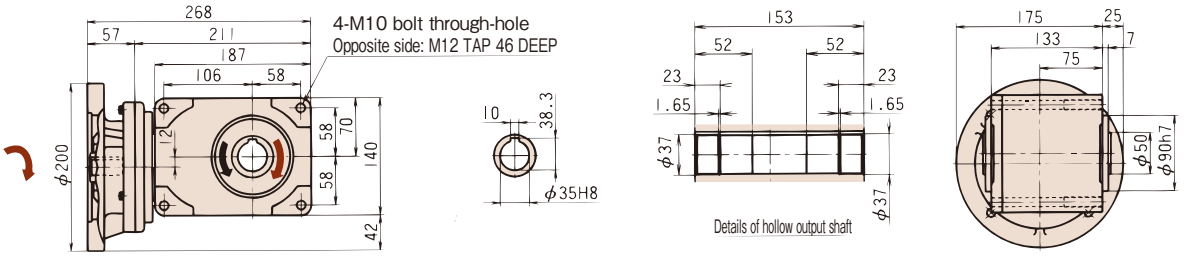
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0.75 kW: Adapter type

HRTA075-35H5 – 50FI

1/5–1/30 ↻ 、1/40–1/50 ↺ **1**

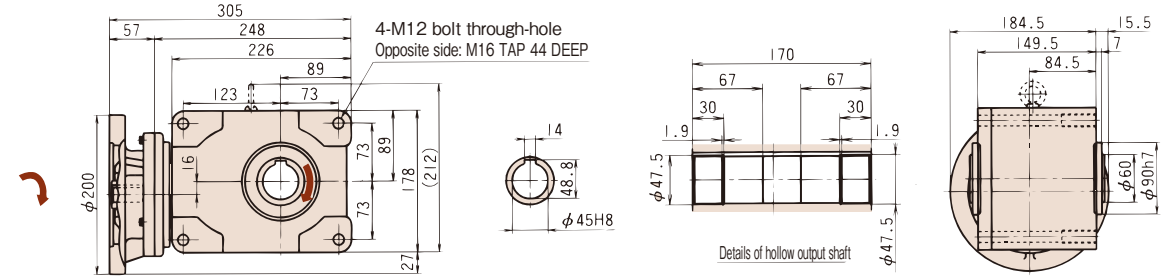
Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50	Approx. weight : 16.5kg



HRTA075-45H60 – 200FI

2

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 23.0kg

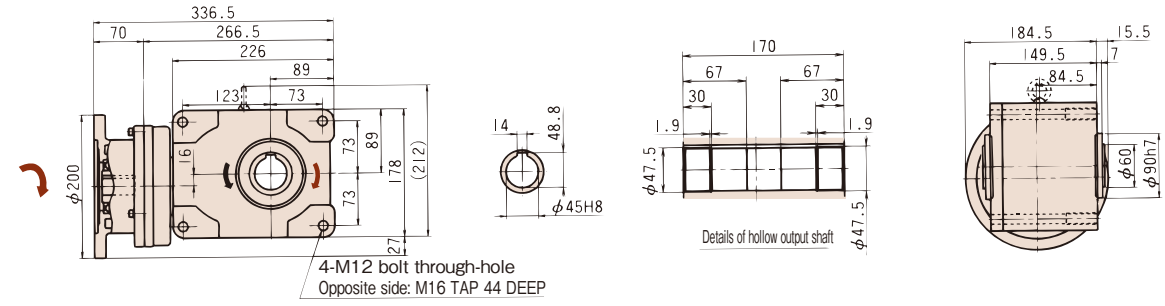


1.5 kW: Adapter type

HRTA150-45H5 – 50FI

1/5–1/30 ↻ 、1/40–1/50 ↺ **3**

Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50	Approx. weight : 24.5kg



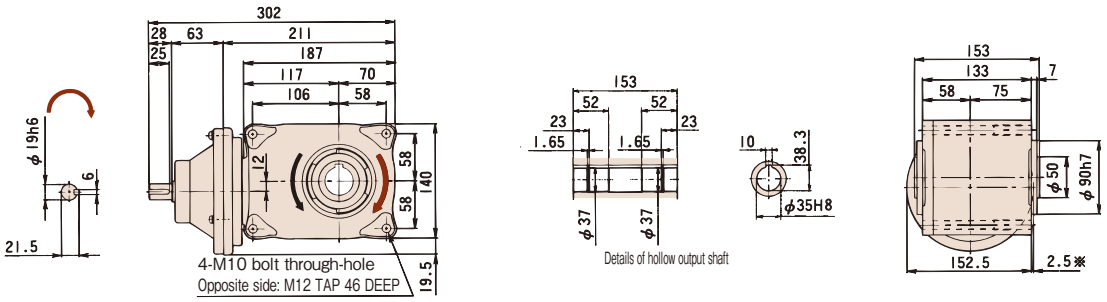
↺ is when the shaft is rotated clockwise as viewed from the input shaft side.

0.75 kW: Inline reducer type

HRTA075-35H5 – 50

1/5–1/30 ↺ 、1/40–1/50 ↻ **1**

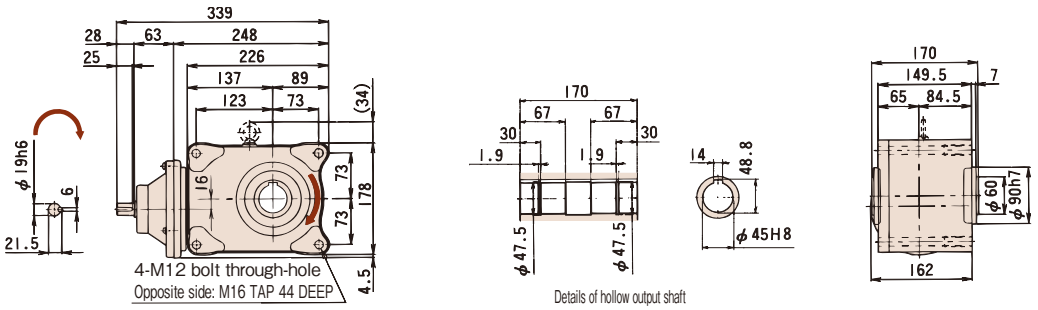
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 12.0kg



HRTA075-45H60 – 200

2

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 20.5kg

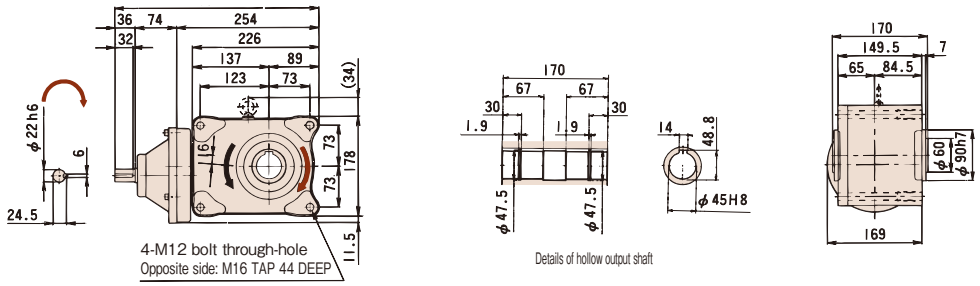


1.5 kW: Inline reducer type

HRTA150-45H5 – 50

1/5–1/30 ↺ 、1/40–1/50 ↻ **3**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 22.0kg



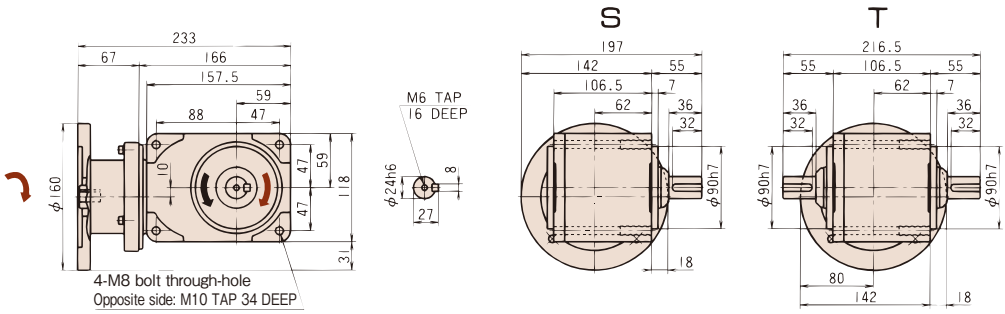
Note: The dimension marked with ※ indicates that part of the bracket protrudes from the mounting surface.

0.1 kW: Adapter type

HRTA010-24U5 – 200ꟻFI

1/5–1/60 ↺ 、1/80–1/200 ↻ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 10.5kg

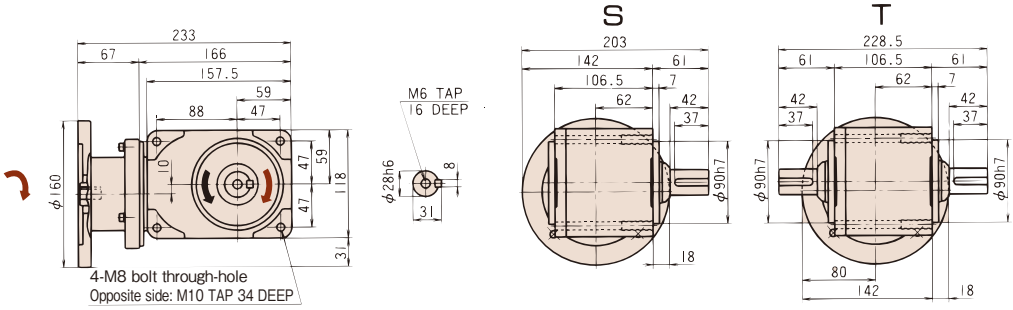


0.2 kW: Adapter type

HRTA020-28U5 – 200ꟻFI

1/5–1/60 ↺ 、1/80–1/200 ↻ **2**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 10.5kg

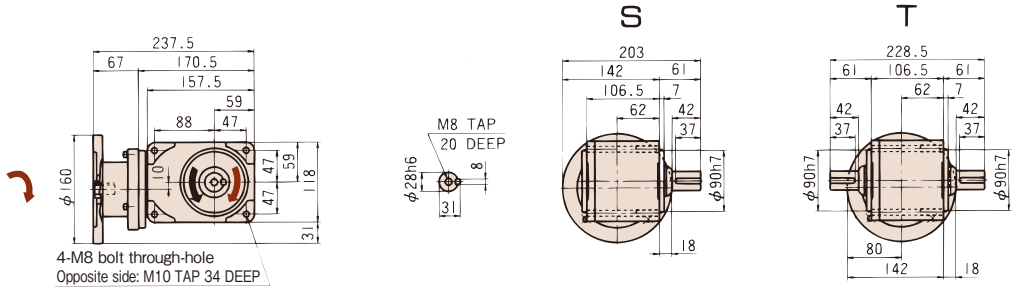


0.4 kW: Adapter type

HRTA040-28U5 – 50ꟻFI

1/5–1/30 ↺ 、1/40–1/50 ↻ **3**

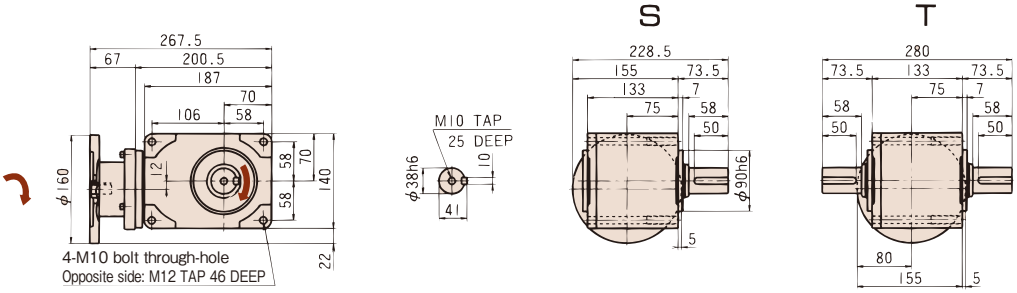
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 10.5kg



HRTA040-38U60 – 200ꟻFI

4

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 15.5kg



Note: The keyways of the input and output shafts are not aligned precisely. For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
↻ is when the shaft is rotated clockwise as viewed from the input shaft side.

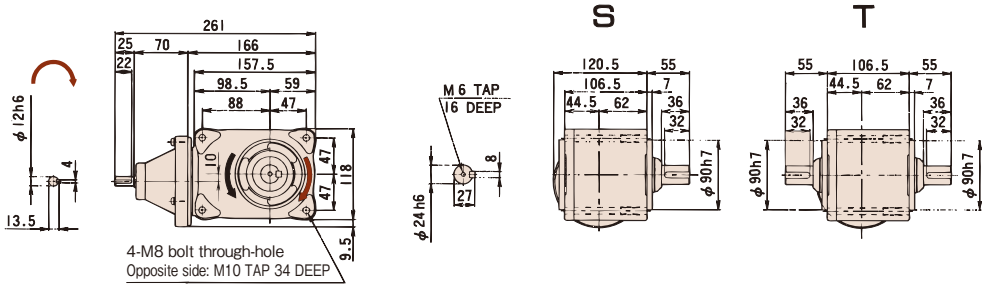
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0.1 kW: Inline reducer type

HRTA010-24U5 – 200

1/5–1/60 、1/80–1/200 **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 8.0kg

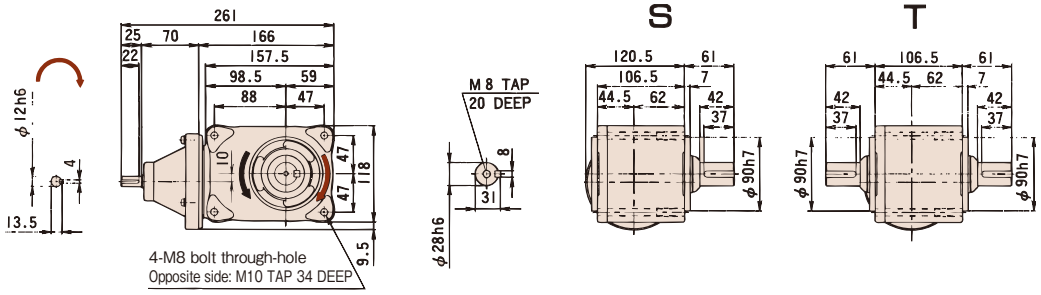


0.2 kW: Inline reducer type

HRTA020-28U5 – 200

1/5–1/60 、1/80–1/200 **2**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 8.0kg

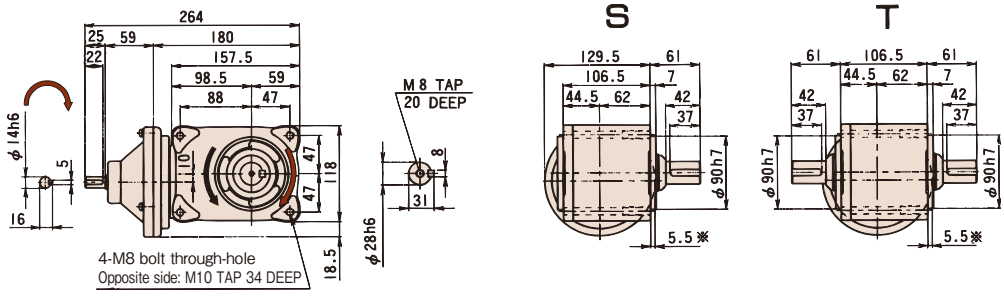


0.4 kW: Inline reducer type

HRTA040-28U5 – 50

1/5–1/30 、1/40–1/50 **3**

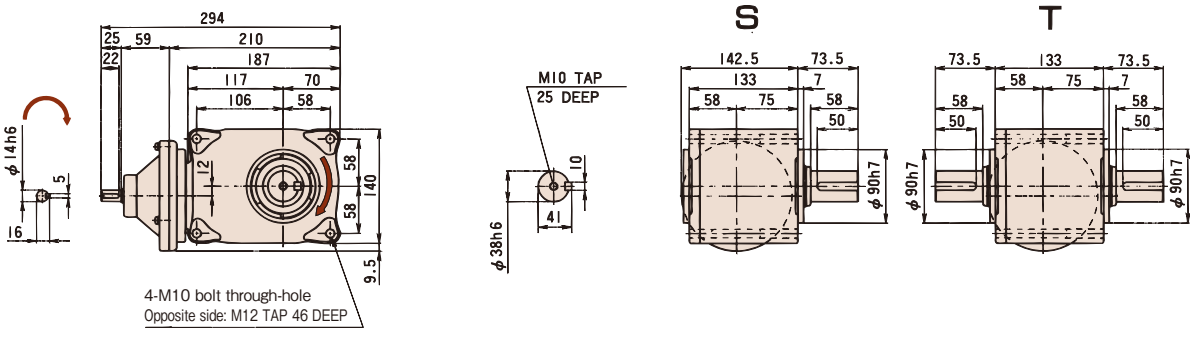
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 9.0kg



HRTA040-38U60 – 200

4

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 13.5kg



Note 1: The dimension marked with ※ indicates that part of the bracket protrudes from the mounting face.
Note 2: The keyways of the input and output shafts are not aligned precisely. For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

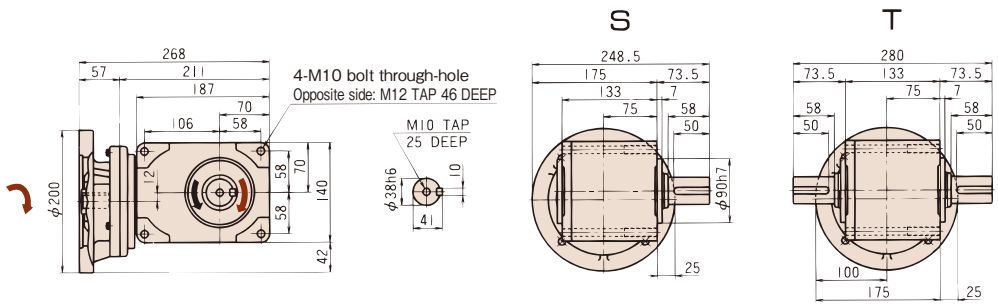
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0.75 kW: Adapter type

HRTA075-38U5 – 50□FI

1/5–1/30 ↻ 、1/40–1/50 ↺ **1**

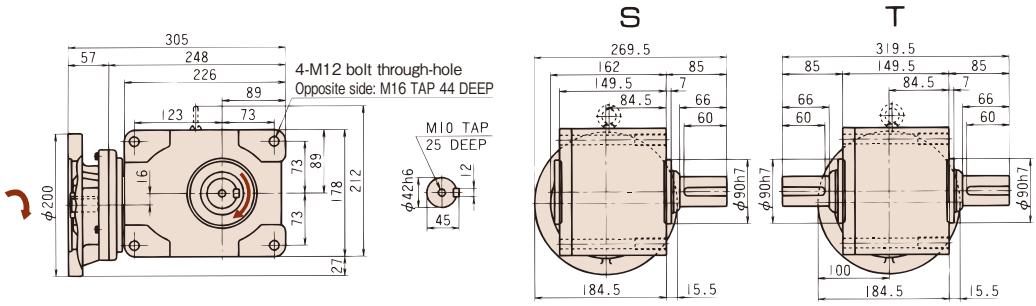
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 18.5kg



HRTA075-42U60 – 200□FI

2

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 27.0kg

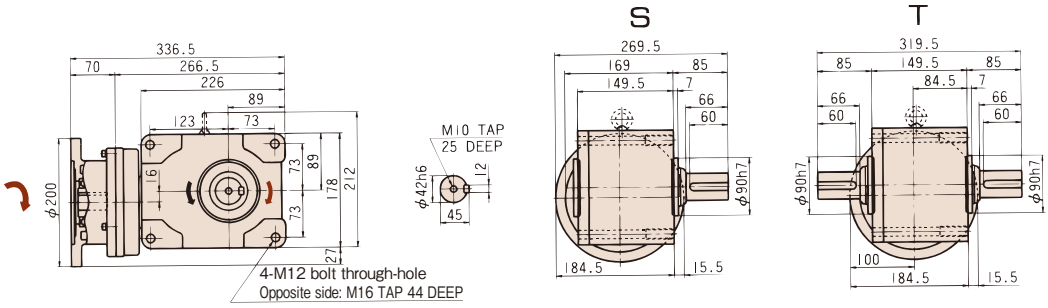


1.5 kW: Adapter type

HRTA150-42U5 – 50□FI

1/5–1/30 ↻ 、1/40–1/50 ↺ **3**

Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50	Approx. weight : 28.5kg



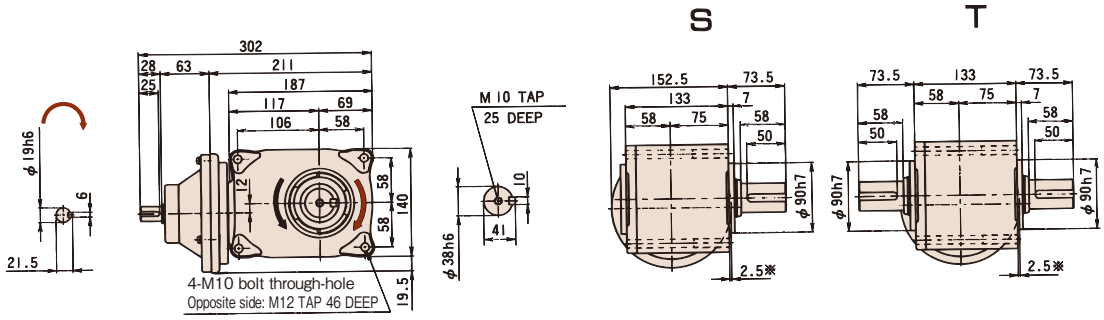
Note: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
↺ is when the shaft is rotated clockwise as viewed from the input shaft side.

0.75 kW: Inline reducer type

HRTA075-38U5 – 50

1/5–1/30 、1/40–1/50 **1**

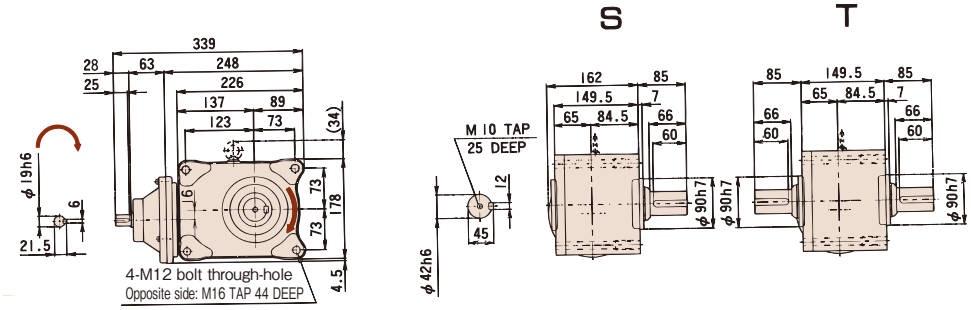
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 13.5kg



HRTA075-42U60 – 200

2

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 24.5kg

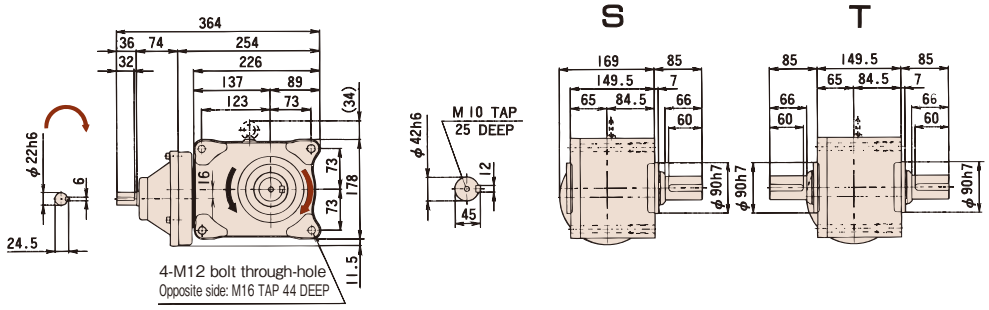


1.5 kW: Inline reducer type

HRTA150-42U5 – 50

1/5–1/30 、1/40–1/50 **3**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 26.0kg



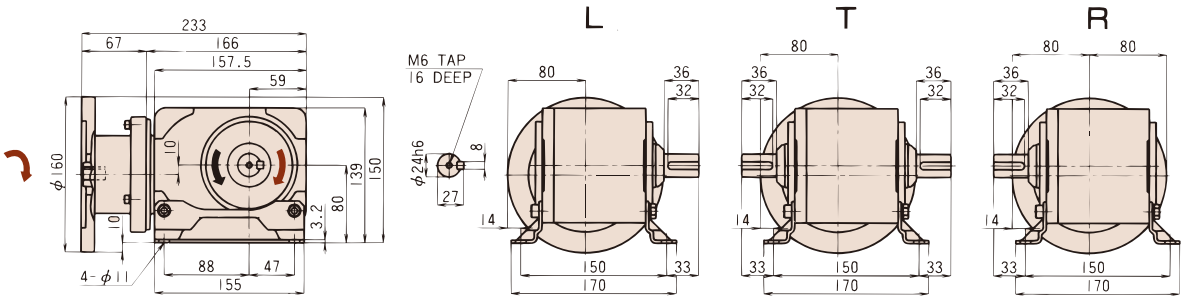
Note 1: The dimension marked with ※ indicates that part of the bracket protrudes from the mounting face.
Note 2: The keyways of the input and output shafts are not aligned precisely. For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

0.1 kW: Adapter type

HRTA010-24L5 – 200$^{L}_{R}$FI

1/5–1/60 ↻ 、1/80–1/200 ↺ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 11.5kg

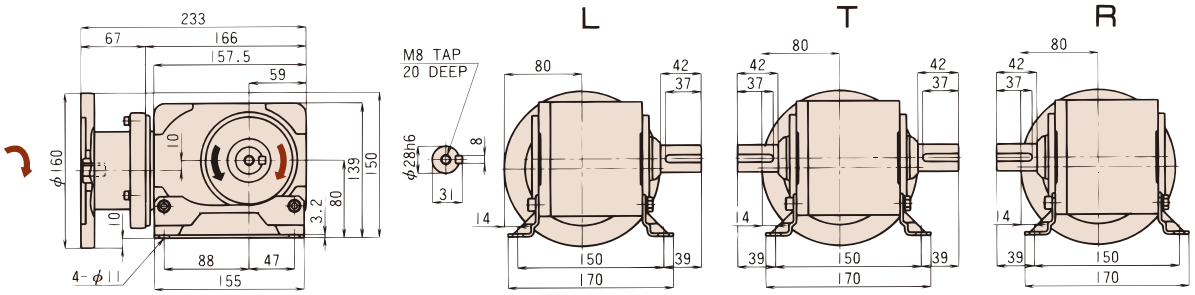


0.2 kW: Adapter type

HRTA020-28L5 – 200$^{L}_{R}$FI

1/5–1/60 ↻ 、1/80–1/200 ↺ **2**

Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 11.5kg



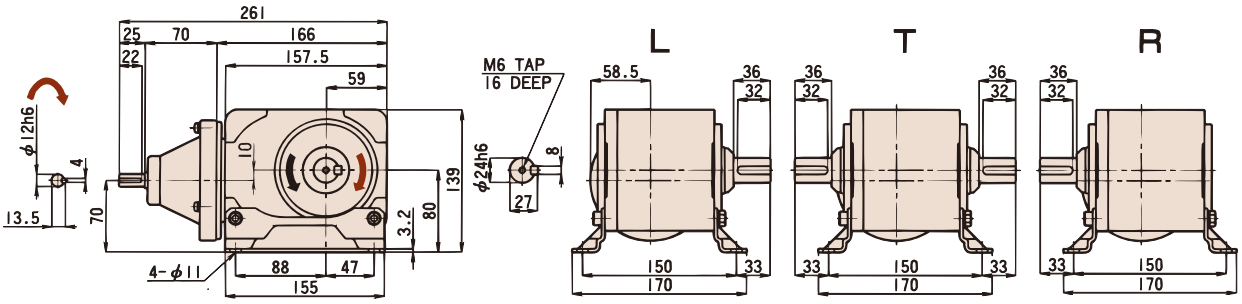
Note: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
↺ is when the shaft is rotated clockwise as viewed from the input shaft side.

0.1 kW: Inline reducer type

HRTA010-24L5 – 200 L/R

1/5–1/60 ↻ 、1/80–1/200 ↺ **1**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 9.0kg

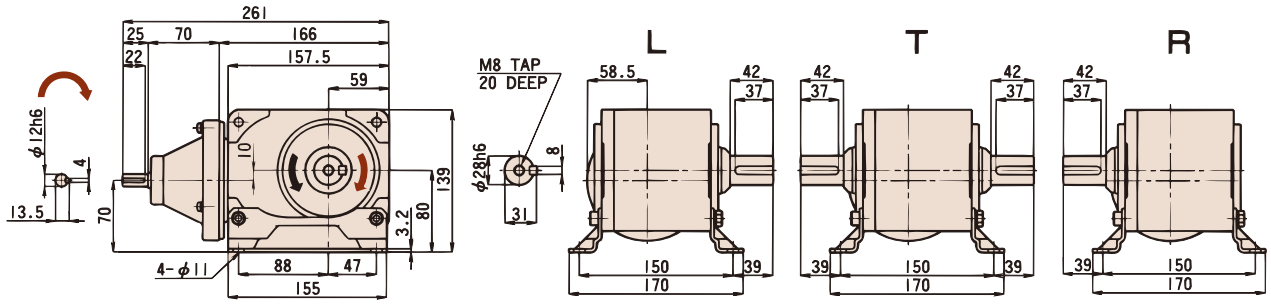


0.2 kW: Inline reducer type

HRTA020-28L5 – 200 L/R

1/5–1/60 ↻ 、1/80–1/200 ↺ **2**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200	Approx. weight : 9.0kg



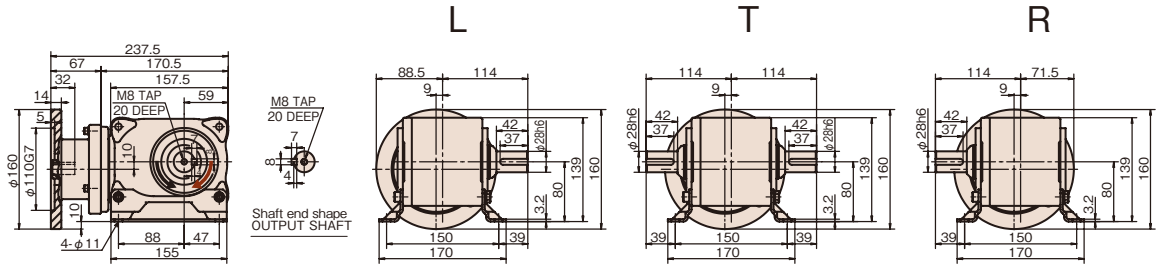
Note: The keyways of the input and output shafts are not aligned precisely.
For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

0.4 kW: Adapter type

HRTA040-28L5 – 50$^{L}_{R}$FI

1/5–1/30 ↻、1/40–1/50 ↺ **1**

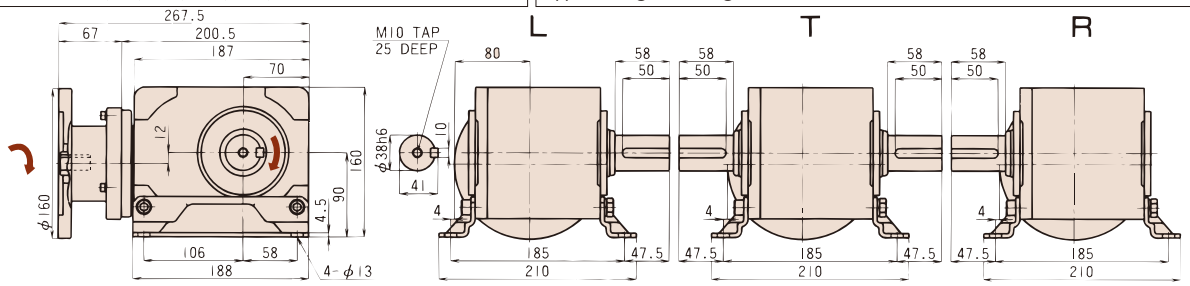
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 11.5kg



HRTA040-38L60 – 200$^{L}_{R}$FI

2

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 16.0kg

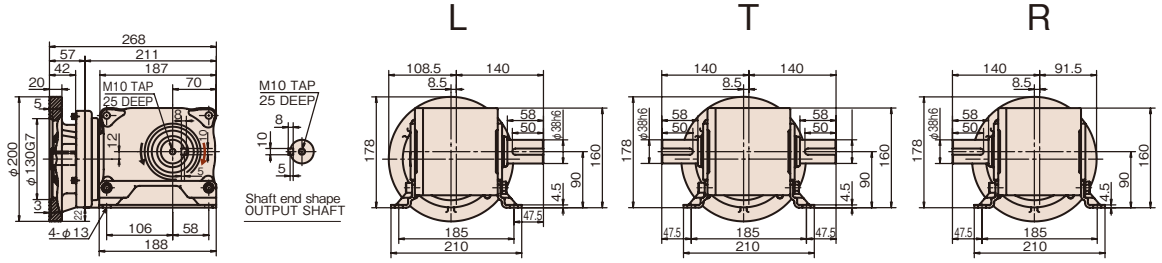


0.75 kW: Adapter type

HRTA075-38L5 – 50$^{L}_{R}$FI

1/5–1/30 ↻、1/40–1/50 ↺ **3**

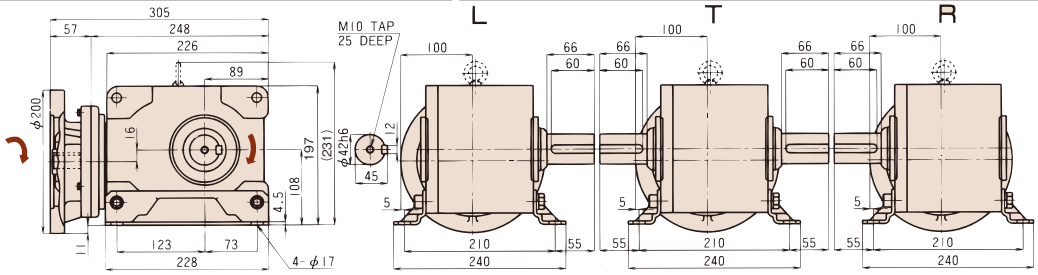
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 16.0kg



HRTA075-42L60 – 200$^{L}_{R}$FI

4

Reduction ratio : 60, 80, 100, 120, 160, 180, 200	Approx. weight : 28.5kg

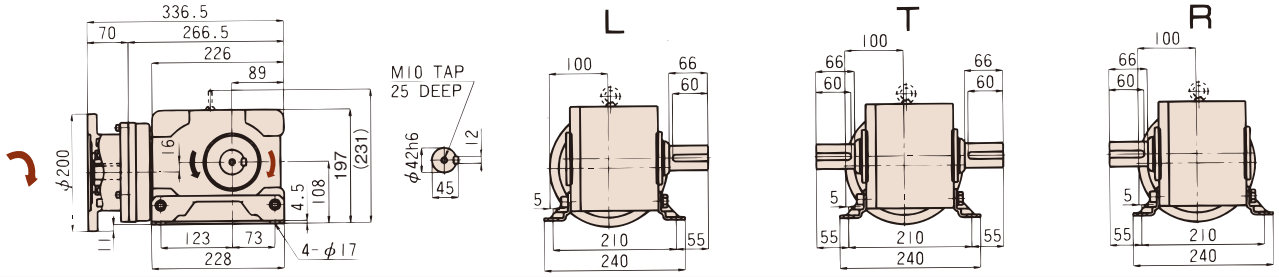


1.5 kW: Adapter type

HRTA150-42L5 – 50$^{L}_{R}$FI

1/5–1/30 ↻、1/40–1/50 ↺ **5**

Reduction ratio : 5,10, 15, 20, 25, 30, 40, 50	Approx. weight : 30.0kg



Note: The keyways of the input and output shafts are not aligned precisely. For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

↺ is when the shaft is rotated clockwise as viewed from the input shaft side.

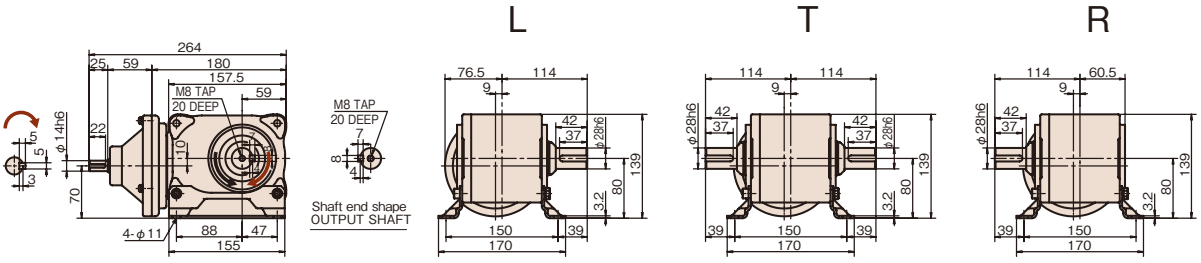
Nomenclature Page 95 | Specification Chart Page 97 | Technical Information Page 202

0.4 kW: Inline reducer type

HRTA040-28L5 – 50 L/R

1/5–1/30 ↻ 、1/40–1/50 ↺ **1**

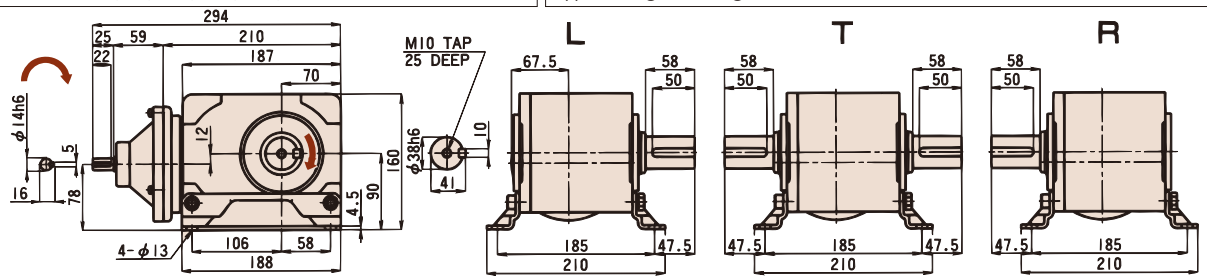
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 9.0kg



HRTA040-38L60 – 200 L/R

2

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 14.5kg

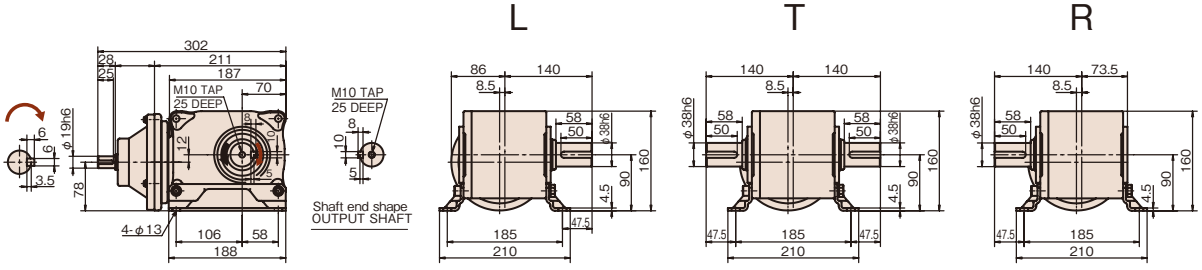


0.75 kW: Inline reducer type

HRTA075-38L5 – 50 L/R

1/5–1/30 ↻ 、1/40–1/50 ↺ **3**

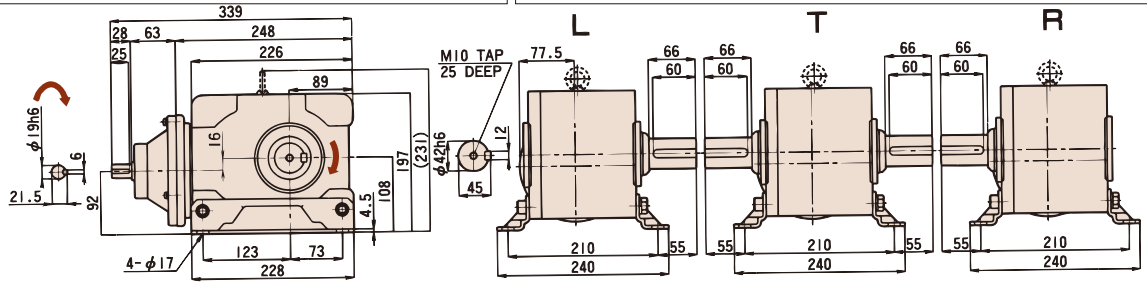
Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 14.5kg



HRTA075-42L60 – 200 L/R

4

Reduction ratio : 60, 80, 100, 120, 160, 200	Approx. weight : 26.0kg

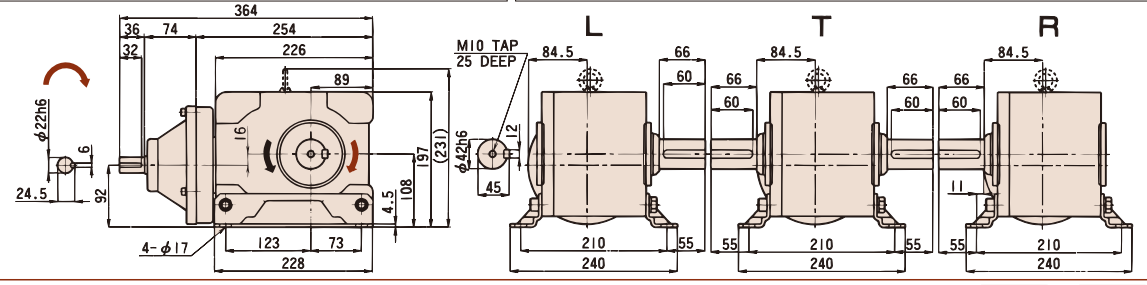


1.5 kW: Inline reducer type

HRTA150-42L5 – 50 L/R

1/5–1/30 ↻ 、1/40–1/50 ↺ **5**

Reduction ratio : 5, 10, 15, 20, 25, 30, 40, 50	Approx. weight : 39.0kg



Note: The the keyways of the input and output shafts are not aligned precisely.
For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

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Notes

CROISE MOTOR

0.1 kW to 5.5 kW



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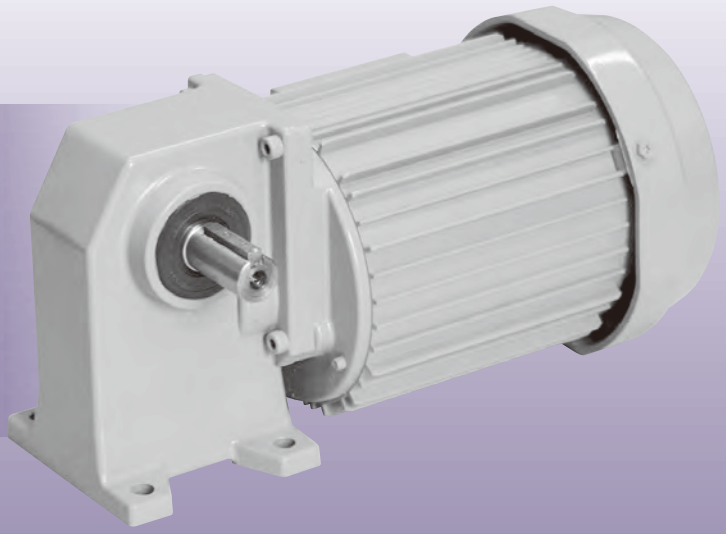
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- Technical Data
- Options
- Plus α Series
- Just Fit Models
- Handling

CROISE MOTOR Features

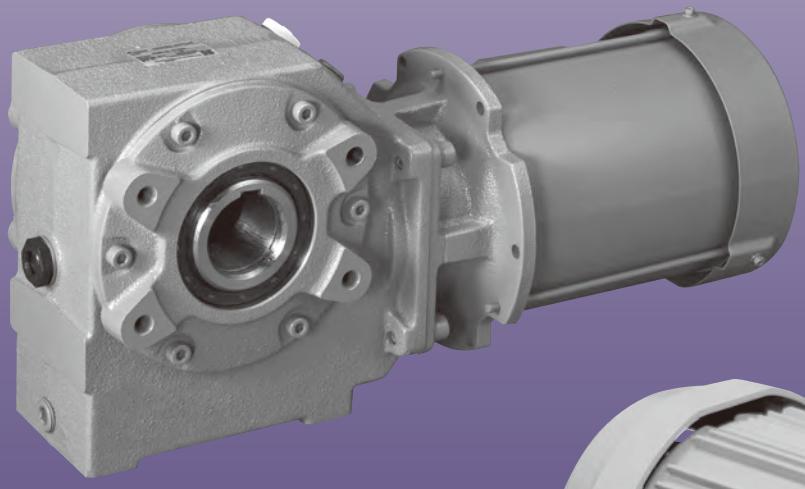
Croise Motor Features

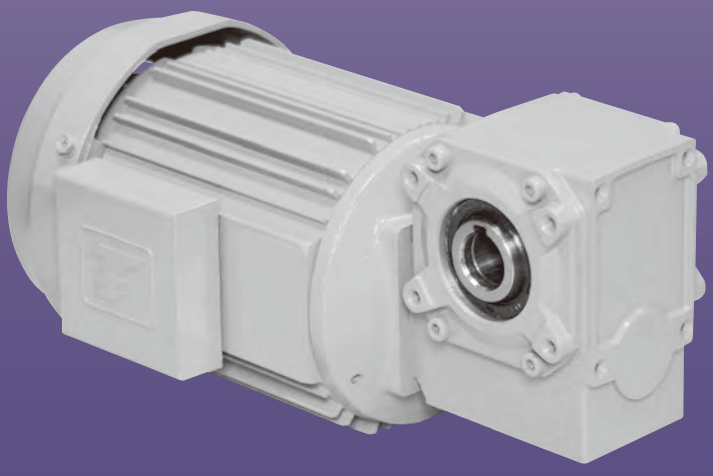
0.75 kW to 5.5 kW: IE3



Compact

Three-phase 0.1 kW to 5.5 kW Worm gear motors to meet every customer need.





Worm Gear, Right-Angle Shaft

1 Right-angle shaft, high reduction ratio

Croise motors make use of worm gears to achieve space savings in equipment layout with right-angle shafts and high reduction ratios. The CSMA/CSMR series offers a reduction gear ratio of up to 1/60 in the first worm gear, and up to 1/300 in the HCMA/HCMR series with a combination of a helical gear and a worm gear in right-angle shaft models.

2 Compact

The simple structure of the CSMA series provides downsizing of the gear motor in total length. Adoption of a first helical gear in the HCMA series reduces the offset between the input shaft and the worm gear output shaft, providing even greater compactness in height.

3 Low noise

The worm gear mechanism offers smooth and quiet operation compared to other gear mechanisms. In addition, adoption of a silent-type brake eliminates harsh metallic clanking when activated.

4 Superior stopping accuracy

Backlash is minimal compared to other gear mechanisms, and excellent stop position accuracy can be expected.

5 High efficiency

At reduction ratios ranging from 1/10 to 1/60, the CSMA/CSMR series features high efficiency for a low reduction ratio range (1/10 to 1/30), and the HCMA/HCMR series for a high reduction ratio range (1/40 to 1/60).

6 Shock resistant

Compared with other gear mechanisms, worm gears have higher strength and excellent impact resistance.

Nomenclature

CSMA010-130L20T□□□□□
① ② ③ ④ ⑤ ⑥ ⑦ ⑨ ⑩

HCMR150-401H120B□□□□□
① ② ③ ④ ⑤ ⑥ ⑧ ⑨ ⑩

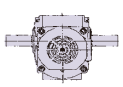
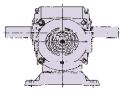
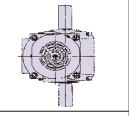
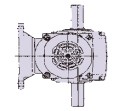
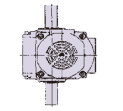
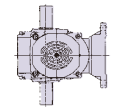
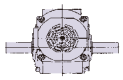
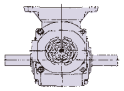
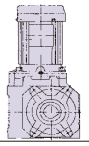
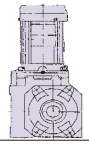
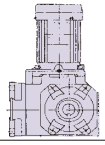
①Product series name	CSMA	Single reduction 0.1 kW–0.55 kW
	HCMA	Double reduction 0.1 kW–0.55 kW
	CSMR	Single reduction 0.75 kW–0.55 kW
	HCMR	Double reduction 0.75 kW–0.55 kW
②Motor capacity (example)	010	Three-phase 0.1 kW
	150	Three-phase 1.5 kW
③Frame number (example)	13	Frame number 13
	40	Frame number 40
④Installation code (example)	0	Refer to installation code and installation direction drawings.
⑤Mounting type	L	Foot mount
	U	Face mount
	H	Hollow shaft
⑥Reduction ratio (example)	20	1/20
	120	1/120
⑦Shaft arrangement	L	Output shaft located to the left as viewed from the motor side
	T	Output shaft located on both sides
	R	Output shaft located to the right as viewed from the motor side
	No code	Hollow shaft type
⑧Specification code	No code	Without B or BE
	B	Brake type
	BE	Encoder type with brake
	SR	SHOCK RELAY specifications (0.1 kW–0.4 kW only)
⑨Option code A (order of priority) Refer to "Combination of specification codes and option codes A."	Z	Inverter motor type (0.1 kW–0.4 kW only)
	W	Outdoor type
	J	Waterproof specifications (0.1 kW–0.75 kW only)
	V	400V class
	V1	380V 50Hz (0.1 kW–0.4 kW only)
	V2	380V 60Hz (0.1 kW–1.5 kW only)
	V3	415V 50Hz
	V4	460V 60Hz
	N	200V class Europe (Global series Note 1)
	N2	200V class North America (Global series Note 1)
	N3	200V class China (Global series Note 1)
	PN3	200V class China (resin terminal box) (Global series Note 1)
	HN3	200V class China (hard terminal box) (Global series Note 1)
	WN3	200V class China, outdoor (Global series Note 1)
	VN	400V class Europe (Global series Note 1)
	VN2	400V class North America (Global series Note 1)
	VN3	400V class China (Global series Note 1)
	PVN3	400V class China (resin terminal box) (Global series Note 1)
	HVN3	400V class China (hard terminal box) (Global series Note 1)
	WVN3	400V class China, outdoor (Global series Note 1)
	N8	200V class South Korea (Global series Note 1)
	VN8	400V class South Korea (Global series Note 1)
	H	Hard terminal box (0.1 kW–0.75 kW only)
	Q	One-touch manual release type
	M	Manual shaft type
⑩Option code A Former supplementary code Note: May be combined arbitrarily with option codes A.	P1	Terminal box position 90° swing
	P2	Terminal box position 180° swing
	P3	Terminal box position 270° swing
	D1	Terminal box outlet direction 90° swing (0.1 kW–0.4 kW) (Note 2)
	D2	Terminal box outlet direction 180° swing (0.1 kW–0.4 kW) (Note 2)
	D3	Terminal box outlet direction 270° swing (0.1 kW–0.4 kW) (Note 2)
	F1	Terminal box outlet direction 90° swing (0.75 kW–5.5 kW) (Note 2)
	F2	Terminal box outlet direction 180° swing (0.75 kW–5.5 kW) (Note 2)
	F3	Terminal box outlet direction 270° swing (0.75 kW–5.5 kW) (Note 2)
	C0	Paint color: Light gray (Munsell N7.5)
	C1	Paint color: Light silver metallic
	C2	Paint color: Ivory white
	C3	Paint color: Dark silver metallic

Note 1: Refer to pages 252–256 for capacities and voltages of global series products.
Note 2: Refer to the next page for details on terminal box positions and outlet directions.

④Installation code

CSMA series CSMR series		HCMA series HCMR series		CSMA/HCMA series CSMR/HCMR series	
Frame number: Frame 13 to 28		Frame number: Frame 16 to 28		Frame number: Frame 32 to 50	
Installation No.	Installation direction	Installation No.	Installation direction	Installation No.	Installation direction
0	Although there are no restrictions on installation direction, please enter 0 for Installation No.	0	Standard	1	Standard
			L-side at top	2	L-side at top
			R-side at top	3	R-side at top
			Base at top	4	Base at top
		5	Input side at top	5	Input side at top
		6	Other than above	6	Other than above

Installation Direction Drawings

Installation No.	Installation direction	Hollow shaft	Face mount	Foot mount
0 or 1	Standard (up / down)			
2	L-side at top (up / down)			
3	R-side at top (up / down)			
4	Upside-down (up / down)			
5	Input side at top (up / down)			
6	Other than above (up / down)	Indicate installation direction when placing order.		

Combination of Specification Codes and Option Codes A

0.1 kW–0.4 kW

Specification code for None

Z	ZW	ZWV	ZWVH
	ZJ	ZJV	
	ZV	ZVH	
	ZH		
W	WN		
	WV	WV1	
		WV2	
		WV3	
		WV4	
		WVN	
J	JV	JV1	
		JV2	
		JV3	
		JV4	

V	VN	
	VN2	
	VH	
	V1	V1H
	V2	V2H
	V3	V3H
	V4	V4H
N		
N2		
PN3	PVN3	
HN3	HVN3	
WN3	WVN3	
H		

Specification code: B

Z	ZV	ZVH
		ZVQ
		ZVM
	ZH	ZHQ
		ZHM
	ZQ	ZQM
	ZM	
V	VN	
	VH	VHQ
		VHM
	VQ	VQM
	VM	
	V1	V1H
	V2	V2H
	V3	V3H
	V4	V4H

N		
N2		
PN3	PVN3	
HN3	HVN3	
H	HQ	HQM
	HM	
Q	QM	
M		

Specification code: BE

Z	ZV
V	VH
H	

Specification code: SR

N

Specification code: G

Z	ZV	ZVH
	ZH	
V	VH	
	V1	V1H
	V2	V2H
	V3	V3H
	V4	V4H
H		

0.75 kW–5.5 kW

Specification code: None

W	WV
	WV1
	WV3
V	
V1	
V3	
	VN
N	

Specification code: B

V	VQ
V1	
V3	
Q	

Specification code: BE

V	

Note: Combinations of outdoor type with brake and waterproof type are made-to-order products. Motor specifications differ from those of standard products.

Terminal Box Positions and Lead Outlet Directions

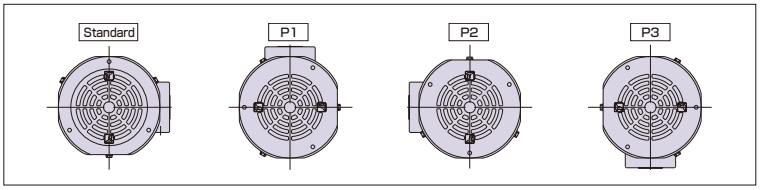
1. Terminal box position

Standard

P1: 90° swing

P2: 180° swing

P3: 240° swing



Note: On the CSMR075 foot mount types, the motor protrudes from the mounting surface when the terminal box is at a position other than the standard position.

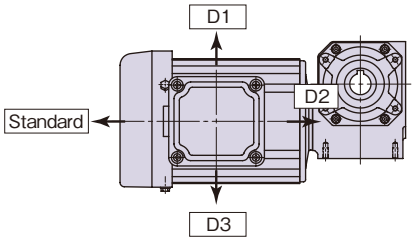
2. Terminal box outlet direction

The positions shown below are obtained by sequentially swinging the lead outlet clockwise, as viewed facing the terminal box, by 90 degrees from the standard position of the lead outlet.

0.1kW to 0.55kW: Outdoor type, Hard terminal box

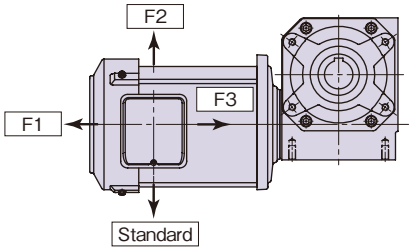
Note: For standard motors (with resin terminal box), change the direction of the lead outlet by changing the terminal box top cover mounting direction.

D1: 90° swing, D2: 180° swing, D3: 270° swing



0.75 kW to 5.5 kW: Standard model, outdoor terminal box

F1: 90° swing, F2: 180° swing, F3: 270° swing



3. Paint color [Standard color: Munsell 2.5G6/3]

C0: Light gray (Munsell N7.5), C1: Light silver metallic, C2: Ivory white, C3: Dark silver metallic

Reduction Ratio Combinations

CSMA/CSMR series

Reduction ratio	1/10	1/15	1/20	1/25	1/30	1/40	1/50	1/60
Worm gear	1/10	1/15	1/20	1/25	1/30	1/40	1/50	1/60

HCMA/HCMR series

Reduction ratio	1/40	1/50	1/60	1/75	1/90	1/100	1/120	1/150	1/180	1/200	1/240	1/300
Helical gear	1/4	1/5	1/4	1/5 (1/4)	1/4.5	1/5	1/4	1/5	1/4.5	1/5	1/4	1/5
Worm gear	1/10 (1/10.25)	1/10 (1/10.25)	1/15	1/15 (1/20)	1/20 (1/20)	1/20 (1/20)	1/30 (1/31.5)	1/30 (1/31.5)	1/40	1/40	1/60 (63)	1/60 (63)

Note 1: Ratios shown within parentheses are for 1.5 kW and 2.2 kW motor capacities at worm gear reduction ratios of 1/240 and 1/300.
Note 2: Ratios shown within parentheses are for 3.7 kW motor capacity at worm gear reduction ratios of 1/120, 1/150, 1/240, and 1/300.
Note 3: Ratios shown within parentheses are for 5.5 kW motor capacity at gear reduction ratios of 1/40, 1/50, 1/75, 1/90, and 1/100.

Model Lineup

Croise motor: Hollow shaft type

	CSMA/CSMR series								HCMA/HCMR series											
	10	15	20	25	30	40	50	60	40	50	60	75	90	100	120	150	180	200	240	300
0.1kW	13H								16H										22H	
0.2kW	13H					16H			16H				22H						28H	
0.4kW	16H					22H			22H				28H						32H	
0.55kW	16H					22H			22H		28H						32H		40H	
0.75kW	22H					28H			28H				32H				40H		50H	
1.5kW	28H					32H			32H		40H					50H				
2.2kW	32H					40H			40H				50H							
3.7kW	40H					50H			50H											
5.5kW	50H								50H			50H								

Croise motor: Face mount type

	CSMA/CSMR series								HCMA/HCMR series											
	10	15	20	25	30	40	50	60	40	50	60	75	90	100	120	150	180	200	240	300
0.1kW	13U								16U										22U	
0.2kW	13U					16U			16U				22U						28U	
0.4kW	16U					22U			22U				28U						32U	
0.55kW	16U					22U			22U		28U						32U		40U	
0.75kW	22U					28U			28U				32U				40U		50U	
1.5kW	28U					32U			32U		40U					50U				
2.2kW	32U					40U			40U				50U							
3.7kW	40U					50U			50U											
5.5kW	50U								50U			50U								

Croise motor: Foot mount type

	CSMA/CSMR series								HCMA/HCMR series											
	10	15	20	25	30	40	50	60	40	50	60	75	90	100	120	150	180	200	240	300
0.1kW	13L								16L										22L	
0.2kW	13L					16L			16L				22L						28L	
0.4kW	16L					22L			22L				28L						32L	
0.55kW	16L					22L			22L		28L						32L		40L	
0.75kW	22L					28L			28L				32L				40L		50L	
1.5kW	28L					32L			32L		40L					50L				
2.2kW	32L					40L			40L				50L							
3.7kW	40L					50L			50L											
5.5kW	50L								50L			50L								

In the table above, frame numbers shown within ☐ (the heavy-border boxes) are integrated foot mount models.

Specifications

Motor	Output	Three-phase: 0.1, 0.2, 0.4, 0.55 kW: IE1, 0.75, 1.5, 2.2, 3.7, 5.5 kW: IE3
		Non-brake type, Brake type
	Power supply	0.1 kW–5.5 kW, 200/200/220 V, 50/60/60 Hz
	Number of poles	4
	Protection	0.1 kW–5.5 kW: Totally enclosed external fan type (IP44)
	Cooling	0.1 kW–5.5 kW: Self-managed type (IC411)
	Rating	S1 (continuous)
	Insulation	0.1 kW–0.4 kW: 120 (E), 0.75 kW: 155 (F), 1.5 kW–5.5 kW: 130 (B)
	Brake	Non-excitation operation, DC electromagnetic brake
Reducer	Reduction ratio	1/10 to 1/300
	Lubrication	Oil bath
	Start end keyway	New JIS key (JISB1301-1976): Output shaft key attached (ordinary-class keyway)
	Output shaft end	Tapped
Ambient condition	Installation place	Indoor not exposed to dust or water
	Temperature	5℃ to 40℃
	Humidity	Less than 85% (non condensing)
	Altitude	Elevations below 1000 m
	Atmosphere	Free from corrosive gases, explosive gases, and steam
	Mounting direction	No limitations on mounting angles: horizontal, vertical, or inclined
Paint color		Light green (Munsell 2.5G 6/3)

Note: The protective construction for the brake type is IP20.

Motor Specifications

Motor specifications (0.1 kW–0.55 kW)

Number of phases	Output	Number of poles	Frequency Hz	Voltage V	Rated current A	Rated revolution r/min	AC-side brake current A Reference value at 20℃
Three-phase	0.1kW	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	0.12
	0.2kW				1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	0.12
	0.4kW				2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	0.16
	0.55kW				2.9/2.6/2.5 (1.45/1.3/1.3)	1380/1650/1690 (1380/1650/1690)	0.16

IE3 motor specifications (0.75 kW–5.5 kW)

Number of phases	Output	Number of poles	Frequency Hz	Voltage V	Rated current A	Rated revolution r/min	Energy efficiency %	Efficiency class IE code	AC-side brake current A Reference value at 20℃
Three-phase	0.75kW	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	83.9/86.4/86.4 (83.6/83.9/86.4/86.4)	IE3	0.17
	1.5kW				6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1450/1745/1755 (1445/1450/1745/1755)	86.9/88.6/89.1 (86.7/86.9/88.6/89.1)		0.10
	2.2kW				9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	88.2/89.9/90.2 (88.1/88.2/89.9/90.2)		0.10
	3.7kW				15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1445/1450/1745/1755)	89.2/89.8/90.7 (88.6/89.2/89.8/90.7)		0.08
	5.5kW				22.6/20.8/20.0 (11.3/11.3/10.4/10.0)	1465/1760/1765 (1460/1465/1760/1765)	91.2/92.1/92.4 (91.2/91.2/92.1/92.4)		0.10

Note 1: The values in parentheses under "Rated current" and "Rated revolution" for 0.1 kW–0.4 kW are for 400/400/440 V.
Note 2: The values in parentheses under "Rated current" and "Rated revolution" for 0.75 kW–5.5 kW are for 380/400/400/440 V.
Note 3: For the brake-type models, the brake current shown above is added for the phase where the brake lead wire is connected to the motor lead wire. The AC-side brake current is for 200 V AC 60 Hz.
Note 4: The specifications for 0.75 kW–5.5 kW are the IE3 motor specifications for the Japanese market.
Please refer to other information to confirm that products comply with global voltage requirements.

Specification Chart

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
								N·m	{kgf·m}	N·m	{kgf·m}	N	{kgf}	Hollow shaft	Face mount	Foot mount
						50Hz	60Hz	50Hz		60Hz						
CSMA 010	10	0.1	1/10	1	13	150	180	5.5	{ 0.56}	4.6	{ 0.47}	1350(1350)	{138(138)}	124 | 1	146 | 1	168 | 1
	15		1/15			100	120	7.8	{ 0.78}	6.6	{ 0.67}	1350(1350)	{138(138)}			
	20		1/20			75	90	10.0	{ 1.0 }	8.4	{ 0.86}	1550(1550)	{158(158)}			
	25		1/25			60	72	11.8	{ 1.2 }	10.0	{ 1.0 }	1550(1550)	{158(158)}			
	30		1/30			50	60	13.3	{ 1.4 }	11.4	{ 1.2 }	1550(1550)	{158(158)}			
	40		1/40			37.5	45	16.5	{ 1.7 }	14.1	{ 1.4 }	1550(1550)	{158(158)}			
	50		1/50			30	36	19.3	{ 2.0 }	16.6	{ 1.7 }	1550(1550)	{158(158)}			
	60		1/60			25	30	21.3	{ 2.2 }	18.3	{ 1.9 }	1550(1550)	{158(158)}			
HCMA 010	40		1/40	2	16	37.5	45	20.0	{ 2.0 }	17.0	{ 1.7 }	2470(2660)	{252(271)}	124 | 2	146 | 2	168 | 2
	50		1/50			30	36	25.0	{ 2.5 }	21.0	{ 2.1 }	2470(2660)	{252(271)}			
	60		1/60			25	30	28.0	{ 2.9 }	24.0	{ 2.4 }	2470(2660)	{252(271)}			
	75		1/75			20	24	35.0	{ 3.5 }	29.0	{ 3.0 }	2470(2660)	{252(271)}			
	90		1/90			16.7	20	39.0	{ 3.9 }	33.0	{ 3.3 }	2470(2660)	{252(271)}			
	100		1/100			15	18	43.0	{ 4.3 }	36.0	{ 3.7 }	2470(2660)	{252(271)}			
	120		1/120			12.5	15	46.0	{ 4.7 }	39.0	{ 4.0 }	2470(2660)	{252(271)}			
	150		1/150			10	12	56.0	{ 5.7 }	47.0	{ 4.8 }	2470(2660)	{252(271)}			
	180		1/180			8.3	10	59.8	{ 6.1}	51.0	{ 5.2 }	2470(2660)	{252(271)}			
	200		1/200			7.5	9	60.3	{ 6.2 }	56.0	{ 5.7 }	2470(2660)	{252(271)}			
	240		1/240		22	6.3	7.5	76.0	{ 7.8 }	65.0	{ 6.6 }	3730(3970)	{381(405)}	124 | 3	146 | 3	168 | 3
	300		1/300			5	6	92.0	{ 9.4 }	79.0	{ 8.0 }	3730(3970)	{381(405)}			
CSMA 020	10	0.2	1/10	1	13	150	180	11.1	{ 1.1 }	9.3	{ 1.0 }	1350(1580)	{138(161)}	126 | 1	148 | 1	170 | 1
	15		1/15			100	120	15.7	{ 1.6 }	13.2	{ 1.3 }	1350(1580)	{138(161)}			
	20		1/20			75	90	20.0	{ 2.0 }	17.0	{ 1.7 }	1550(1660)	{158(169)}			
	25		1/25			60	72	23.5	{ 2.4 }	20.1	{ 2.0 }	1550(1660)	{158(169)}			
	30		1/30			50	60	26.6	{ 2.7 }	22.7	{ 2.3 }	1550(1660)	{158(169)}			
	40		1/40		16	37.5	45	33.8	{ 3.5 }	28.9	{ 3.0 }	2130(2660)	{217(271)}	126 | 2	148 | 2	170 | 2
	50		1/50			30	36	39.7	{ 4.1 }	34.1	{ 3.5 }	2250(2660)	{229(271)}			
	60		1/60			25	30	45.0	{ 4.6 }	38.7	{ 4.0 }	2350(2660)	{240(271)}			
HCMA 020	40		1/40	2	16	37.5	45	40.0	{ 4.1 }	34.0	{ 3.4 }	2470(2660)	{252(271)}	126 | 3	148 | 3	170 | 3
	50		1/50			30	36	50.0	{ 5.1 }	42.0	{ 4.3 }	2470(2660)	{252(271)}			
	60		1/60			25	30	56.0	{ 5.7 }	47.0	{ 4.8 }	2470(2660)	{252(271)}			
	75		1/75			20	24	59.0	{ 6.1 }	58.0	{ 6.0 }	2470(2660)	{252(271)}			
	90		1/90		22	16.7	20	81.0	{ 8.3 }	68.0	{ 7.0 }	3730(3970)	{381(405)}	126 | 4	148 | 4	170 | 4
	100		1/100			15	18	89.0	{ 9.1 }	75.0	{ 7.7 }	3730(3970)	{381(405)}			
	120		1/120			12.5	15	97.0	{ 9.9 }	82.0	{ 8.4 }	3730(3970)	{381(405)}			
	150		1/150			10	12	118.0	{12.0 }	100.0	{10.2 }	3730(3970)	{381(405)}			
	180		1/180			8.3	10	129.0	{13.1 }	110.0	{11.2 }	3730(3970)	{381(405)}			
	200		1/200			7.5	9	139.0	{14.2 }	120.0	{12.3 }	3730(3970)	{381(405)}			
	240		1/240		28	6.3	7.5	161.0	{16.4 }	138.0	{14.1 }	5150(5320)	{526(543)}	126 | 5	148 | 5	170 | 5
	300		1/300			5	6	195.0	{19.9 }	167.0	{17.0 }	5150(5320)	{526(543)}			

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above.
Note 4: Values within parentheses for allowable output shaft O.H.L. are values for hollow shaft types.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
								N·m	{kgf·m}	N·m	{kgf·m}					
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount
CSMA 040	10	0.4	1/10	1	16	150	180	22.3	{ 2.3}	18.7	{ 1.9}	1400(1920)	{ 143(196)}	128 | 1	150 | 1	172 | 1
	15		1/15			100	120	31.4	{ 3.2}	26.7	{ 2.7}	1400(1920)	{ 143(196)}			
	20		1/20			75	90	40.5	{ 4.1}	34.3	{ 3.5}	1660(2310)	{ 169(236)}			
	25		1/25			60	72	46.1	{ 4.7}	41.2	{ 4.2}	1660(2310)	{ 169(236)}			
	30		1/30			50	60	54.3	{ 5.5}	46.4	{ 4.7}	1880(2650)	{ 192(270)}			
	40		1/40		22	37.5	45	72.1	{ 7.4}	61.5	{ 6.3}	3740(3970)	{ 381(405)}	128 | 2	150 | 2	172 | 2
	50		1/50			30	36	85.3	{ 8.7}	73.1	{ 7.5}	3740(3970)	{ 381(405)}			
	60		1/60			25	30	97.5	{ 9.9}	83.7	{ 8.5}	3740(3970)	{ 381(405)}			
HCMA 040	40		1/40	2	22	37.5	45	82.0	{ 8.4}	69.0	{ 7.1}	3730(3970)	{ 381(405)}	128 | 3	150 | 3	172 | 3
	50		1/50			30	36	102	{10.4}	86.0	{ 8.7}	3730(3970)	{ 381(405)}			
	60		1/60			25	30	116	{11.8}	98.0	{10.0}	3730(3970)	{ 381(405)}			
	75		1/75			20	24	138	{14.0}	121	{12.3}	3730(3970)	{ 381(405)}			
	90		1/90		28	16.7	20	167	{17.0}	141	{14.4}	5150(5320)	{ 526(543)}	128 | 4	150 | 4	172 | 4
	100		1/100			15	18	184	{18.8}	155	{15.9}	5150(5320)	{ 526(543)}			
	120		1/120			12.5	15	197	{20.1}	167	{17.1}	5150(5320)	{ 526(543)}			
	150		1/150			10	12	240	{24.5}	204	{20.8}	5150(5320)	{ 526(543)}			
	180		1/180			8.3	10	270	{27.5}	230	{23.4}	5150(5320)	{ 526(543)}			
	200		1/200			7.5	9	280	{28.6}	252	{25.7}	5150(5320)	{ 526(543)}			
	240		1/240		32	6.3	7.5	337	{34.4}	288	{29.4}	9760(9460)	{ 996(965)}	128 | 5	150 | 5	172 | 5
	300		1/300			5	6	362	{37.0}	349	{35.6}	9760(9460)	{ 996(965)}			
CSMA 055	10	0.55	1/10	1	16	150	180	30.6	{ 3.1}	25.8	{ 2.6}	1400(1920)	{ 143(196)}	130 | 1	152 | 1	174 | 1
	15		1/15			100	120	43.6	{ 4.4}	36.7	{ 3.7}	1400(1920)	{ 143(196)}			
	20		1/20			75	90	55.7	{ 5.7}	47.2	{ 4.8}	1660(2310)	{ 169(236)}			
	25		1/25			60	72	60.6	{ 6.2}	55.9	{ 5.7}	1660(2310)	{ 169(236)}			
	30		1/30			50	60	60.5	{ 6.2}	56.2	{ 5.7}	1880(2650)	{ 192(270)}			
	40		1/40		22	37.5	45	99.0	{10.1}	84.5	{ 8.6}	3740(3970)	{ 381(405)}	130 | 2	152 | 2	174 | 2
	50		1/50			30	36	117	{11.9}	100	{10.2}	3740(3970)	{ 381(405)}			
	60		1/60			25	30	117	{11.9}	108	{11.1}	3740(3970)	{ 381(405)}			
HCMA 055	40		1/40	2	22	37.5	45	113	{11.6}	95.0	{ 9.7}	3730(3970)	{ 381(405)}	130 | 3	152 | 3	174 | 3
	50		1/50			30	36	130	{13.3}	118	{12.0}	3730(3970)	{ 381(405)}			
	60		1/60		28	25	30	161	{16.5}	136	{13.9}	5150(5320)	{ 526(543)}	130 | 4	152 | 4	174 | 4
	75		1/75			20	24	199	{20.3}	168	{17.1}	5150(5320)	{ 526(543)}			
	90		1/90			16.7	20	229	{23.4}	194	{19.8}	5150(5320)	{ 526(543)}			
	100		1/100			15	18	253	{25.8}	214	{21.8}	5150(5320)	{ 526(543)}			
	120		1/120			12.5	15	270	{27.6}	230	{23.5}	5150(5320)	{ 526(543)}			
	150		1/150			10	12	292	{29.8}	280	{28.6}	5150(5320)	{ 526(543)}			
	180		1/180		32	8.3	10	383	{39.1}	327	{33.3}	9760(9460)	{ 996(965)}	131 | 5	153 | 5	175 | 5
	200		1/200			7.5	9	419	{42.8}	358	{36.6}	9760(9460)	{ 996(965)}			
	240		1/240		40	6.3	7.5	484	{49.4}	414	{42.2}	12210(11810)	{1246(1205)}	131 | 6	153 | 6	175 | 6
	300		1/300			5	6	587	{59.9}	501	{51.1}	12210(11810)	{1246(1205)}			

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above.
Note 4: Values within parentheses for allowable output shaft O.H.L. are values for hollow shaft types.

Specification Chart

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
								N·m	{kgf·m}	N·m	{kgf·m}					
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount
CSMR 075	10	0.75	1/10	1	22	150	180	42.8	{ 4.4}	35.9	{ 3.7}	3660(2920)	{ 373(298)}	134 | 1	156 | 1	178 | 1
	15		1/15			100	120	60.8	{ 6.2}	51.5	{ 5.3}	3660(2920)	{ 373(298)}			
	20		1/20			75	90	78.8	{ 8.0}	66.7	{ 6.8}	3740(3560)	{ 381(363)}			
	25		1/25			60	72	94.1	{ 9.6}	79.4	{ 8.1}	3740(3560)	{ 381(636)}			
	30		1/30			50	60	108	{ 11.0}	91.5	{ 9.3}	3740(3960)	{ 381(404)}			
	40		1/40		28	37.5	45	141	{ 14.3}	120	{ 12.2}	5160(5320)	{ 526(543)}	134 | 2	156 | 2	178 | 2
	50		1/50			30	36	168	{ 17.1}	143	{ 14.6}	5160(5320)	{ 526(543)}			
	60		1/60			25	30	192	{ 19.6}	165	{ 16.8}	5160(5320)	{ 526(543)}			
HCMR 075	40		1/40	2	28	37.5	45	156	{ 16.0}	132	{ 13.4}	5150(5320)	{ 526(543)}	134 | 3	156 | 3	178 | 3
	50		1/50			30	36	193	{ 19.7}	163	{ 16.6}	5150(5320)	{ 526(543)}			
	60		1/60			25	30	220	{ 22.5}	186	{ 19.0}	5150(5320)	{ 526(543)}			
	75		1/75			20	24	271	{ 27.7}	229	{ 23.3}	5150(5320)	{ 526(543)}			
	90		1/90		32	16.7	20	319	{ 32.6}	270	{ 27.5}	9630(9460)	{ 983(965)}	134 | 4	156 | 4	178 | 4
	100		1/100			15	18	352	{ 35.9}	298	{ 30.4}	9760(9460)	{ 996(965)}			
	120		1/120			12.5	15	382	{ 39.0}	324	{ 33.1}	9760(9460)	{ 996(965)}			
	150		1/150			10	12	435	{ 44.4}	396	{ 40.4}	9760(9460)	{ 996(965)}			
	180		1/180		40	8.3	10	540	{ 55.2}	460	{ 47.0}	12210(11810)	{1246(1205)}	135 | 5	157 | 5	179 | 5
	200		1/200			7.5	9	593	{ 60.5}	505	{ 51.5}	12210(11810)	{1246(1205)}			
	240		1/240		50	6.3	7.5	673	{ 68.7}	576	{ 58.8}	16980(16680)	{1733(1702)}	135 | 6	157 | 6	179 | 6
	300		1/300			5	6	815	{ 83.2}	697	{ 71.1}	16980(16680)	{1733(1702)}			
CSMR 150	10	1.5	1/10	1	28	150	180	86.8	{ 8.8}	72.4	{ 7.4}	4290(3610)	{ 437(368)}	138 | 1	160 | 1	182 | 1
	15		1/15			100	120	125	{ 12.7}	105	{ 10.7}	4290(3610)	{ 437(368)}			
	20		1/20			75	90	162	{ 16.5}	136	{ 13.9}	5160(4350)	{ 526(444)}			
	25		1/25			60	72	196	{ 20.0}	165	{ 16.8}	5160(4350)	{ 526(444)}			
	30		1/30			50	60	223	{ 22.7}	189	{ 19.3}	5160(4800)	{ 526(490)}			
	40		1/40		32	37.5	45	289	{ 29.4}	246	{ 25.0}	9770(7240)	{ 996(739)}	138 | 2	160 | 2	182 | 2
	50		1/50			30	36	321	{ 32.8}	292	{ 29.8}	9770(7680)	{ 996(784)}			
	60		1/60			25	30	321	{ 32.8}	292	{ 29.8}	9770(8280)	{ 996(845)}			
HCMR 150	40		1/40	2	32	37.5	45	317	{ 32.4}	267	{ 27.2}	9760(7240)	{ 996(739)}	138 | 3	160 | 3	182 | 3
	50		1/50			30	36	392	{ 40.0}	330	{ 33.7}	9760(7680)	{ 996(784)}			
	60		1/60		40	25	30	460	{ 46.9}	388	{ 39.5}	12210(10620)	{1246(1084)}	138 | 4	160 | 4	182 | 4
	75		1/75			20	24	567	{ 57.8}	478	{ 48.7}	12210(11660)	{1246(1190)}			
	90		1/90			16.7	20	652	{ 66.5}	551	{ 56.2}	12210(11810)	{1246(1205)}			
	100		1/100			15	18	719	{ 73.3}	607	{ 62.0}	12210(11810)	{1246(1205)}			
	120		1/120			12.5	15	744	{ 75.9}	674	{ 68.8}	12210(11810)	{1246(1205)}			
	150		1/150		50	10	12	988	{101 }	840	{ 85.7}	16980(16680)	{1733(1702)}	138 | 5	160 | 5	182 | 5
	180		1/180			8.3	10	1126	{115 }	959	{ 97.8}	16980(16680)	{1733(1702)}			
	200		1/200			7.5	9	1236	{126 }	1052	{107 }	16980(16680)	{1733(1702)}			
	240		1/252			5.95	7.14	1607	{164 }	1362	{139 }	16983(16680)	{1733(1702)}			
	300		1/315			4.76	5.71	1980	{202 }	1676	{171 }	16983(16680)	{1733(1702)}			

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
								N·m	{kgf·m}	N·m	{kgf·m}					
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount
CSMR 220	10	2.2	1/10	1	32	150	180	128	{ 13.1}	108	{ 11.0}	9770(4670)	{996(476)}	140 | 1	162 | 1	184 | 1
	15		1/15			100	120	185	{ 18.9}	160	{ 16.3}	9770(4670)	{996(476)}			
	20		1/20			75	90	240	{ 24.5}	203	{ 20.7}	9770(5640)	{996(575)}			
	25		1/25			60	72	301	{ 30.7}	253	{ 25.8}	9770(5640)	{996(575)}			
	30		1/30			50	60	335	{ 34.1}	284	{ 28.9}	9770(6250)	{996(637)}			
	40		1/40		40	37.5	45	436	{ 44.4}	370	{ 37.7}	12200(9370)	{1240(955)}	140 | 2	162 | 2	184 | 2
	50		1/50			30	36	524	{ 53.5}	446	{ 45.5}	12200(9940)	{1240(1010)}			
	60		1/60			25	30	532	{ 54.3}	474	{ 48.3}	12200(10600)	{1240(1010)}			
HCMR 220	40		1/40	2	40	37.5	45	473	{ 48.3}	398	{ 40.6}	12210(9360)	{1246(955)}	140 | 3	162 | 3	184 | 3
	50		1/50			30	36	585	{ 59.7}	492	{ 50.2}	12210(9940)	{1246(1014)}			
	60		1/60			25	30	674	{ 68.8}	568	{ 58.0}	12210(10590)	{1246(1081)}			
	75		1/75			20	24	751	{ 76.6}	701	{ 71.5}	12210(10590)	{1246(1081)}			
	90		1/90		50	16.7	20	980	{100 }	827	{ 84.4}	16980(16680)	{1733(1702)}	140 | 4	162 | 4	184 | 4
	100		1/100			15	18	1081	{110 }	912	{ 93.1}	16980(16680)	{1733(1702)}			
	120		1/120			12.5	15	1187	{121 }	1008	{103 }	16980(16680)	{1733(1702)}			
	150		1/150			10	12	1400	{143 }	1231	{126 }	16980(16680)	{1733(1702)}			
	180		1/180			8.3	10	1980	{202 }	1666	{170 }	16983(16680)	{1733(1702)}			
	200		1/200			7.5	9	2195	{224 }	1842	{188 }	16983(16680)	{1733(1702)}			
	240		1/252			5.95	7.14	2489	{254 }	2097	{214 }	16983(16680)	{1733(1702)}			
	300		1/315			4.76	5.71	※2607	※{266 }	2587	{264 }	16983(16680)	{1733(1702)}			
CSMR 370	10	3.7	1/10	1	40	150	180	218	{ 22.3}	183	{ 18.6}	12200(5890)	{1240(601)}	142 | 1	164 | 1	186 | 1
	15		1/15			100	120	317	{ 32.3}	266	{ 27.1}	12200(5890)	{1240(601)}			
	20		1/20			75	90	411	{ 41.9}	346	{ 35.3}	12200(7120)	{1240(726)}			
	25		1/25			60	72	503	{ 51.3}	424	{ 43.2}	12200(7120)	{1240(726)}			
	30		1/30			50	60	579	{ 59.1}	491	{ 50.0}	12200(7860)	{1240(801)}			
	40		1/40		50	37.5	45	755	{ 77.0}	640	{ 65.3}	16600(15900)	{1690(1620)}	142 | 2	164 | 2	186 | 2
	50		1/50			30	36	857	{ 87.4}	767	{ 78.3}	16600(16700)	{1690(1700)}			
	60		1/60			25	30	857	{ 87.4}	795	{ 81.1}	16600(16700)	{1690(1700)}			
HCMR 370	40		1/40	2	50	37.5	45	803	{ 81.9}	675	{ 68.9}	16980(15920)	{1733(1624)}	142 | 3	164 | 3	186 | 3
	50		1/50			30	36	993	{101.0}	835	{ 85.2}	16980(16680)	{1733(1702)}			
	60		1/60			25	30	1148	{117.0}	967	{ 98.7}	16980(16680)	{1733(1702)}			
	75		1/75			20	24	1363	{139.0}	1192	{122.0}	16980(16680)	{1733(1702)}			
	90		1/90			16.7	20	1833	{187.0}	1539	{157.0}	16983(16680)	{1733(1702)}			
	100		1/100			15	18	2029	{207.0}	1705	{174.0}	16983(16680)	{1733(1702)}			
	120		1/126			11.9	14.3	2421	{247.0}	2029	{207.0}	16983(16680)	{1733(1702)}			
	150		1/157.5			9.5	11.4	※2607	※{266.0}	2519	{257.0}	16983(16680)	{1733(1702)}			
	180		1/180			8.3	10	※2607	※{266.0}	※2607	※{266.0}	16983(16680)	{1733(1702)}			
	200		1/200			7.5	9	※2607	※{266.0}	※2607	※{266.0}	16983(16680)	{1733(1702)}			
	240		1/252			5.95	7.14	※2607	※{266.0}	※2607	※{266.0}	16983(16680)	{1733(1702)}			
	300		1/315			4.76	5.71	※2607	※{266.0}	※2607	※{266.0}	16983(16680)	{1733(1702)}			
CSMR 550	10	5.5	1/10	1	50	150	180	326	{ 33.3}	273	{ 27.9}	16980(10220)	{1733(1043)}	144 | 1	166 | 1	188 | 1
	15		1/15			100	120	476	{ 48.5}	399	{ 40.8}	16980(11530)	{1733(1177)}			
	20		1/20			75	90	621	{ 63.4}	522	{ 53.3}	16980(12500)	{1733(1276)}			
	25		1/25			60	72	758	{ 77.3}	638	{ 65.1}	16980(13300)	{1733(1358)}			
	30		1/30			50	60	876	{ 89.4}	740	{ 75.5}	16980(13990)	{1733(1428)}			
HCMR 550	40		1/41	2	50	36.59	43.9	※981	{※100 }	※981	{※100 }	16980(15920)	{1733(1624)}	144 | 2	166 | 2	188 | 2
	50		1/51.25			29.27	35.12	※1146	{※117 }	※1146	{※117 }	16980(16680)	{1733(1702)}			
	75		1/80			18.75	22.5	※1836	{※187 }	※1836	{※187 }	16980(16680)	{1733(1702)}			
	90		1/90			16.67	20	※2058	{※210 }	※2058	{※210 }	16980(16680)	{1733(1702)}			
	100		1/100			15	18	※2136	{※218 }	※2137	{※218 }	16980(16680)	{1733(1702)}			

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. Note 4: Values within parentheses for allowable output shaft O.H.L. are values for hollow shaft types.
Note 5: The models marked with ※ are ones for which torque is limited.

Specification Chart

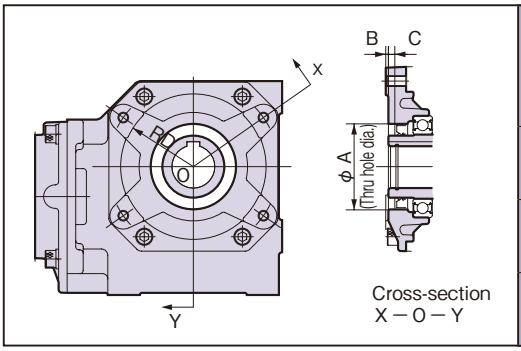
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.1kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	Totally enclosed (IP44)	Self managed (IC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA010	10	0.1	1/10	1	13	150	180	5.5	{ 0.56}	4.6	{ 0.47}	1350	{ 138 }	1
	15		1/15			100	120	7.8	{ 0.78}	6.6	{ 0.67}	1350	{ 138 }	
	20		1/20			75	90	10.0	{ 1.0 }	8.4	{ 0.86}	1550	{ 158 }	
	25		1/25			60	72	11.8	{ 1.2 }	10.0	{ 1.0 }	1550	{1158 }	
	30		1/30			50	60	13.3	{ 1.4 }	11.4	{ 1.2 }	1550	{ 158 }	
	40		1/40			37.5	45	16.5	{ 1.7 }	14.1	{ 1.4 }	1550	{ 158 }	
	50		1/50			30	36	19.3	{ 2.0 }	16.6	{ 1.7 }	1550	{1158 }	
	60		1/60			25	30	21.3	{ 2.2 }	18.3	{ 1.9 }	1550	{1158 }	
HCMA010	40		1/40	2	16	37.5	45	20.0	{ 2.0 }	17.0	{ 1.7 }	2660	{ 271 }	2
	50		1/50			30	36	25.0	{ 2.5 }	21.0	{ 2.1 }	2660	{ 271 }	
	60		1/60			25	30	28.0	{ 2.9 }	24.0	{ 2.4 }	2660	{2271 }	
	75		1/75			20	24	35.0	{ 3.5 }	29.0	{ 3.0 }	2660	{ 271 }	
	90		1/90			16.7	20	39.0	{ 3.9 }	33.0	{ 3.3 }	2660	{ 271 }	
	100		1/100			15	18	43.0	{ 4.3 }	36.0	{ 3.7 }	2660	{ 271 }	
	120		1/120			12.5	15	46.0	{ 4.7 }	39.0	{ 4.0 }	2660	{ 271 }	
	150		1/150			10	12	56.0	{ 5.7 }	47.0	{ 4.8 }	2660	{ 271 }	
	180		1/180			8.3	10	59.8	{ 6.1}	51.0	{ 5.2 }	2660	{ 271 }	
	200		1/200			7.5	9	60.3	{ 6.2 }	56.0	{ 5.7 }	2660	{ 271 }	
	240		1/240		22	6.3	7.5	76.0	{ 7.8 }	65.0	{ 6.6 }	3970	{ 405 }	3
	300		1/300			5	6	92.0	{ 9.4 }	79.0	{ 8.0 }	3970	{ 405 }	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

Output Housing Dimensions



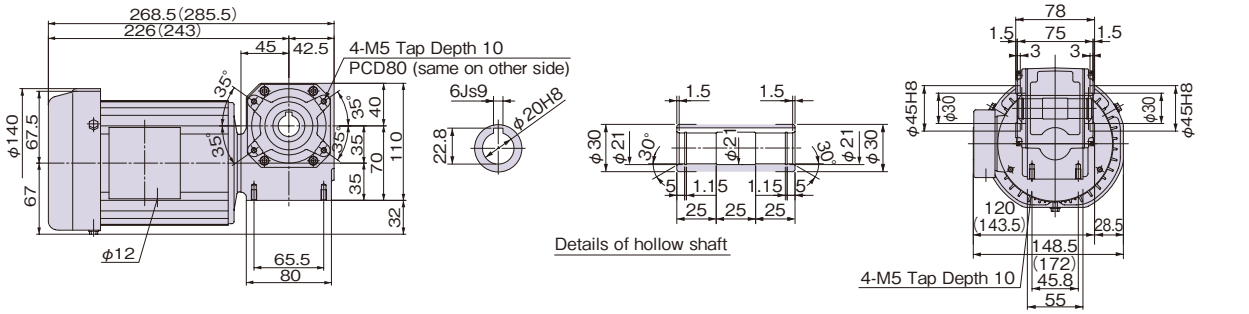
Frame number	Thru hole ϕA (H8)	B	C	RD
13	45	1.5	3	34
16	58	1.5	3	40.5
22	70	2.0	4	54

Outline Dimensions

CSMA010-130H10 – 60 (B)

1

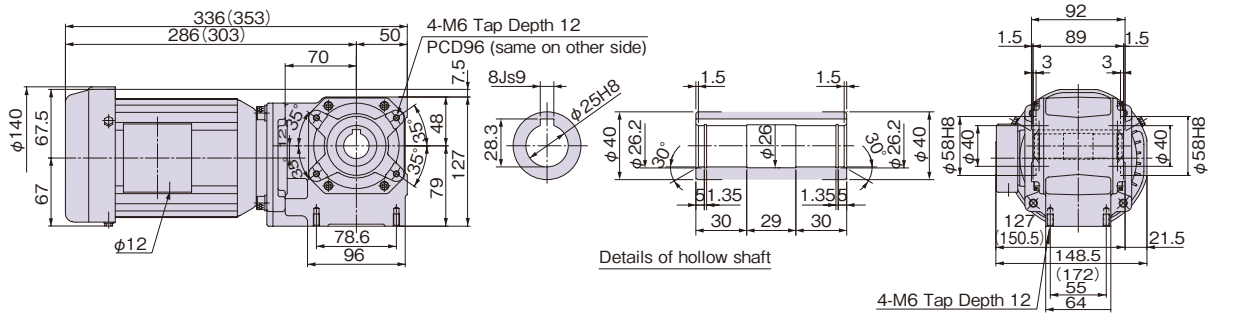
Reduction ratio : 10, 15, 20, 25, 30, 40, 50, 60	Approx. weight : 6.7 (8.7) kg



HCMA010-160H40 – 200 (B)

2

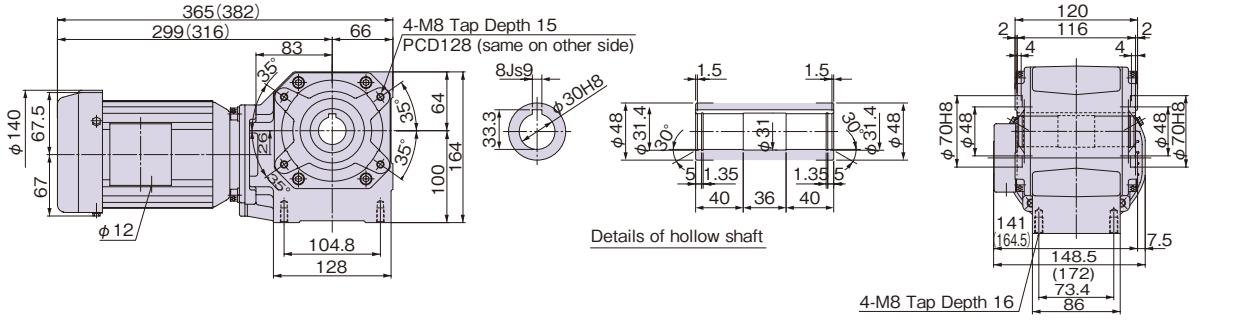
Reduction ratio : 40, 50, 60, 75, 90, 100, 120, 150, 180, 200	Approx. weight : 10.7 (12.7) kg



HCMA010-220H240 – 300 (B)

3

Reduction ratio : 240, 300	Approx. weight : 14.7 (16.7) kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

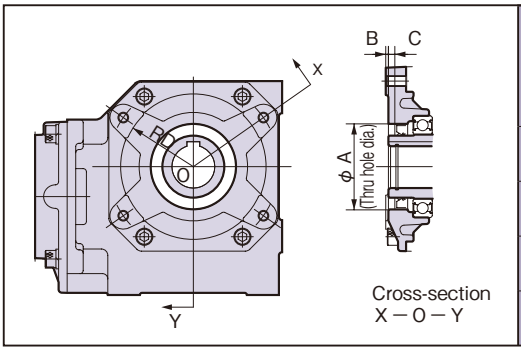
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.2kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 50%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA020	10	0.2	1/10	1	13	150	180	11.1	{ 1.1 }	9.3	{ 1.0 }	1580	{161}	1
	15		1/15			100	120	15.7	{ 1.6 }	13.2	{ 1.3 }	1580	{161}	
	20		1/20			75	90	20.0	{ 2.0 }	17.0	{ 1.7 }	1660	{169}	
	25		1/25			60	72	23.5	{ 2.4 }	20.1	{ 2.0 }	1660	{169}	
	30		1/30			50	60	26.6	{ 2.7 }	22.7	{ 2.3 }	1660	{169}	
	40		1/40		16	37.5	45	33.8	{ 3.5 }	28.9	{ 3.0 }	2660	{271}	2
	50		1/50			30	36	39.7	{ 4.1 }	34.1	{ 3.5 }	2660	{271}	
	60		1/60			25	30	45.0	{ 4.6 }	38.7	{ 4.0 }	2660	{271}	
HCMA020	40		1/40	2	16	37.5	45	40.0	{ 4.1 }	34.0	{ 3.4 }	2660	{271}	3
	50		1/50			30	36	50.0	{ 5.1 }	42.0	{ 4.3 }	2660	{271}	
	60		1/60			25	30	56.0	{ 5.7 }	47.0	{ 4.8 }	2660	{271}	
	75		1/75			20	24	59.0	{ 6.1 }	58.0	{ 6.0 }	2660	{271}	
	90		1/90		22	16.7	20	81.0	{ 8.3 }	68.0	{ 7.0 }	3970	{405}	4
	100		1/100			15	18	89.0	{ 9.1 }	75.0	{ 7.7 }	3970	{405}	
	120		1/120			12.5	15	97.0	{ 9.9 }	82.0	{ 8.4 }	3970	{405}	
	150		1/150			10	12	118.0	{12.0 }	100.0	{10.2 }	3970	{405}	
	180		1/180			8.3	10	129.0	{13.1 }	110.0	{11.2 }	3970	{405}	
	200		1/200			7.5	9	139.0	{14.2 }	120.0	{12.3 }	3970	{405}	
	240		1/240		28	6.3	7.5	161.0	{16.4 }	138.0	{14.1 }	5320	{543}	5
	300		1/300			5	6	195.0	{19.9 }	167.0	{17.0 }	5320	{543}	

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.

Output Housing Dimensions

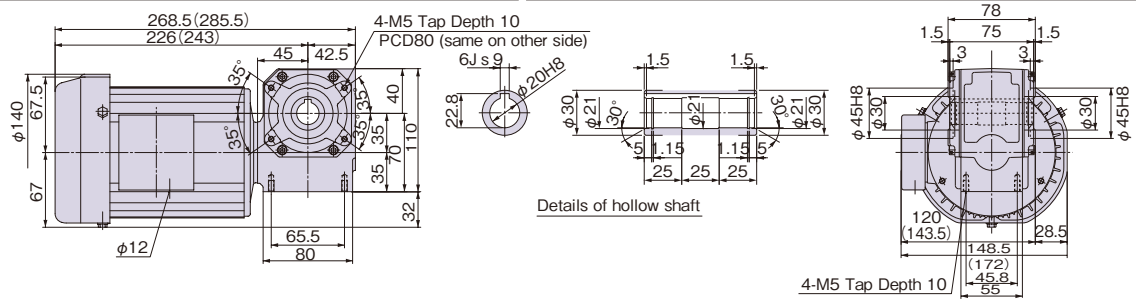


Frame number	Thru hole ϕA (H8)	B	C	RD
13	45	1.5	3	34
16	58	1.5	3	40.5
22	70	2.0	4	54
28	80	2.5	5	67

Outline Dimensions

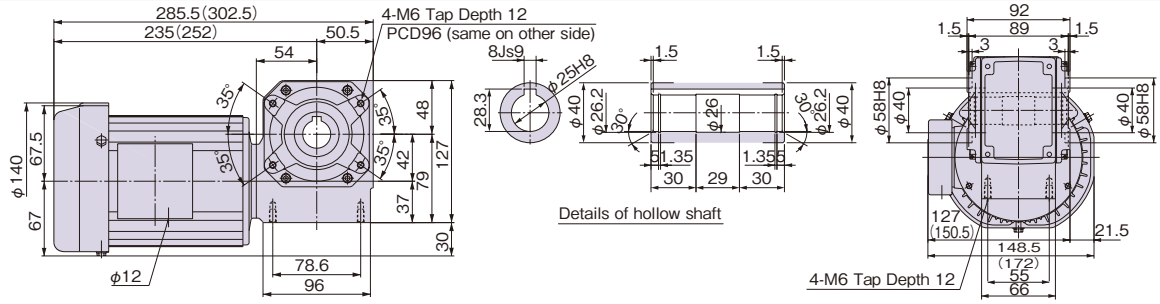
CSMA020-130H10 – 30 (B) 1

Reduction ratio : 10, 15, 20, 25, 30 | Approx. weight : 8 (10) kg



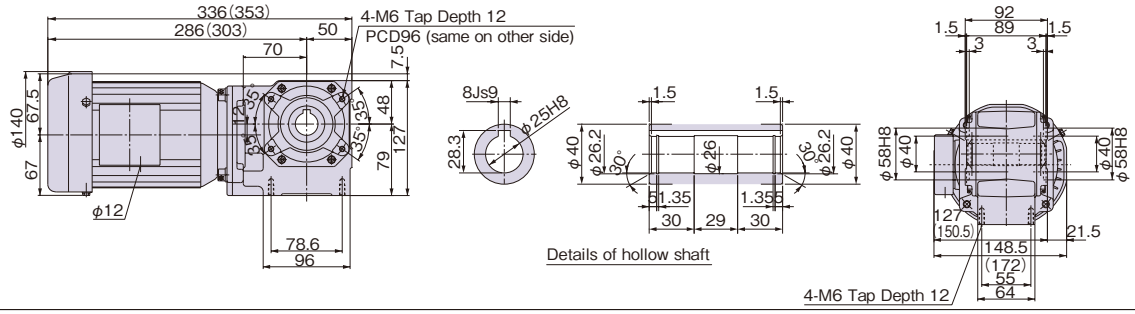
CSMA020-160H40 – 60 (B) 2

Reduction ratio : 40, 50, 60 | Approx. weight : 9 (11) kg



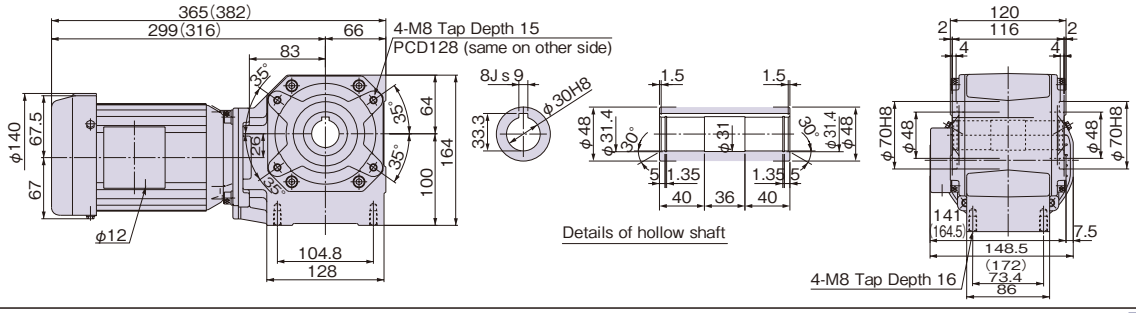
HCMA020-160H40 – 75 (B) 3

Reduction ratio : 40, 50, 60, 75 | Approx. weight : 11 (13) kg



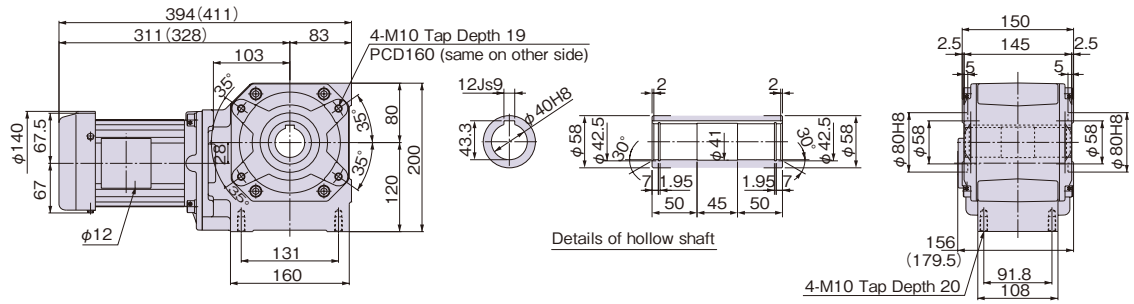
HCMA020-220H90 – 200 (B) 4

Reduction ratio : 90, 100, 120, 150, 180, 200 | Approx. weight : 15 (17) kg



HCMA020-280H240 – 300 (B) 5

Reduction ratio : 240, 300 | Approx. weight : 23 (25) kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

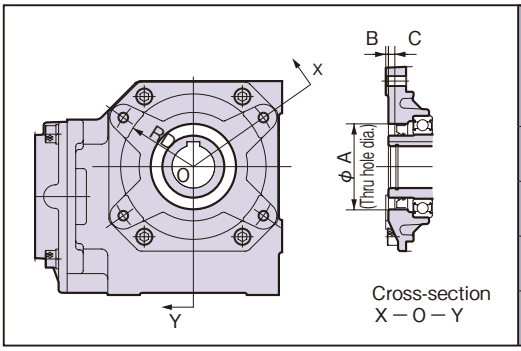
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.4kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA040	10	0.4	1/10	1	16	150	180	22.3	{ 2.3}	18.7	{ 1.9}	1920	{ 196 }	1
	15		1/15			100	120	31.4	{ 3.2}	26.7	{ 2.7}	1920	{ 196 }	
	20		1/20			75	90	40.5	{ 4.1}	34.3	{ 3.5}	2310	{ 236 }	
	25		1/25			60	72	46.1	{ 4.7}	41.2	{ 4.2}	2310	{ 236 }	
	30		1/30			50	60	54.3	{ 5.5}	46.4	{ 4.7}	2650	{ 270 }	
	40		1/40		22	37.5	45	72.1	{ 7.4}	61.5	{ 6.3}	3970	{ 405 }	2
	50		1/50			30	36	85.3	{ 8.7}	73.1	{ 7.5}	3970	{ 405 }	
	60		1/60			25	30	97.5	{ 9.9}	83.7	{ 8.5}	3970	{ 405 }	
HCMA040	40		1/40	2	22	37.5	45	82.0	{ 8.4}	69.0	{ 7.1}	3970	{ 405 }	3
	50		1/50			30	36	102	{10.4}	86.0	{ 8.7}	3970	{ 405 }	
	60		1/60			25	30	116	{11.8}	98.0	{10.0}	3970	{ 405 }	
	75		1/75			20	24	138	{14.0}	121	{12.3}	3970	{ 405 }	
	90		1/90		28	16.7	20	167	{17.0}	141	{14.4}	5320	{ 543 }	4
	100		1/100			15	18	184	{18.8}	155	{15.9}	5320	{ 543 }	
	120		1/120			12.5	15	197	{20.1}	167	{17.1}	5320	{ 543 }	
	150		1/150			10	12	240	{24.5}	204	{20.8}	5320	{ 543 }	
	180		1/180			8.3	10	270	{27.5}	230	{23.4}	5320	{ 543 }	
	200		1/200			7.5	9	280	{28.6}	252	{25.7}	5320	{ 543 }	
	240		1/240		32	6.3	7.5	337	{34.4}	288	{29.4}	9460	{ 965 }	5
	300		1/300			5	6	362	{37.0}	349	{35.6}	9460	{ 965 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.

Output Housing Dimensions



Frame number	Thru hole ϕA (H8)	B	C	RD
13	45	1.5	3	34
16	58	1.5	3	40.5
22	70	2.0	4	54
32	92	5.0	5	66

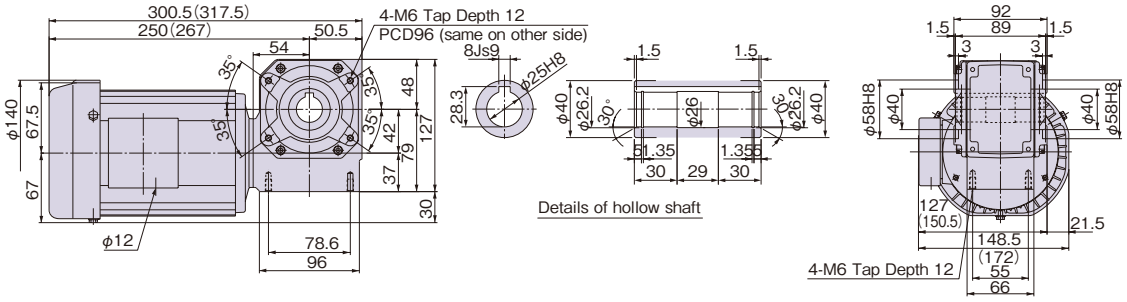
Outline Dimensions

CSMA040-160H10 – 30 (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 10 (13) kg

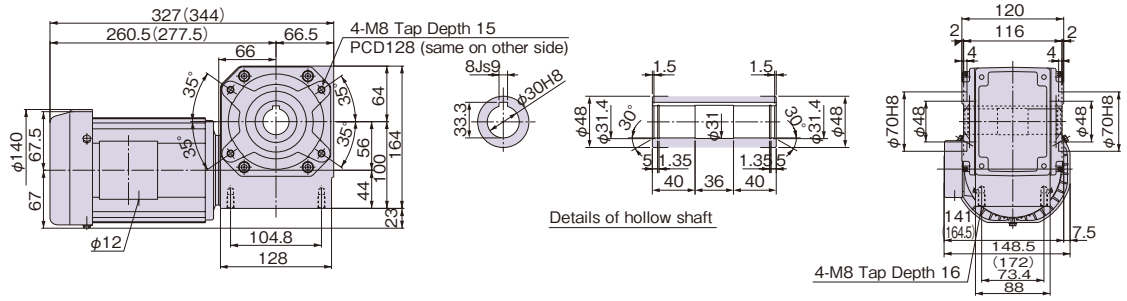


CSMA040-220H40 – 60 (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 13 (16) kg

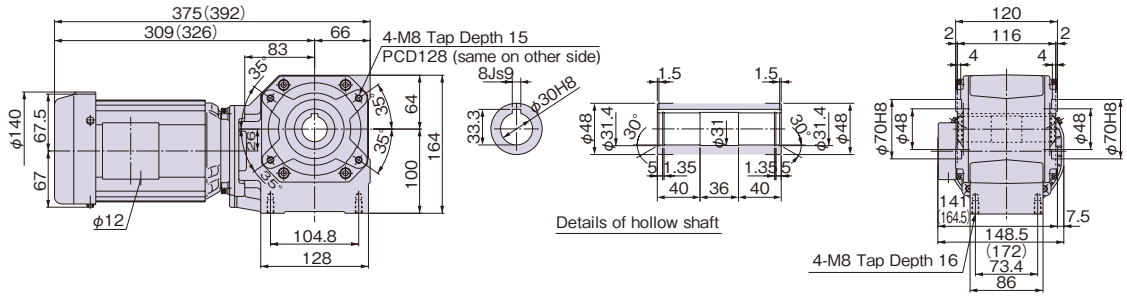


HCMA040-220H40 – 75 (B)

3

Reduction ratio : 40, 50, 60, 75

Approx. weight : 16 (18) kg

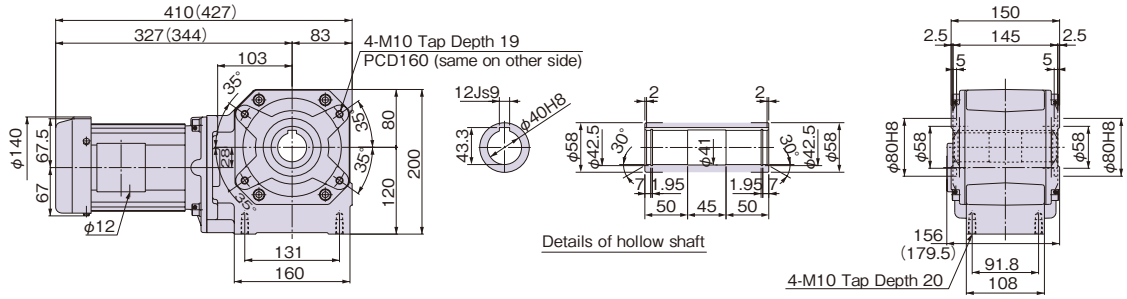


HCMA040-280H90 – 200 (B)

4

Reduction ratio : 90, 100, 120, 150, 180, 200

Approx. weight : 25 (27) kg

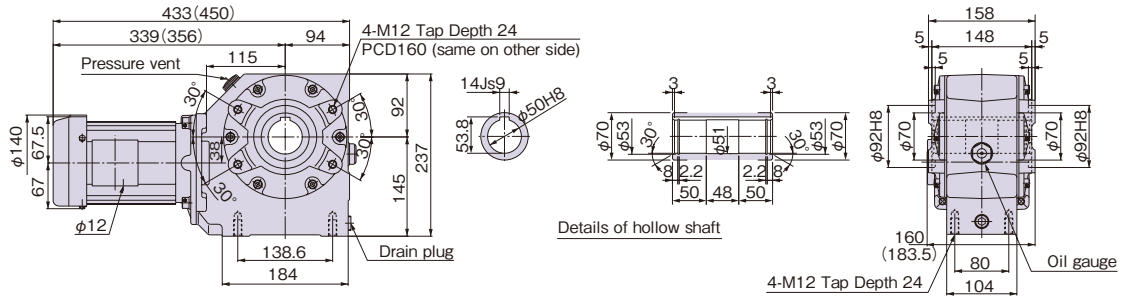


HCMA040-321H240 – 300 (B)

5

Reduction ratio : 240, 300

Approx. weight : 33 (35) kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

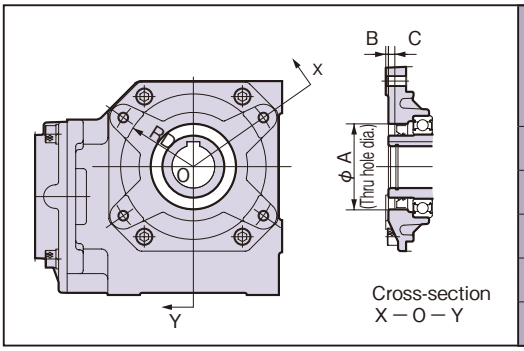
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.55kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.9/2.6/2.5 (1.45/1.3/1.3)	1380/1650/1690 (1380/1650/1690)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 100%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA055	10	0.55	1/10	1	16	150	180	30.6	{ 3.1}	25.8	{ 2.6}	1920	{ 196 }	1
	15		1/15			100	120	43.6	{ 4.4}	36.7	{ 3.7}	1920	{ 196 }	
	20		1/20			75	90	55.7	{ 5.7}	47.2	{ 4.8}	2310	{ 236 }	
	25		1/25			60	72	60.6	{ 6.2}	55.9	{ 5.7}	2310	{ 236 }	
	30		1/30			50	60	60.5	{ 6.2}	56.2	{ 5.7}	2650	{ 270 }	
	40		1/40		22	37.5	45	99.0	{10.1}	84.5	{ 8.6}	3970	{ 405 }	2
	50		1/50			30	36	117	{11.9}	100	{10.2}	3970	{ 405 }	
	60		1/60			25	30	117	{11.9}	108	{11.1}	3970	{ 405 }	
HCMA055	40		1/40	2	22	37.5	45	113	{11.6}	95.0	{ 9.7}	3970	{ 405 }	3
	50		1/50			30	36	130	{13.3}	118	{12.0}	3970	{ 405 }	
	60		1/60		28	25	30	161	{16.5}	136	{13.9}	5320	{ 543 }	4
	75		1/75			20	24	199	{20.3}	168	{17.1}	5320	{ 543 }	
	90		1/90			16.7	20	229	{23.4}	194	{19.8}	5320	{ 543 }	
	100		1/100			15	18	253	{25.8}	214	{21.8}	5320	{ 543 }	
	120		1/120			12.5	15	270	{27.6}	230	{23.5}	5320	{ 543 }	
	150		1/150			10	12	292	{29.8}	280	{28.6}	5320	{ 543 }	
	180		1/180		32	8.3	10	383	{39.1}	327	{33.3}	9460	{ 965 }	5
	200		1/200			7.5	9	419	{42.8}	358	{36.6}	9460	{ 965 }	
	240		1/240		40	6.3	7.5	484	{49.4}	414	{42.2}	11810	{1205 }	6
	300		1/300			5	6	587	{59.9}	501	{51.1}	11810	{1205 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.

Output Housing Dimensions



Frame number	Thru hole ϕA (H8)	B	C	RD
16	58	1.5	3	40.5
22	70	2.0	4	54
28	80	2.5	5	67
32	92	5.0	5	66
40	105	2.0	7	86

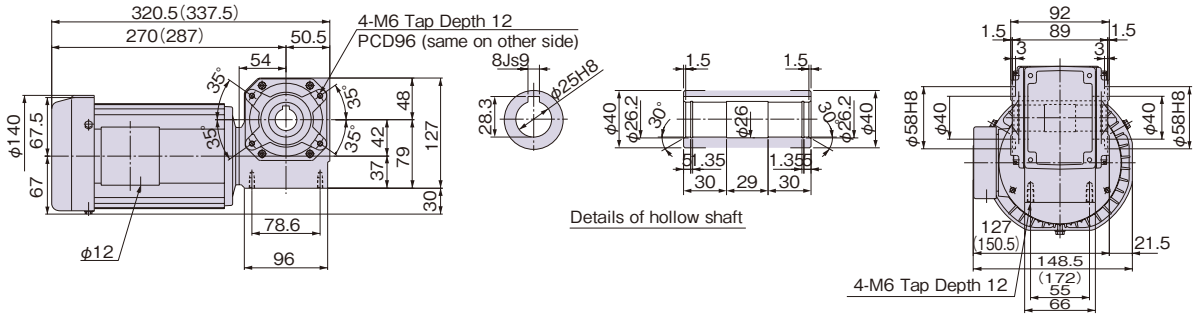
Outline Dimensions

CSMA055-160H10 – 30 (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 11 (14) kg

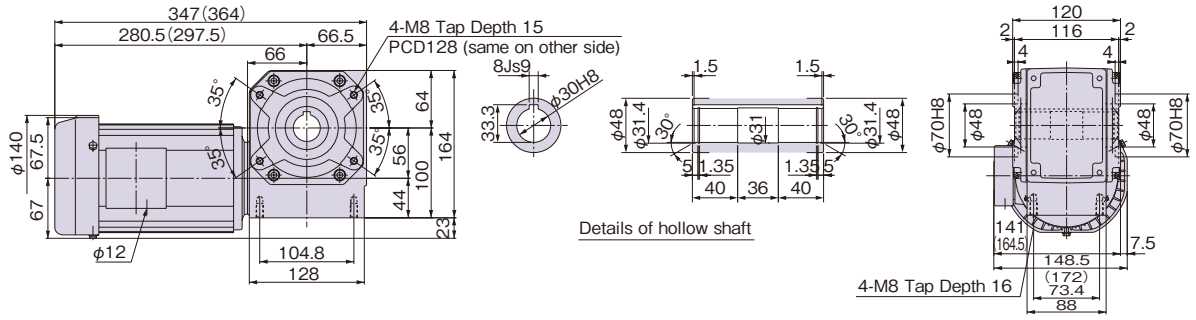


CSMA055-220H40 – 60 (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 14 (17) kg

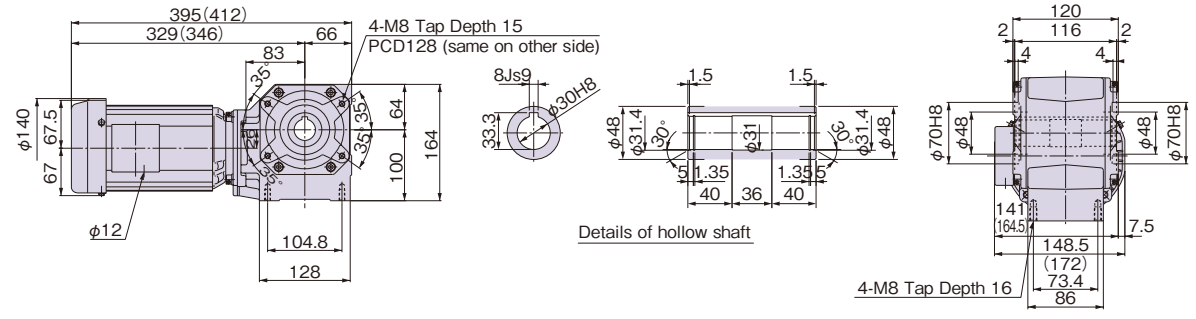


HCMA055-220H40 – 50 (B)

3

Reduction ratio : 40, 50

Approx. weight : 18 (20) kg

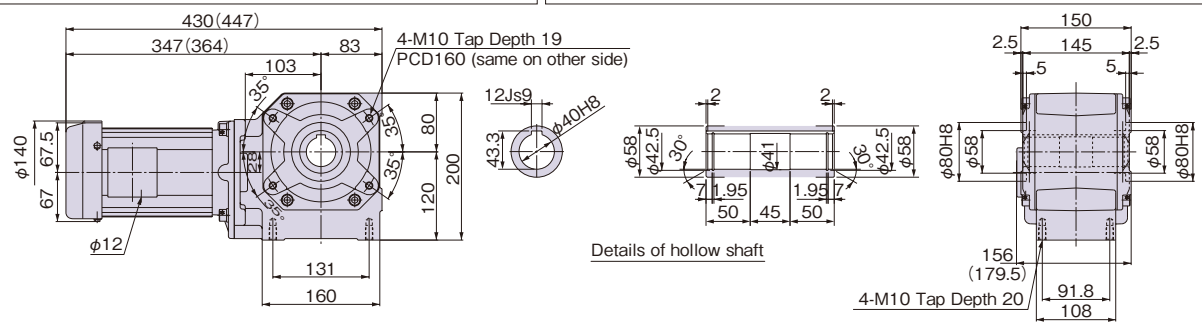


HCMA055-280H60 – 150 (B)

4

Reduction ratio : 60, 75, 90, 100, 120, 150

Approx. weight : 26 (28) kg



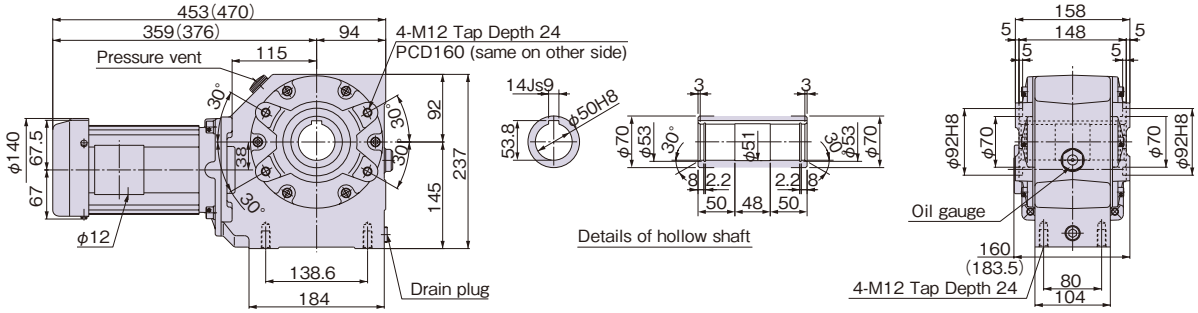
Note: The values in parentheses are for brake-equipped models.

Outline Dimensions

HCMA055-321H180 – 200 (B)

5

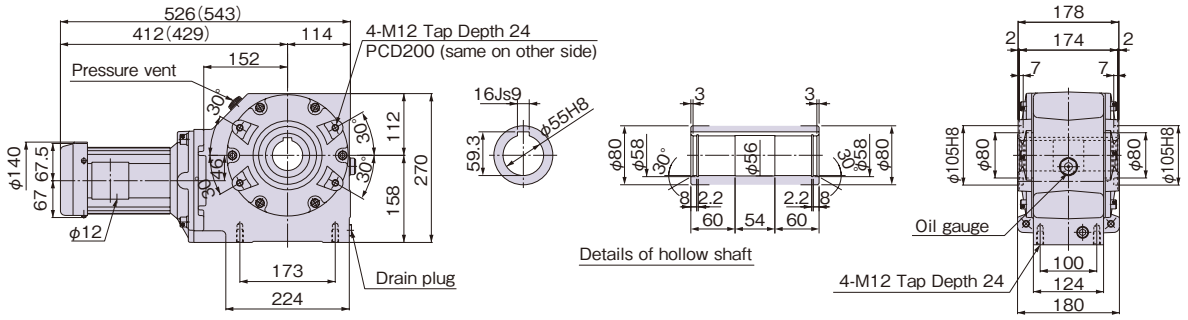
Reduction ratio : 180, 200	Approx. weight : 34 (36) kg



HCMA055-401H240 – 300 (B)

6

Reduction ratio : 240, 300	Approx. weight : 53 (55) kg



Note: The values in parentheses are for brake-equipped models.

Notes

Specification Chart

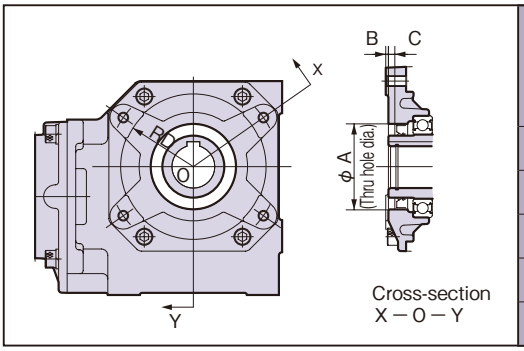
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.75kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}	N	{kgf}	
						50Hz	60Hz	50Hz		60Hz				
CSMR075	10	0.75	1/10	1	22	150	180	42.8	{4.4}	35.9	{3.7}	2920	{298}	1
	15		1/15			100	120	60.8	{6.2}	51.5	{5.3}	2920	{298}	
	20		1/20			75	90	78.8	{8.0}	66.7	{6.8}	3560	{363}	
	25		1/25			60	72	94.1	{9.6}	79.4	{8.1}	3560	{636}	
	30		1/30			50	60	108	{11.0}	91.5	{9.3}	3960	{404}	
	40		1/40		28	37.5	45	141	{14.3}	120	{12.2}	5320	{543}	2
	50		1/50			30	36	168	{17.1}	143	{14.6}	5320	{543}	
	60		1/60			25	30	192	{19.6}	165	{16.8}	5320	{543}	
HCMR075	40		1/40	2	28	37.5	45	156	{16.0}	132	{13.4}	5320	{543}	3
	50		1/50			30	36	193	{19.7}	163	{16.6}	5320	{543}	
	60		1/60			25	30	220	{22.5}	186	{19.0}	5320	{543}	
	75		1/75			20	24	271	{27.7}	229	{23.3}	5320	{543}	
	90		1/90		32	16.7	20	319	{32.6}	270	{27.5}	9460	{965}	4
	100		1/100			15	18	352	{35.9}	298	{30.4}	9460	{965}	
	120		1/120			12.5	15	382	{39.0}	324	{33.1}	9460	{965}	
	150		1/150			10	12	435	{44.4}	396	{40.4}	9460	{965}	
	180		1/180		40	8.3	10	540	{55.2}	460	{47.0}	11810	{1205}	5
	200		1/200			7.5	9	593	{60.5}	505	{51.5}	11810	{1205}	
	240		1/240		50	6.3	7.5	673	{68.7}	576	{58.8}	16680	{1702}	6
	300		1/300			5	6	815	{83.2}	697	{71.1}	16680	{1702}	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.

Output Housing Dimensions



Frame number	Thru hole ϕA (H8)	B	C	RD
22	70	2.0	4	54
28	80	2.5	5	67
32	92	5.0	5	66
40	105	2.0	7	86
50	135	9.0	8	107

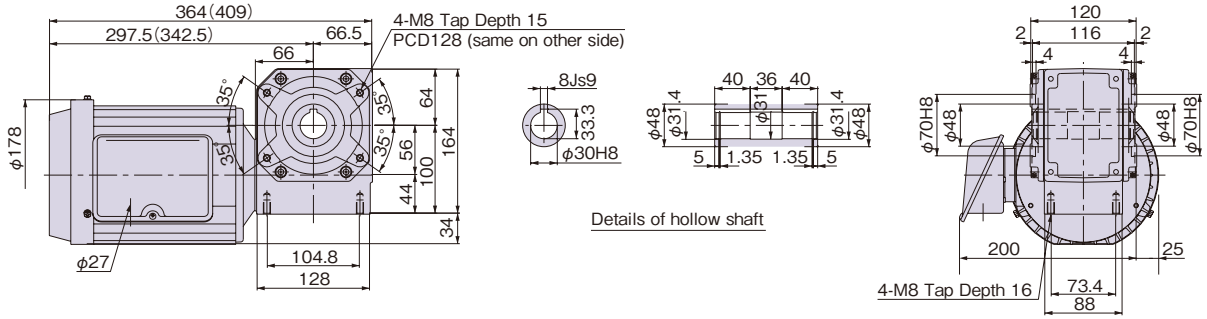
Outline Dimensions

CSMR075-220H10 – 30 (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 19 (22) kg

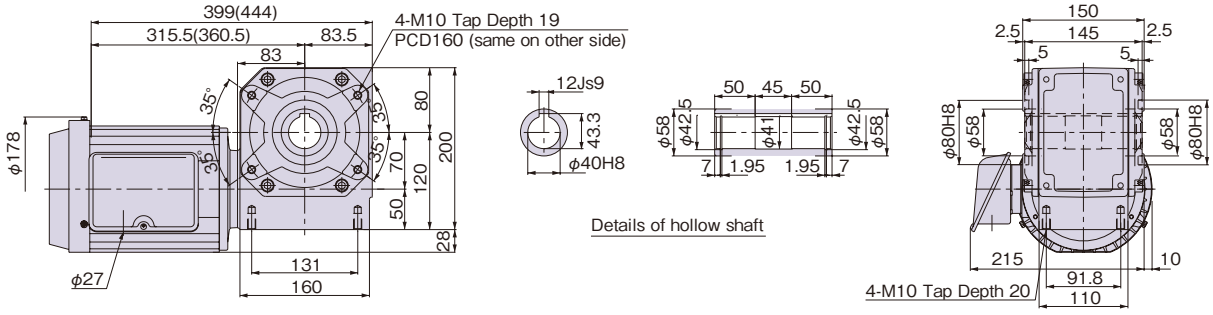


CSMR075-280H40 – 60 (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 24 (27) kg

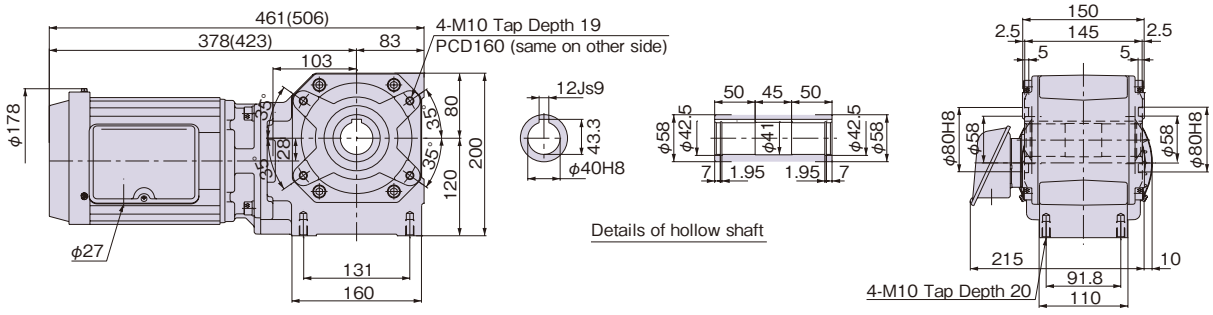


HCMR075-280H40 – 75 (B)

3

Reduction ratio : 40, 50, 60, 75

Approx. weight : 32 (35) kg

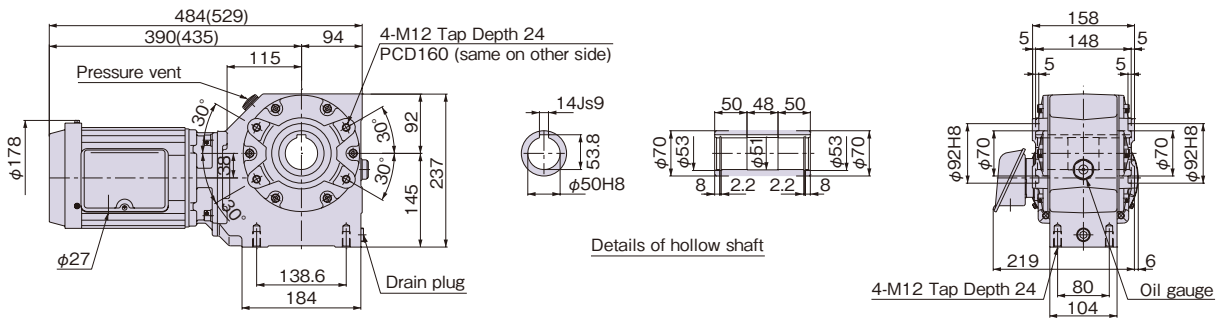


HCMR075-321H90 – 150 (B)

4

Reduction ratio : 90, 100, 120, 150

Approx. weight : 40 (43) kg



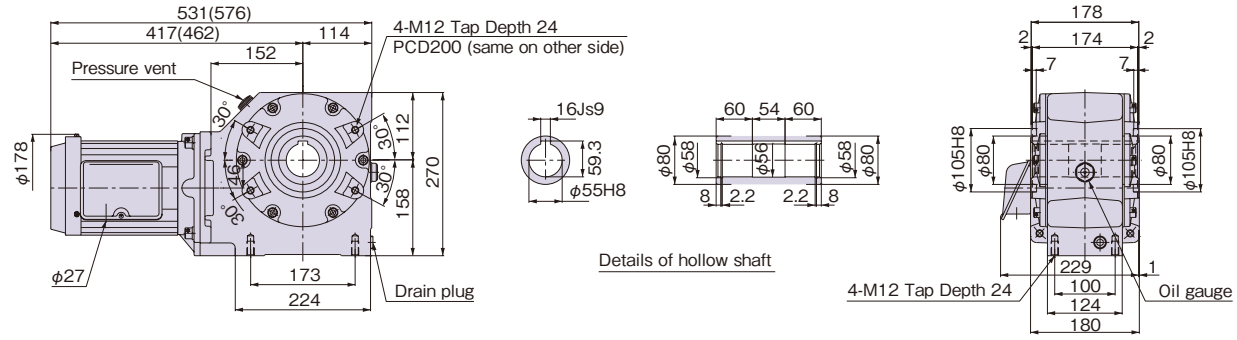
Note: The values in parentheses are for brake-equipped models.

Outline Dimensions

HCMR075-401H180 – 200 (B)

5

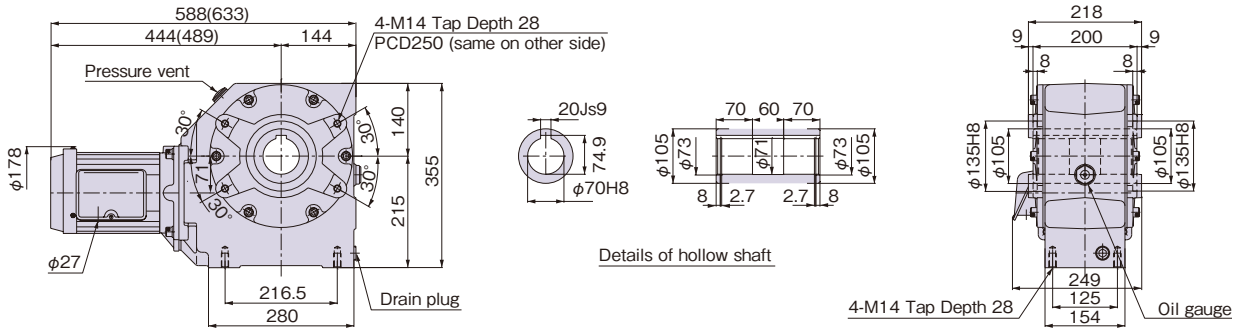
Reduction ratio : 180, 200	Approx. weight : 60 (63) kg



HCMR075-501H240 – 300 (B)

6

Reduction ratio : 240, 300	Approx. weight : 97 (100) kg



Note: The values in parentheses are for brake-equipped models.

Notes

Specification Chart

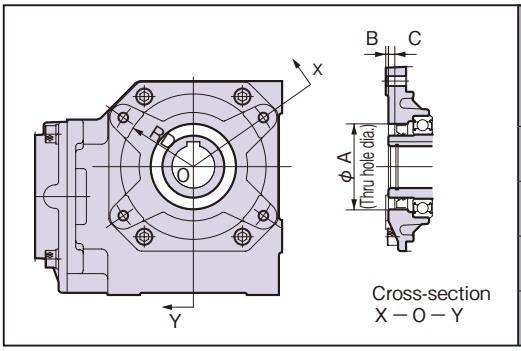
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
1.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1440/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E (Class B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}	N	{kgf}	
						50Hz	60Hz	50Hz		60Hz				
CSMR150	10	1.5	1/10	1	28	150	180	86.8	{ 8.8}	72.4	{ 7.4}	3610	{ 368 }	1
	15		1/15			100	120	125	{ 12.7}	105	{ 10.7}	3610	{ 368 }	
	20		1/20			75	90	162	{ 16.5}	136	{ 13.9}	4350	{ 444 }	
	25		1/25			60	72	196	{ 20.0}	165	{ 16.8}	4350	{ 444 }	
	30		1/30			50	60	223	{ 22.7}	189	{ 19.3}	4800	{ 490 }	
	40		1/40		32	37.5	45	289	{ 29.4}	246	{ 25.0}	7240	{ 739 }	2
	50		1/50			30	36	321	{ 32.8}	292	{ 29.8}	7680	{ 784 }	
	60		1/60			25	30	321	{ 32.8}	292	{ 29.8}	8280	{ 845 }	
HCMR150	40		1/40	2	32	37.5	45	317	{ 32.4}	267	{ 27.2}	7240	{ 739 }	3
	50		1/50			30	36	392	{ 40.0}	330	{ 33.7}	7680	{ 784 }	
	60		1/60		40	25	30	460	{ 46.9}	388	{ 39.5}	10620	{1084 }	4
	75		1/75			20	24	567	{ 57.8}	478	{ 48.7}	11660	{1190 }	
	90		1/90			16.7	20	652	{ 66.5}	551	{ 56.2}	11810	{1205 }	
	100		1/100			15	18	719	{ 73.3}	607	{ 62.0}	11810	{1205 }	
	120		1/120			12.5	15	744	{ 75.9}	674	{ 68.8}	11810	{1205 }	
	150		1/150		50	10	12	988	{101 }	840	{ 85.7}	16680	{1702 }	5
	180		1/180			8.3	10	1126	{115 }	959	{ 97.8}	16680	{1702 }	
	200		1/200			7.5	9	1236	{126 }	1052	{107 }	16680	{1702 }	
	240		1/252			5.95	7.14	1607	{164 }	1362	{139 }	16680	{1702 }	
	300		1/315			4.76	5.71	1980	{202 }	1676	{171 }	16680	{1702 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.

Output Housing Dimensions



Frame number	Thru hole ϕA (H8)	B	C	RD
28	80	2.5	5	67
32	92	5.0	5	66
40	105	2.0	7	86
50	135	9.0	8	107

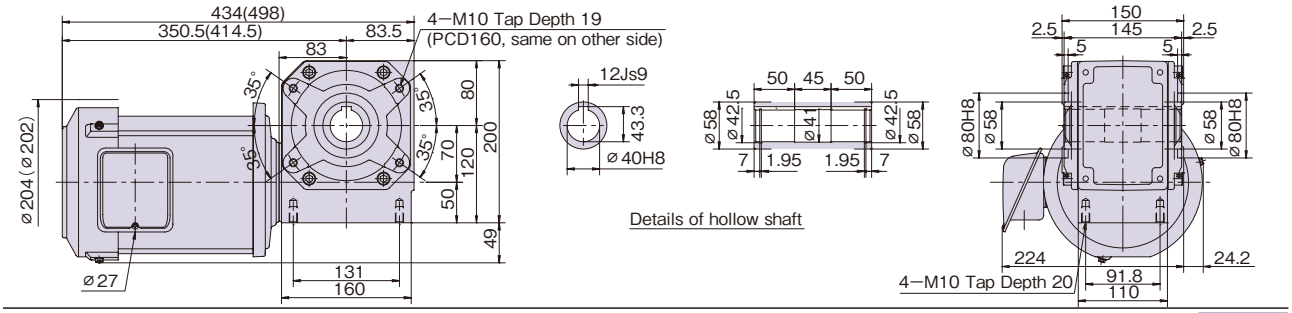
Outline Dimensions

CSMR150-280H10 – 30 (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 32(37)kg

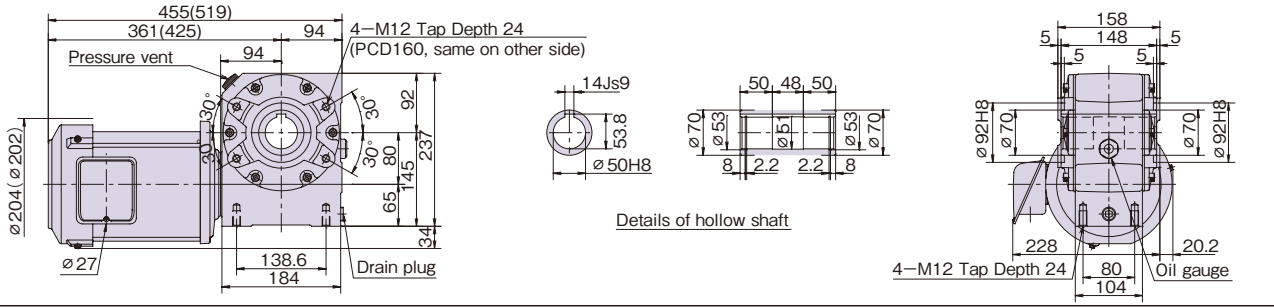


CSMR150-321H40 – 60 (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 44(49)kg

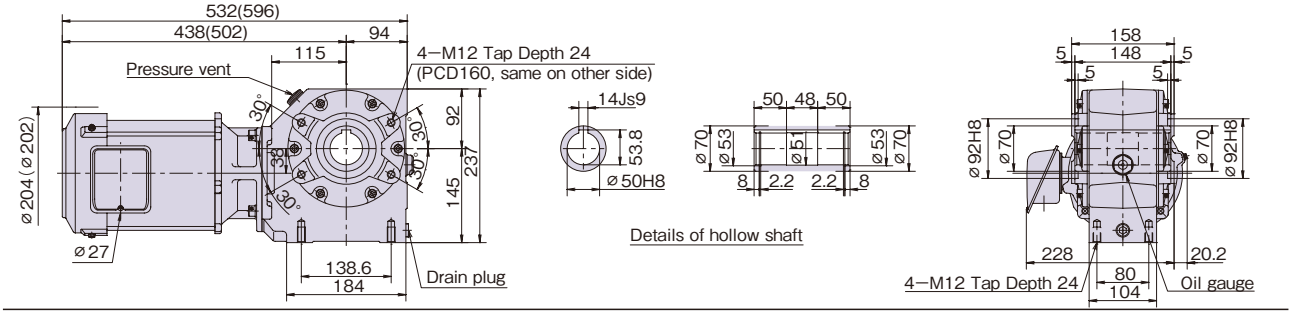


HCMR150-321H40 – 50 (B)

3

Reduction ratio : 40, 50

Approx. weight : 48(53)kg

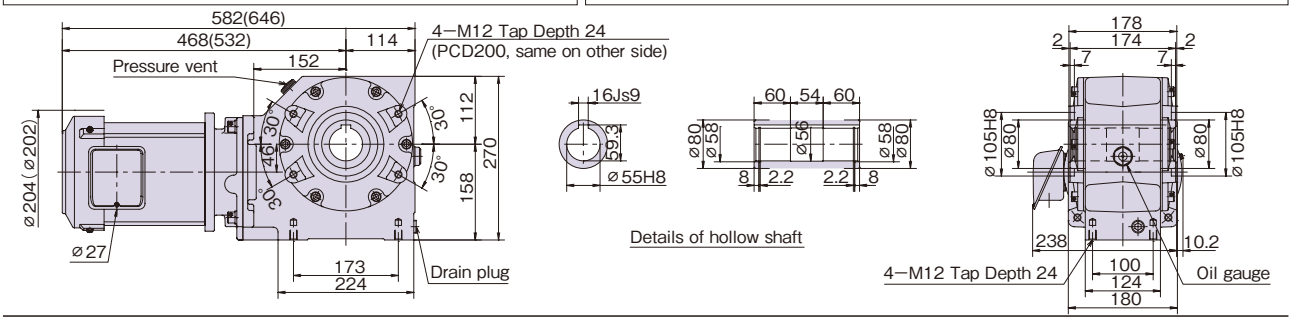


HCMR150-401H60 – 120 (B)

4

Reduction ratio : 60, 75, 90, 100, 120

Approx. weight : 67(72)kg

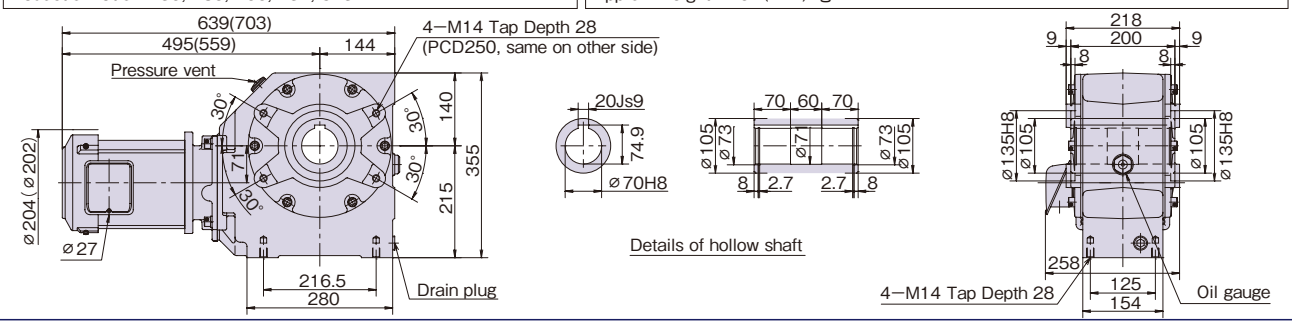


HCMR150-501H150 – 300 (B)

5

Reduction ratio : 150, 180, 200, 252, 315

Approx. weight : 107(112)kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

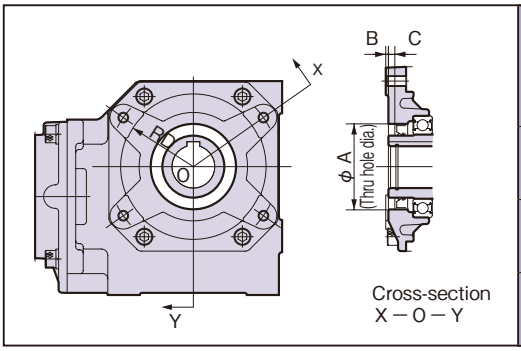
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
2.2kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E (Class B)	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}	N	{kgf}	
						50Hz	60Hz	50Hz		60Hz				
CSMR220	10	2.2	1/10	1	32	150	180	128	{ 13.1}	108	{ 11.0}	4670	{ 476 }	1
	15		1/15			100	120	185	{ 18.9}	160	{ 16.3}	4670	{ 476 }	
	20		1/20			75	90	240	{ 24.5}	203	{ 20.7}	5640	{ 575 }	
	25		1/25			60	72	301	{ 30.7}	253	{ 25.8}	5640	{ 575 }	
	30		1/30			50	60	335	{ 34.1}	284	{ 28.9}	6250	{ 637 }	
	40		1/40		40	37.5	45	436	{ 44.4}	370	{ 37.7}	9370	{ 955 }	2
	50		1/50			30	36	524	{ 53.5}	446	{ 45.5}	9940	{1010 }	
	60		1/60			25	30	532	{ 54.3}	474	{ 48.3}	10600	{1010 }	
HCMR220	40		1/40	2	40	37.5	45	473	{ 48.3}	398	{ 40.6}	9360	{ 955 }	3
	50		1/50			30	36	585	{ 59.7}	492	{ 50.2}	9940	{1014 }	
	60		1/60			25	30	674	{ 68.8}	568	{ 58.0}	10590	{1081 }	
	75		1/75			20	24	751	{ 76.6}	701	{ 71.5}	10590	{1081 }	
	90		1/90		50	16.7	20	980	{100 }	827	{ 84.4}	16680	{1702 }	4
	100		1/100			15	18	1081	{110 }	912	{ 93.1}	16680	{1702 }	
	120		1/120			12.5	15	1187	{121 }	1008	{103 }	16680	{1702 }	
	150		1/150			10	12	1400	{143 }	1231	{126 }	16680	{1702 }	
	180		1/180			8.3	10	1980	{202 }	1666	{170 }	16680	{1702 }	
	200		1/200			7.5	9	2195	{224 }	1842	{188 }	16680	{1702 }	
	240		1/252			5.95	7.14	2489	{254 }	2097	{214 }	16680	{1702 }	
	300		1/315			4.76	5.71	※2607	※{266 }	2587	{264 }	16680	{1702 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

Output Housing Dimensions



Cross-section X — O — Y

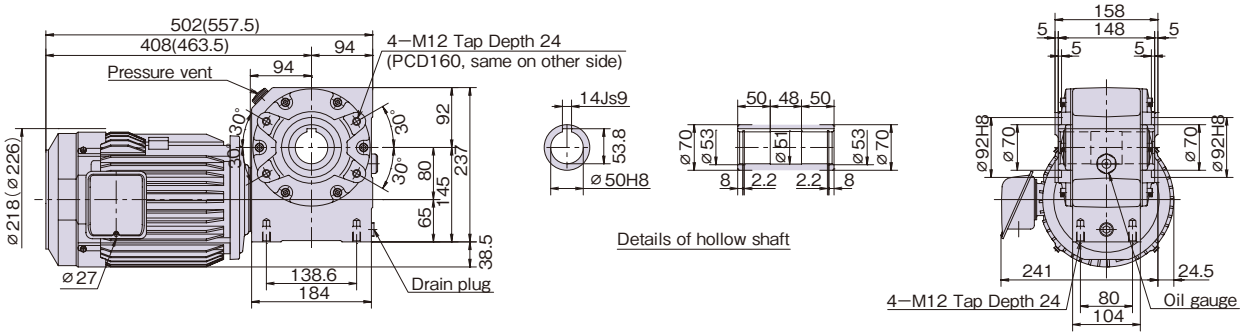
Frame number	Thru hole ϕA (H8)	B	C	RD
32	92	5.0	5	66
40	105	2.0	7	86
50	135	9.0	8	107

Outline Dimensions

CSMR220-321H10 – 30 (B)

1

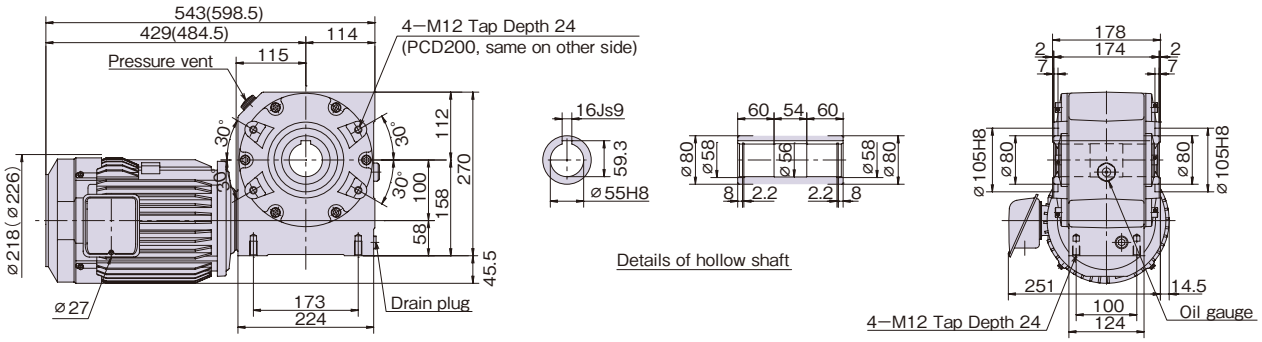
Reduction ratio : 10, 15, 20, 25, 30	Approx. weight : 54 (59) kg



CSMR220-401H40 – 60 (B)

2

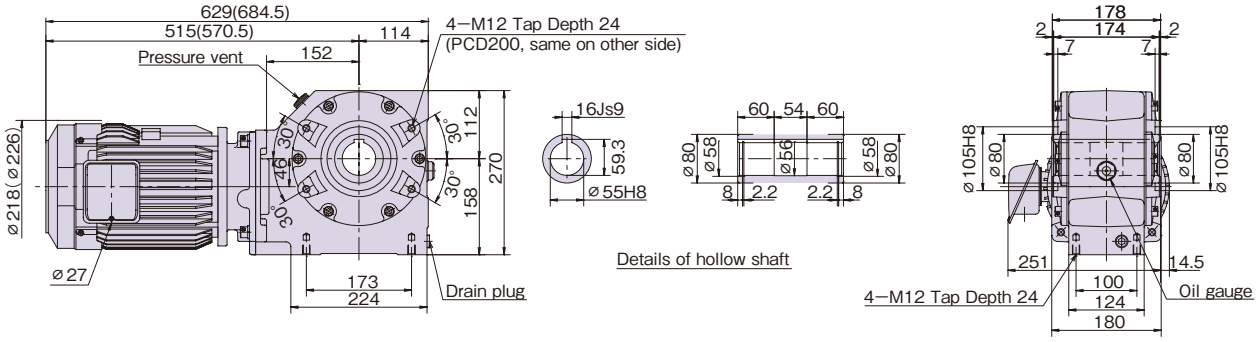
Reduction ratio : 40, 50, 60	Approx. weight : 66 (71) kg



HCMR220-401H40 – 75 (B)

3

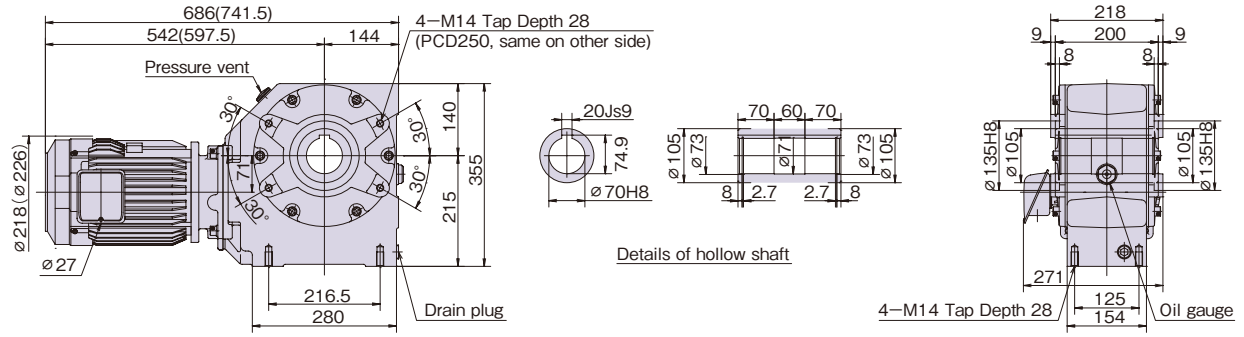
Reduction ratio : 40, 50, 60, 75	Approx. weight : 77 (82) kg



HCMR220-501H90 – 300 (B)

4

Reduction ratio : 90, 100, 120, 150, 180, 200, 252, 315	Approx. weight : 117 (122) kg



Note: The values in parentheses are for brake-equipped models.

Specification Chart

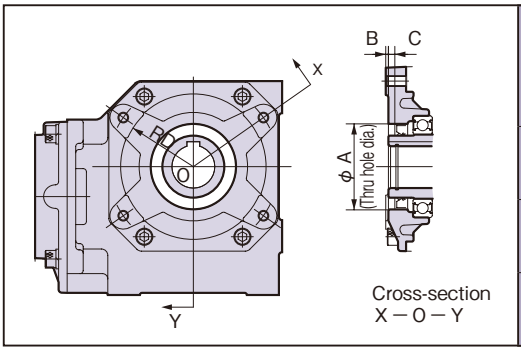
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
3.7kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1455/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E (Class B)	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}	N	{kgf}	
						50Hz	60Hz	50Hz		60Hz				
CSMR370	10	3.7	1/10	1	40	150	180	218	{ 22.3}	183	{ 18.6}	5890	{ 601 }	1
	15		1/15			100	120	317	{ 32.3}	266	{ 27.1}	5890	{ 601 }	
	20		1/20			75	90	411	{ 41.9}	346	{ 35.3}	7120	{ 726 }	
	25		1/25			60	72	503	{ 51.3}	424	{ 43.2}	7120	{ 726 }	
	30		1/30			50	60	579	{ 59.1}	491	{ 50.0}	7860	{ 801 }	
	40		1/40		50	37.5	45	755	{ 77.0}	640	{ 65.3}	15900	{1620 }	2
	50		1/50			30	36	857	{ 87.4}	767	{ 78.3}	16700	{1700 }	
	60		1/60			25	30	857	{ 87.4}	795	{ 81.1}	16700	{1700 }	
HCMR370	40		1/40	2	50	37.5	45	803	{ 81.9}	675	{ 68.9}	15920	{1624 }	3
	50		1/50			30	36	993	{101 }	835	{ 85.2}	16680	{1702 }	
	60		1/60			25	30	1148	{117 }	967	{ 98.7}	16680	{1702 }	
	75		1/75			20	24	1363	{139 }	1192	{122 }	16680	{1702 }	
	90		1/90			16.7	20	1833	{187 }	1539	{157 }	16680	{1702 }	
	100		1/100			15	18	2029	{207 }	1705	{174 }	16680	{1702 }	
	120		1/126			11.9	14.3	2421	{247 }	2029	{207 }	16680	{1702 }	
	150		1/157.5			9.5	11.4	*2607	*{266 }	2519	{257 }	16680	{1702 }	
	180		1/180			8.3	10	*2607	*{266 }	*2607	*{266 }	16680	{1702 }	
	200		1/200			7.5	9	*2607	*{266 }	*2607	*{266 }	16680	{1702 }	
	240		1/252			5.95	7.14	*2607	*{266 }	*2607	*{266 }	16680	{1702 }	
	300		1/315			4.76	5.71	*2607	*{266 }	*2607	*{266 }	16680	{1702 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

Output Housing Dimensions



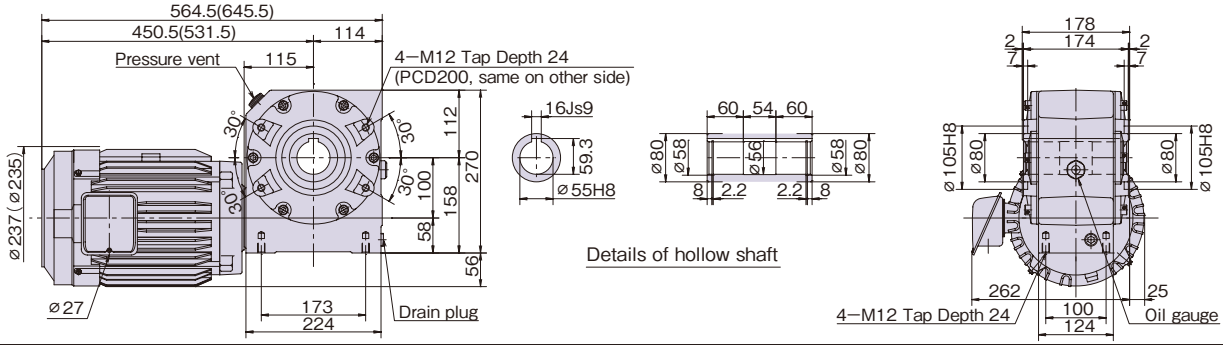
Frame number	Thru hole ϕA (H8)	B	C	RD
32	92	5.0	5	66
40	105	2.0	7	86
50	135	9.0	8	107

Outline Dimensions

CSMR370-401H10 – 30 (B)

1

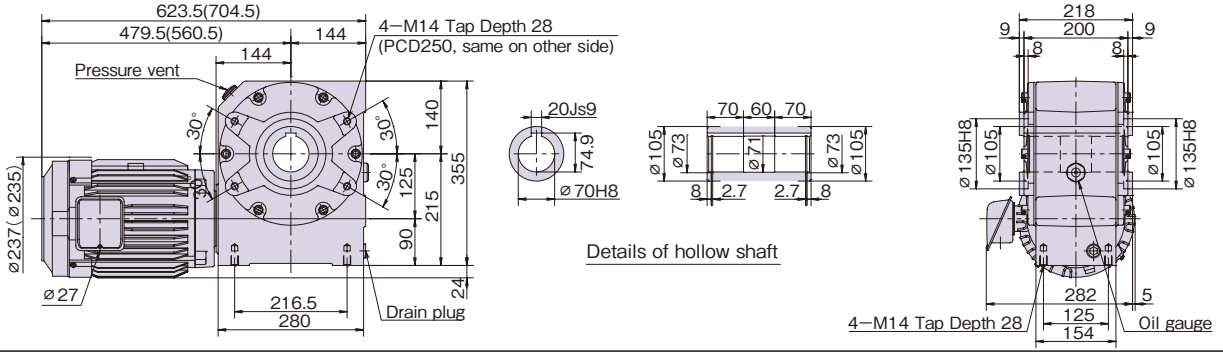
Reduction ratio : 10, 15, 20, 25, 30 | Approx. weight : 76(86)kg



CSMR370-501H40 – 60 (B)

2

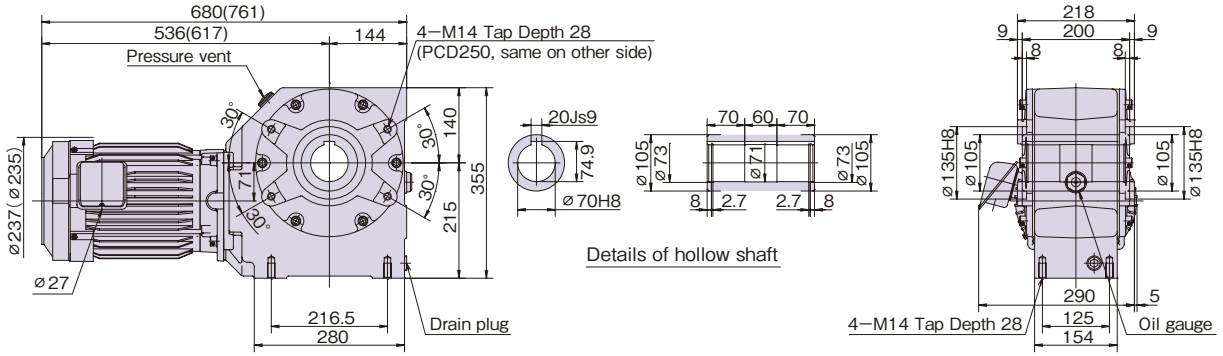
Reduction ratio : 40, 50, 60 | Approx. weight : 112(122)kg



HCMR370-501H40 – 300 (B)

3

Reduction ratio : 40, 50, 60, 75, 90, 100, 126, 157.5, 180, 200, 315 | Approx. weight : 129(139)kg



Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: On 400 V-class brake-equipped models, the DC module (HD-120MH1) is placed separately. See page 217 for dimensions.

Specification Chart

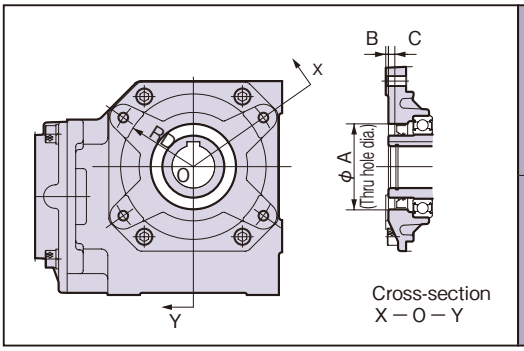
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
5.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	22.6/20.8/20.0 (11.3/11.3/10.4/10.0)	1465/1760/1765 (1460/1465/1760/1765)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR550	10	5.5	1/10	1	50	150	180	326	{ 33.3}	273	{ 27.9}	10220	{ 1043 }	1
	15		1/15			100	120	476	{ 48.5}	399	{ 40.8}	11530	{ 1177 }	
	20		1/20			75	90	621	{ 63.4}	522	{ 53.3}	12500	{ 1276 }	
	25		1/25			60	72	758	{ 77.3}	638	{ 65.1}	13300	{ 1358 }	
	30		1/30			50	60	876	{ 89.4}	740	{ 75.5}	13990	{ 1428 }	
HCMR550	40		1/41	2	50	36.59	43.9	※981	{※100 }	※981	{※100 }	15920	{ 1624 }	2
	50		1/51.25			29.27	35.12	※1146	{※117 }	※1146	{※117 }	16680	{ 1702 }	
	75		1/80			18.75	22.5	※1836	{※187 }	※1836	{※187 }	16680	{ 1702 }	
	90		1/90			16.67	20	※2058	{※210 }	※2058	{※210 }	16680	{ 1702 }	
	100		1/100			15	18	※2136	{※218 }	※2137	{※218 }	16680	{ 1702 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: The models marked with ※ are ones for which torque is limited.

Output Housing Dimensions



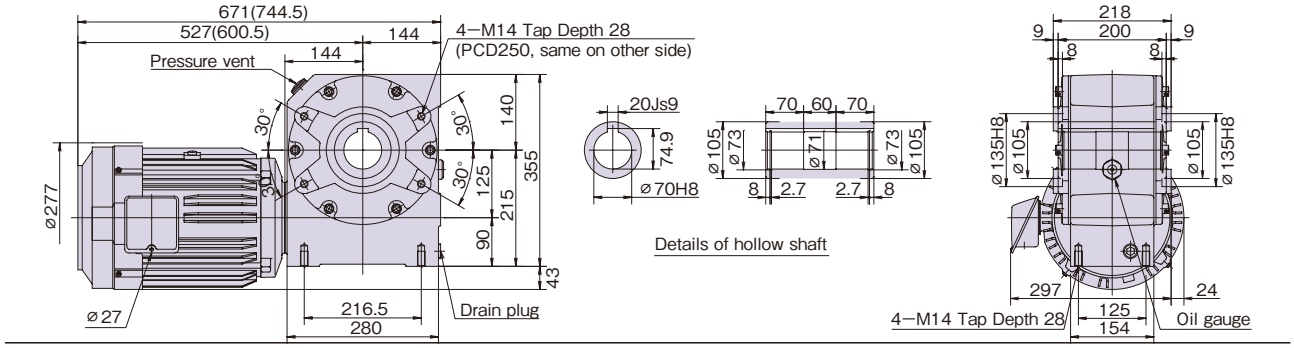
Frame number	Thru hole ϕA (H8)	B	C	RD
50	135	9.0	8	107

Outline Dimensions

CSMR550-501H10 – 30(B)

1

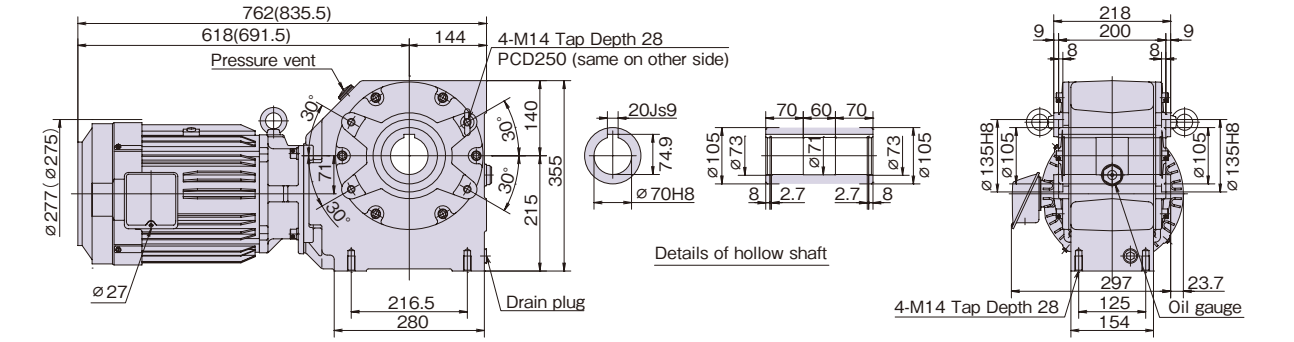
Reduction ratio : 10, 15, 20, 25, 30	Approx. weight : 130(145)kg



HCMR550-501H40 – 100(B)

2

Reduction ratio : 41, 51.25, 80, 90, 100	Approx. weight : 147(162)kg



Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: On 400 V-class brake-equipped models, the DC module (HD-120MH1) is placed separately. See page 217 for dimensions.

Specification Chart

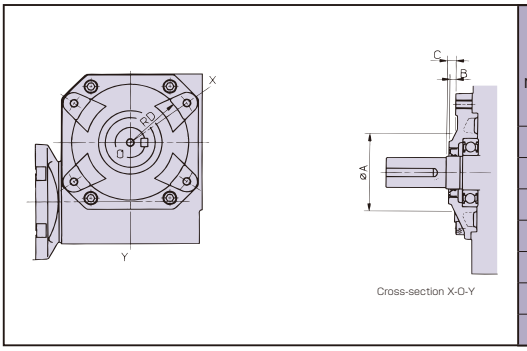
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.1kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	Totally enclosed (IP44)	Self managed (IC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA010	10	0.1	1/10	1	13	150	180	5.5	{ 0.56}	4.6	{ 0.47}	1350	{ 138 }	1
	15		1/15			100	120	7.8	{ 0.78}	6.6	{ 0.67}	1350	{ 138 }	
	20		1/20			75	90	10.0	{ 1.0 }	8.4	{ 0.86}	1550	{ 158 }	
	25		1/25			60	72	11.8	{ 1.2 }	10.0	{ 1.0 }	1550	{ 158 }	
	30		1/30			50	60	13.3	{ 1.4 }	11.4	{ 1.2 }	1550	{ 158 }	
	40		1/40			37.5	45	16.5	{ 1.7 }	14.1	{ 1.4 }	1550	{ 158 }	
	50		1/50			30	36	19.3	{ 2.0 }	16.6	{ 1.7 }	1550	{ 158 }	
	60		1/60			25	30	21.3	{ 2.2 }	18.3	{ 1.9 }	1550	{ 158 }	
HCMA010	40		1/40	2	16	37.5	45	20.0	{ 2.0 }	17.0	{ 1.7 }	2470	{ 252 }	2
	50		1/50			30	36	25.0	{ 2.5 }	21.0	{ 2.1 }	2470	{ 252 }	
	60		1/60			25	30	28.0	{ 2.9 }	24.0	{ 2.4 }	2470	{ 252 }	
	75		1/75			20	24	35.0	{ 3.5 }	29.0	{ 3.0 }	2470	{ 252 }	
	90		1/90			16.7	20	39.0	{ 3.9 }	33.0	{ 3.3 }	2470	{ 252 }	
	100		1/100			15	18	43.0	{ 4.3 }	36.0	{ 3.7 }	2470	{ 252 }	
	120		1/120			12.5	15	46.0	{ 4.7 }	39.0	{ 4.0 }	2470	{ 252 }	
	150		1/150			10	12	56.0	{ 5.7 }	47.0	{ 4.8 }	2470	{ 252 }	
	180		1/180			8.3	10	59.8	{ 6.1}	51.0	{ 5.2 }	2470	{ 252 }	
	200		1/200			7.5	9	60.3	{ 6.2 }	56.0	{ 5.7 }	2470	{ 252 }	
	240		1/240		22	6.3	7.5	76.0	{ 7.8 }	65.0	{ 6.6 }	3730	{ 381 }	3
	300		1/300			5	6	92.0	{ 9.4 }	79.0	{ 8.0 }	3730	{ 381 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Output Housing Dimensions



Frame number	Thru hole ϕA (H8)	B	C	RD
13	49	7.5	10	34
16	59.5	10	13	40.5
22	79	6.5	10	54
28	91	7	10	67
32	—	− 5	0	66
40	—	− 2	− 1	86
50	—	− 9	− 4	107

Note: The ϕA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

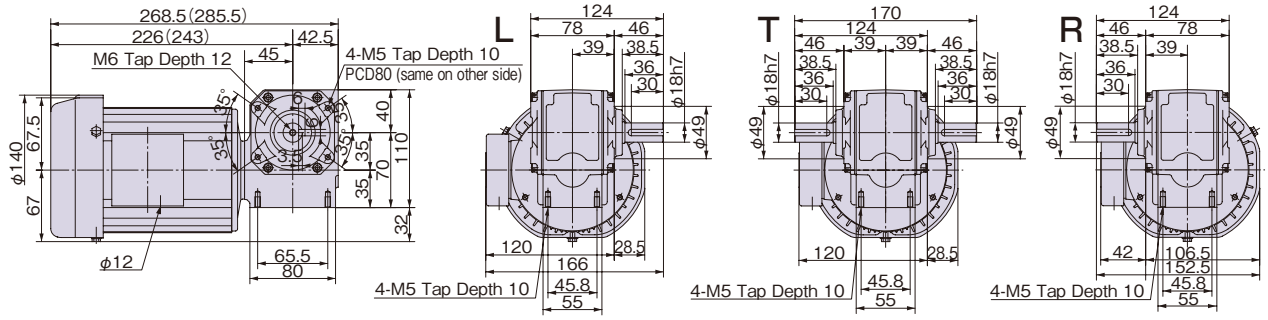
Outline Dimensions

CSMA010-130U10 – 60$^{L}_{R}$(B)

1

Reduction ratio : 10, 15, 20, 25, 30, 40, 50, 60

Approx. weight : 6.7 (8.7) kg

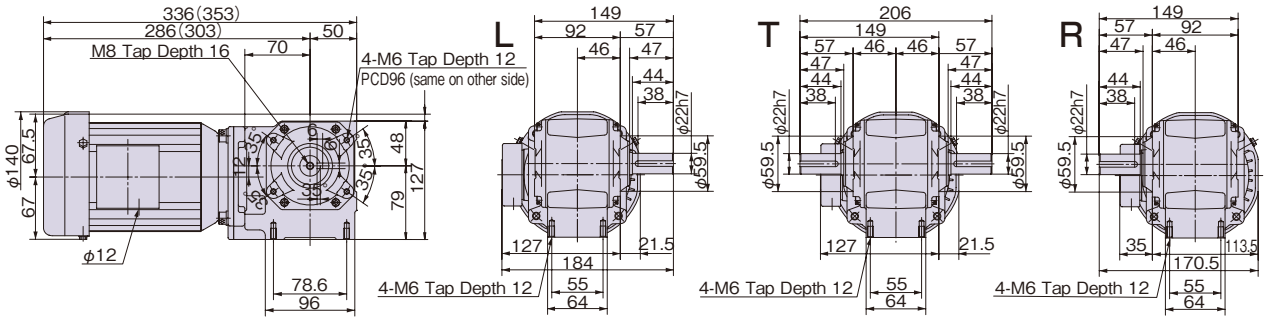


HCMA010-160U40 – 200$^{L}_{R}$(B)

2

Reduction ratio : 40, 50, 60, 75, 90, 100, 120, 150, 180, 200

Approx. weight : 10.4 (12.4) kg

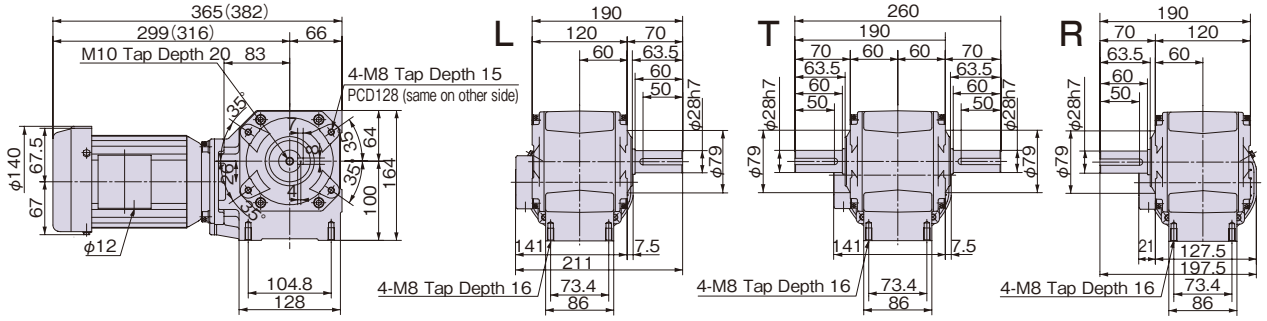


HCMA010-220U240 – 300$^{L}_{R}$(B)

3

Reduction ratio : 240, 300

Approx. weight : 15.2 (17.2) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

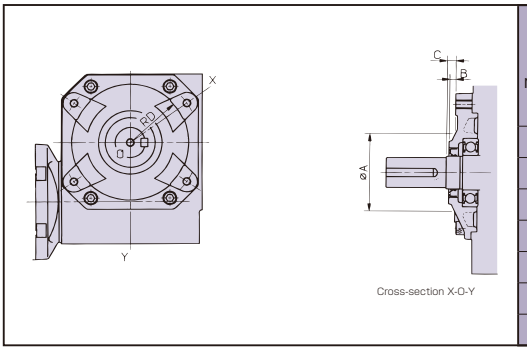
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.2kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA020	10	0.2	1/10	1	13	150	180	11.1	{ 1.1 }	9.3	{ 1.0 }	1350	{ 138 }	1
	15		1/15			100	120	15.7	{ 1.6 }	13.2	{ 1.3 }	1350	{ 138 }	
	20		1/20			75	90	20.0	{ 2.0 }	17.0	{ 1.7 }	1550	{ 158 }	
	25		1/25			60	72	23.5	{ 2.4 }	20.1	{ 2.0 }	1550	{ 158 }	
	30		1/30			50	60	26.6	{ 2.7 }	22.7	{ 2.3 }	1550	{ 158 }	
	40		1/40		16	37.5	45	33.8	{ 3.5 }	28.9	{ 3.0 }	2130	{ 217 }	2
	50		1/50			30	36	39.7	{ 4.1 }	34.1	{ 3.5 }	2250	{ 229 }	
	60		1/60			25	30	45.0	{ 4.6 }	38.7	{ 4.0 }	2350	{ 240 }	
HCMA020	40		1/40	2	16	37.5	45	40.0	{ 4.1 }	34.0	{ 3.4 }	2470	{ 252 }	3
	50		1/50			30	36	50.0	{ 5.1 }	42.0	{ 4.3 }	2470	{ 252 }	
	60		1/60			25	30	56.0	{ 5.7 }	47.0	{ 4.8 }	2470	{ 252 }	
	75		1/75			20	24	59.0	{ 6.1 }	58.0	{ 6.0 }	2470	{ 252 }	
	90		1/90		22	16.7	20	81.0	{ 8.3 }	68.0	{ 7.0 }	3730	{ 381 }	4
	100		1/100			15	18	89.0	{ 9.1 }	75.0	{ 7.7 }	3730	{ 381 }	
	120		1/120			12.5	15	97.0	{ 9.9 }	82.0	{ 8.4 }	3730	{ 381 }	
	150		1/150			10	12	118.0	{12.0 }	100.0	{10.2 }	3730	{ 381 }	
	180		1/180			8.3	10	129.0	{13.1 }	110.0	{11.2 }	3730	{ 381 }	
	200		1/200			7.5	9	139.0	{14.2 }	120.0	{12.3 }	3730	{ 381 }	
	240		1/240		28	6.3	7.5	161.0	{16.4 }	138.0	{14.1 }	5150	{ 526 }	5
	300		1/300			5	6	195.0	{19.9 }	167.0	{17.0 }	5150	{ 526 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Output Housing Dimensions



Frame number	Thru hole øA (H8)	B	C	RD
13	49	7.5	10	34
16	59.5	10	13	40.5
22	79	6.5	10	54
28	91	7	10	67
32	—	−5	0	66
40	—	−2	−1	86
50	—	−9	−4	107

Note: The øA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

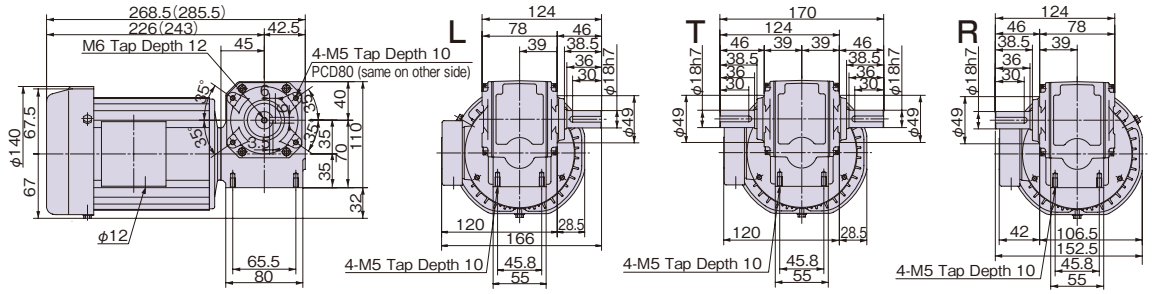
Outline Dimensions

CSMA020-130U10 – 30$^{L}_{R}$ (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 8 (10) kg

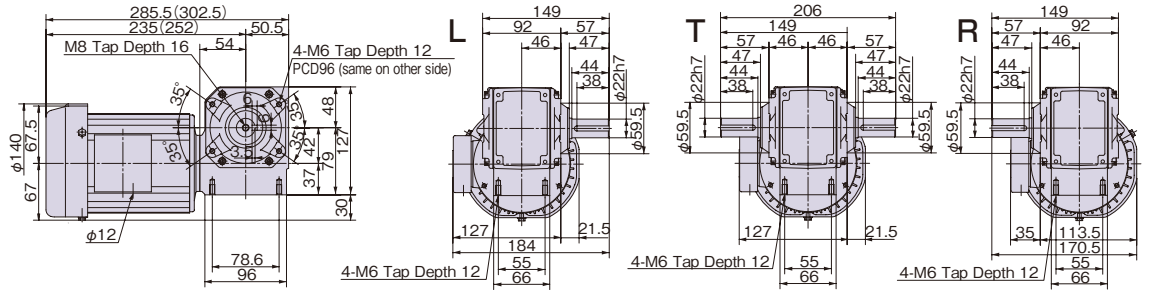


CSMA020-160U40 – 60$^{L}_{R}$ (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 9 (11) kg

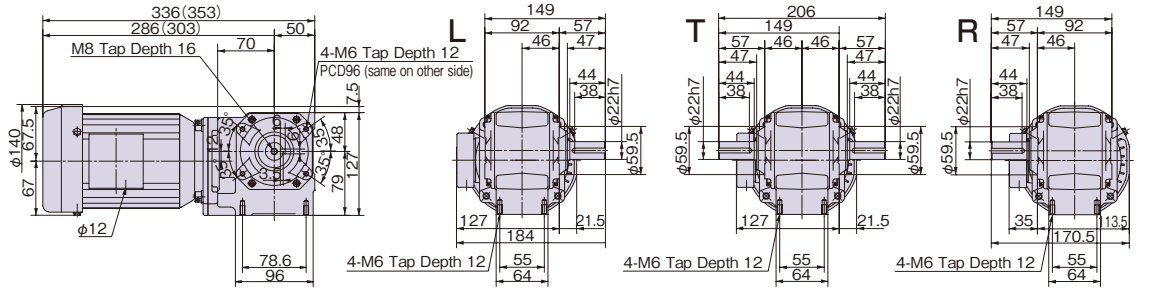


HCMA020-160U40 – 75$^{L}_{R}$ (B)

3

Reduction ratio : 40, 50, 60, 75

Approx. weight : 11.7 (13.7) kg

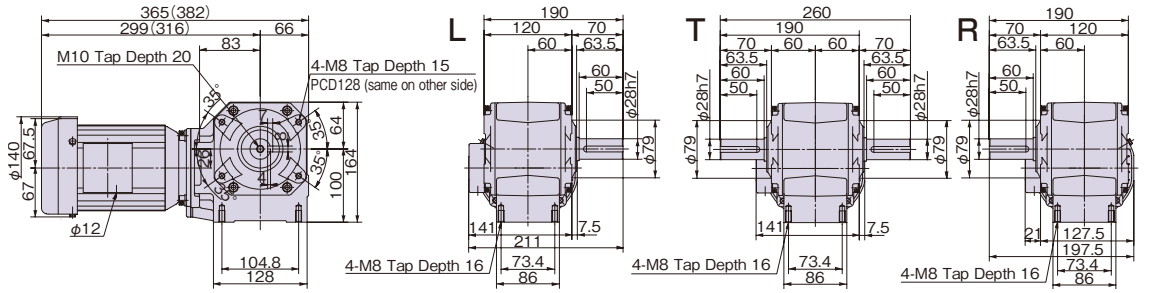


HCMA020-220U90 – 200$^{L}_{R}$ (B)

4

Reduction ratio : 90, 100, 120, 150, 180, 200

Approx. weight : 15.5 (17.5) kg

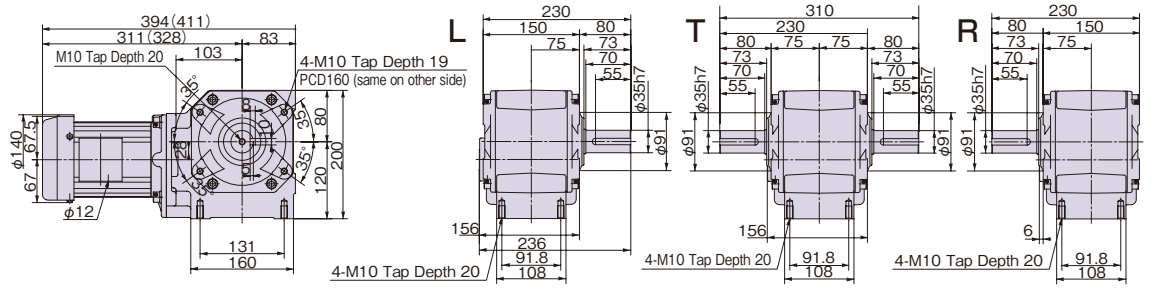


HCMA020-280U240 – 300$^{L}_{R}$ (B)

5

Reduction ratio : 240, 300

Approx. weight : 24.1 (26.1) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

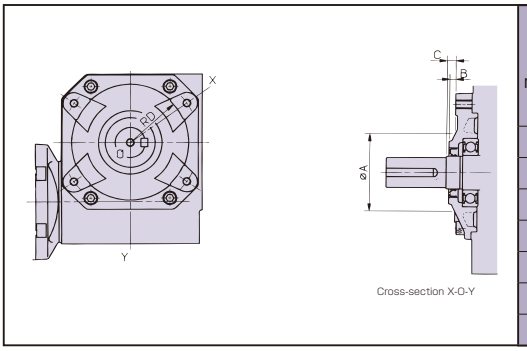
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.4kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA040	10	0.4	1/10	1	16	150	180	22.3	{ 2.3}	18.7	{ 1.9}	1400	{ 143 }	1
	15		1/15			100	120	31.4	{ 3.2}	26.7	{ 2.7}	1400	{ 143 }	
	20		1/20			75	90	40.5	{ 4.1}	34.3	{ 3.5}	1660	{ 169 }	
	25		1/25			60	72	46.1	{ 4.7}	41.2	{ 4.2}	1660	{ 169 }	
	30		1/30			50	60	54.3	{ 5.5}	46.4	{ 4.7}	1880	{ 192 }	
	40		1/40		22	37.5	45	72.1	{ 7.4}	61.5	{ 6.3}	3740	{ 381 }	2
	50		1/50			30	36	85.3	{ 8.7}	73.1	{ 7.5}	3740	{ 381 }	
	60		1/60			25	30	97.5	{ 9.9}	83.7	{ 8.5}	3740	{ 381 }	
HCMA040	40		1/40	2	22	37.5	45	82.0	{ 8.4}	69.0	{ 7.1}	3730	{ 381 }	3
	50		1/50			30	36	102	{10.4}	86.0	{ 8.7}	3730	{ 381 }	
	60		1/60			25	30	116	{11.8}	98.0	{10.0}	3730	{ 381 }	
	75		1/75			20	24	138	{14.0}	121	{12.3}	3730	{ 381 }	
	90		1/90		28	16.7	20	167	{17.0}	141	{14.4}	5150	{ 526 }	4
	100		1/100			15	18	184	{18.8}	155	{15.9}	5150	{ 526 }	
	120		1/120			12.5	15	197	{20.1}	167	{17.1}	5150	{ 526 }	
	150		1/150			10	12	240	{24.5}	204	{20.8}	5150	{ 526 }	
	180		1/180			8.3	10	270	{27.5}	230	{23.4}	5150	{ 526 }	
	200		1/200			7.5	9	280	{28.6}	252	{25.7}	5150	{ 526 }	
	240		1/240		32	6.3	7.5	337	{34.4}	288	{29.4}	9760	{ 996 }	5
	300		1/300			5	6	362	{37.0}	349	{35.6}	9760	{ 996 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Output Housing Dimensions



Frame number	Thru hole ϕA (H8)	B	C	RD
13	49	7.5	10	34
16	59.5	10	13	40.5
22	79	6.5	10	54
28	91	7	10	67
32	—	− 5	0	66
40	—	− 2	− 1	86
50	—	− 9	− 4	107

Note: The ϕA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

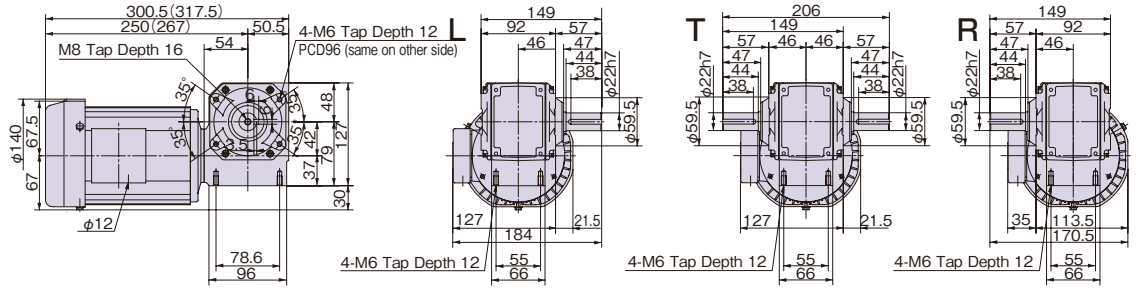
Outline Dimensions

CSMA040-160U10 – 30 $\frac{L}{R}$ (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 10 (12) kg

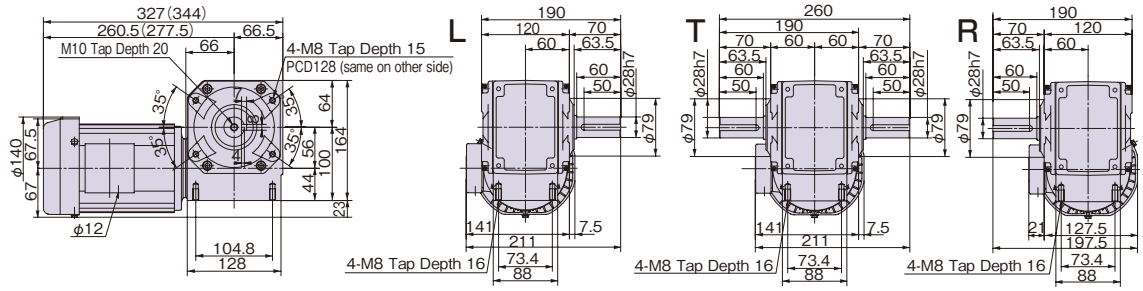


CSMA040-220U40 – 60 $\frac{L}{R}$ (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 13 (16) kg

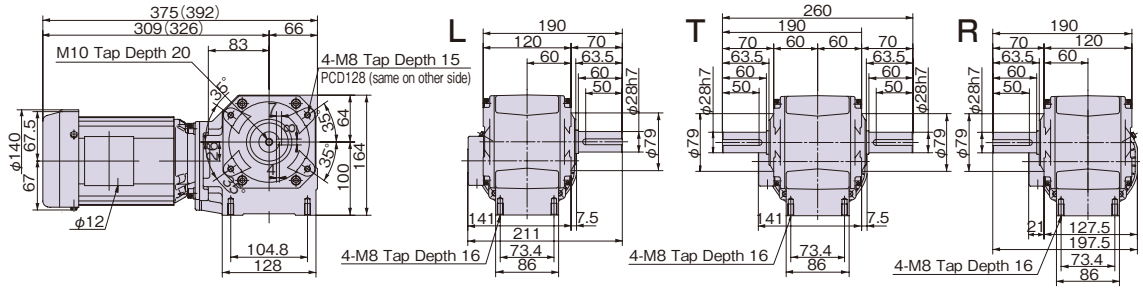


HCMA040-220U40 – 75 $\frac{L}{R}$ (B)

3

Reduction ratio : 40, 50, 60, 75

Approx. weight : 16.5 (18.5) kg

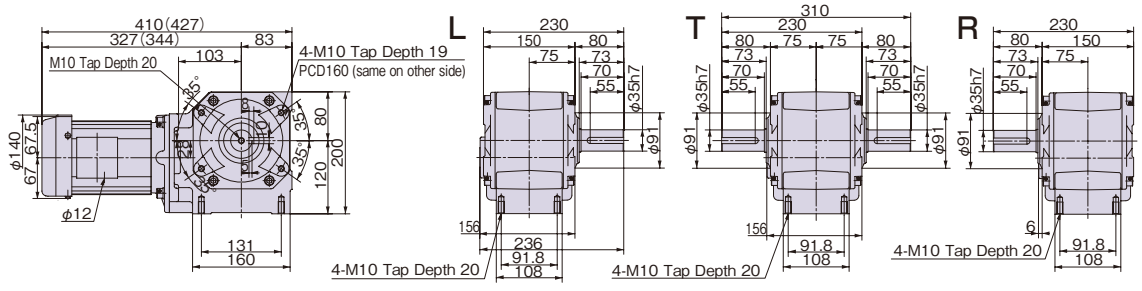


HCMA040-280U90 – 200 $\frac{L}{R}$ (B)

4

Reduction ratio : 90, 100, 120, 150, 180, 200

Approx. weight : 26.1 (28.1) kg

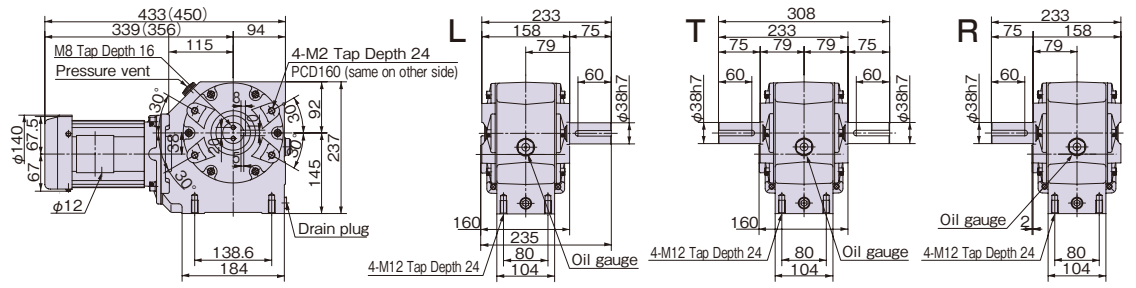


HCMA040-321U240 – 300 $\frac{L}{R}$ (B)

5

Reduction ratio : 240, 300

Approx. weight : 34.1 (36.1) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

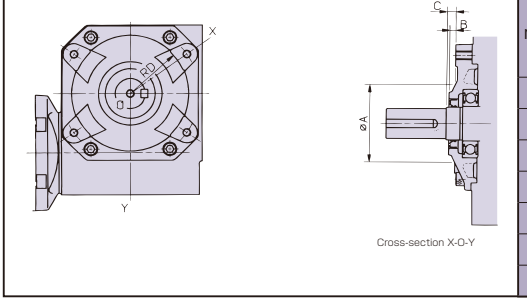
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.55kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.9/2.6/2.5 (1.45/1.3/1.3)	1380/1650/1690 (1380/1650/1690)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 100%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA055	10	0.55	1/10	1	16	150	180	30.6	{ 3.1}	25.8	{ 2.6}	1400	{ 143 }	1
	15		1/15			100	120	43.6	{ 4.4}	36.7	{ 3.7}	1400	{ 143 }	
	20		1/20			75	90	55.7	{ 5.7}	47.2	{ 4.8}	1660	{ 169 }	
	25		1/25			60	72	60.6	{ 6.2}	55.9	{ 5.7}	1660	{ 169 }	
	30		1/30			50	60	60.5	{ 6.2}	56.2	{ 5.7}	1880	{ 192 }	
	40		1/40		22	37.5	45	99.0	{10.1}	84.5	{ 8.6}	3740	{ 381 }	2
	50		1/50			30	36	117	{11.9}	100	{10.2}	3740	{ 381 }	
	60		1/60			25	30	117	{11.9}	108	{11.1}	3740	{ 381 }	
HCMA055	40		1/40	2	22	37.5	45	113	{11.6}	95.0	{ 9.7}	3730	{ 381 }	3
	50		1/50			30	36	130	{13.3}	118	{12.0}	3730	{ 381 }	
	60		1/60		28	25	30	161	{16.5}	136	{13.9}	5150	{ 526 }	4
	75		1/75			20	24	199	{20.3}	168	{17.1}	5150	{ 526 }	
	90		1/90			16.7	20	229	{23.4}	194	{19.8}	5150	{ 526 }	
	100		1/100			15	18	253	{25.8}	214	{21.8}	5150	{ 526 }	
	120		1/120			12.5	15	270	{27.6}	230	{23.5}	5150	{ 526 }	
	150		1/150			10	12	292	{29.8}	280	{28.6}	5150	{ 526 }	
	180		1/180		32	8.3	10	383	{39.1}	327	{33.3}	9760	{ 996 }	5
	200		1/200			7.5	9	419	{42.8}	358	{36.6}	9760	{ 996 }	
	240		1/240		40	6.3	7.5	484	{49.4}	414	{42.2}	12210	{ 1246 }	6
	300		1/300			5	6	587	{59.9}	501	{51.1}	12210	{ 1246 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Output Housing Dimensions



Frame number	Thru hole øA (H8)	B	C	RD
13	49	7.5	10	34
16	59.5	10	13	40.5
22	79	6.5	10	54
28	91	7	10	67
32	—	−5	0	66
40	—	−2	−1	86
50	—	−9	−4	107

Note: The øA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

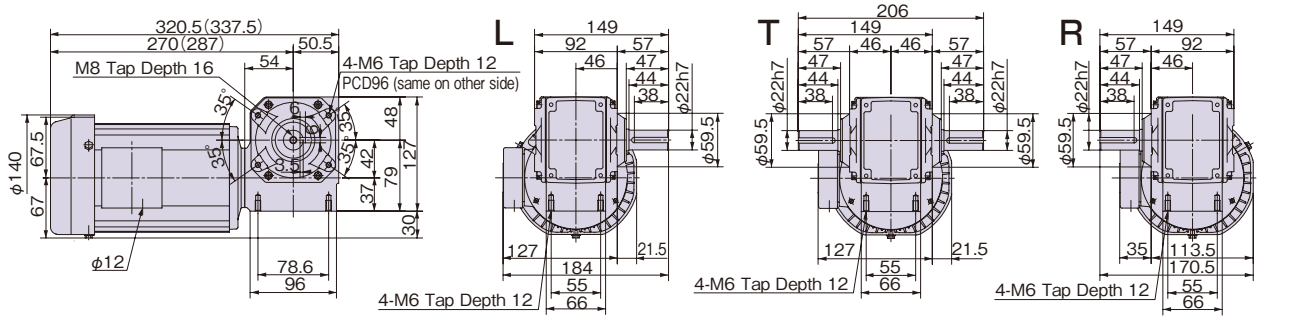
Outline Dimensions

CSMA055-160U10 – 30 L/T/R (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 11 (13) kg

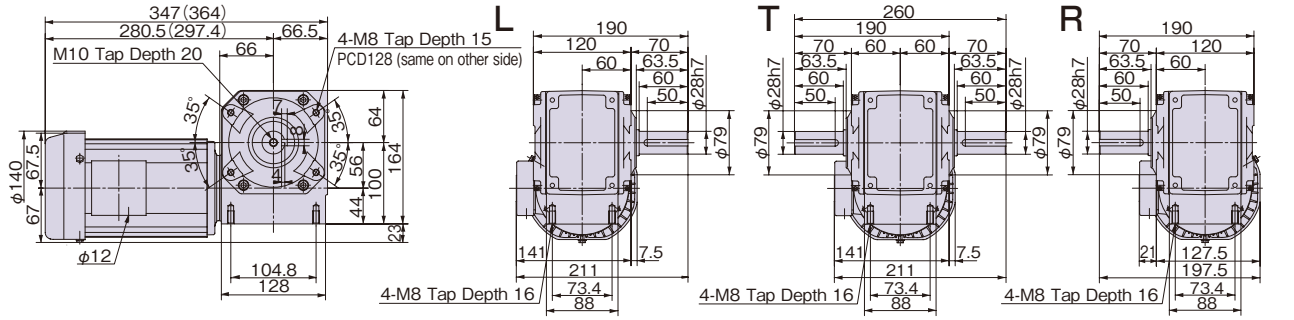


CSMA055-220U40 – 60 L/T/R (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 14 (16) kg

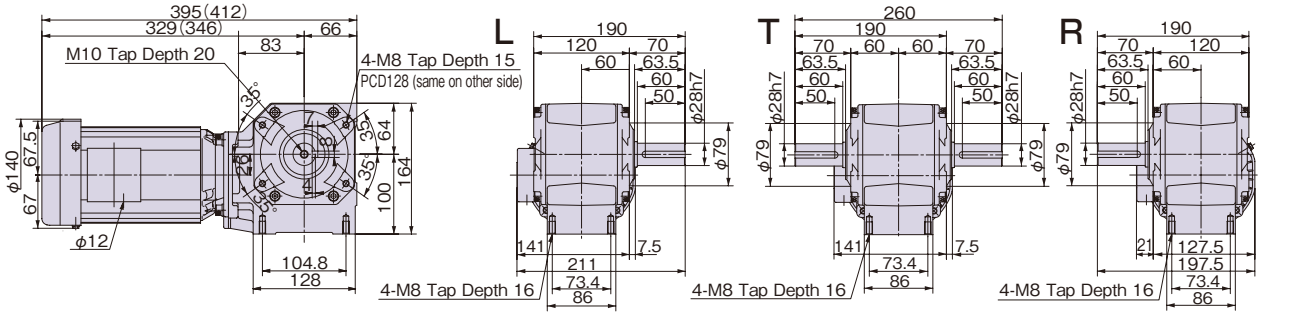


HCMA055-220U40 – 50 L/T/R (B)

3

Reduction ratio : 40, 50

Approx. weight : 18.5 (20.5) kg

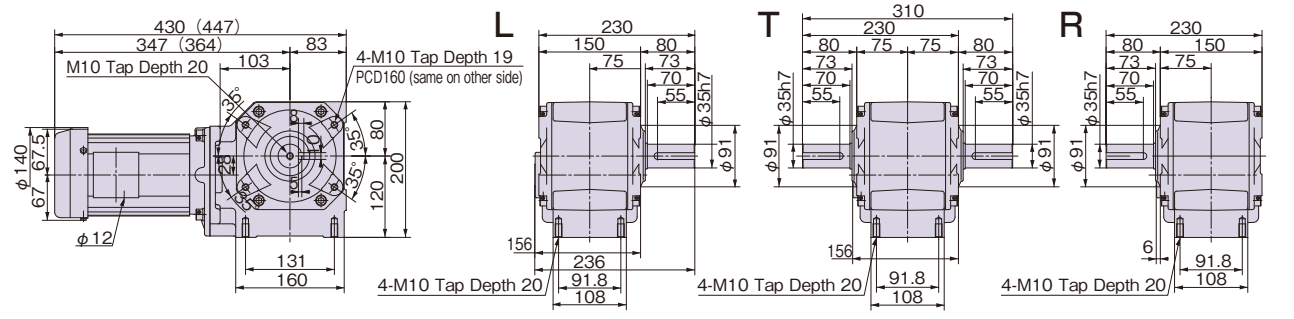


HCMA055-280U60 – 150 L/T/R (B)

4

Reduction ratio : 60, 75, 90, 100, 120, 150

Approx. weight : 27.1 (29.1) kg



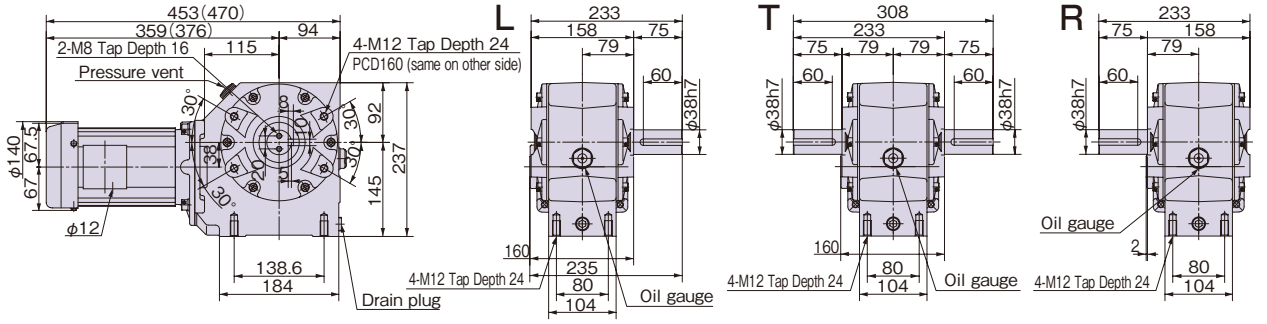
Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Outline Dimensions

HCMA055-321U180 – 200$^{L}_{R}$ (B)

5

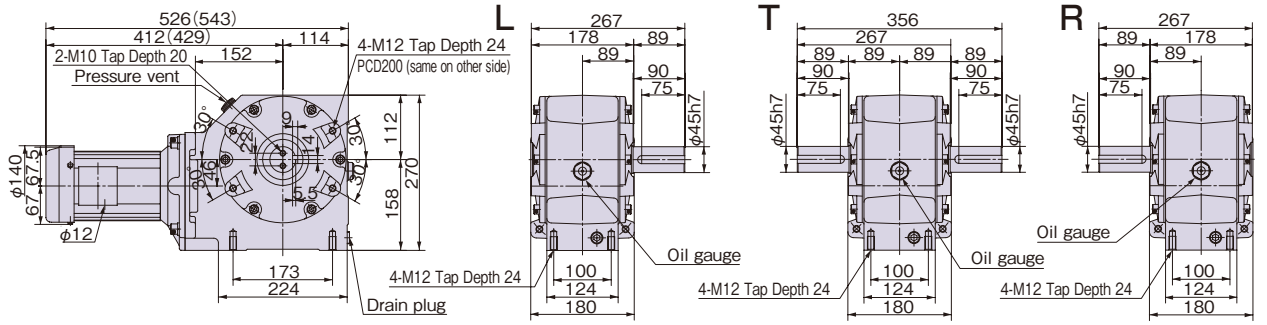
Reduction ratio : 180, 200	Approx. weight : 35.1 (37.1) kg



HCMA055-401U240 – 300$^{L}_{R}$ (B)

6

Reduction ratio : 240, 300	Approx. weight : 53.5 (55.5) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Notes

Specification Chart

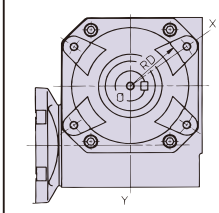
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.75kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class F	Non-excitation	At least 150%	Class B

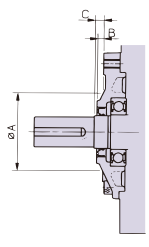
Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR075	10	0.75	1/10	1	22	150	180	42.8	{ 4.4}	35.9	{ 3.7}	3660	{ 373 }	1
	15		1/15			100	120	60.8	{ 6.2}	51.5	{ 5.3}	3660	{ 373 }	
	20		1/20			75	90	78.8	{ 8.0}	66.7	{ 6.8}	3740	{ 381 }	
	25		1/25			60	72	94.1	{ 9.6}	79.4	{ 8.1}	3740	{ 381 }	
	30		1/30			50	60	108	{ 11.0}	91.5	{ 9.3}	3740	{ 381 }	
	40		1/40		28	37.5	45	141	{ 14.3}	120	{ 12.2}	5160	{ 526 }	2
	50		1/50			30	36	168	{ 17.1}	143	{ 14.6}	5160	{ 526 }	
	60		1/60			25	30	192	{ 19.6}	165	{ 16.8}	5160	{ 526 }	
HCMR075	40		1/40	2	28	37.5	45	156	{ 16.0}	132	{ 13.4}	5150	{ 526 }	3
	50		1/50			30	36	193	{ 19.7}	163	{ 16.6}	5150	{ 526 }	
	60		1/60			25	30	220	{ 22.5}	186	{ 19.0}	5150	{ 526 }	
	75		1/75			20	24	271	{ 27.7}	229	{ 23.3}	5150	{ 526 }	
	90		1/90		32	16.7	20	319	{ 32.6}	270	{ 27.5}	9630	{ 983 }	4
	100		1/100			15	18	352	{ 35.9}	298	{ 30.4}	9760	{ 996 }	
	120		1/120			12.5	15	382	{ 39.0}	324	{ 33.1}	9760	{ 996 }	
	150		1/150			10	12	435	{ 44.4}	396	{ 40.4}	9760	{ 996 }	
	180		1/180		40	8.3	10	540	{ 55.2}	460	{ 47.0}	12210	{ 1246 }	5
	200		1/200			7.5	9	593	{ 60.5}	505	{ 51.5}	12210	{ 1246 }	
	240		1/240		50	6.3	7.5	673	{ 68.7}	576	{ 58.8}	16980	{ 1733 }	6
	300		1/300			5	6	815	{ 83.2}	697	{ 71.1}	16980	{ 1733 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Output Housing dimensions





Cross-section X-O-Y

Frame number	Thru hole ϕA (H8)	B	C	RD
13	49	7.5	10	34
16	59.5	10	13	40.5
22	79	6.5	10	54
28	91	7	10	67
32	—	− 5	0	66
40	—	− 2	− 1	86
50	—	− 9	− 4	107

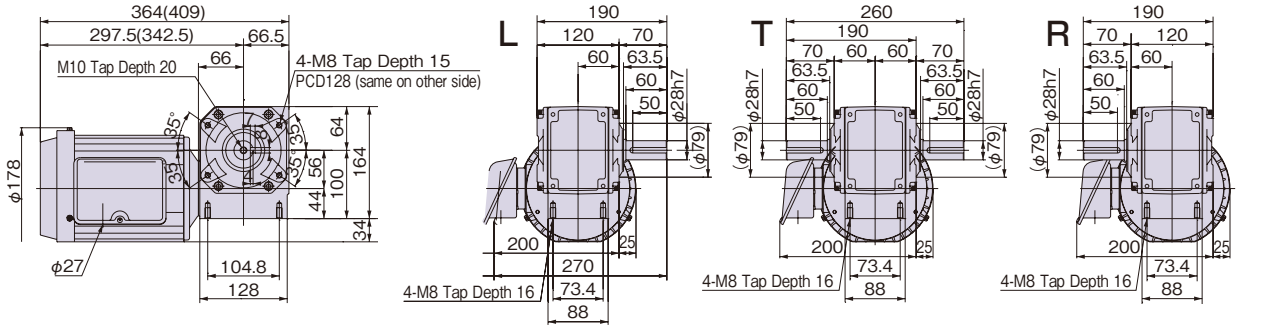
Note: The ϕA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

Outline Dimensions

CSMR075-220U10 – 30 $\frac{L}{R}$ (B)

1

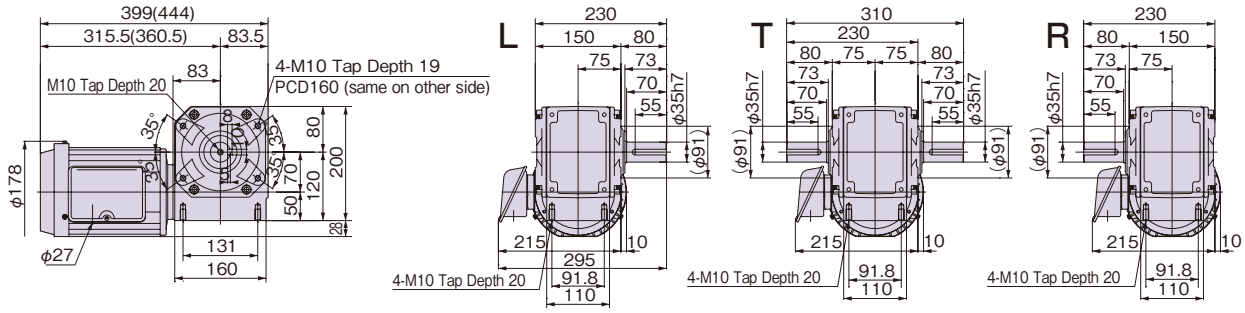
Reduction ratio : 10, 15, 20, 25, 30	Approx. weight : 19 (22) kg



CSMR075-280U40 – 60 $\frac{L}{R}$ (B)

2

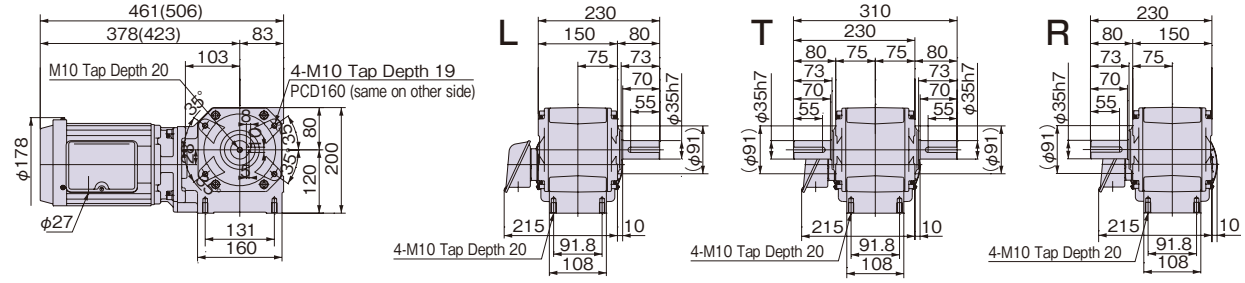
Reduction ratio : 40, 50, 60	Approx. weight : 24 (27) kg



HCMR075-280U40 – 75 $\frac{L}{R}$ (B)

3

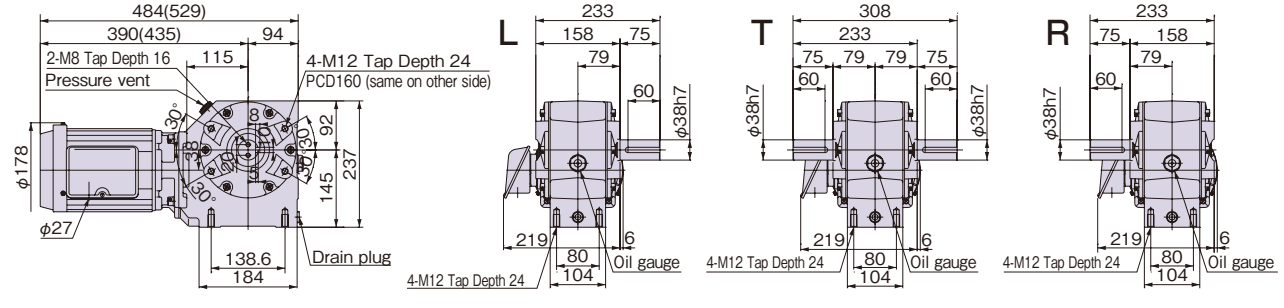
Reduction ratio : 40, 50, 60, 75	Approx. weight : 33 (36) kg



HCMR075-321U90 – 150 $\frac{L}{R}$ (B)

4

Reduction ratio : 90, 100, 120, 150	Approx. weight : 41 (44) kg



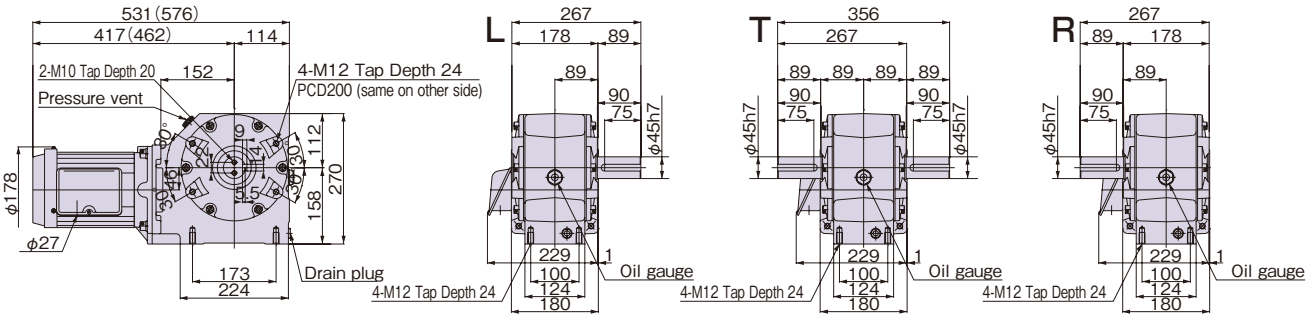
Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Outline Dimensions

HCMR075-401U180 – 200 $\frac{L}{R}$ (B)

5

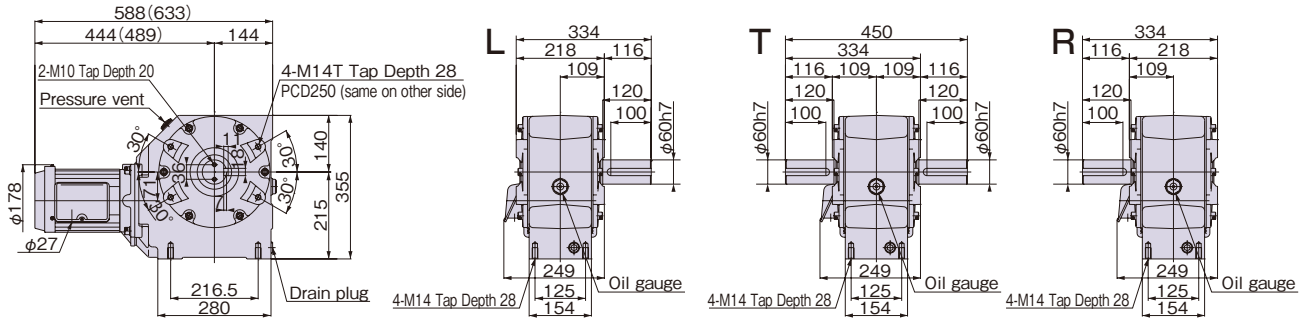
Reduction ratio : 180, 200	Approx. weight : 62 (65) kg



HCMR075-501U240 – 300 $\frac{L}{R}$ (B)

6

Reduction ratio : 240, 300	Approx. weight : 100 (103) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Notes

Specification Chart

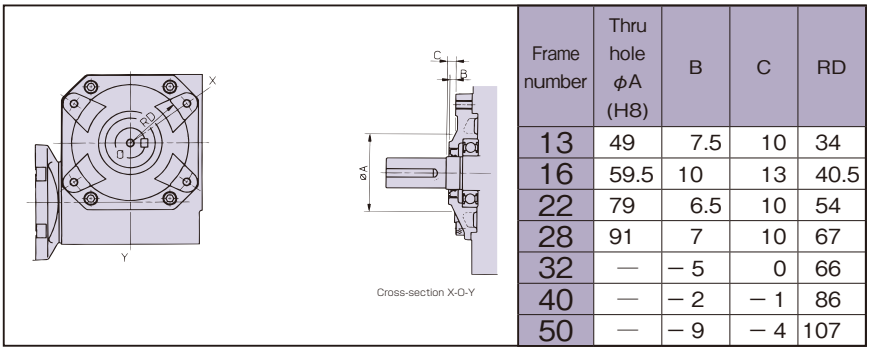
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
1.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1440/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR150	10	1.5	1/10	1	28	150	180	86.8	{ 8.8}	72.4	{ 7.4}	4290	{ 437 }	1
	15		1/15			100	120	125	{ 12.7}	105	{ 10.7}	4290	{ 437 }	
	20		1/20			75	90	162	{ 16.5}	136	{ 13.9}	5160	{ 526 }	
	25		1/25			60	72	196	{ 20.0}	165	{ 16.8}	5160	{ 526 }	
	30		1/30			50	60	223	{ 22.7}	189	{ 19.3}	5160	{ 526 }	
	40		1/40		32	37.5	45	289	{ 29.4}	246	{ 25.0}	9770	{ 996 }	2
	50		1/50			30	36	321	{ 32.8}	292	{ 29.8}	9770	{ 996 }	
	60		1/60			25	30	321	{ 32.8}	292	{ 29.8}	9770	{ 996 }	
HCMR150	40		1/40	2	32	37.5	45	317	{ 32.4}	267	{ 27.2}	9760	{ 996 }	3
	50		1/50			30	36	392	{ 40.0}	330	{ 33.7}	9760	{ 996 }	
	60		1/60		40	25	30	460	{ 46.9}	388	{ 39.5}	12210	{ 1246 }	4
	75		1/75			20	24	567	{ 57.8}	478	{ 48.7}	12210	{ 1246 }	
	90		1/90			16.7	20	652	{ 66.5}	551	{ 56.2}	12210	{ 1246 }	
	100		1/100			15	18	719	{ 73.3}	607	{ 62.0}	12210	{ 1246 }	
	120		1/120			12.5	15	744	{ 75.9}	674	{ 68.8}	12210	{ 1246 }	
	150		1/150		50	10	12	988	{101 }	840	{ 85.7}	16980	{ 1733 }	5
	180		1/180			8.3	10	1126	{115 }	959	{ 97.8}	16980	{ 1733 }	
	200		1/200			7.5	9	1236	{126 }	1052	{107 }	16980	{ 1733 }	
	240		1/252			5.95	7.14	1607	{164 }	1362	{139 }	16983	{ 1733 }	
	300		1/315			4.76	5.71	1980	{202 }	1676	{171 }	16983	{ 1733 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Output Housing Dimensions



Frame number	Thru hole ϕA (H8)	B	C	RD
13	49	7.5	10	34
16	59.5	10	13	40.5
22	79	6.5	10	54
28	91	7	10	67
32	—	− 5	0	66
40	—	− 2	− 1	86
50	—	− 9	− 4	107

Note: The ϕA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

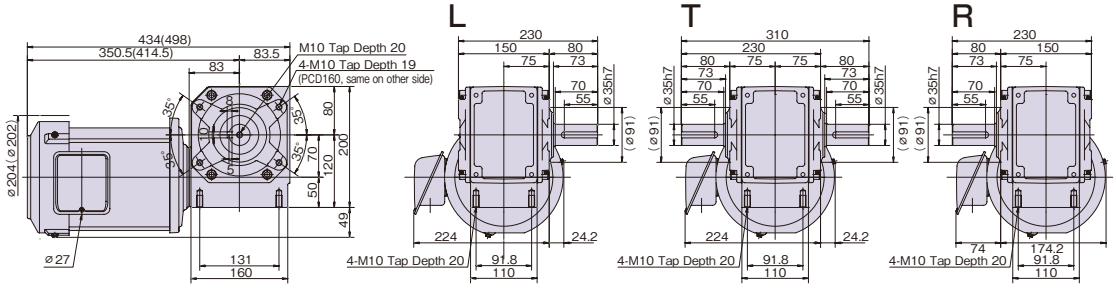
Outline Dimensions

CSMR150-280U10 – 30$^{L}_{R}$ (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 33(38)kg

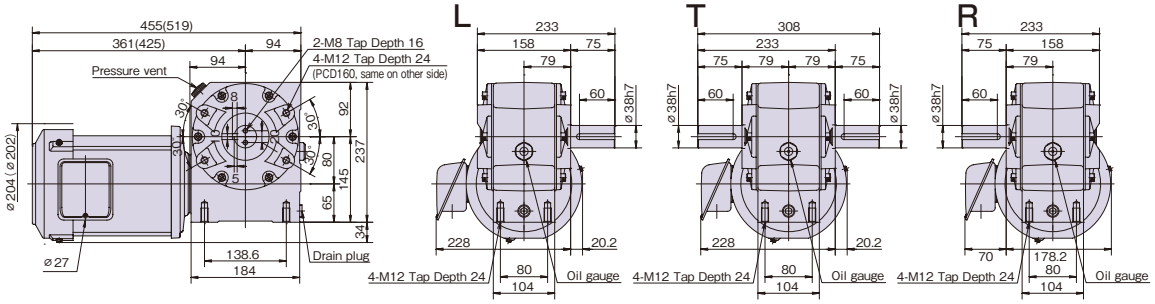


CSMR150-321U40 – 60$^{L}_{R}$ (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 43(48)kg

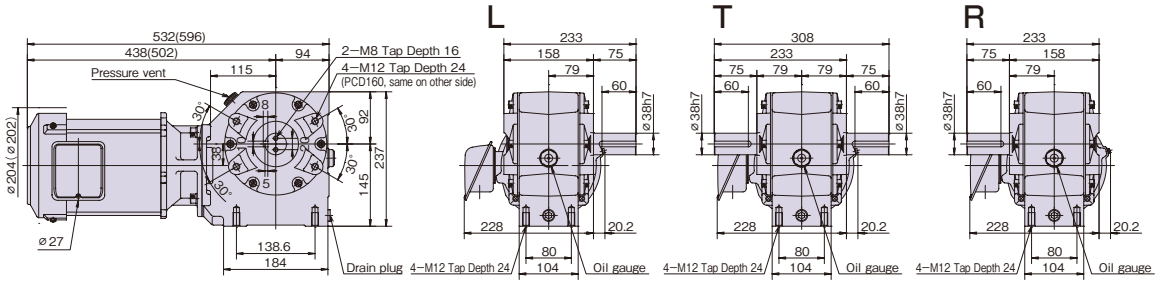


HCMR150-321U40 – 50$^{L}_{R}$ (B)

3

Reduction ratio : 40, 50

Approx. weight : 49(54)kg

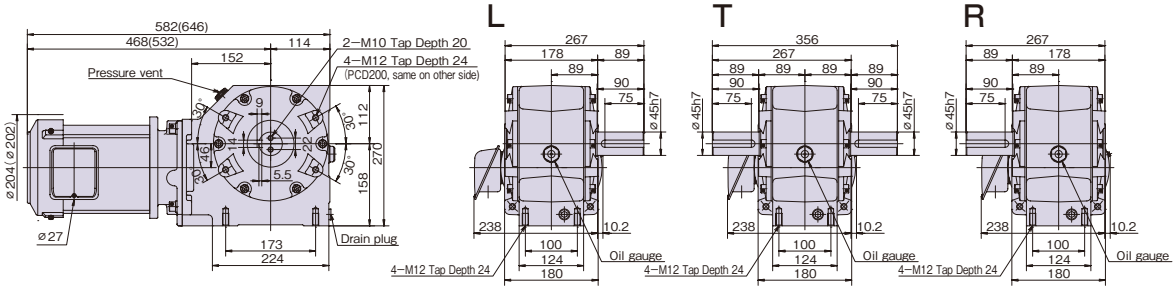


HCMR150-401U60 – 120$^{L}_{R}$ (B)

4

Reduction ratio : 60, 75, 90, 100, 120

Approx. weight : 68(73)kg

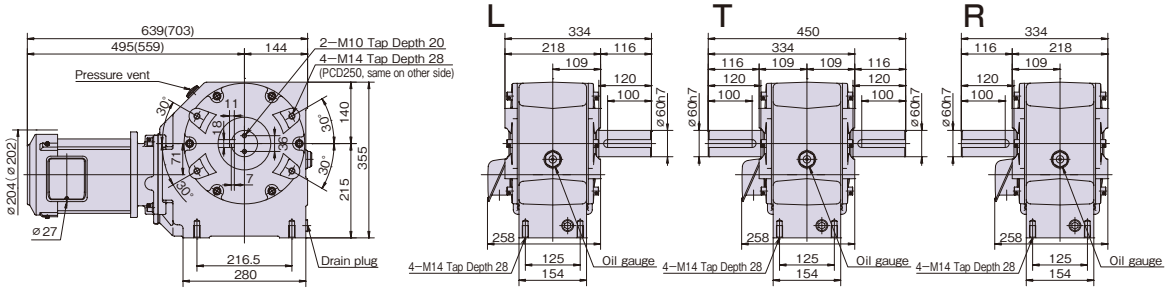


HCMR150-501U150 – 300$^{L}_{R}$ (B)

5

Reduction ratio : 150, 180, 200, 252, 315

Approx. weight : 108(113)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

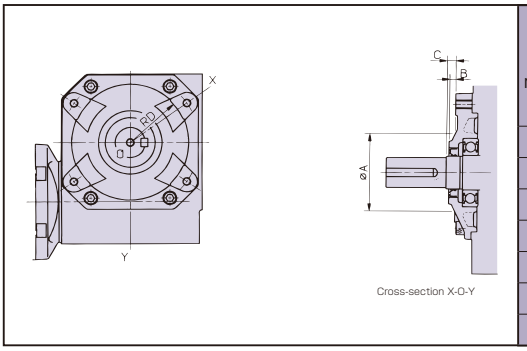
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
2.2kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR220	10	2.2	1/10	1	32	150	180	128	{ 13.1}	108	{ 11.0}	9770	{ 996 }	1
	15		1/15			100	120	185	{ 18.9}	160	{ 16.3}	9770	{ 996 }	
	20		1/20			75	90	240	{ 24.5}	203	{ 20.7}	9770	{ 996 }	
	25		1/25			60	72	301	{ 30.7}	253	{ 25.8}	9770	{ 996 }	
	30		1/30			50	60	335	{ 34.1}	284	{ 28.9}	9770	{ 996 }	
	40		1/40		40	37.5	45	436	{ 44.4}	370	{ 37.7}	12200	{1240 }	2
	50		1/50			30	36	524	{ 53.5}	446	{ 45.5}	12200	{1240 }	
	60		1/60			25	30	532	{ 54.3}	474	{ 48.3}	12200	{1240 }	
HCMR220	40		1/40	2	40	37.5	45	473	{ 48.3}	398	{ 40.6}	12210	{1246 }	3
	50		1/50			30	36	585	{ 59.7}	492	{ 50.2}	12210	{1246 }	
	60		1/60			25	30	674	{ 68.8}	568	{ 58.0}	12210	{1246 }	
	75		1/75			20	24	751	{ 76.6}	701	{ 71.5}	12210	{1246 }	
	90		1/90		50	16.7	20	980	{100 }	827	{ 84.4}	16980	{1733 }	4
	100		1/100			15	18	1081	{110 }	912	{ 93.1}	16980	{1733 }	
	120		1/120			12.5	15	1187	{121 }	1008	{103 }	16980	{1733 }	
	150		1/150			10	12	1400	{143 }	1231	{126 }	16980	{1733 }	
	180		1/180			8.3	10	1980	{202 }	1666	{170 }	16983	{1733 }	
	200		1/200			7.5	9	2195	{224 }	1842	{188 }	16983	{1733 }	
	240		1/252			5.95	7.14	2489	{254 }	2097	{214 }	16983	{1733 }	
	300		1/315			4.76	5.71	※2607	※{266 }	2587	{264 }	16983	{1733 }	

Note 1: The actual reduction ratio is shown as the reduction ratio. Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.

Output Housing Dimensions



Frame number	Thru hole øA (H8)	B	C	RD
13	49	7.5	10	34
16	59.5	10	13	40.5
22	79	6.5	10	54
28	91	7	10	67
32	—	−5	0	66
40	—	−2	−1	86
50	—	−9	−4	107

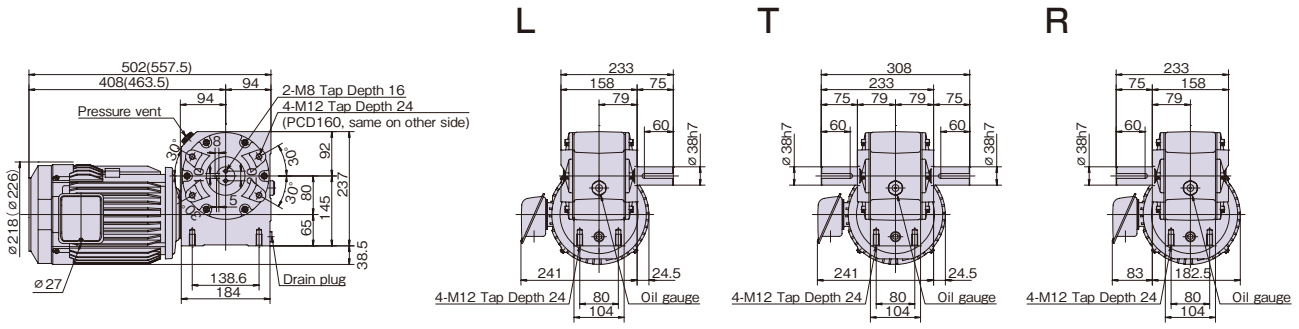
Note: The øA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

Outline Dimensions

CSMR220-321U10 – 30 L/T/R (B)

1

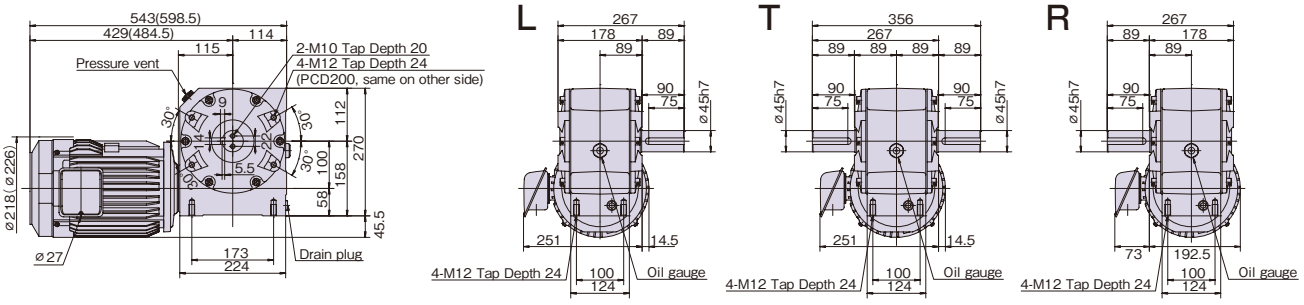
Reduction ratio : 10, 15, 20, 25, 30 | Approx. weight : 43(58)kg



CSMR220-401U40 – 60 L/T/R (B)

2

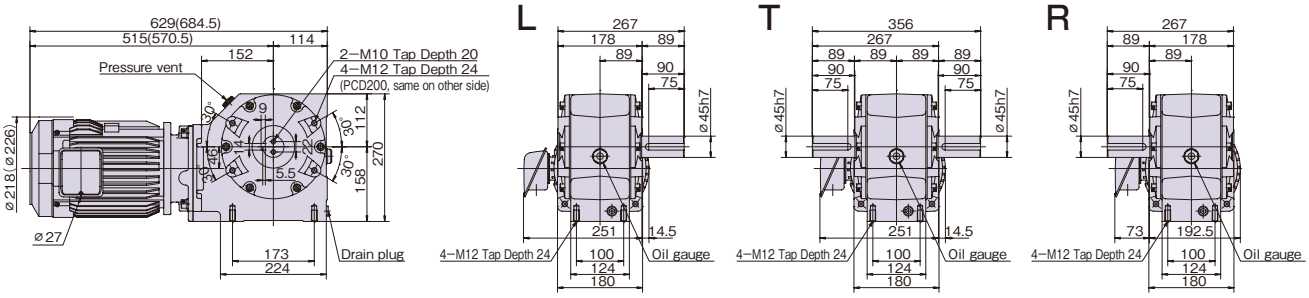
Reduction ratio : 40, 50, 60 | Approx. weight : 64(69)kg



HCMR220-401U40 – 75 L/T/R (B)

3

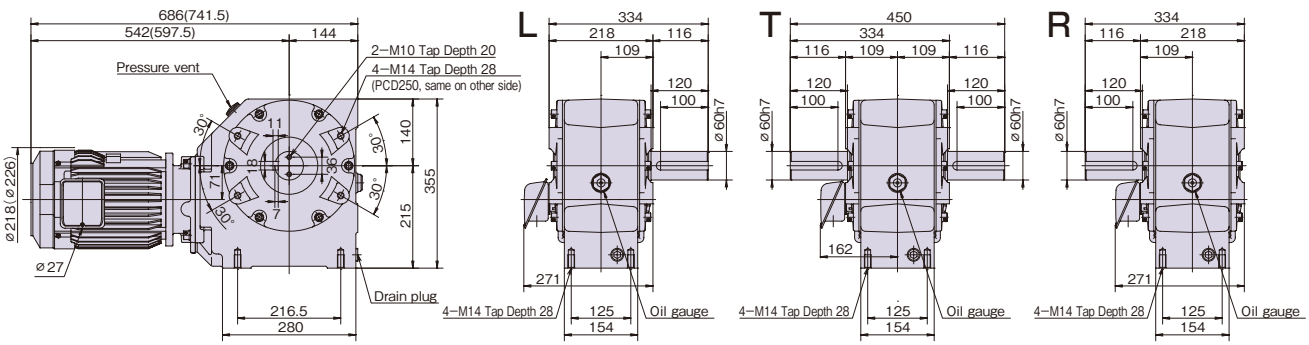
Reduction ratio : 40, 50, 60, 75 | Approx. weight : 78(83)kg



HCMR220-501U90 – 300 L/T/R (B)

4

Reduction ratio : 90, 100, 120, 150, 180, 200, 252, 315 | Approx. weight : 118(123)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

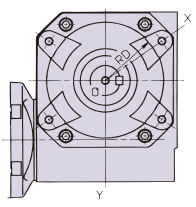
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
3.7kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1455/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation	At least 150%	Class E

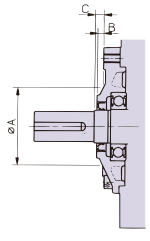
Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR370	10	3.7	1/10	1	40	150	180	218	{ 22.3}	183	{ 18.6}	12200	{ 1240 }	1
	15		1/15			100	120	317	{ 32.3}	266	{ 27.1}	12200	{ 1240 }	
	20		1/20			75	90	411	{ 41.9}	346	{ 35.3}	12200	{ 1240 }	
	25		1/25			60	72	503	{ 51.3}	424	{ 43.2}	12200	{ 1240 }	
	30		1/30			50	60	579	{ 59.1}	491	{ 50.0}	12200	{ 1240 }	
	40		1/40		50	37.5	45	755	{ 77.0}	640	{ 65.3}	16600	{ 1690 }	2
	50		1/50			30	36	857	{ 87.4}	767	{ 78.3}	16600	{ 1690 }	
	60		1/60			25	30	857	{ 87.4}	795	{ 81.1}	16600	{ 1690 }	
HCMR370	40		1/40	2	50	37.5	45	803	{ 81.9}	675	{ 68.9}	16980	{ 1733 }	3
	50		1/50			30	36	993	{101 }	835	{ 85.2}	16980	{ 1733 }	
	60		1/60			25	30	1148	{117 }	967	{ 98.7}	16980	{ 1733 }	
	75		1/75			20	24	1363	{139 }	1192	{122 }	16980	{ 1733 }	
	90		1/90			16.7	20	1833	{187 }	1539	{157 }	16983	{ 1733 }	
	100		1/100			15	18	2029	{207 }	1705	{174 }	16983	{ 1733 }	
	120		1/126			11.9	14.3	2421	{247 }	2029	{207 }	16983	{ 1733 }	
	150		1/157.5			9.5	11.4	※2607	※{266 }	2519	{257 }	16983	{ 1733 }	
	180		1/180			8.3	10	※2607	※{266 }	※2607	※{266 }	16983	{ 1733 }	
	200		1/200			7.5	9	※2607	※{266 }	※2607	※{266 }	16983	{ 1733 }	
	240		1/252			5.95	7.14	※2607	※{266 }	※2607	※{266 }	16983	{ 1733 }	
	300		1/315			4.76	5.71	※2607	※{266 }	※2607	※{266 }	16983	{ 1733 }	

Note 1: The actual reduction ratio is shown as the reduction ratio. Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.

Output Housing Dimensions





Cross-section X-O-Y

Frame number	Thru hole øA (H8)	B	C	RD
13	49	7.5	10	34
16	59.5	10	13	40.5
22	79	6.5	10	54
28	91	7	10	67
32	—	−5	0	66
40	—	−2	−1	86
50	—	−9	−4	107

Note: The øA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

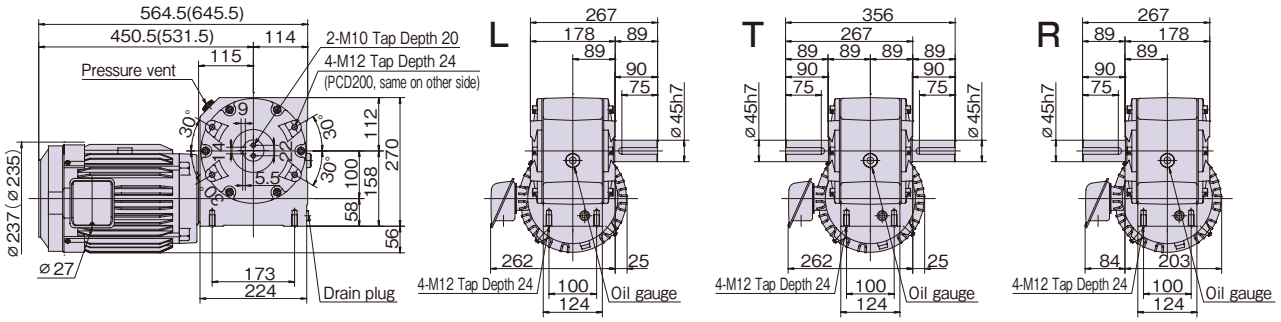
Outline Dimensions

CSMR370-401U10 – 30$^{L}_{R}$T(B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 74(84)kg

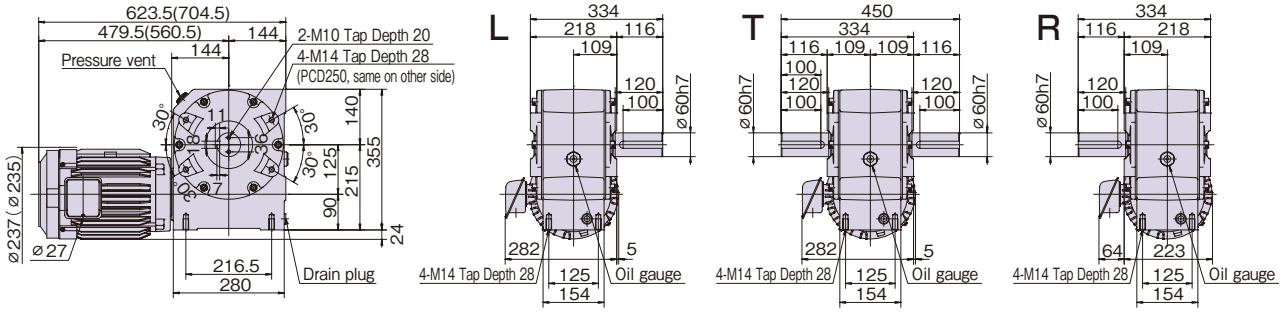


CSMR370-501U40 – 60$^{L}_{R}$T(B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 112(122)kg

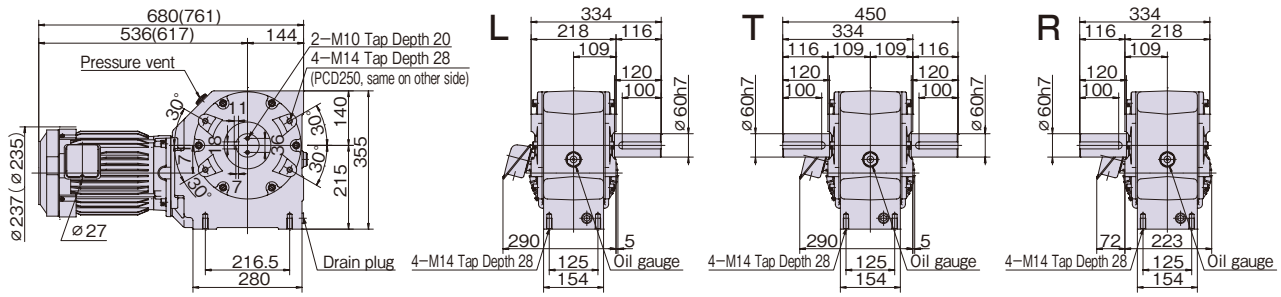


HCMR370-501U40 – 300$^{L}_{R}$T(B)

3

Reduction ratio : 40, 50, 60, 75, 90, 100, 126, 157.5, 180, 200, 252, 315

Approx. weight : 130(140)kg



Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

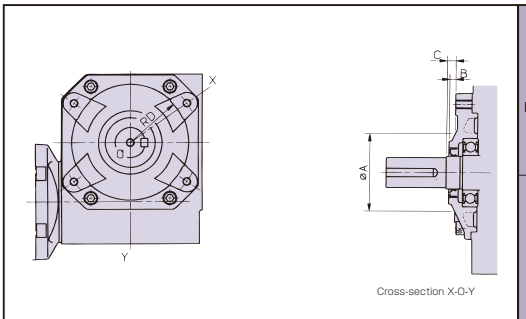
Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
5.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	22.6/20.8/20.0 (11.3/11.3/10.4/10.0)	1465/1760/1765 (1460/1465/1760/1765)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR550	10	5.5	1/10	1	50	150	180	326	{ 33.3}	273	{ 27.9}	16980	{ 1733 }	1
	15		1/15			100	120	476	{ 48.5}	399	{ 40.8}	16980	{ 1733 }	
	20		1/20			75	90	621	{ 63.4}	522	{ 53.3}	16980	{ 1733 }	
	25		1/25			60	72	758	{ 77.3}	638	{ 65.1}	16980	{ 1733 }	
	30		1/30			50	60	876	{ 89.4}	740	{ 75.5}	16980	{ 1733 }	
HCMR550	40		1/41	2	50	36.59	43.9	※981	{※100 }	※981	{※100 }	16980	{ 1733 }	2
	50		1/51.25			29.27	35.12	※1146	{※117 }	※1146	{※117 }	16980	{ 1733 }	
	75		1/80			18.75	22.5	※1836	{※187 }	※1836	{※187 }	16980	{ 1733 }	
	90		1/90			16.67	20	※2058	{※210 }	※2058	{※210 }	16980	{ 1733 }	
	100		1/100			15	18	※2136	{※218 }	※2137	{※218 }	16980	{ 1733 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.

Output Housing Dimensions



Frame number	Thru hole øA (H8)	B	C	RD
50	—	−9	−4	107

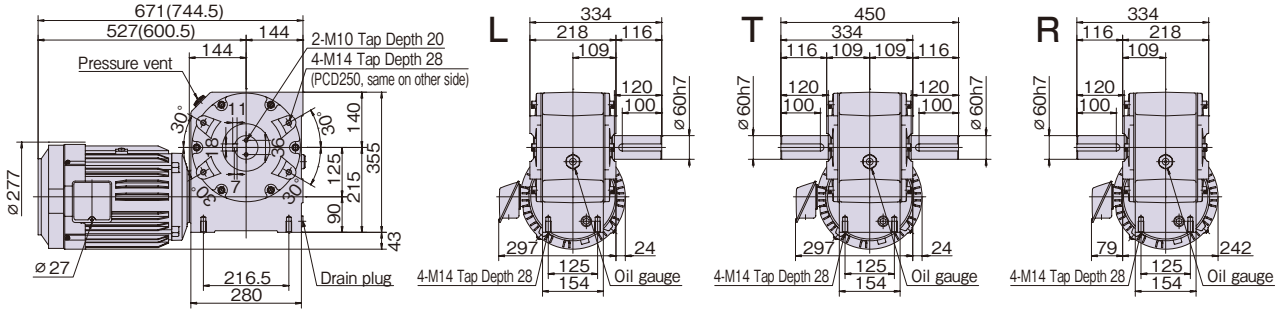
Note: The øA dimension protrudes from the housing mounting surface by the length of dimension C. Be sure to have clearance of more than the length of C plus at least 1 mm between the mounting surface and the installation surface.

Outline Dimensions

CSMR550-501U10 – 30 L/R (B)

1

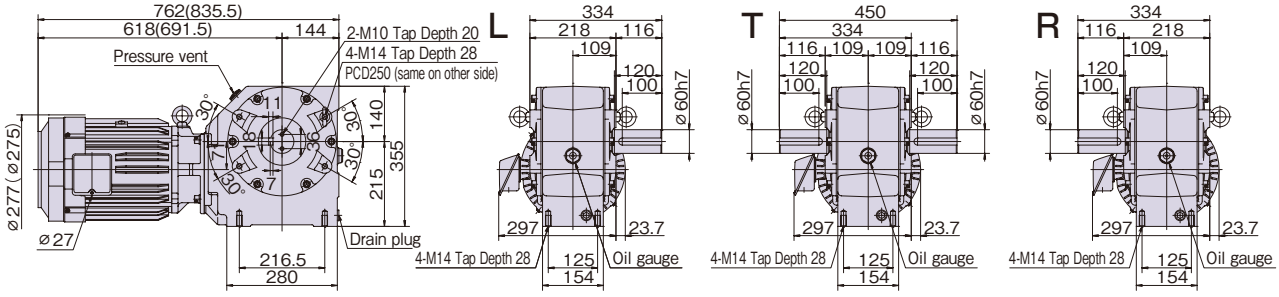
Reduction ratio : 10, 15, 20, 25, 30	Approx. weight : 130(145)kg



HCMR550-501U40 – 100 L/R (B)

2

Reduction ratio : 41, 51.25, 80, 90, 100	Approx. weight : 148(163)kg



Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 3: On 400 V-class brake-equipped models, the DC module (HD-120MH1) is placed separately. See page 217 for dimensions.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.1kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	0.63/0.57/0.58 (0.32/0.29/0.29)	1420/1680/1710 (1440/1740/1740)	Totally enclosed (IP44)	Self managed (IC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA010	10	0.1	1/10	1	13	150	180	5.5	{0.56}	4.6	{0.47}	1350	{138}	1
	15		1/15			100	120	7.8	{0.78}	6.6	{0.67}	1350	{138}	
	20		1/20			75	90	10.0	{1.0}	8.4	{0.86}	1550	{158}	
	25		1/25			60	72	11.8	{1.2}	10.0	{1.0}	1550	{158}	
	30		1/30			50	60	13.3	{1.4}	11.4	{1.2}	1550	{158}	
	40		1/40			37.5	45	16.5	{1.7}	14.1	{1.4}	1550	{158}	
	50		1/50			30	36	19.3	{2.0}	16.6	{1.7}	1550	{158}	
	60		1/60			25	30	21.3	{2.2}	18.3	{1.9}	1550	{158}	
HCMA010	40		1/40	2	16	37.5	45	20.0	{2.0}	17.0	{1.7}	2470	{252}	2
	50		1/50			30	36	25.0	{2.5}	21.0	{2.1}	2470	{252}	
	60		1/60			25	30	28.0	{2.9}	24.0	{2.4}	2470	{252}	
	75		1/75			20	24	35.0	{3.5}	29.0	{3.0}	2470	{252}	
	90		1/90			16.7	20	39.0	{3.9}	33.0	{3.3}	2470	{252}	
	100		1/100			15	18	43.0	{4.3}	36.0	{3.7}	2470	{252}	
	120		1/120			12.5	15	46.0	{4.7}	39.0	{4.0}	2470	{252}	
	150		1/150			10	12	56.0	{5.7}	47.0	{4.8}	2470	{252}	
	180		1/180			8.3	10	59.8	{6.1}	51.0	{5.2}	2470	{252}	
	200		1/200			7.5	9	60.3	{6.2}	56.0	{5.7}	2470	{252}	
	240		1/240		22	6.3	7.5	76.0	{7.8}	65.0	{6.6}	3730	{381}	3
	300		1/300			5	6	92.0	{9.4}	79.0	{8.0}	3730	{381}	

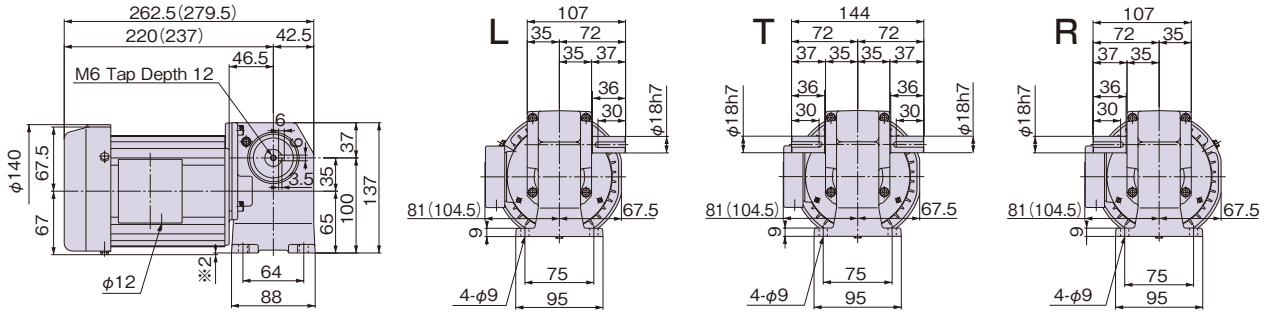
Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

CSMA010-130L10 – 60 $^{L}_{T}$ (B)

1

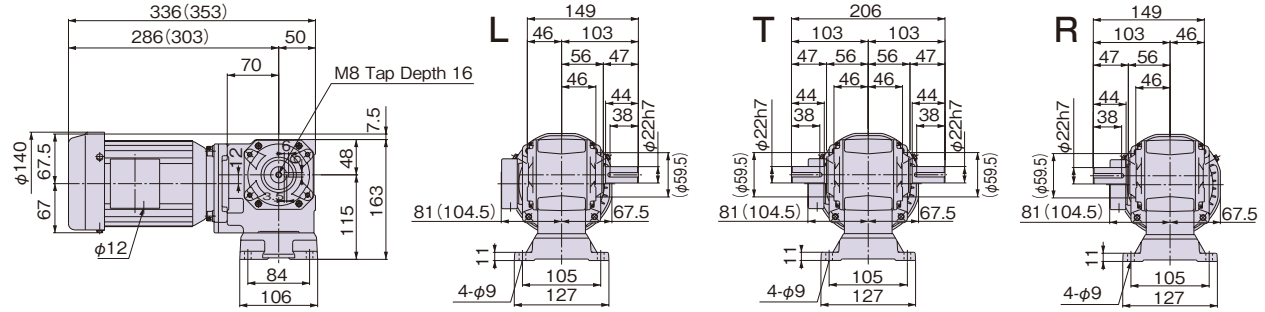
Reduction ratio : 10, 15, 20, 25, 30, 40, 50, 60	Approx. weight : 5.2 (6.7) kg



HCMA010-160L40 – 200 $^{L}_{T}$ (B)

2

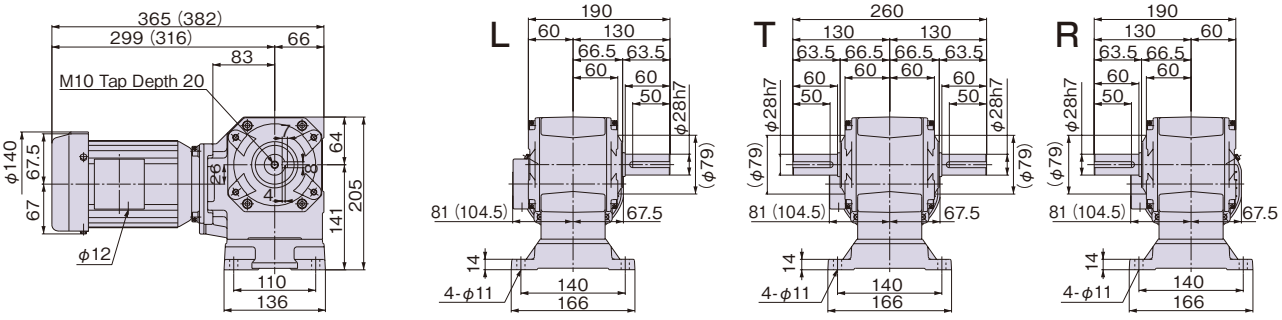
Reduction ratio : 40, 50, 60, 75, 90, 100, 120, 150, 180, 200	Approx. weight : 10.7 (12.7) kg



HCMA010-220L240 – 300 $^{L}_{T}$ (B)

3

Reduction ratio : 240, 300	Approx. weight : 15.7 (17.7) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.2kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	1.2/1.1/1.1 (0.59/0.55/0.55)	1420/1700/1720 (1410/1690/1720)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA020	10	0.2	1/10	1	13	150	180	11.1	{ 1.1 }	9.3	{ 1.0 }	1350	{ 138 }	1
	15		1/15			100	120	15.7	{ 1.6 }	13.2	{ 1.3 }	1350	{ 138 }	
	20		1/20			75	90	20.0	{ 2.0 }	17.0	{ 1.7 }	1550	{ 158 }	
	25		1/25			60	72	23.5	{ 2.4 }	20.1	{ 2.0 }	1550	{ 158 }	
	30		1/30			50	60	26.6	{ 2.7 }	22.7	{ 2.3 }	1550	{ 158 }	
	40		1/40		16	37.5	45	33.8	{ 3.5 }	28.9	{ 3.0 }	2130	{ 217 }	2
	50		1/50			30	36	39.7	{ 4.1 }	34.1	{ 3.5 }	2250	{ 229 }	
	60		1/60			25	30	45.0	{ 4.6 }	38.7	{ 4.0 }	2350	{ 240 }	
HCMA020	40		1/40	2	16	37.5	45	40.0	{ 4.1 }	34.0	{ 3.4 }	2470	{ 252 }	3
	50		1/50			30	36	50.0	{ 5.1 }	42.0	{ 4.3 }	2470	{ 252 }	
	60		1/60			25	30	56.0	{ 5.7 }	47.0	{ 4.8 }	2470	{ 252 }	
	75		1/75			20	24	59.0	{ 6.1 }	58.0	{ 6.0 }	2470	{ 252 }	
	90		1/90		22	16.7	20	81.0	{ 8.3 }	68.0	{ 7.0 }	3730	{ 381 }	4
	100		1/100			15	18	89.0	{ 9.1 }	75.0	{ 7.7 }	3730	{ 381 }	
	120		1/120			12.5	15	97.0	{ 9.9 }	82.0	{ 8.4 }	3730	{ 381 }	
	150		1/150			10	12	118.0	{12.0 }	100.0	{10.2 }	3730	{ 381 }	
	180		1/180			8.3	10	129.0	{13.1 }	110.0	{11.2 }	3730	{ 381 }	
	200		1/200			7.5	9	139.0	{14.2 }	120.0	{12.3 }	3730	{ 381 }	
	240		1/240		28	6.3	7.5	161.0	{16.4 }	138.0	{14.1 }	5150	{ 526 }	5
	300		1/300			5	6	195.0	{19.9 }	167.0	{17.0 }	5150	{ 526 }	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

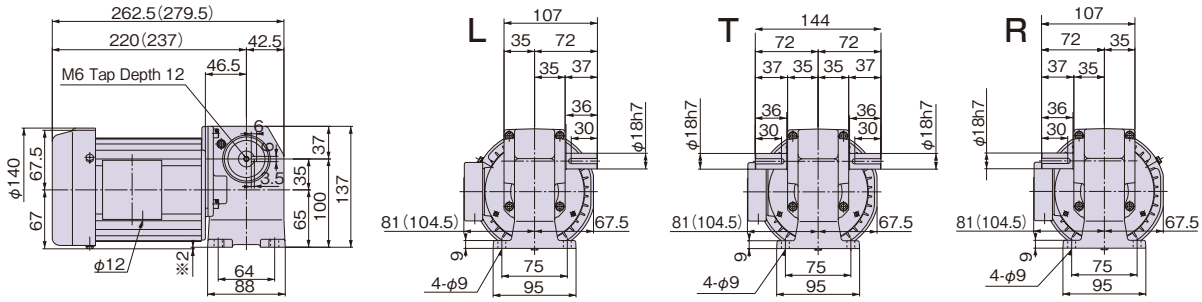
Outline Dimensions

CSMA020-130L10 – 30 $\frac{L}{R}$ (B)

1

Reduction ratio : 10, 15, 20, 25, 30

Approx. weight : 5.5 (7) kg

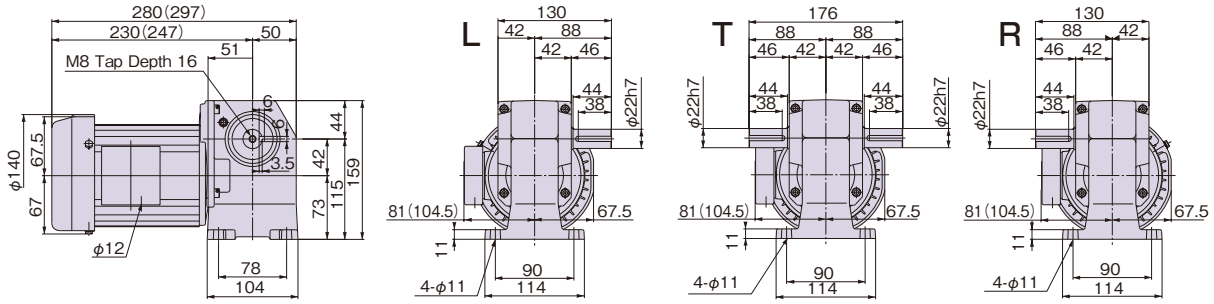


CSMA020-160L40 – 60 $\frac{L}{R}$ (B)

2

Reduction ratio : 40, 50, 60

Approx. weight : 6.5 (8) kg

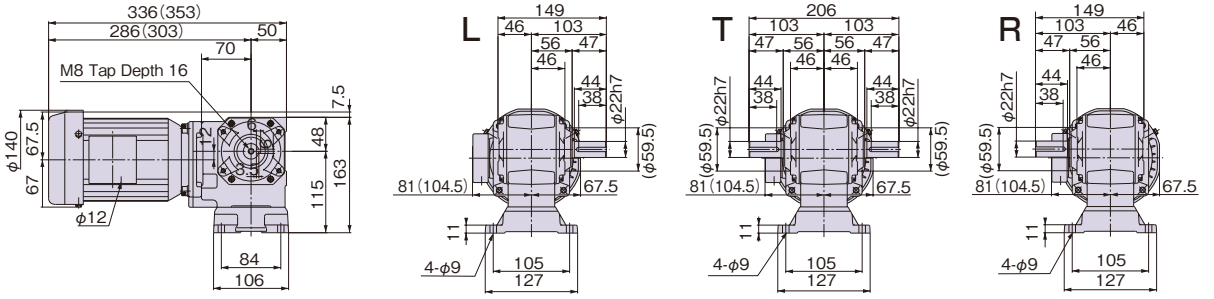


HCMA020-160L40 – 75 $\frac{L}{R}$ (B)

3

Reduction ratio : 40, 50, 60, 75

Approx. weight : 12 (14) kg

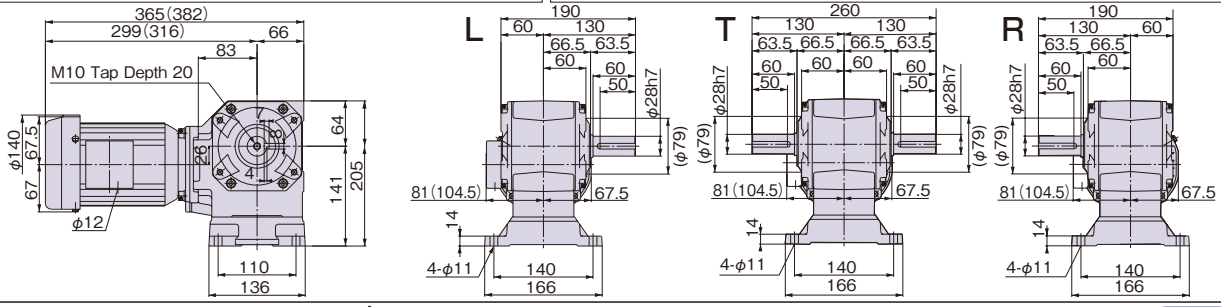


HCMA020-220L90 – 200 $\frac{L}{R}$ (B)

4

Reduction ratio : 90, 100, 120, 150, 180, 200

Approx. weight : 16 (18) kg

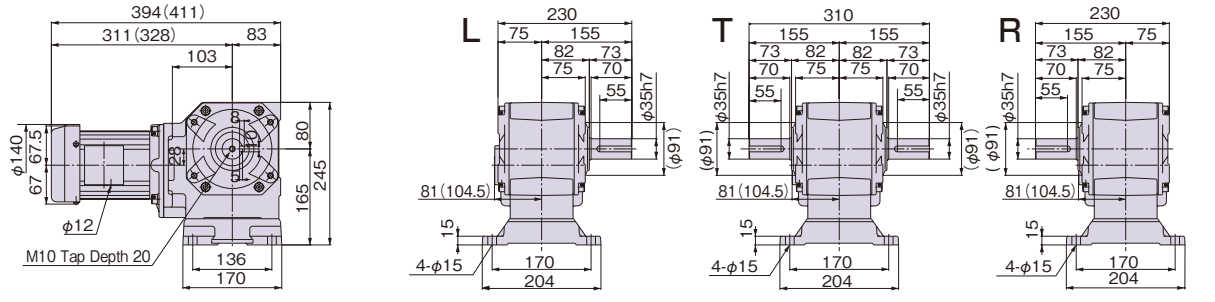


HCMA020-280L240 – 300 $\frac{L}{R}$ (B)

5

Reduction ratio : 240, 300

Approx. weight : 25 (27) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: The dimension marked with ※ indicates that part of the motor protrudes from the mounting face.
Note 3: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.4kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.3/2.0/2.0 (1.2/1.0/1.0)	1380/1650/1680 (1390/1670/1700)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA040	10	0.4	1/10	1	16	150	180	22.3	{ 2.3}	18.7	{ 1.9}	1400	{ 143 }	1
	15		1/15			100	120	31.4	{ 3.2}	26.7	{ 2.7}	1400	{ 143 }	
	20		1/20			75	90	40.5	{ 4.1}	34.3	{ 3.5}	1660	{ 169 }	
	25		1/25			60	72	46.1	{ 4.7}	41.2	{ 4.2}	1660	{ 169 }	
	30		1/30			50	60	54.3	{ 5.5}	46.4	{ 4.7}	1880	{ 192 }	
	40		1/40		22	37.5	45	72.1	{ 7.4}	61.5	{ 6.3}	3740	{ 381 }	2
	50		1/50			30	36	85.3	{ 8.7}	73.1	{ 7.5}	3740	{ 381 }	
	60		1/60			25	30	97.5	{ 9.9}	83.7	{ 8.5}	3740	{ 381 }	
HCMA040	40		1/40	2	22	37.5	45	82.0	{ 8.4}	69.0	{ 7.1}	3730	{ 381 }	3
	50		1/50			30	36	102	{10.4}	86.0	{ 8.7}	3730	{ 381 }	
	60		1/60			25	30	116	{11.8}	98.0	{10.0}	3730	{ 381 }	
	75		1/75			20	24	138	{14.0}	121	{12.3}	3730	{ 381 }	
	90		1/90		28	16.7	20	167	{17.0}	141	{14.4}	5150	{ 526 }	4
	100		1/100			15	18	184	{18.8}	155	{15.9}	5150	{ 526 }	
	120		1/120			12.5	15	197	{20.1}	167	{17.1}	5150	{ 526 }	
	150		1/150			10	12	240	{24.5}	204	{20.8}	5150	{ 526 }	
	180		1/180			8.3	10	270	{27.5}	230	{23.4}	5150	{ 526 }	
	200		1/200			7.5	9	280	{28.6}	252	{25.7}	5150	{ 526 }	
	240		1/240		32	6.3	7.5	337	{34.4}	288	{29.4}	9760	{ 996 }	5
	300		1/300			5	6	362	{37.0}	349	{35.6}	9760	{ 996 }	

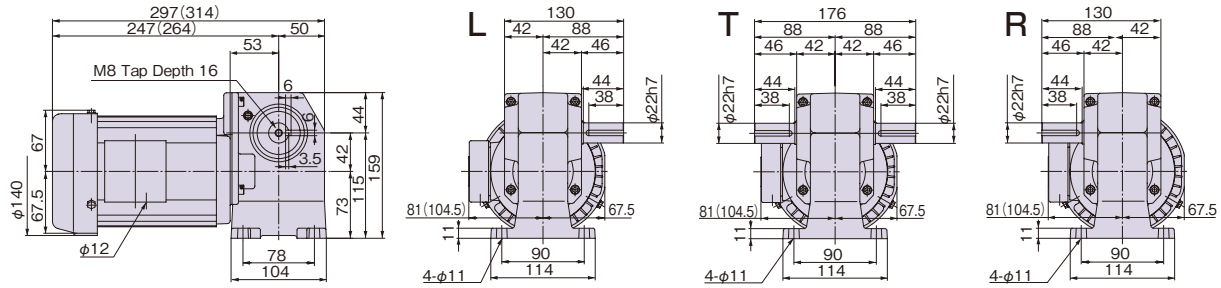
Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

CSMA040-160L10 – 30 $^{L}_{R}$ (B)

1

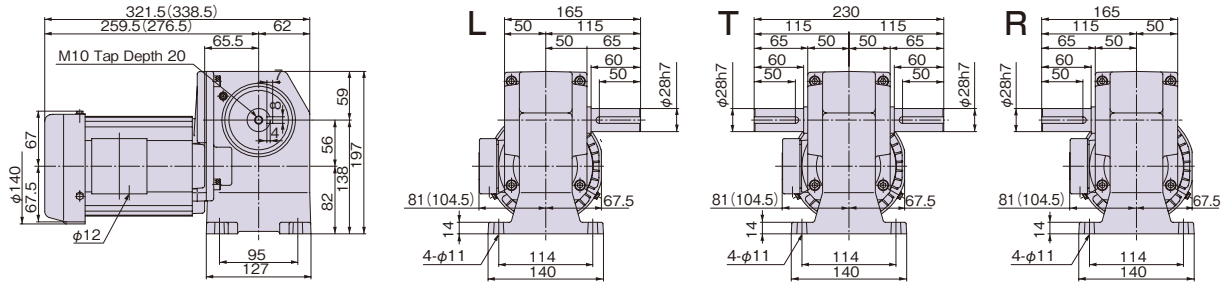
Reduction ratio : 10, 15, 20, 25, 30	Approx. weight : 7.5 (8.5) kg



CSMA040-220L40 – 60 $^{L}_{R}$ (B)

2

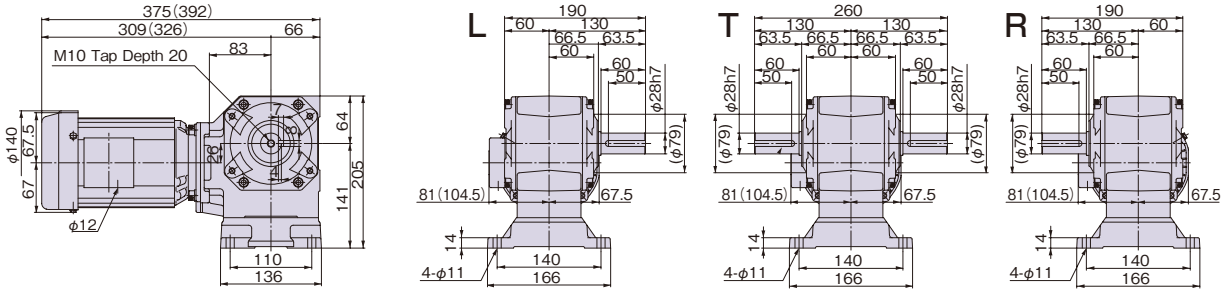
Reduction ratio : 40, 50, 60	Approx. weight : 10 (11) kg



HCMA040-220L40 – 75 $^{L}_{R}$

3

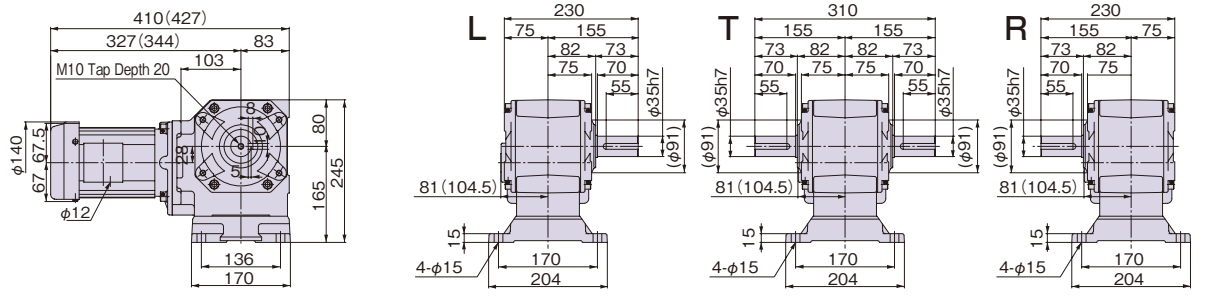
Reduction ratio : 40, 50, 60, 75	Approx. weight : 17 (19) kg



HCMA040-280L90 – 200 $^{L}_{R}$ (B)

4

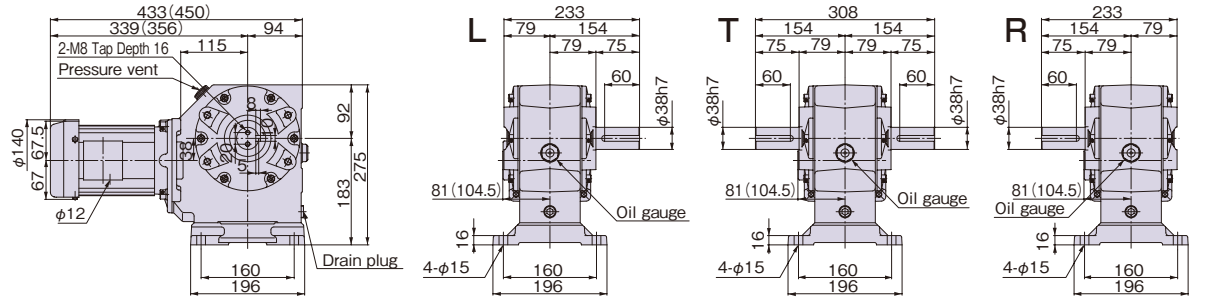
Reduction ratio : 90, 100, 120, 150, 180, 200	Approx. weight : 27 (29) kg



HCMA040-321L240 – 300 $^{L}_{R}$ (B)

5

Reduction ratio : 240, 300	Approx. weight : 36 (38) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.55kW	Three-phase	4	50/60/60	200/200/220 (400/400/440)	2.9/2.6/2.5 (1.45/1.3/1.3)	1380/1650/1690 (1380/1650/1690)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class E	Non-excitation	At least 100%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMA055	10	0.55	1/10	1	16	150	180	30.6	{ 3.1}	25.8	{ 2.6}	1400	{ 143 }	1
	15		1/15			100	120	43.6	{ 4.4}	36.7	{ 3.7}	1400	{ 143 }	
	20		1/20			75	90	55.7	{ 5.7}	47.2	{ 4.8}	1660	{ 169 }	
	25		1/25			60	72	60.6	{ 6.2}	55.9	{ 5.7}	1660	{ 169 }	
	30		1/30			50	60	60.5	{ 6.2}	56.2	{ 5.7}	1880	{ 192 }	
	40		1/40		22	37.5	45	99.0	{10.1}	84.5	{ 8.6}	3740	{ 381 }	2
	50		1/50			30	36	117	{11.9}	100	{10.2}	3740	{ 381 }	
	60		1/60			25	30	117	{11.9}	108	{11.1}	3740	{ 381 }	
HCMA055	40		1/40	2	22	37.5	45	113	{11.6}	95.0	{ 9.7}	3730	{ 381 }	3
	50		1/50			30	36	130	{13.3}	118	{12.0}	3730	{ 381 }	
	60		1/60		28	25	30	161	{16.5}	136	{13.9}	5150	{ 526 }	4
	75		1/75			20	24	199	{20.3}	168	{17.1}	5150	{ 526 }	
	90		1/90			16.7	20	229	{23.4}	194	{19.8}	5150	{ 526 }	
	100		1/100			15	18	253	{25.8}	214	{21.8}	5150	{ 526 }	
	120		1/120			12.5	15	270	{27.6}	230	{23.5}	5150	{ 526 }	
	150		1/150			10	12	292	{29.8}	280	{28.6}	5150	{ 526 }	
	180		1/180		32	8.3	10	383	{39.1}	327	{33.3}	9760	{ 996 }	5
	200		1/200			7.5	9	419	{42.8}	358	{36.6}	9760	{ 996 }	
	240		1/240		40	6.3	7.5	484	{49.4}	414	{42.2}	12210	{1246 }	6
	300		1/300			5	6	587	{59.9}	501	{51.1}	12210	{1246 }	

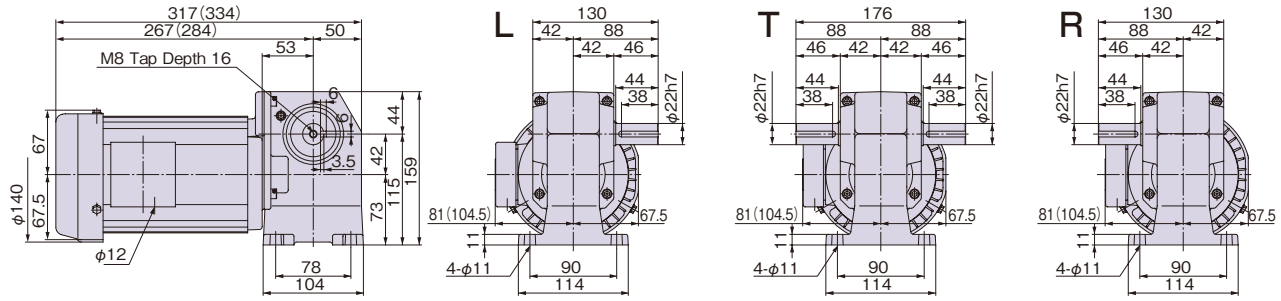
Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

CSMA055-160L10 – 30 L/T/R (B)

1

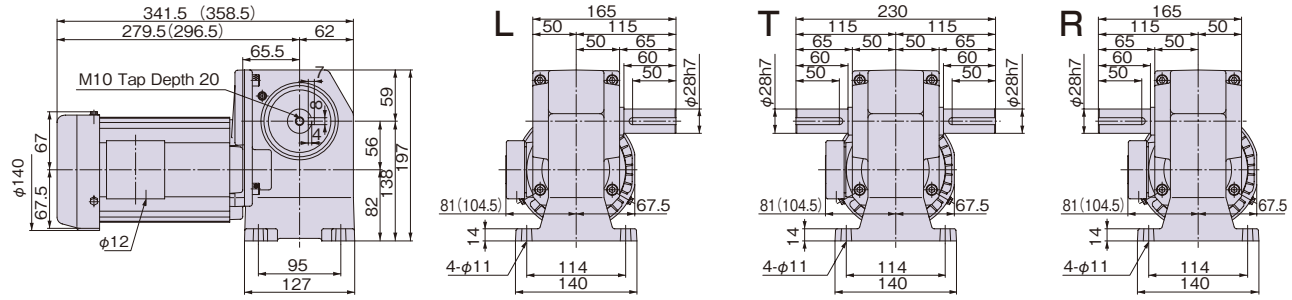
Reduction ratio : 10, 15, 20, 25, 30 | Approx. weight : 9 (10) kg



CSMA055-220L40 – 60 L/T/R (B)

2

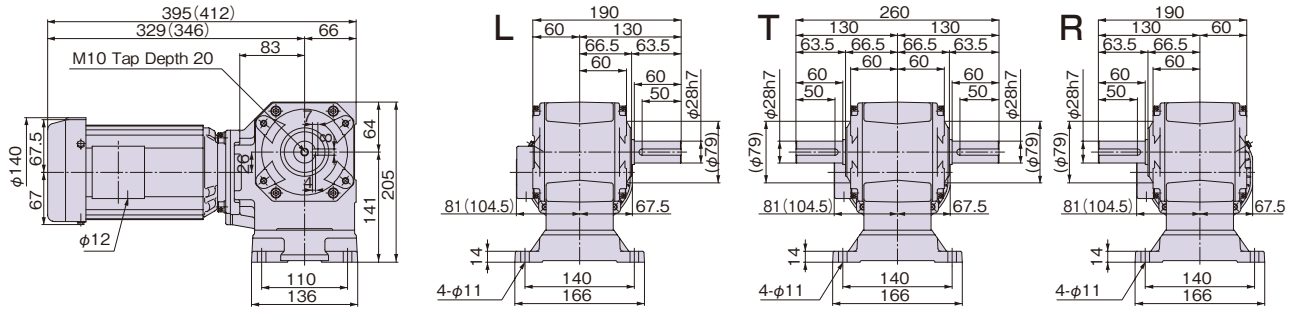
Reduction ratio : 40, 50, 60 | Approx. weight : 11.5 (12.5) kg



HCMA055-220L40 – 50 L/T/R (B)

3

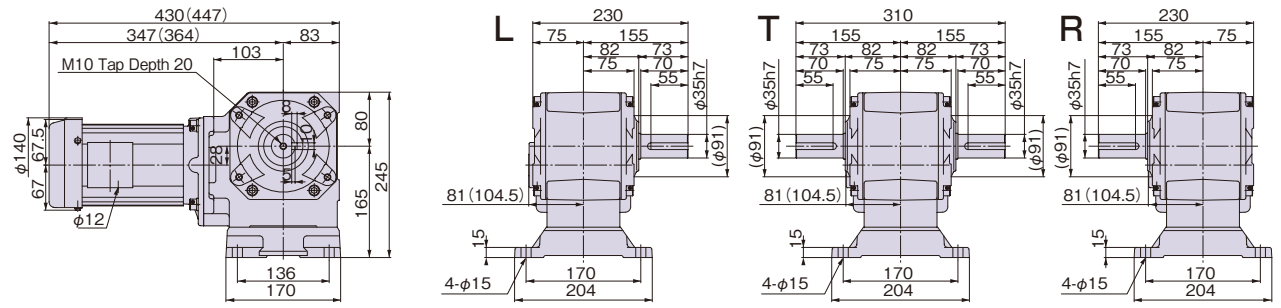
Reduction ratio : 40, 50 | Approx. weight : 19 (21) kg



HCMA055-280L60 – 150 L/T/R (B)

4

Reduction ratio : 60, 75, 90, 100, 120, 150 | Approx. weight : 28 (30) kg



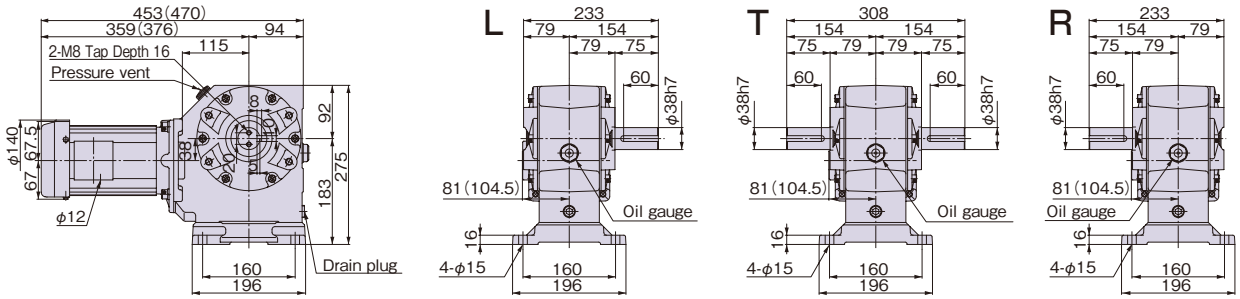
Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Outline Dimensions

HCMA055-321L180 – 200 $^{L}_{T}$ (B)

5

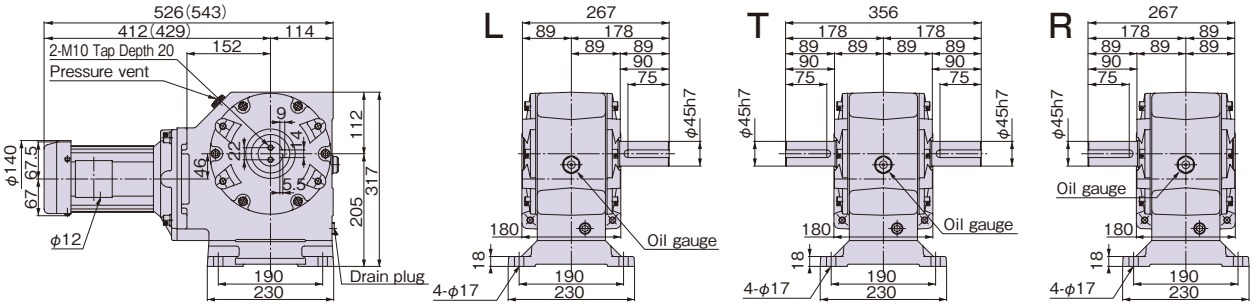
Reduction ratio : 180, 200	Approx. weight : 37 (39) kg



HCMA055-401L240 – 300 $^{L}_{T}$ (B)

6

Reduction ratio : 240, 300	Approx. weight : 57 (59) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Notes

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
0.75kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	4.0/3.5/3.4 (1.9/2.0/1.75/1.7)	1440/1730/1740 (1435/1440/1730/1740)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class F	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR075	10	0.75	1/10	1	22	150	180	42.8	{4.4}	35.9	{3.7}	3660	{373}	1
	15		1/15			100	120	60.8	{6.2}	51.5	{5.3}	3660	{373}	
	20		1/20			75	90	78.8	{8.0}	66.7	{6.8}	3740	{381}	
	25		1/25			60	72	94.1	{9.6}	79.4	{8.1}	3740	{381}	
	30		1/30			50	60	108	{11.0}	91.5	{9.3}	3740	{381}	
	40		1/40		28	37.5	45	141	{14.3}	120	{12.2}	5160	{526}	2
	50		1/50			30	36	168	{17.1}	143	{14.6}	5160	{526}	
	60		1/60			25	30	192	{19.6}	165	{16.8}	5160	{526}	
HCMR075	40		1/40	2	28	37.5	45	156	{16.0}	132	{13.4}	5150	{526}	3
	50		1/50			30	36	193	{19.7}	163	{16.6}	5150	{526}	
	60		1/60			25	30	220	{22.5}	186	{19.0}	5150	{526}	
	75		1/75			20	24	271	{27.7}	229	{23.3}	5150	{526}	
	90		1/90		32	16.7	20	319	{32.6}	270	{27.5}	9630	{983}	4
	100		1/100			15	18	352	{35.9}	298	{30.4}	9760	{996}	
	120		1/120			12.5	15	382	{39.0}	324	{33.1}	9760	{996}	
	150		1/150			10	12	435	{44.4}	396	{40.4}	9760	{996}	
	180		1/180		40	8.3	10	540	{55.2}	460	{47.0}	12210	{1246}	5
	200		1/200			7.5	9	593	{60.5}	505	{51.5}	12210	{1246}	
	240		1/240		50	6.3	7.5	673	{68.7}	576	{58.8}	16980	{1733}	6
	300		1/300			5	6	815	{83.2}	697	{71.1}	16980	{1733}	

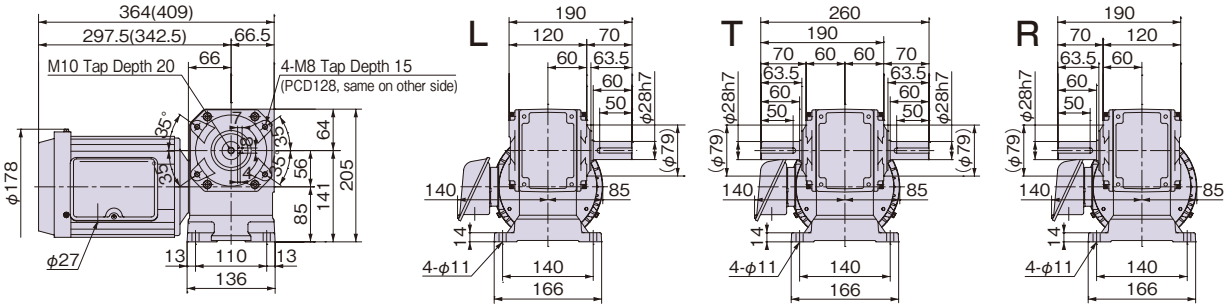
Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Outline Dimensions

CSMR075-220L10 – 30 $^{L}_{R}$ (B)

1

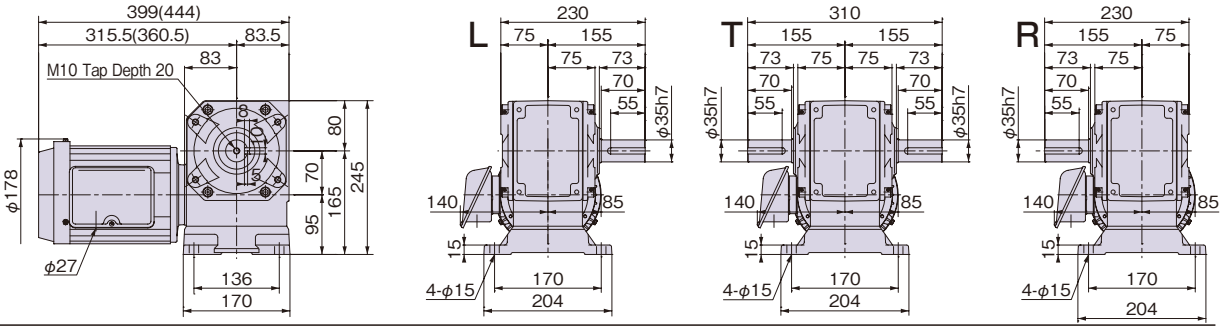
Reduction ratio : 10, 15, 20, 25, 30	Approx. weight : 17 (20) kg



CSMR075-280L40 – 60 $^{L}_{R}$ (B)

2

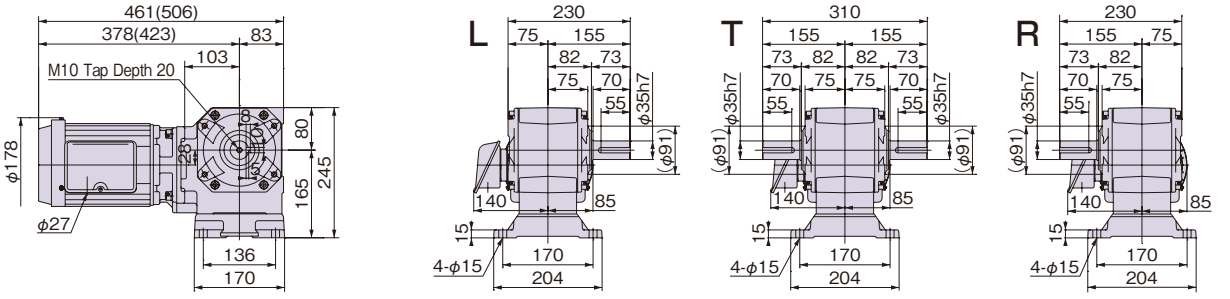
Reduction ratio : 40, 50, 60	Approx. weight : 25 (28) kg



HCMR075-280L40 – 75 $^{L}_{R}$ (B)

3

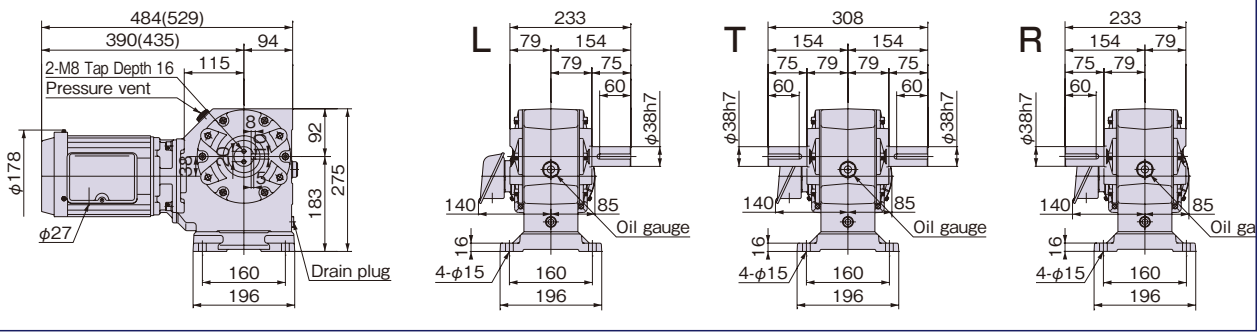
Reduction ratio : 40, 50, 60, 75	Approx. weight : 34 (37) kg



HCMR075-321L90 – 150 $^{L}_{R}$ (B)

4

Reduction ratio : 90, 100, 120, 150	Approx. weight : 43 (46) kg



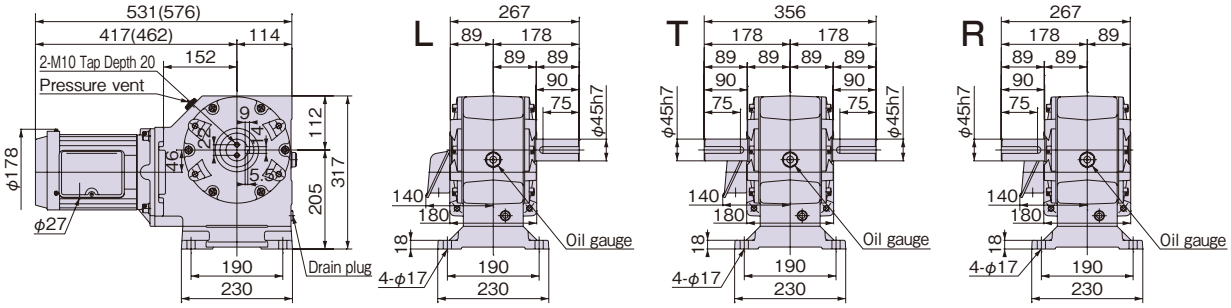
Note 1: The values in parentheses are for brake-equipped models. Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely. Note 3: On CSME075-220L10-30, the motor protrudes from the mounting surface when the terminal box is at a position other than the standard position.

Outline Dimensions

HCMR075-401L180 – 200 $\frac{L}{R}$ (B)

5

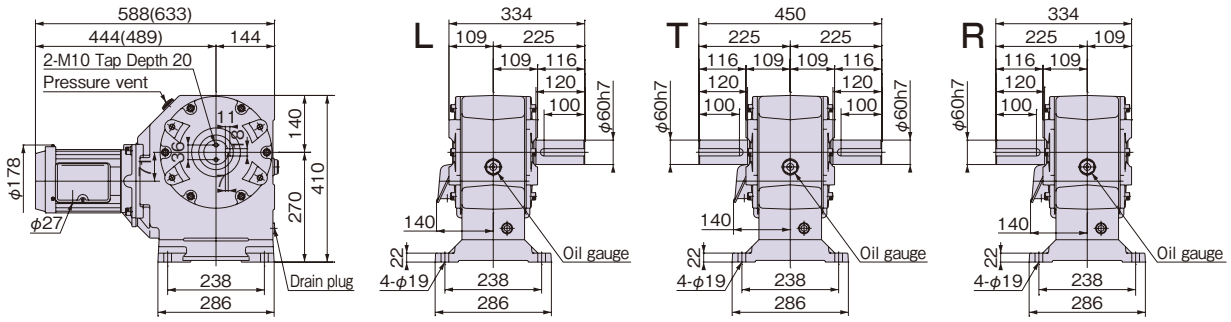
Reduction ratio : 180, 200	Approx. weight : 65 (68) kg



HCMR075-501L240 – 300 $\frac{L}{R}$ (B)

6

Reduction ratio : 240, 300	Approx. weight : 107 (110) kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Notes

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rated current	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
1.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	6.6/6.0/5.8 (3.4/3.3/3.0/2.9)	1440/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation type	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR150	10	1.5	1/10	1	28	150	180	86.8	{ 8.8}	72.4	{ 7.4}	4290	{ 437}	1
	15		1/15			100	120	125	{ 12.7}	105	{ 10.7}	4290	{ 437}	
	20		1/20			75	90	162	{ 16.5}	136	{ 13.9}	5160	{ 526}	
	25		1/25			60	72	196	{ 20.0}	165	{ 16.8}	5160	{ 526}	
	30		1/30			50	60	223	{ 22.7}	189	{ 19.3}	5160	{ 526}	
	40		1/40		32	37.5	45	289	{ 29.4}	246	{ 25.0}	9770	{ 996}	2
	50		1/50			30	36	321	{ 32.8}	292	{ 29.8}	9770	{ 996}	
	60		1/60			25	30	321	{ 32.8}	292	{ 29.8}	9770	{ 996}	
HCMR150	40		1/40	2	32	37.5	45	317	{ 32.4}	267	{ 27.2}	9760	{ 996}	3
	50		1/50			30	36	392	{ 40.0}	330	{ 33.7}	9760	{ 996}	
	60		1/60		40	25	30	460	{ 46.9}	388	{ 39.5}	12210	{1246}	4
	75		1/75			20	24	567	{ 57.8}	478	{ 48.7}	12210	{1246}	
	90		1/90			16.7	20	652	{ 66.5}	551	{ 56.2}	12210	{1246}	
	100		1/100			15	18	719	{ 73.3}	607	{ 62.0}	12210	{1246}	
	120		1/120			12.5	15	744	{ 75.9}	674	{ 68.8}	12210	{1246}	
	150		1/150		50	10	12	988	{101 }	840	{ 85.7}	16980	{1733}	5
	180		1/180			8.3	10	1126	{115 }	959	{ 97.8}	16980	{1733}	
	200		1/200			7.5	9	1236	{126 }	1052	{107 }	16980	{1733}	
	240		1/252			5.95	7.14	1607	{164 }	1362	{139 }	16983	{1733}	
	300		1/315			4.76	5.71	1980	{202 }	1676	{171 }	16983	{1733}	

Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

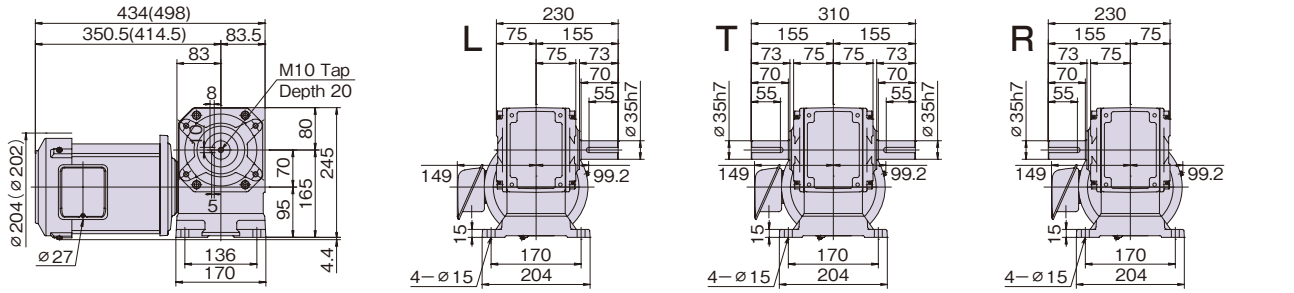
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Outline Dimensions

CSMR150-280L10 – 30 $\frac{L}{R}$ (B)

1

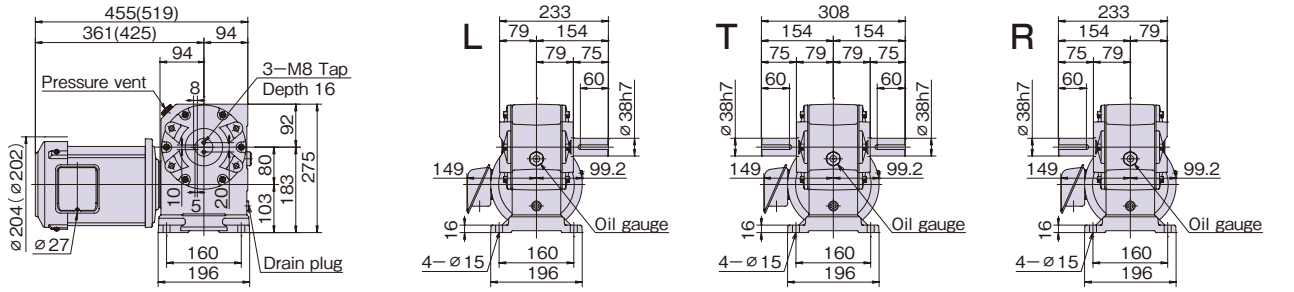
Reduction ratio : 10, 15, 20, 25, 30 | Approx. weight : 34(39)kg



CSMR150-321L40 – 60 $\frac{L}{R}$ (B)

2

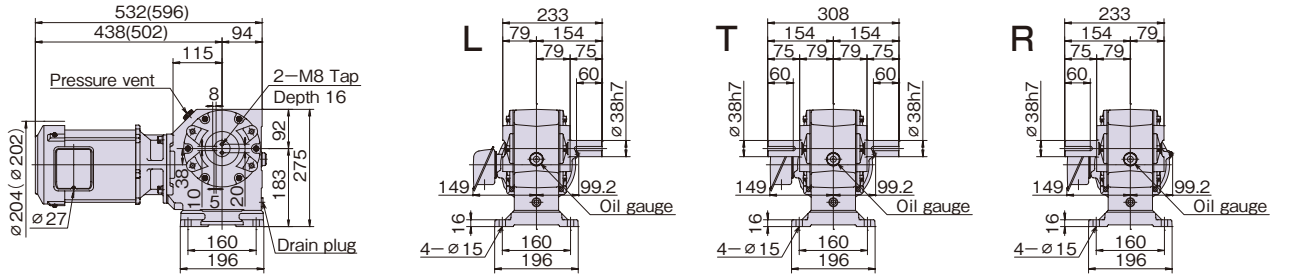
Reduction ratio : 40, 50, 60 | Approx. weight : 45(50)kg



HCMR150-321L40 – 50 $\frac{L}{R}$ (B)

3

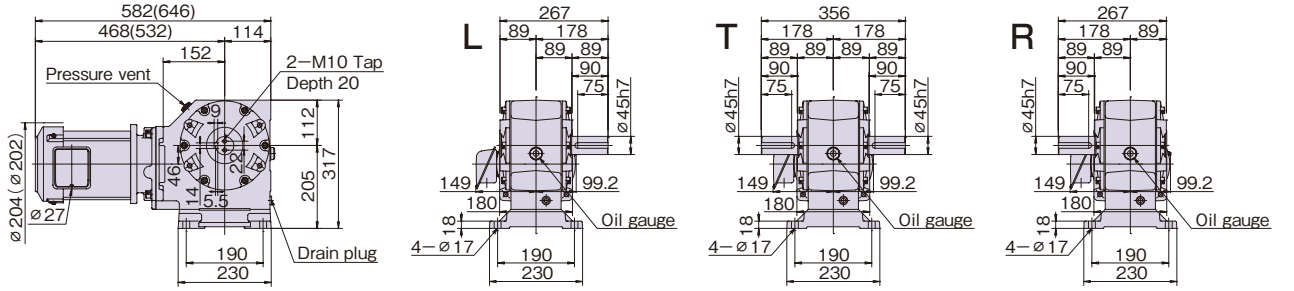
Reduction ratio : 40, 50 | Approx. weight : 51(56)kg



HCMR150-401L60 – 120 $\frac{L}{R}$ (B)

4

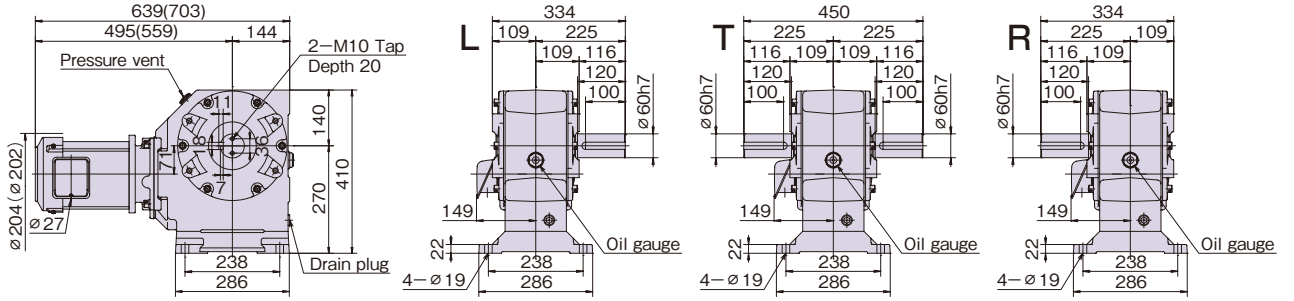
Reduction ratio : 60, 75, 90, 100, 120 | Approx. weight : 72(77)kg



HCMR150-501L150 – 300 $\frac{L}{R}$ (B)

5

Reduction ratio : 150, 180, 200, 252, 315 | Approx. weight : 116(121)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
2.2kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	9.6/8.8/8.4 (4.8/4.8/4.4/4.2)	1450/1745/1755 (1445/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation	At least 150%	Class B

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR220	10	2.2	1/10	1	32	150	180	128	{ 13.1}	108	{ 11.0}	9770	{ 996 }	1
	15		1/15			100	120	185	{ 18.9}	160	{ 16.3}	9770	{ 996 }	
	20		1/20			75	90	240	{ 24.5}	203	{ 20.7}	9770	{ 996 }	
	25		1/25			60	72	301	{ 30.7}	253	{ 25.8}	9770	{ 996 }	
	30		1/30			50	60	335	{ 34.1}	284	{ 28.9}	9770	{ 996 }	
	40		1/40		40	37.5	45	436	{ 44.4}	370	{ 37.7}	12200	{ 1240 }	2
	50		1/50			30	36	524	{ 53.5}	446	{ 45.5}	12200	{ 1240 }	
	60		1/60			25	30	532	{ 54.3}	474	{ 48.3}	12200	{ 1240 }	
HCMR220	40		1/40	2	40	37.5	45	473	{ 48.3}	398	{ 40.6}	12210	{ 1246 }	3
	50		1/50			30	36	585	{ 59.7}	492	{ 50.2}	12210	{ 1246 }	
	60		1/60			25	30	674	{ 68.8}	568	{ 58.0}	12210	{ 1246 }	
	75		1/75			20	24	751	{ 76.6}	701	{ 71.5}	12210	{ 1246 }	
	90		1/90		50	16.7	20	980	{100 }	827	{ 84.4}	16980	{ 1733 }	4
	100		1/100			15	18	1081	{110 }	912	{ 93.1}	16980	{ 1733 }	
	120		1/120			12.5	15	1187	{121 }	1008	{103 }	16980	{ 1733 }	
	150		1/150			10	12	1400	{143 }	1231	{126 }	16980	{ 1733 }	
	180		1/180			8.3	10	1980	{202 }	1666	{170 }	16983	{ 1733 }	
	200		1/200			7.5	9	2195	{224 }	1842	{188 }	16983	{ 1733 }	
	240		1/252			5.95	7.14	2489	{254 }	2097	{214 }	16983	{ 1733 }	
	300		1/315			4.76	5.71	※2607	※{266 }	2587	{264 }	16983	{ 1733 }	

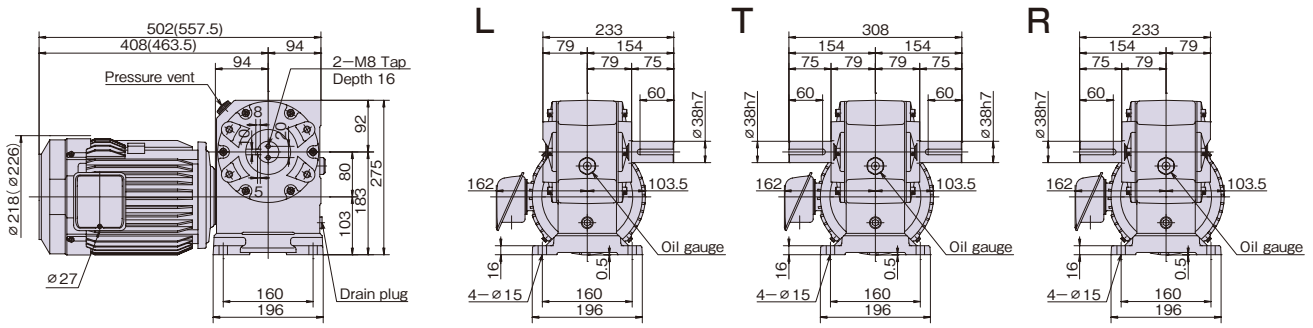
Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.

Outline Dimensions

CSMR220-321L10 – 30 L/T/R (B)

1

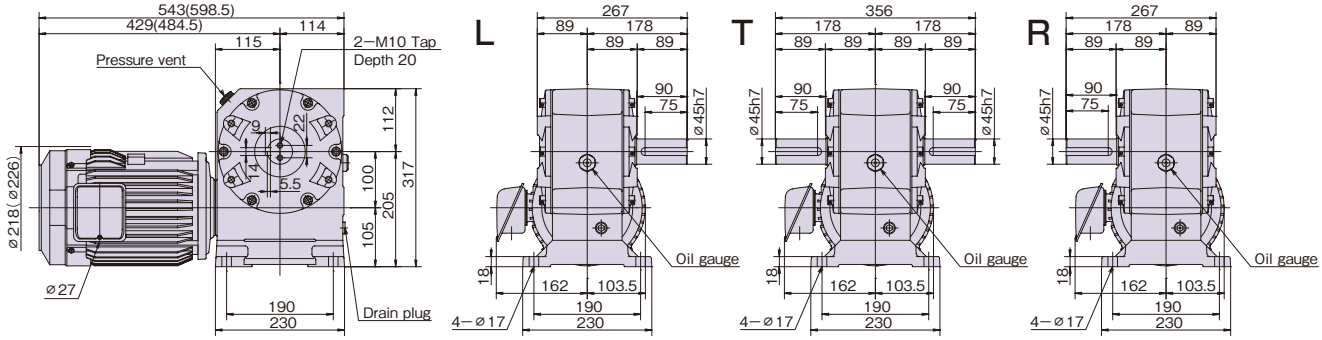
Reduction ratio : 10, 15, 20, 25, 30 | Approx. weight : 55(60)kg



CSMR220-401L40 – 60 L/T/R (B)

2

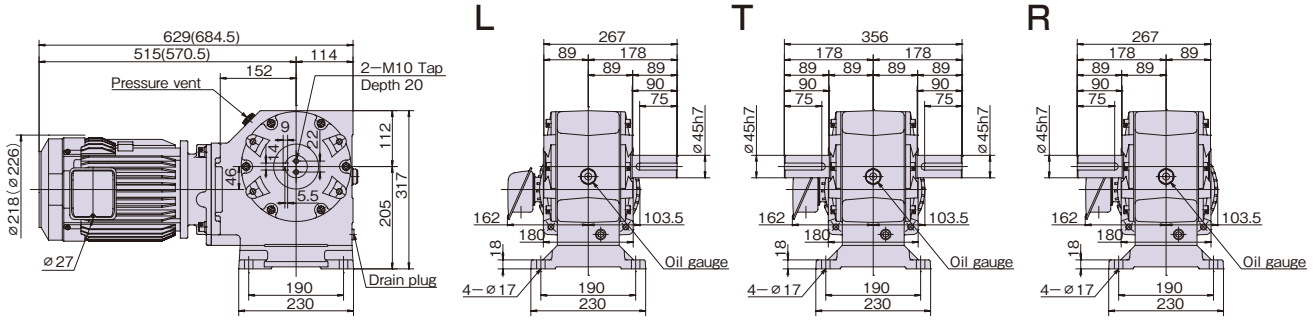
Reduction ratio : 40, 50, 60 | Approx. weight : 68(73)kg



HCMR220-401L40 – 75 L/T/R (B)

3

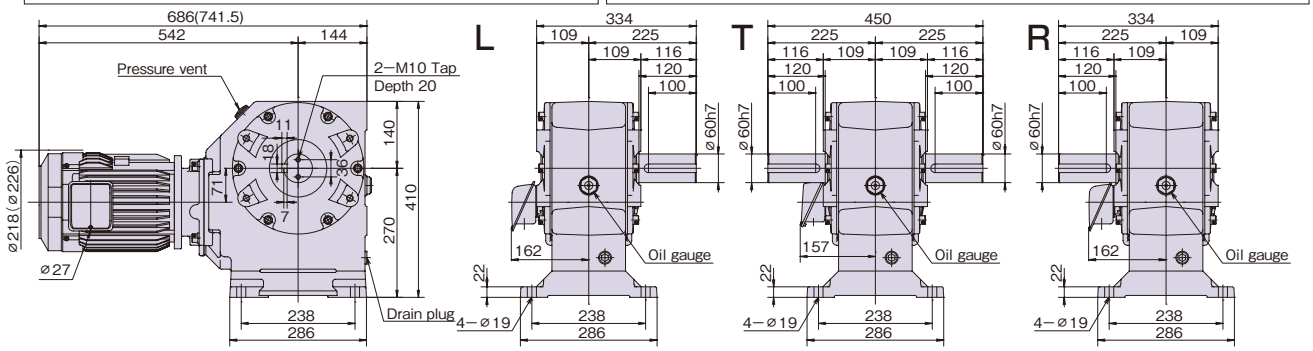
Reduction ratio : 40, 50, 60, 75 | Approx. weight : 82(87)kg



HCMR220-501L90 – 300 L/T/R (B)

4

Reduction ratio : 90, 100, 120, 150, 180, 200, 252, 315 | Approx. weight : 126(131)kg



Note 1: The values in parentheses are for brake-equipped models.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
3.7kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	15.4/14.4/13.6 (7.8/7.7/7.2/6.8)	1450/1745/1755 (1455/1450/1745/1755)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR370	10	3.7	1/10	1	40	150	180	218	{ 22.3}	183	{ 18.6}	12200	{ 1240 }	1
	15		1/15			100	120	317	{ 32.3}	266	{ 27.1}	12200	{ 1240 }	
	20		1/20			75	90	411	{ 41.9}	346	{ 35.3}	12200	{ 1240 }	
	25		1/25			60	72	503	{ 51.3}	424	{ 43.2}	12200	{ 1240 }	
	30		1/30			50	60	579	{ 59.1}	491	{ 50.0}	12200	{ 1240 }	
	40		1/40		50	37.5	45	755	{ 77.0}	640	{ 65.3}	16600	{ 1690 }	2
	50		1/50			30	36	857	{ 87.4}	767	{ 78.3}	16600	{ 1690 }	
	60		1/60			25	30	857	{ 87.4}	795	{ 81.1}	16600	{ 1690 }	
HCMR370	40		1/40	2	50	37.5	45	803	{ 81.9}	675	{ 68.9}	16980	{ 1733 }	3
	50		1/50			30	36	993	{101 }	835	{ 85.2}	16980	{ 1733 }	
	60		1/60			25	30	1148	{117 }	967	{ 98.7}	16980	{ 1733 }	
	75		1/75			20	24	1363	{139 }	1192	{122 }	16980	{ 1733 }	
	90		1/90			16.7	20	1833	{187 }	1539	{157 }	16983	{ 1733 }	
	100		1/100			15	18	2029	{207 }	1705	{174 }	16983	{ 1733 }	
	120		1/126			11.9	14.3	2421	{247 }	2029	{207 }	16983	{ 1733 }	
	150		1/157.5			9.5	11.4	※2607	※{266 }	2519	{257 }	16983	{ 1733 }	
	180		1/180			8.3	10	※2607	※{266 }	※2607	※{266 }	16983	{ 1733 }	
	200		1/200			7.5	9	※2607	※{266 }	※2607	※{266 }	16983	{ 1733 }	
	240		1/252			5.95	7.14	※2607	※{266 }	※2607	※{266 }	16983	{ 1733 }	
	300		1/315			4.76	5.71	※2607	※{266 }	※2607	※{266 }	16983	{ 1733 }	

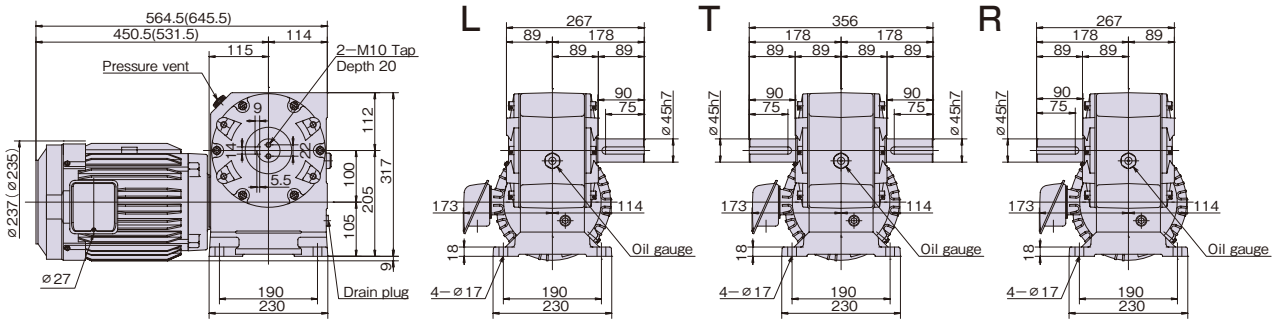
Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.

Outline Dimensions

CSMR370-401L10 – 30 L/R (B)

1

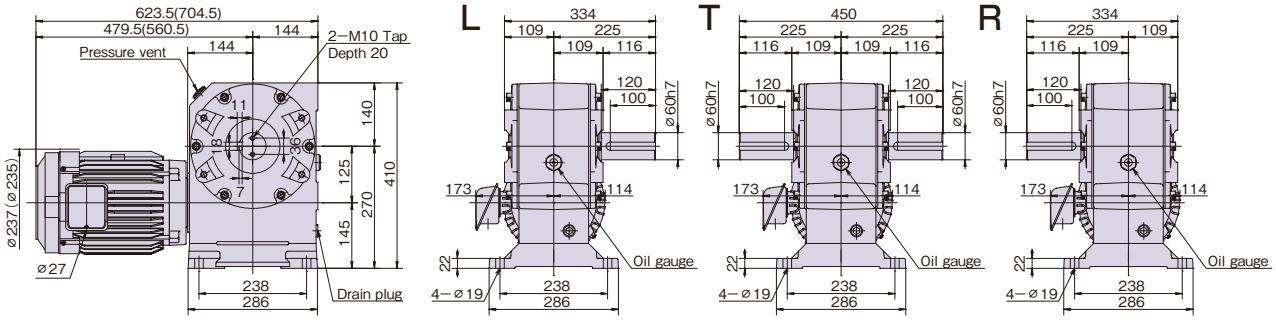
Reduction ratio : 10, 15, 20, 25, 30 | Approx. weight : 78(88)kg



CSMR370-501L40 – 60 L/R (B)

2

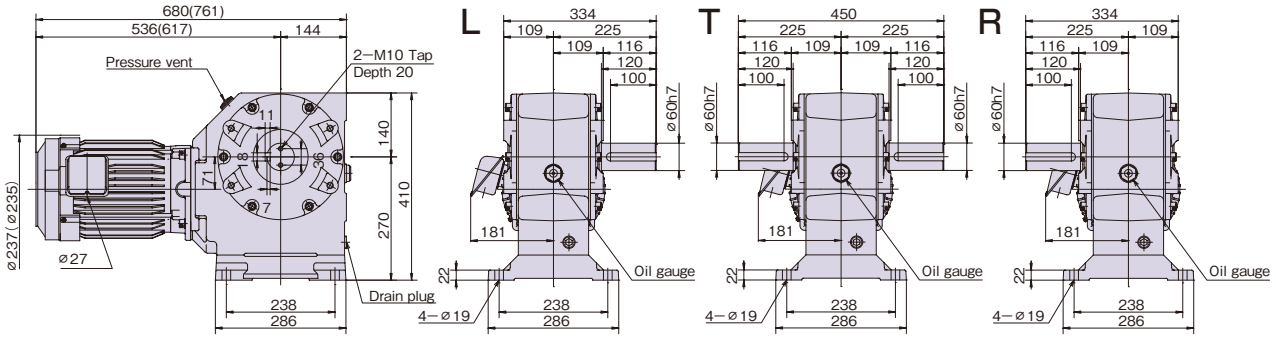
Reduction ratio : 40, 50, 60 | Approx. weight : 118(128)kg



HCMR370-501L40 – 300 L/R (B)

3

Reduction ratio : 40, 50, 60, 75, 90, 100,126, 157.5, 180, 200, 252, 315 | Approx. weight : 138(148)kg



Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.

Specification Chart

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Protection	Cooling method	Rating	Insulation	Brake		
											Type	Rated torque of motor torque	Insulation
5.5kW	Three-phase	4	50/60/60 (50/50/60/60)	200/200/220 (380/400/400/440)	22.6/20.8/20.0 (11.3/11.3/10.4/10.0)	1465/1760/1765 (1460/1465/1760/1765)	Totally enclosed (IP44)	Self managed (JC411)	Continuous	Class B	Non-excitation	At least 150%	Class E

Note 1: The values in parentheses under "Rated current" and "Rated revolution" are for 400 V class.
Note 2: The protective construction for the brake type is IP20.

Model number		Motor output kW	Actual reduction ratio	Number of reduction steps	Reducer frame number	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions
								N·m	{kgf·m}	N·m	{kgf·m}			
						50Hz	60Hz	50Hz		60Hz		N	{kgf}	
CSMR550	10	5.5	1/10	1	50	150	180	326	{ 33.3}	273	{ 27.9}	16980	{ 1733 }	1
	15		1/15			100	120	476	{ 48.5}	399	{ 40.8}	16980	{ 1733 }	
	20		1/20			75	90	621	{ 63.4}	522	{ 53.3}	16980	{ 1733 }	
	25		1/25			60	72	758	{ 77.3}	638	{ 65.1}	16980	{ 1733 }	
	30		1/30			50	60	876	{ 89.4}	740	{ 75.5}	16980	{ 1733 }	
HCMR550	40		1/41	2	50	36.59	43.9	※981	{※100 }	※981	{※100 }	16980	{ 1733 }	2
	50		1/51.25			29.27	35.12	※1146	{※117 }	※1146	{※117 }	16980	{ 1733 }	
	75		1/80			18.75	22.5	※1836	{※187 }	※1836	{※187 }	16980	{ 1733 }	
	90		1/90			16.67	20	※2058	{※210 }	※2058	{※210 }	16980	{ 1733 }	
	100		1/100			15	18	※2136	{※218 }	※2137	{※218 }	16980	{ 1733 }	

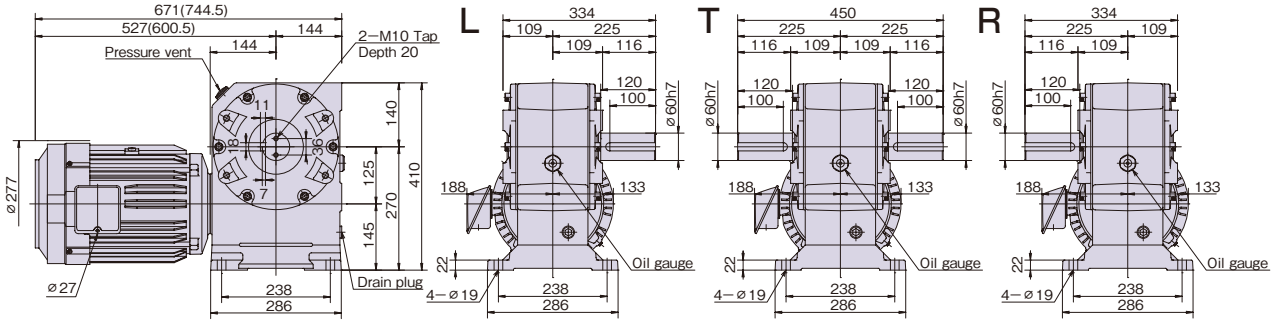
Note 1: The actual reduction ratio is shown as the reduction ratio.
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.
Note 4: The models marked with ※ are ones for which torque is limited.

Outline Dimensions

CSMR550-501L10 – 30 L/R (B)

1

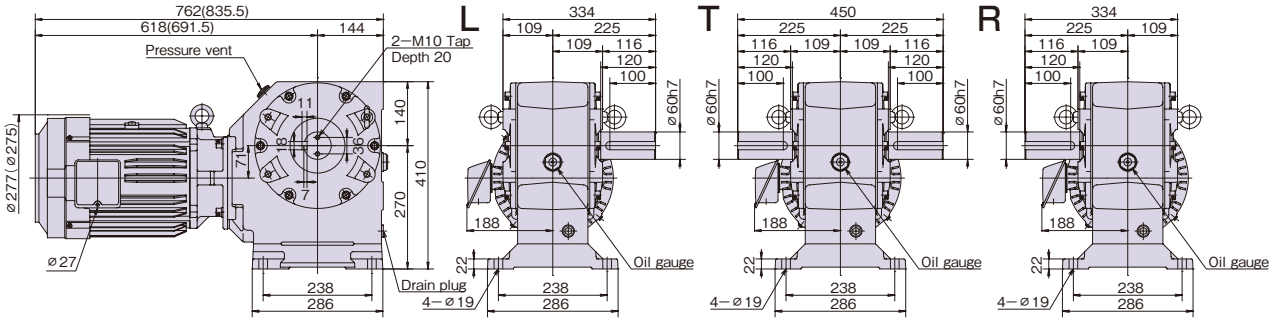
Reduction ratio : 10, 15, 20, 25, 30 | Approx. weight : 136(151)kg



HCMR550-501L40 – 100 L/R (B)

2

Reduction ratio : 41, 51.25, 80, 90, 100 | Approx. weight : 156(171)kg



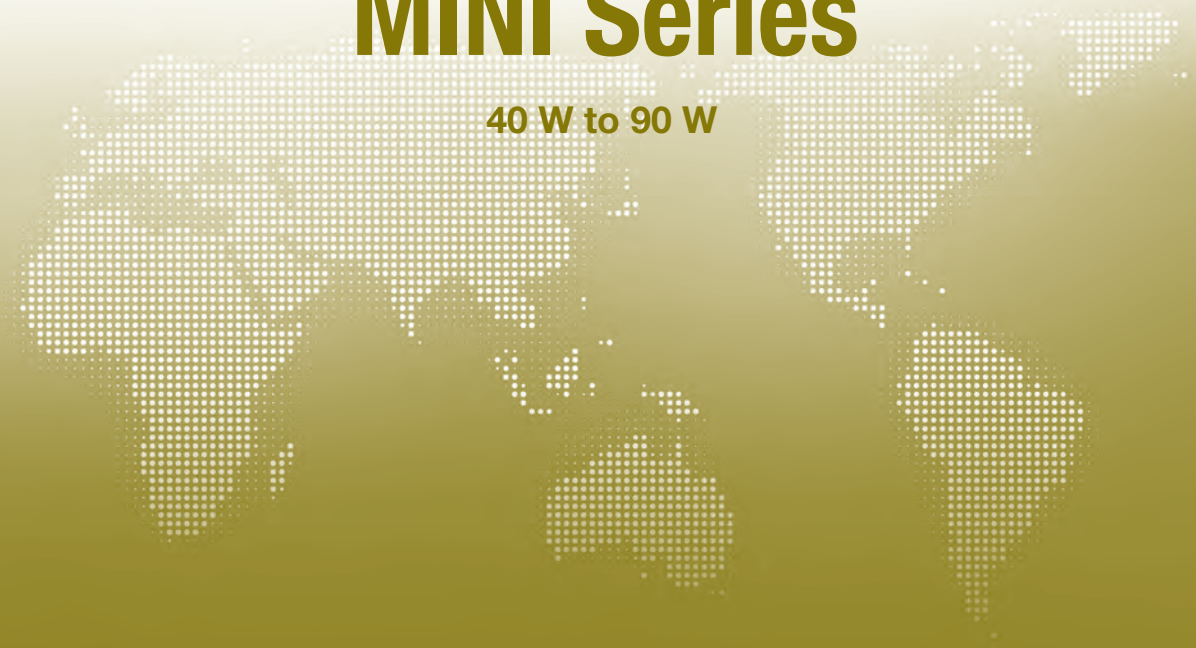
Note 1: The values in parentheses are for brake-equipped models. See page 210 for terminal box specifications.
Note 2: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 3: On 400 V-class brake-equipped models, the DC module (HD-120MH1) is placed separately. See page 217 for dimensions.

Notes

HYPOID MOTOR

MINI Series

40 W to 90 W



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Features ····· Page 191

Nomenclature, Standard Specifications,
Motor Specifications ····· Page 193

Specification Chart ····· Page 194

Outline Dimensions ····· Page 195

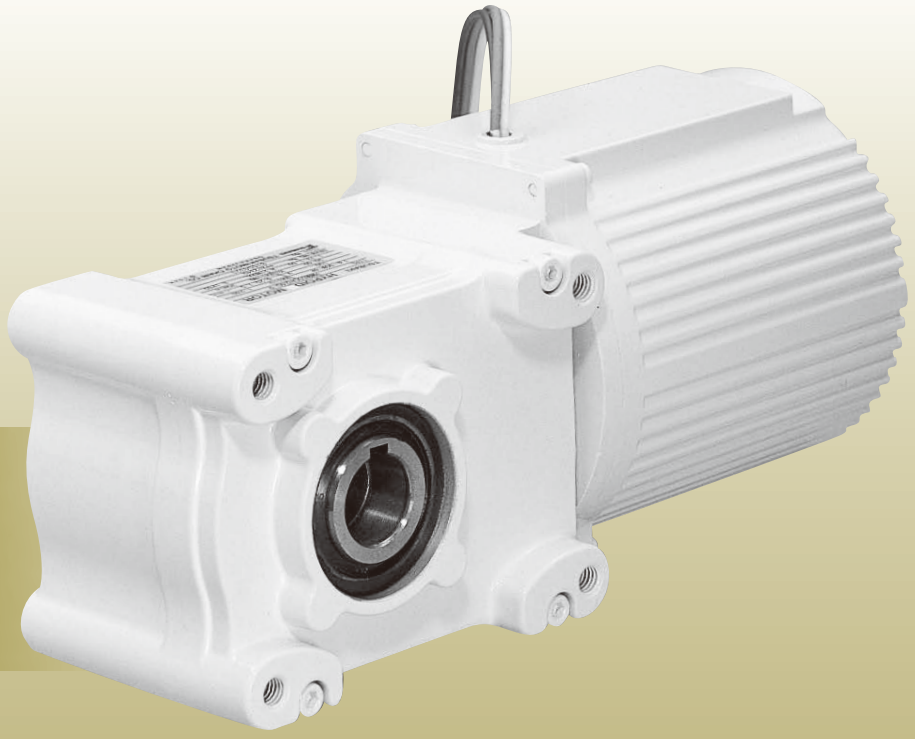
- 40 W, Three-Phase/Single-Phase Motor (Hollow Shaft, Face Mount, Foot Mount)
- 60 W, Three-Phase/Single-Phase Motor (Hollow Shaft, Face Mount, Foot Mount)
- 90 W, Three-Phase/Single-Phase Motor (Hollow Shaft, Face Mount, Foot Mount)

Technical Information ····· Page 202

- Selection
- Technical Data
- Options
- Plus α Series
- Just Fit Models
- Handling

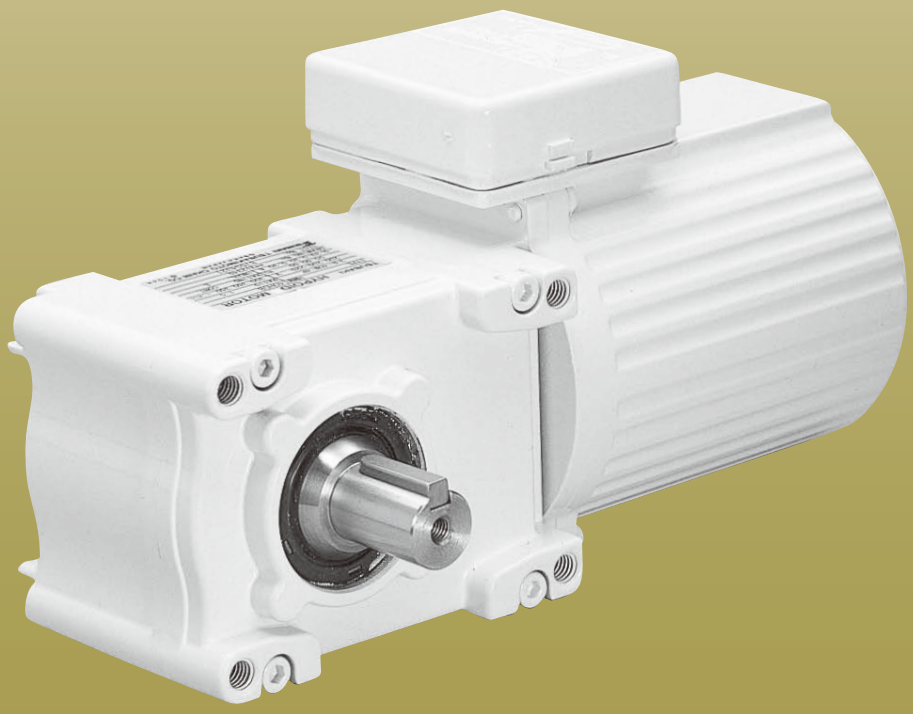
HYPOID MOTOR MINI Series
Features

Hypoid Motor Mini Series Features



Compact

Single-phase and three-phase 40 W, 60 W, and 90 W models



1 High torque

During revolution of a low output shaft at a high reduction ratio, there are no torque limitations so users get high torque transfer.

2 High efficiency

In order to reduce power consumption and generate high power output, all parts were meticulously designed with an eye to efficiency. Compared to the worm type, users get less sliding, greater efficiency, and lower operating costs.

3 Long life

The average service life of more than 10,000 hours is one of the highest in this product class.

4 Flexible mounting

With identical upper and lower pitches on the hypoid motor housing, they can be installed in a mirror configuration.

5 Wide range of reduction ratios

Choose from the following reduction ratios:
1/5, 1/8, 1/10, 1/15, 1/20, 1/25, 1/30, 1/40, 1/50, 1/60, 1/80, 1/100, 1/120, 1/160, 1/200, 1/240

6 Outdoor type equivalent to IP65 waterproof rating

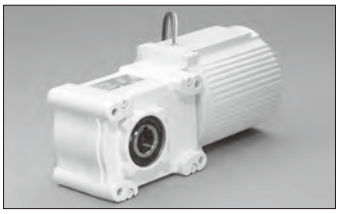
All outdoor models have waterproof performance equivalent to IP65 under IEC standards.

Nomenclature

HMMT60L50LB - W

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

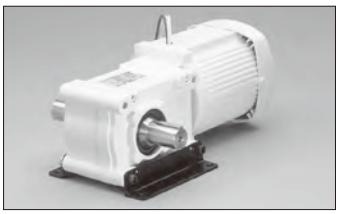
① Product series name	HMM	Hypoid motor Mini Series
② Motor specifications	T	Three-phase
	S	Single-phase
③ Motor capacity	40	40 W
	60	60 W
	90	90 W
④ Mounting type	L	Foot mount
	U	Face mount
	H	Hollow shaft
⑤ Reduction ratio (example)	8	1/8
	50	1/50
	240	1/240
⑥ Shaft arrangement	L	Output shaft located to the left as viewed from the motor side
	T	Output shaft located on both shafts
	R	Output shaft located to the right as viewed from the motor side
	S	Output shaft located to the left as viewed from the motor side (face mount only)
	No code	Hollow shaft type
⑦ Brake	No code	No brake
	B	With brake
⑧ Specification code	No code	Lead wire outlet type
	W	Outdoor type
	J	Waterproof specifications
	V	Three-phase 400 V class, single-phase 200 V class
	WV	Outdoor, three-phase 400 V class, single-phase 200 V class
	P	Resin terminal box
	PV	Resin terminal box, three-phase 400 V class, single-phase 200 V class
	N2	UL listed (three-phase 60W/90 W non-brake type only) } Global series Note 8
	N3	CCC compliant (three-phase 60W/90W non-brake type only) } Global series Note 8



Lead wire outlet type



Resin terminal box attached



Lead wire outlet foot mount type

Note 1: Outdoor models (W) have waterproof performance equivalent to IP65.
Note 2: Outdoor models (W) with brake (B) are available.
Note 3: Models equipped with resin terminal box (P) are not available with brake (B).
Note 4: Contact us for single-phase, 90 W (HMMS90) outdoor models (W) and single-phase, 90 W (HMMS90) brake-equipped models (B).
Note 5: The motors do not have micro surge protection.
Note 6: Three-phase 400 V-class models cannot be inverter-driven.
Note 7: Three-phase 200 V-class models can be inverter-driven, but they cannot be continuously operated in low frequencies or at 60 Hz and higher.
Note 8: Refer to page 251 for voltages of global series products.

Specifications

Motor	Output	Three-phase: 40, 60, 90 W	Single-phase: 40, 60, 90 W
	Power supply	200/200/220 V　50/60/60 Hz	100 V　50/60 Hz
	Number of poles	4	4
	Protection	Totally enclosed type (IP30)	Totally enclosed type (90W is totally enclosed external fan type) (IP30)
	Cooling	Self-cooled type	Self-cooled type (90 W is self-managed type)
	Startup	—	Capacitor run
	Rating	S1 (continuous)	
	Insulation	120 (E)	
	Brake	Non-excitation operation, DC electromagnetic brake (except single-phase 90 W)	
Reducer	Reduction ratio	1/5 to 1/240	
	Lubrication	Grease lubrication	
	Start end keyway	New JIS key (JISB1301-1976): output shaft key attached (except hollow shaft type; ordinary-class keyway)	
	Output shaft end	With tap processing (except hollow shaft type)	
Ambient conditions	Installation place	Indoor not exposed to dust or water	
	Temperature	−15℃ to 40℃	
	Humidity	Less than 85% (non condensing)	
	Altitude	Elevations below 1000m	
	Atmosphere	Free from corrosive gases, explosive gases, and steam	
	Mounting direction	No limitations on mounting angles: horizontal, vertical, or inclined	
Paint color		Munsell N7.5, light gray	

Motor Specifications

Number of phases	Output	Number of poles	Frequency Hz	Voltage V	Rated revolution r/min	Rated current A	Starting torque N · m {kgf · m} (Nominal torque ratio %)
Three-phase	40 W	4	50/60/60	200/200/220	1370/1640/1680	0.33/0.30/0.30	0.54/0.38/0.48 {0.055/0.039/0.049} (194/165/212)
	60 W				1321/1598/1622	0.45/0.40/0.42	0.83/0.62/0.75 {0.085/0.063/0.076} (192/172/211)
	90 W				1313/1586/1622	0.60/0.55/0.55	1.13/0.87/1.01 {0.115/0.089/0.103} (172/161/191)
Single-phase	40 W	4	50/60	100	1411/1711	0.89/0.82	0.21/0.21 {0.022/0.022} (79.7/96.6)
	60 W				1293/1625	1.17/1.06	0.25/0.25 {0.026/0.025} (57.5/69.5)
	90 W				1274/1614	1.73/1.60	0.40/0.40 {0.041/0.041} (59.6/75.5)

Specification Chart

Model number		Motor output	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Page and drawing number of outline dimensions		
							N·m	{kgf·m}	N·m	{kgf·m}					
					50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount
HMM T40 / HMM S40	5	40 W	1/5	2	300	360	0.98	{0.10}	0.88	{0.09}	147	{ 15}	Non-brake 196 | 1 / Brake 196 | 2	Non-brake 196 | 3 / Brake 196 | 4	Non-brake 195 | 5 / Brake 196 | 6
	8		1/8		187.5	225	1.67	{0.17}	1.37	{0.14}	206	{ 21}			
	10		1/10		150	180	2.06	{0.21}	1.67	{0.17}	343	{ 35}			
	15		1/15		100	120	3.04	{0.31}	2.55	{0.26}	441	{ 45}			
	20		1/20		75	90	4.02	{0.41}	3.43	{0.35}	539	{ 55}			
	25		1/25		60	72	5.10	{0.52}	4.21	{0.43}	588	{ 60}			
	30		1/30		50	60	6.08	{0.62}	5.10	{0.52}	686	{ 70}			
	40		1/40		37.5	45	8.13	{0.83}	6.76	{0.69}	784	{ 80}			
	50		1/50		30	36	10.2	{1.04}	8.43	{0.86}	882	{ 90}			
	60		1/60		25	30	12.2	{1.24}	10.2	{1.04}	882	{ 90}			
	80		1/80	3	18.8	22.5	15.5	{1.58}	12.8	{1.31}	980	{100}			
	100		1/100		15	18	19.3	{1.97}	16.1	{1.64}	980	{100}			
	120		1/120		12.5	15	23.1	{2.36}	19.3	{1.97}	1080	{110}			
	160		1/160		9.4	11.3	30.9	{3.15}	25.8	{2.63}	1370	{140}			
	200		1/200		7.5	9	38.6	{3.94}	32.1	{3.28}	1370	{140}			
	240		1/240		6.2	7.5	46.4	{4.73}	38.6	{3.94}	1370	{140}			
HMM T60 / HMM S60	5	60 W	1/5	2	300	360	1.57	{0.16}	1.27	{0.13}	255	{ 26}	Non-brake 198 | 1 / Brake 198 | 2	Non-brake 198 | 3 / Brake 198 | 4	Non-brake 197 | 5 / Brake 198 | 6
	8		1/8		187.5	225	2.45	{0.25}	2.06	{0.21}	353	{ 36}			
	10		1/10		150	180	3.04	{0.31}	2.55	{0.26}	441	{ 45}			
	15		1/15		100	120	4.61	{0.47}	3.82	{0.39}	588	{ 60}			
	20		1/20		75	90	6.08	{0.62}	5.10	{0.52}	735	{ 75}			
	25		1/25		60	72	7.64	{0.78}	6.37	{0.65}	882	{ 90}			
	30		1/30		50	60	9.11	{0.93}	7.64	{0.78}	980	{100}			
	40		1/40		37.5	45	12.2	{1.24}	10.2	{1.04}	1080	{110}			
	50		1/50		30	36	15.2	{1.55}	12.7	{1.30}	1180	{120}			
	60		1/60		25	30	18.3	{1.87}	15.2	{1.55}	1180	{120}			
	80		1/80	3	18.8	22.5	23.1	{2.36}	19.3	{1.97}	1760	{180}			
	100		1/100		15	18	28.9	{2.95}	24.1	{2.46}	1760	{180}			
	120		1/120		12.5	15	34.7	{3.54}	28.9	{2.95}	1760	{180}			
	160		1/160		9.4	11.3	46.4	{4.73}	38.6	{3.94}	1760	{180}			
	200		1/200		7.5	9	57.9	{5.91}	48.2	{4.92}	1760	{180}			
	240		1/240		6.2	7.5	69.5	{7.09}	57.9	{5.91}	1760	{180}			
HMM T90 / HMM S90	5	90 W	1/5	2	300	360	2.25	{0.23}	1.86	{0.19}	255	{ 26}	Non-brake 200−1 / 200−3 / Brake 200 | 2	Non-brake 200−4 / 200−6 / Brake 200 | 5	Non-brake 199−7 / 199−9 / Brake 201 | 8
	8		1/8		187.5	225	3.63	{0.37}	3.04	{0.31}	353	{ 36}			
	10		1/10		150	180	4.61	{0.47}	3.82	{0.39}	441	{ 45}			
	15		1/15		100	120	6.86	{0.70}	5.68	{0.58}	588	{ 60}			
	20		1/20		75	90	9.11	{0.93}	7.64	{0.78}	735	{ 75}			
	25		1/25		60	72	11.5	{1.17}	9.51	{0.97}	882	{ 90}			
	30		1/30		50	60	13.7	{1.40}	11.5	{1.17}	980	{100}			
	40		1/40		37.5	45	18.3	{1.87}	15.2	{1.55}	1080	{110}			
	50		1/50		30	36	22.8	{2.33}	19.0	{1.94}	1180	{120}			
	60		1/60		25	30	27.4	{2.80}	22.8	{2.33}	1180	{120}			
	80		1/80	3	18.8	22.5	34.7	{3.54}	28.9	{2.95}	1760	{180}			
	100		1/100		15	18	43.4	{4.43}	36.2	{3.69}	1760	{180}			
	120		1/120		12.5	15	52.1	{5.32}	43.4	{4.43}	1760	{180}			
	160		1/160		9.4	11.3	69.5	{7.09}	57.9	{5.91}	1760	{180}			
	200		1/200		7.5	9	86.8	{8.86}	72.3	{7.38}	1760	{180}			
	240		1/240		6.2	7.5	104	{10.6}	86.8	{8.86}	1760	{180}			

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate (page 193).
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Motor Specifications

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Starting torque N·m{kgf·m} (Nominal torque ratio)	Protection	Cooling method	Rating	Insulation	Brake actuating method
40W	Three-phase	4	50/60/60	200/200/220	0.33/0.30/0.30	1370/1640/1640	0.54/0.38/0.48 {0.055/0.039/0.049} (194/165/212)	Totally enclosed (IP30)	Self-cooled (IC410)	Continuous	120 (E)	Non-excitation
	Single phase	4	50/60	100	0.89/0.82	1411/1711	0.21/0.21 {0.022/0.022} (79.7/96.6)					

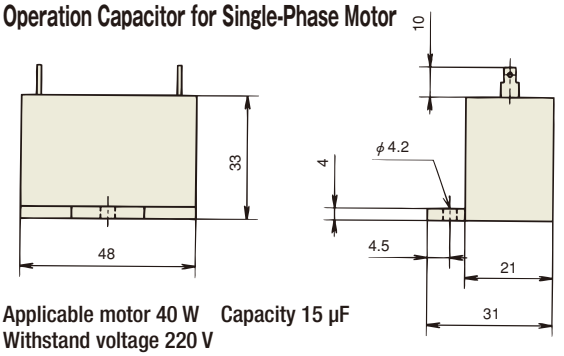
Note: A single-phase motor uses the capacitor-start method. Connect and use the capacitor that is included with the product.

Specification Chart

Model number		Motor output	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min 50Hz	Output shaft revolution r/min 60Hz	Allowable output shaft torque N·m 50Hz	Allowable output shaft torque {kgf·m} 50Hz	Allowable output shaft torque N·m 60Hz	Allowable output shaft torque {kgf·m} 60Hz	Allowable output shaft O.H.L. N	Allowable output shaft O.H.L. {kgf}	Drawing number of outline dimensions: Hollow shaft	Face mount	Foot mount	Moment of inertia kg·m² {GD2 kgf·m²}
HMM T40 / HMM S40	5	40 W	1/5	2	300	360	0.98	{0.10}	0.88	{0.09}	147	{ 15}	Non-brake | 1 Brake | 2	Non-brake | 3 Brake | 4	Non-brake | 5 Brakee | 6	Three-phase non-brake 1.84×10⁻⁴ {7.35×10⁻⁴}
	8		1/8		187.5	225	1.67	{0.17}	1.37	{0.14}	206	{ 21}				Three-phase brake 1.86×10⁻⁴ {7.45×10⁻⁴}
	10		1/10		150	180	2.06	{0.21}	1.67	{0.17}	343	{ 35}				Single-phase non-brake 2.07×10⁻⁴ {8.27×10⁻⁴}
	15		1/15		100	120	3.04	{0.31}	2.55	{0.26}	441	{ 45}				Single-phase brake 2.09×10⁻⁴ {8.37×10⁻⁴}
	20		1/20		75	90	4.02	{0.41}	3.43	{0.35}	539	{ 55}				
	25		1/25		60	72	5.10	{0.52}	4.21	{0.43}	588	{ 60}				
	30		1/30		50	60	6.08	{0.62}	5.10	{0.52}	686	{ 70}				
	40		1/40		37.5	45	8.13	{0.83}	6.76	{0.69}	784	{ 80}				
	50		1/50		30	36	10.2	{1.04}	8.43	{0.86}	882	{ 90}				
	60		1/60		25	30	12.2	{1.24}	10.2	{1.04}	882	{ 90}				
	80		1/80	3	18.8	22.5	15.5	{1.58}	12.8	{1.31}	980	{100}				
	100		1/100		15	18	19.3	{1.97}	16.1	{1.64}	980	{100}				
	120		1/120		12.5	15	23.1	{2.36}	19.3	{1.97}	1080	{110}				
	160		1/160		9.4	11.3	30.9	{3.15}	25.8	{2.63}	1370	{140}				
	200		1/200		7.5	9	38.6	{3.94}	32.1	{3.28}	1370	{140}				
	240		1/240		6.2	7.5	46.4	{4.73}	38.6	{3.94}	1370	{140}				

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Operation Capacitor for Single-Phase Motor



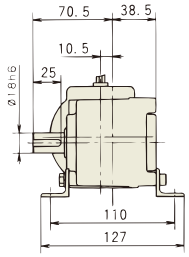
Applicable motor 40 W　Capacity 15 μF
Withstand voltage 220 V

Foot mount: Non-brake type, brake type

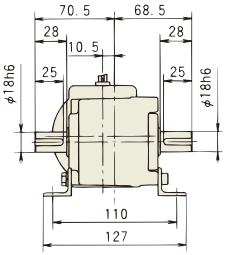
HMM$^{T}_{S}$40L5 – 240$^{L}_{T}$　Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240　Approx. weight : Three-phase 3.8kg　Single-phase 4.0kg　**5**

1/5–1/60
1/80–1/240

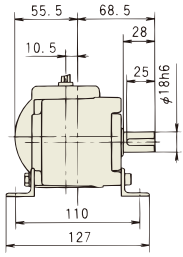
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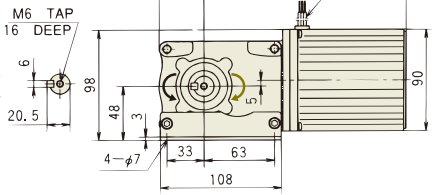


T



L





Hollow shaft: Non-brake type, brake type

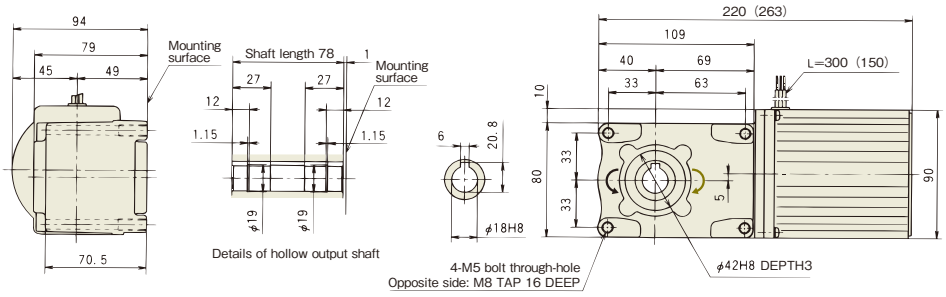
HMM$^{T}_{S}$40H5 – 240

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 3.8kg Single-phase 4.0kg

1

1/5–1/60 ↻、
1/80–1/240 ↻



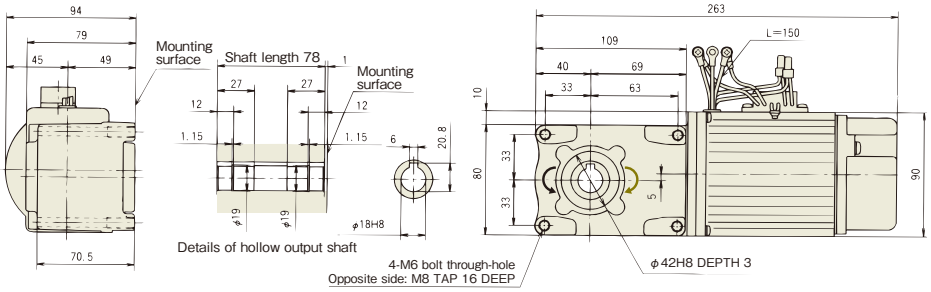
HMM$^{T}_{S}$40H5 – 240B

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 4.5kg Single-phase 4.7kg

2

1/5–1/60 ↻、
1/80–1/240 ↻



Face mount: Non-brake type, brake type

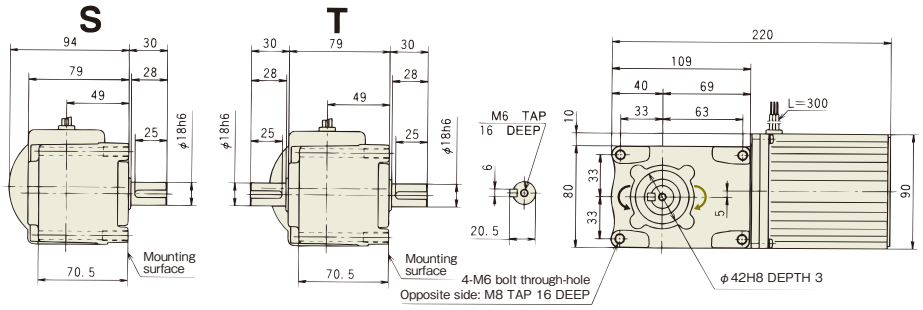
HMM$^{T}_{S}$40U5 – 240$^{S}_{T}$

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 4.1kg Single-phase 4.3kg

3

1/5–1/60 ↻、
1/80–1/240 ↻



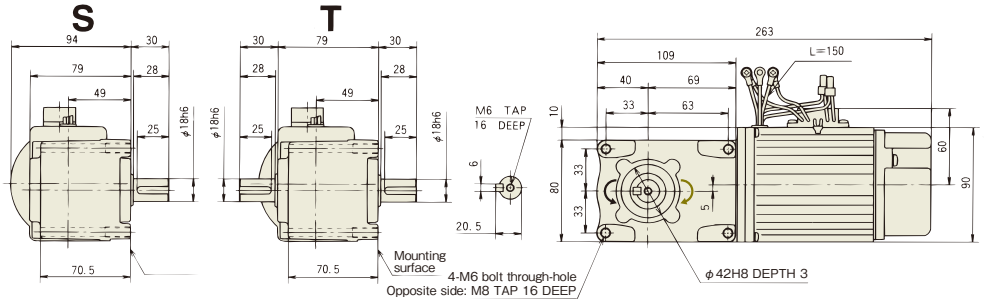
HMM$^{T}_{S}$40U5 – 240$^{S}_{T}$B

Reduction ratio: 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 4.8kg Single-phase 5.0kg

4

1/5–1/60 ↻、
1/80–1/240 ↻



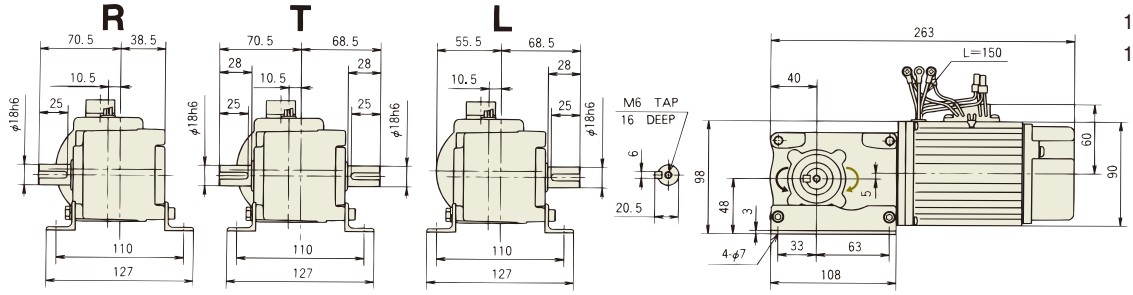
HMM$^{T}_{S}$40L5 – 240$^{L}_{R}$B

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 5.1kg Single-phase 5.3kg

6

1/5–1/60 ↻、
1/80–1/240 ↻



Note 1: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 2: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Motor Specifications

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Starting torque N·m{kgf·m} (Nominal torque ratio)	Protection	Cooling method	Rating	Insulation	Brake actuating method
60W	Three-phase	4	50/60/60	200/200/220	0.45/0.40/0.42	1321/1598/1622	0.83/0.62/0.75 {0.085/0.063/0.076} (192/172/211)	Totally enclosed (IP30)	Self-cooled (IC410)	Continuous	120 (E)	Non-excitation
	Single phase	4	50/60	100	1.17/1.06	1293/1625	0.25/0.25 {0.026/0.026} (57.5/69.5)					

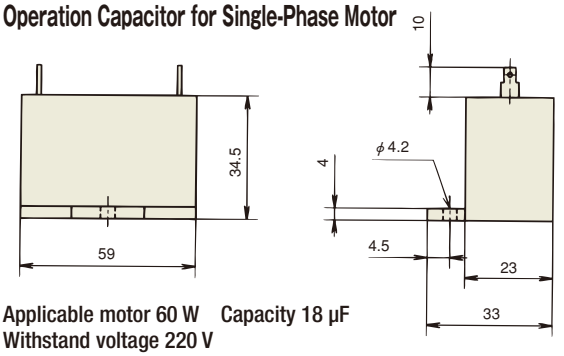
Note: A single-phase motor uses the capacitor-start method. Connect and use the capacitor that is included with the product.

Specification Chart

Model number		Motor output	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions			Moment of inertia kg · m²
							N · m	{kgf · m}	N · m	{kgf · m}						
					50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount	{GD2 kgf · m²}
HMM T60 / HMM S60	5	60 W	1/5	2	300	360	1.57	{0.16}	1.27	{0.13}	255	{ 26}	Non-brake | 1 / Brake | 2	Non-brake | 3 / Brake | 4	Non-brake | 5 / Brake | 6	Three-phase non-brake 1.62×10⁻⁴ {6.46×10⁻⁴}
	8		1/8		187.5	225	2.45	{0.25}	2.06	{0.21}	353	{ 36}				
	10		1/10		150	180	3.04	{0.31}	2.55	{0.26}	441	{ 45}				
	15		1/15		100	120	4.61	{0.47}	3.82	{0.39}	588	{ 60}				
	20		1/20		75	90	6.08	{0.62}	5.10	{0.52}	735	{ 75}				Three-phase brake 1.64×10⁻⁴ {6.56×10⁻⁴}
	25		1/25		60	72	7.64	{0.78}	6.37	{0.65}	882	{ 90}				
	30		1/30		50	60	9.11	{0.93}	7.64	{0.78}	980	{100}				
	40		1/40		37.5	45	12.2	{1.24}	10.2	{1.04}	1080	{110}				
	50		1/50		30	36	15.2	{1.55}	12.7	{1.30}	1180	{120}				Single-phase non-brake 1.93×10⁻⁴ {7.73×10⁻⁴}
	60		1/60		25	30	18.3	{1.87}	15.2	{1.55}	1180	{120}				
	80		1/80	3	18.8	22.5	23.1	{2.36}	19.3	{1.97}	1760	{180}				
	100		1/100		15	18	28.9	{2.95}	24.1	{2.46}	1760	{180}				Single-phase brake 1.96×10⁻⁴ {7.83×10⁻⁴}
	120		1/120		12.5	15	34.7	{3.54}	28.9	{2.95}	1760	{180}				
	160		1/160		9.4	11.3	46.4	{4.73}	38.6	{3.94}	1760	{180}				
	200		1/200		7.5	9	57.9	{5.91}	48.2	{4.92}	1760	{180}				
	240		1/240		6.2	7.5	69.5	{7.09}	57.9	{5.91}	1760	{180}				

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Operation Capacitor for Single-Phase Motor



Applicable motor 60 W　Capacity 18 μF
Withstand voltage 220 V

Foot mount: Non-brake type, brake type

HMM$^{T}_{S}$60L5 – 240$^{L}_{R}$

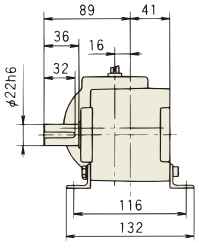
Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 5.8kg　Single-phase 6.8kg

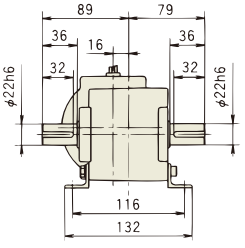
5

1/5–1/60 ↘
1/80–1/240 ↗

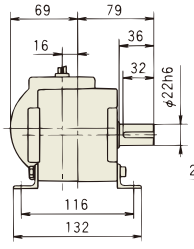
R

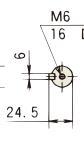


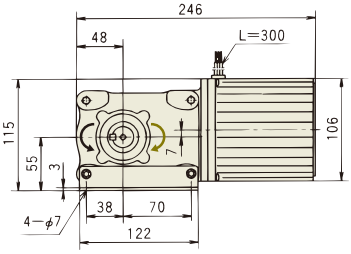
T



L







Nomenclature Page 193
Technical Information Page 202

Hollow shaft: Non-brake type, brake type

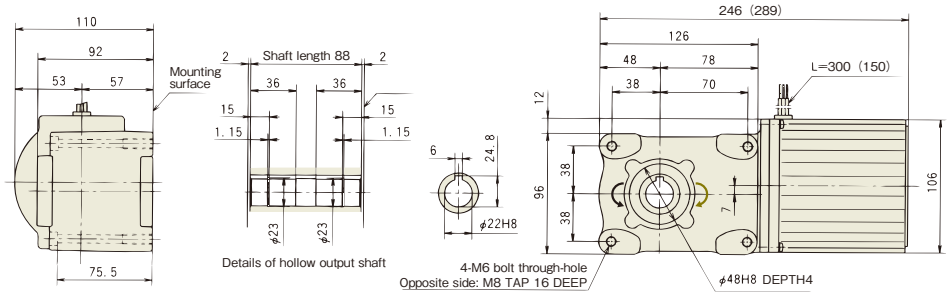
HMM$^{T}_{S}$60H5 – 240

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 5.0kg Single-phase 6.0kg

1

1/5–1/60 ↻、
1/80–1/240 ↻



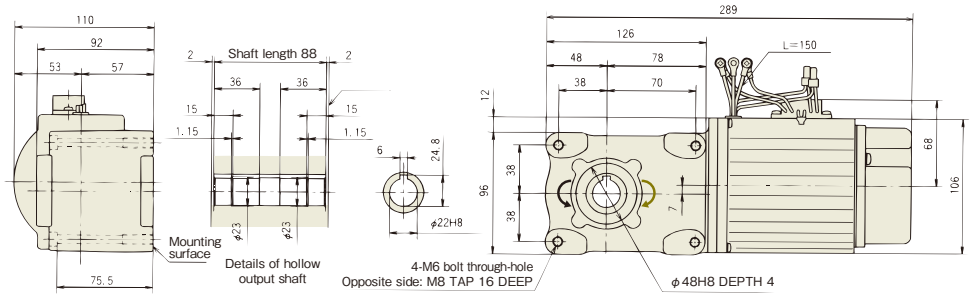
HMM$^{T}_{S}$60H5 – 240B

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 5.7kg Single-phase 6.7kg

2

1/5–1/60 ↻、
1/80–1/240 ↻



Face mount: Non-brake type, brake type

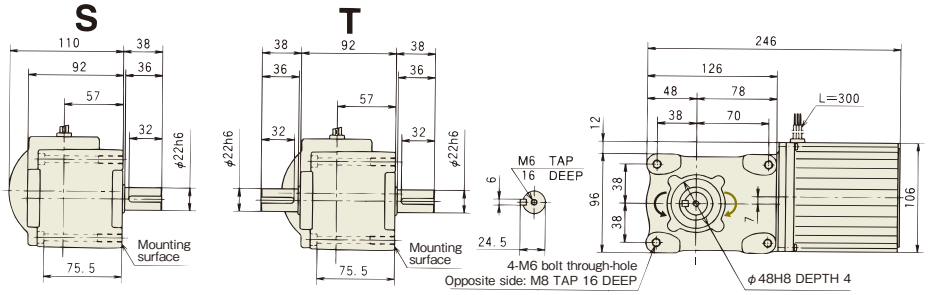
HMM$^{T}_{S}$60U5 – 240$^{S}_{T}$

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 5.5kg Single-phase 6.5kg

3

1/5–1/60 ↻、
1/80–1/240 ↻



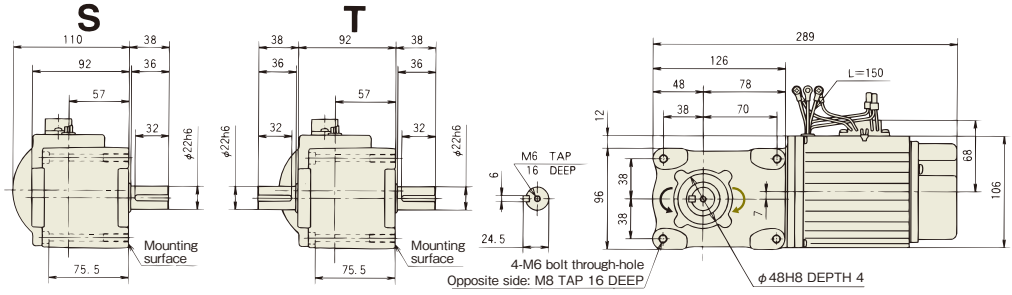
HMM$^{T}_{S}$60U5 – 240$^{S}_{T}$B

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 6.2kg Single-phase 7.2kg

4

1/5–1/60 ↻、
1/80–1/240 ↻



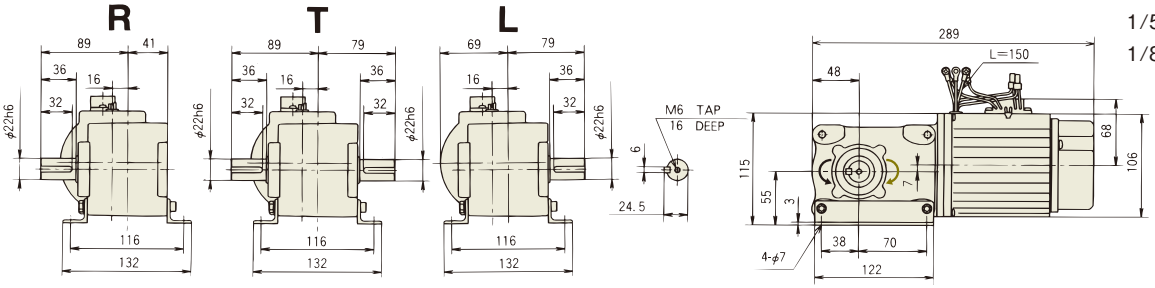
HMM$^{T}_{S}$60L5 – 240$^{L}_{R}$B

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Three-phase 6.5kg Single-phase 7.5kg

6

1/5–1/60 ↻、
1/80–1/240 ↻



Note 1: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 2: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Motor Specifications

Output	Number of phases	Number of poles	Frequency Hz	Voltage V 50/60/60Hz	Rated current A 50/60/60Hz	Rated revolution r/min 50/60/60Hz	Starting torque N·m{kgf·m} (Nominal torque ratio)	Protection	Cooling method	Rating	Insulation	Brake actuating method
90W	Three-phase	4	50/60/60	200/200/220	0.60/0.55/0.55	1313/1586/1622	1.13/0.87/1.01 {0.115/0.089/0.103} (172/161/191)	Totally enclosed (IP30)	Self-cooled (IC410)	Continuous	120 (E)	Non-excitation
	Single phase	4	50/60	100	1.73/1.60	1274/1614	0.40/0.40 {0.041/0.041} (59.6/75.5)					

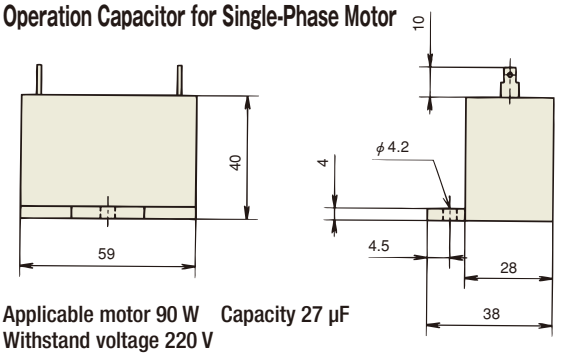
Note: A single-phase motor uses the capacitor-start method. Connect and use the capacitor that is included with the product.

Specification Chart

Model number		Motor output	Actual reduction ratio	Number of reduction steps	Output shaft revolution r/min		Allowable output shaft torque				Allowable output shaft O.H.L.		Drawing number of outline dimensions			Moment of inertia kg · m²
							N · m	{kgf·m}	N · m	{kgf·m}						
					50Hz	60Hz	50Hz		60Hz		N	{kgf}	Hollow shaft	Face mount	Foot mount	{GD2 kgf · m²}
HMM T90 / HMM S90	5	90 W	1/5	2	300	360	2.25	{0.23}	1.86	{0.19}	255	{ 26}	Three-phase non-brake | 1	Three-phase non-brake | 4	Three-phase non-brake | 7	Three-phase non-brake 2.15×10⁻⁴ {8.61×10⁻⁴}
	8		1/8		187.5	225	3.63	{0.37}	3.04	{0.31}	353	{ 36}				
	10		1/10		150	180	4.61	{0.47}	3.82	{0.39}	441	{ 45}				
	15		1/15		100	120	6.86	{0.70}	5.68	{0.58}	588	{ 60}				
	20		1/20		75	90	9.11	{0.93}	7.64	{0.78}	735	{ 75}				
	25		1/25		60	72	11.5	{1.17}	9.51	{0.97}	882	{ 90}				
	30		1/30		50	60	13.7	{1.40}	11.5	{1.17}	980	{100}	Three-phase brake | 2	Three-phase brake | 5	Three-phase brake | 8	Three-phase brake 2.18×10⁻⁴ {8.71×10⁻⁴}
	40		1/40		37.5	45	18.3	{1.87}	15.2	{1.55}	1080	{110}				
	50		1/50		30	36	22.8	{2.33}	19.0	{1.94}	1180	{120}				
	60		1/60		25	30	27.4	{2.80}	22.8	{2.33}	1180	{120}				
	80		1/80	3	18.8	22.5	34.7	{3.54}	28.9	{2.95}	1760	{180}				
	100		1/100		15	18	43.4	{4.43}	36.2	{3.69}	1760	{180}	Single-phase non-brake | 3	Single-phase non-brake | 6	Single-phase non-brake | 9	Single-phase non-brake 1.93×10⁻⁴ {7.73×10⁻⁴}
	120		1/120		12.5	15	52.1	{5.32}	43.4	{4.43}	1760	{180}				
	160		1/160		9.4	11.3	69.5	{7.09}	57.9	{5.91}	1760	{180}				
	200		1/200		7.5	9	86.8	{8.86}	72.3	{7.38}	1760	{180}				
	240		1/240		6.2	7.5	104	{10.6}	86.8	{8.86}	1760	{180}				

Note 1: The actual reduction ratio is shown as the reduction ratio. (They are all integer ratios.)
Note 2: The output shaft revolution rate is calculated by dividing the synchronous motor revolution rate by the reduction ratio. Calculate the actual output revolution rate from the motor's rated revolution rate.
Note 3: For output shaft arrangement "T" where torque is applied to both shafts, the sum of both torques should be equal to or less than the value shown in the table above. In addition, the O.H.L. on one shaft should be equal to or less than 1/2 of the value shown in the table above.

Operation Capacitor for Single-Phase Motor



Applicable motor 90 W Capacity 27 μF
Withstand voltage 220 V

HMMS90U5 – 240$^{S}_{T}$

Single-phase non-brake type

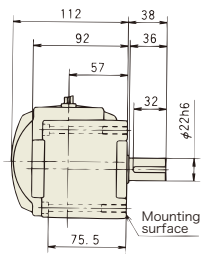
Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240

Approx. weight : Single-phase 6.5kg

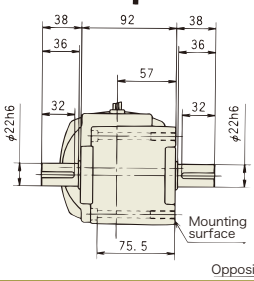
6

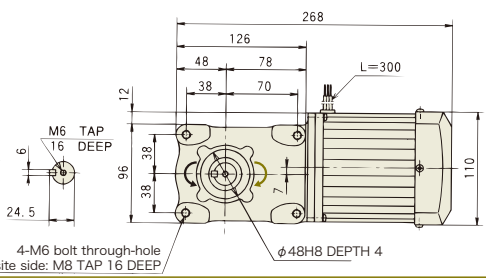
1/5–1/60
1/80–1/240

S



T





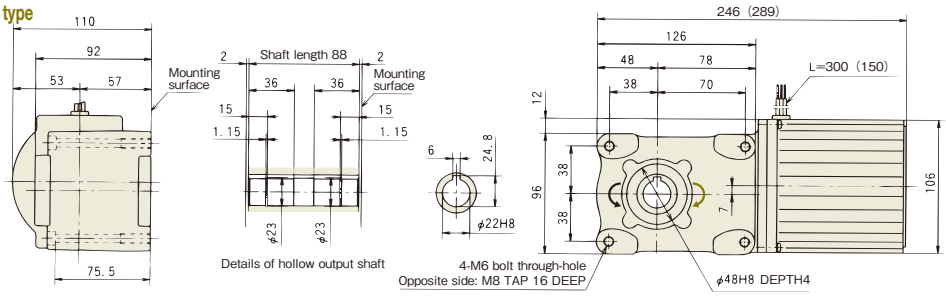
Hollow shaft

HMMT90H5 – 240

Three-phase non-brake type

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240 | Approx. weight : 5.5kg | 1

1/5–1/60 ↻、1/80–1/240 ↺

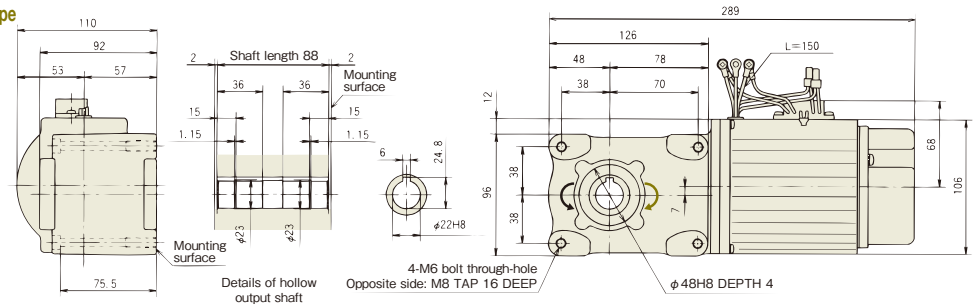


HMMT90H5 – 240B

Three-phase brake type

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240 | Approx. weight : Three-phase 6.2kg | 2

1/5–1/60 ↻、1/80–1/240 ↺

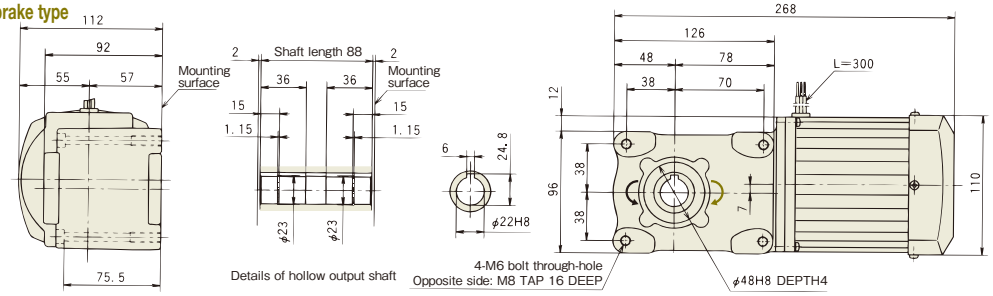


HMMS90H5 – 240

Single-phase non-brake type

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240 | Approx. weight : 6.0kg | 3

1/5–1/60 ↻、1/80–1/240 ↺



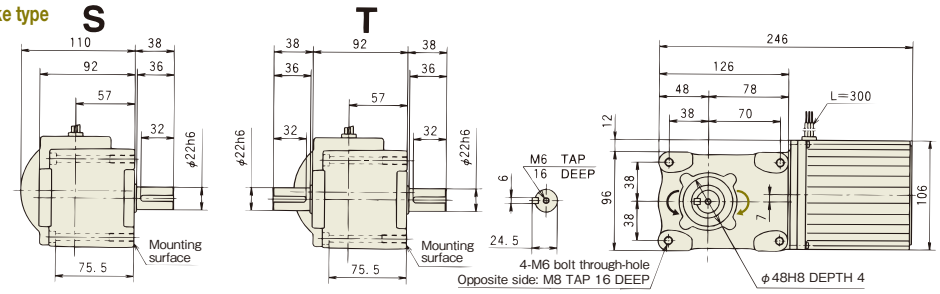
Face mount

HMMT90U5 – 240S

Three-phase non-brake type

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240 | Approx. weight : Three-phase 6.0kg | 4

1/5–1/60 ↻、1/80–1/240 ↺

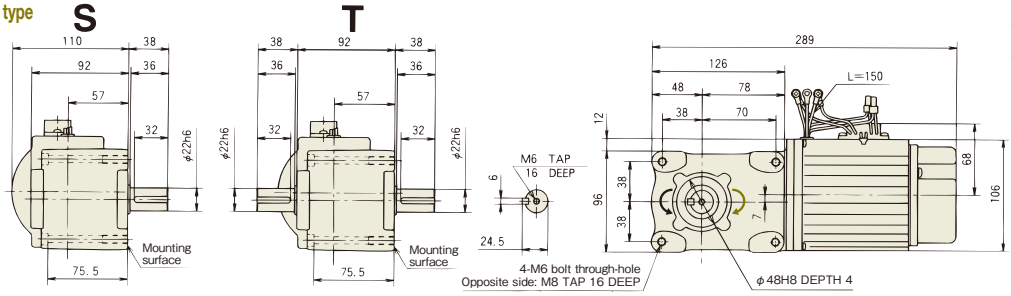


HMMT90U5 – 240SB

Three-phase brake type

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240 | Approx. weight : Three-phase 6.7kg | 5

1/5–1/60 ↻、1/80–1/240 ↺



Note 1: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 2: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

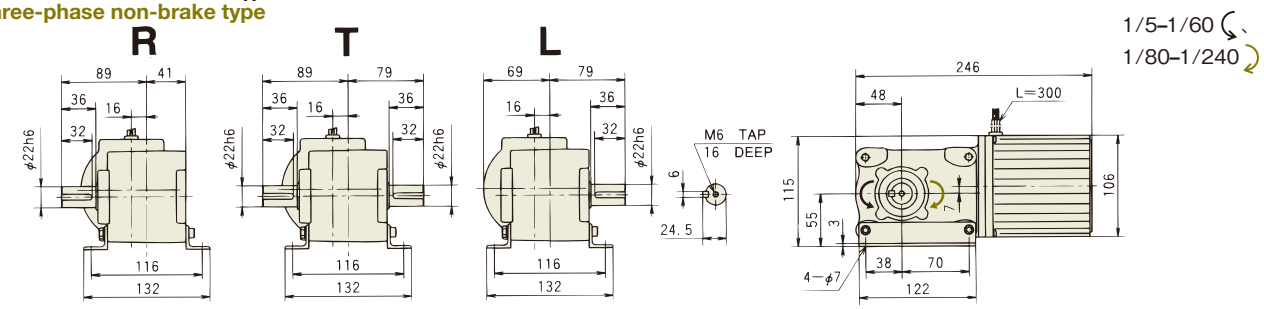
Hollow shaft

HMMT90L5 – 240 L/T/R

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240 | Approx. weight : Single-phase 6.3kg | 7

Three-phase non-brake type

1/5–1/60 ↻, 1/80–1/240 ↻

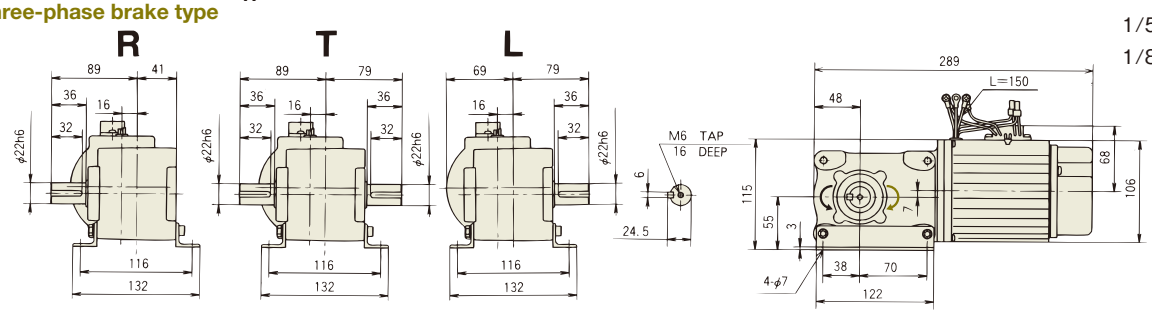


HMMT90L5 – 240 L/T/R

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240 | Approx. weight : Three-phase 7.0kg | 8

Three-phase brake type

1/5–1/60 ↻, 1/80–1/240 ↻

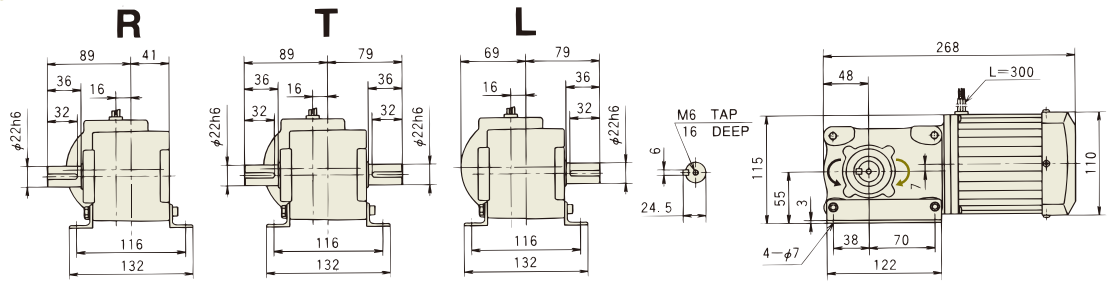


HMMS90L5 – 240 L/T/R

Reduction ratio : 5, 8, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240 | Approx. weight : Single-phase 6.8kg | 9

Single-phase non-brake type

1/5–1/60 ↻, 1/80–1/240 ↻



Note 1: For output shaft arrangement "T", the right and left output shaft keyways are not aligned precisely.
Note 2: The direction of rotation of the output shaft is based on direction of rotation A shown on page 211.

Gear Motor
Technical Information



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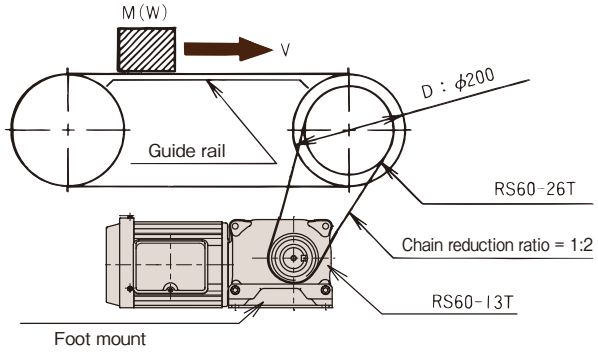
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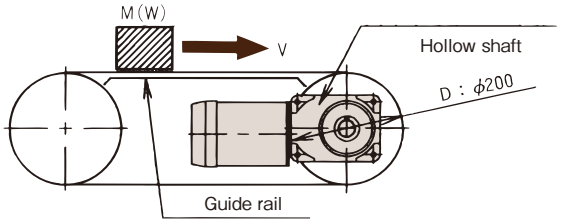
■ Example of Selection (Conveyor Drive)

The figures below show installation methods for foot mount and hollow shaft mount for hypoid motors.
For gear motors and croise motors, select the appropriate installation method.

A: Foot mount



B: Hollow shaft mount



Selection Conditions

- Total mass of conveyed material (Total weight of conveyed material) : M = 150 kg (W = 150 kgf)
- Conveyed speed : V = 14m/min
- Friction coefficient of guide rail : μ = 0.15
- Chain transmission efficiency : η = 0.95
- Operating hours : 8 hours/day
- Starting frequency : 10 times/hour
- Stopping : Immediate stopping (brake)
- Power supply : Three-phase 200 V, 60 Hz
- Shaft arrangement : Right

1. Determination of reduction ratio

Determine the reduction ratio based on the necessary revolution speed of the output shaft.
Select the reduction ratio by referring to the specification chart.

A: (1) Calculate the revolution speed (n_C) of the conveyor shaft.

$$n_C=\frac{V\times1000}{D\times\pi}=\frac{14\times1000}{200\times\pi}=22.3\text{r/min}$$

(2) Calculate the revolution speed (n_L) of the hypoid motor output shaft.

$$n_L=n_C\times\frac{2}{1}=44.6\text{r/min}$$

(3) Determine the reduction ratio.

According to the specification chart on page 54, an output shaft revolution speed of 45 r/min is closest to 60 Hz, 44.6 r/min. Therefore the suitable reduction ratio is 1/40.

B: (1) Calculate the revolution speed (n_C) of the conveyor shaft.

$$n_C=\frac{V\times1000}{D\times\pi}=\frac{14\times1000}{200\times\pi}=22.3\text{r/min}$$

(2) Calculate the revolution speed (n_L) of the hypoid motor output shaft.

$$n_L = n_C = 22.3\text{r/min}$$

(3) Determine the reduction ratio.

According to the specification chart on page 54, an output shaft revolution speed of 22.5 r/min is closest to 60 Hz, 22.3 r/min. Therefore the suitable reduction ratio is 1/80.

2. Calculation of output shaft torque

Calculate the necessary output shaft torque based on the load torque.

To calculate the corrected torque of the output shaft, use Table 1 on page 206 to choose a service factor to multiply that matches the operating conditions.

A: (1) Calculate the necessary torque (T_C) of the conveyor shaft.

$$T_C=9.8\mu M\frac{D}{2}\times\frac{1}{1000}\times\frac{1}{\eta}=9.8\times0.15\times150\times\frac{200}{2000}\times\frac{1}{0.95}=23.2\text{N·m}$$

$$\left\{T_C=\mu W\frac{D}{2}\times\frac{1}{1000}\times\frac{1}{\eta}=0.15\times150\times\frac{200}{2000}\times\frac{1}{0.95}=2.37\text{kgf·m}\right\}$$

(2) Calculate the hypoid motor output shaft torque (T_L) based on the conveyor shaft torque.

$$T_L=T_C\times\frac{1}{2}\times\frac{1}{\eta}=23.2\times\frac{1}{2}\times\frac{1}{0.95}=12.2\text{N·m}$$

$$\left\{T_L=T_C\times\frac{1}{2}\times\frac{1}{\eta}=2.37\times\frac{1}{2}\times\frac{1}{0.95}=1.25\text{kgf·m}\right\}$$

(3) Calculate the corrected torque (T_F) of the output shaft.

According to Table 1 on page 206, service factor $C_F = 1$, and $T_F = T_L \times 1 = 12.2$ N·m

{$T_F = T_L \times 1 = 1.25$kgf·m}

(4) Determine the motor capacity.

According to the specification charts on pages 54 to 56, the motor capacity suitable for "Reduction ratio: 1/40, 60 Hz, Torque: 12.2 N · m {1.25kgf · m}" is 0.1 kW.

B: (1) Calculate the necessary torque (T_C) of the conveyor shaft.

$$T_C=9.8\mu M\ \frac{D}{2}\times\frac{1}{1000}=9.8\times0.15\times150\times\frac{200}{2000}=22.1\text{N·m}$$

$$\left\{T_C=\mu M\ \frac{D}{2}\times\frac{1}{1000}=0.15\times150\times\frac{200}{2000}=2.25\text{kgf·m}\right\}$$

(2) Because the hypoid motor output shaft torque (T_L) is equal to the conveyor shaft torque, $T_L = T_C = 22.1$ N·m {$T_L = T_C = 2.25$ kgf·m}

(3) Calculate the corrected torque (T_F) of the output shaft.

According to Table 1 on page 206, service factor $C_F = 1$, and $T_F = T_L \times 1 = 22.1$ N·m {$T_F = T_L \times 1 = 2.25$ kgf·m}

(4) Determine the motor capacity.

According to the specification charts on pages 54 to 56, the motor capacity suitable for "Reduction ratio: 1/80, 60 Hz, Torque: 22.1 N · m {2.25kgf · m}" is 0.1 kW.

3. Tentative determination of model number

Keep in mind the reduction ratio, torque, and immediate stopping when performing the following.

Tentatively select A: brake-type hypoid motor HMTA010-22L40RB and confirm the conditions.

Tentatively select B: brake-type hypoid motor HMTA010-20H80B and confirm the conditions.

4. Confirmation of moment of inertia of load {load inertia (GD^2)} and starting frequency

When starting a motor with a large moment of inertia of the load (also when stopping, for brake-equipped models), a large torque is generated momentarily and this may cause an accident. Check the coupling method of the load and the moment of inertia [inertia load (GD^2)] of the load.

A: (1) Calculate the moment of inertia of the load on the conveyor shaft (I_C) {Load inertia (GD_C^2)}.

$I_C = MR^2 = 150 \times 0.1^2 = 1.5$kg·m^2 $\qquad R=\frac{1}{2}D$

{$GD_C^2 = WD^2 = 150 \times 0.2^2 = 6$kgf·m^2}

(2) Calculate the moment of inertia (I_ℓ) {load inertia (GD_ℓ^2)} on the motor shaft.

$$I_\ell=I_C\times\frac{1}{i_C^2}\times\frac{1}{i_L^2}=1.5\times\left(\frac{1}{2}\right)^2\times\left(\frac{1}{40}\right)^2=0.23\times10^{-3}\text{kg·m}^2$$

$$\left\{GD_\ell^2=GD_C^2\times\frac{1}{i_C^2}\times\frac{1}{i_L^2}=6\times\left(\frac{1}{2}\right)^2\times\left(\frac{1}{40}\right)^2=0.94\times10^{-3}\text{kgf·m}^2\right\}$$

(3) Calculate the inertia ratio (U) for the hypoid motor.

$$U=\frac{I_\ell}{I_M}\qquad\left\{U=\frac{GD_\ell^2}{GD_M^2}\right\}$$

According to page 218, the moment of inertia (I_M){load inertia (GD_M^2)} on the motor shaft is 0.66 x 10^{-3} kgf·m^2 {2.64 x 10^{-3} kgf·m^2}, and

$$U=\frac{0.23\times10^{-3}}{0.66\times10^{-3}}\fallingdotseq0.35\qquad\left\{U=\frac{0.94\times10^{-3}}{2.64\times10^{-3}}\fallingdotseq0.36\right\}$$

(4) Checking the starting frequency

According to Table 3 on page 206, the starting frequency is 30 times/hour, which satisfies the conditions.

B: (1) Calculate the moment of inertia of the load on the conveyor shaft (I_C) {Load inertia (GD_C^2)}.

$I_C = MR^2 = 150 \times 0.1^2 = 1.5$kg·m^2 $\qquad R=\frac{1}{2}D$

{$GD_C^2 = WD^2 = 150 \times 0.2^2 = 6$kgf·m^2}

(2) Calculate the moment of inertia (I_ℓ) (GD_ℓ^2)} on the motor shaft.

$$I_\ell=I_C\times\frac{1}{iL^2}=1.5\times\left(\frac{1}{80}\right)^2=0.23\times10^{-3}\text{kg·m}^2$$

$$\left\{GD_\ell^2=GD_C^2\times\frac{1}{iL^2}=6\times\left(\frac{1}{80}\right)^2=0.94\times10^{-3}\text{kgf·m}^2\right\}$$

(3) Calculate the inertia ratio (U) for the hypoid motor.

$$U=\frac{I_\ell}{I_M} \quad \left\{U=\frac{GD_\ell^2}{GD_M^2}\right\}$$

According to page 218, the moment of inertia (I_M) on the motor shaft is
0.66×10^{-3}kg·m^2 {2.64×10^{-3}kgf·m^2}

$$U=\frac{0.23\times10^{-3}}{0.66\times10^{-3}}\fallingdotseq0.35 \quad \left\{U=\frac{0.94\times10^{-3}}{2.64\times10^{-3}}\fallingdotseq0.36\right\}$$

(4) Checking the starting frequency
According to Table 3 on page 206, the starting frequency is 6 times/min., which satisfies the conditions.

Note: If the allowable starting frequency does not satisfy the conditions, the reducer may become damaged, and it will not last its expected life span. Choose a higher model number and recheck the starting frequency; or, lower the frequency of usage.
• If you cannot lower the frequency of usage, the product will have a shorter life span. Please contact Tsubaki.
• When the inertia ratio is large, we recommend a slow start using an inverter.

5. Confirmation of overhang load (O.H.L.)

When attaching a sprocket, gear, or belt to the output shaft or the input shaft, check that the overhang load acting on the shaft is equal to or less than the allowable overhang load of the hypoid motor (shown in the specification chart).
Calculate the O.H.L.

$$O.H.L=\frac{2000T_F\times f\times Lf}{D_S}$$

A: Assuming that the load acts on the midpoint of the length of the shaft, use Table 4 and Formula 1 from page 206, and Table 5 on page 207, to make the following calculation to confirm that the calculated O.H.L. is within allowable O.H.L.

f = 1, Lf = 1
RS60-13T P.C.D = 79.6 mm and

$$O.H.L=\frac{2000\times12.2\times1\times1}{79.6}=307N$$

$$\left\{O.H.L=\frac{2000\times1.25\times1\times1}{79.6}=31.4kgf\right\}$$

The allowable O.H.L. on the specification chart is 1617N [165 kgf], so the O.H.L. calculated above is within this range.

B: Assuming that the load acts on a position at ℓ from the hollow output shaft end, make the following calculation to confirm that the calculated O.H.L. is within allowable O.H.L.

f = 1, Lf = 1

$$O.H.L=\frac{2000\times22.1\times1\times1}{200}=221N$$

$$\left\{O.H.L=\frac{2000\times2.25\times1\times1}{200}=22.5kgf\right\}$$

The allowable O.H.L. on the specification chart is 2254N [230 kgf], so the O.H.L. calculated above is within this range.
Note: If the calculated O.H.L. exceeds the allowable O.H.L., shift the load acting position toward the base of the output shaft, use a sprocket with longer P.C.D., or select a larger hypoid motor.

6. Determination of model number

The following model numbers have been selected as satisfying conditions for safe installation, power supply, immediate stopping, torque, reduction ratio, starting frequency, and O.H.L.

Brake-type hypoid motor **A: HMTA010-22L40RB**

B: HMTA010-20H80B

Technical Data to Use in Model Selection

1. Service factors

The values for output shaft capacity torque on the specification charts have been calculated based on a usage factor of 1.0. Keeping in mind the operating hours, operating conditions, and load conditions, select a service factor (C_F) from the table on the right to calculate the corrected output shaft torque.

Table 1. Service factors: (C_F)

Operating hours / Operating condition / Load condition	10 hours or less/day	10 hours or more/day
	Intermittent/continuous	Intermittent/continuous
Uniform load without shocks	1	1
Load with light shocks	1	1.2

Note: For loads with medium or large shocks, please contact Tsubaki.

2. Inertia ratio and allowable starting frequency

During start-up, impact torque occurs due to load inertia (also during stopping, for brake-equipped models), and an accident may occur due to the coupling method of the load and the load inertia size. Confirm using the following procedure according to the coupling method of the load and the load inertia.

(1) Calculate moment of inertia (I) of load {load inertia (GD^2)}

(2) Calculate moment of inertia (IL) of load for motor shaft conversion {load inertia (GD_L^2)}

(3) Calculate the inertia ratio (U) of the compact gear motor.

$$U=\frac{I_L}{I_M} \quad \left\{U=\frac{GD_L^2}{GD_M^2}\right\}$$

$I_n\{GD_M^2\}$: Moment of inertia of the motor shaft of the gear motor {Motor shaft-equivalent inertia}

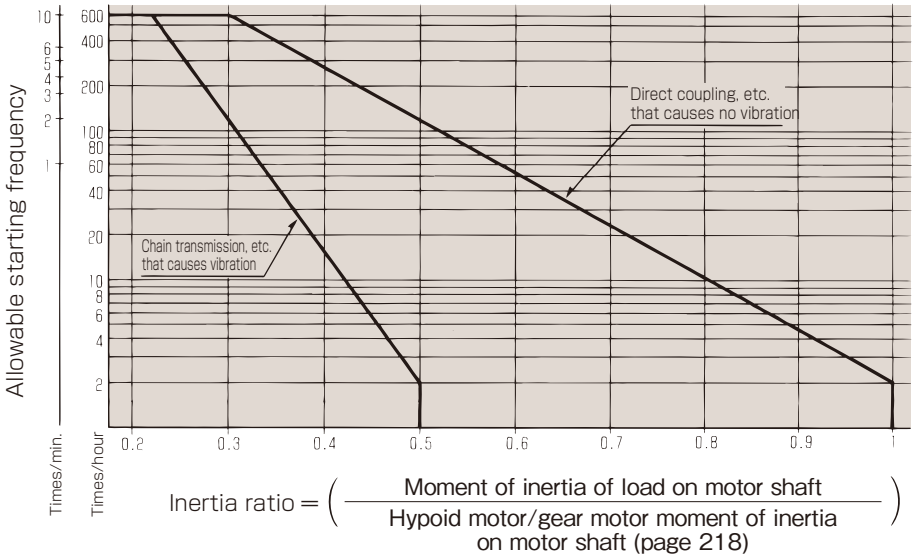
(4) Confirm that the allowable starting frequency is satisfied by referring to Tables 1 and 2.

Table 2. Croise motor inertia ratio and allowable starting frequency

Load characteristics	Inertia ratio: U	Allowable starting frequency
Without backlash	1 0.5 0.2 or less	4 times/hr. 4 times/min. 10 times/min.
With backlash, such as a chain	0.5 0.3 0.2 or less	4 times/hr. 4 times/min. 10 times/min.

Note: For conditions other than in Table 2 above, please contact Tsubaki.

Table 3. GEAR MOTOR, HYPOID MOTOR: Inertia ratio and allowable starting frequency



3. Overhang load of the output shaft

When attaching the sprocket, gear, or belt to the output center shaft, or to the hollow shaft using a case tap, confirm that the overhang load acting on the output shaft is equal to or lower than the allowable O.H.L. of the gear motor.

Note: When using a high-strength toothed belt, do not use the O.H.L. factor shown in Table 3, but take into account the mounting tension in calculating the O.H.L.

Overhang load calculation

$$\text{Allowable O.H.L.} \geqq \frac{2000 \times T_F \times f \times Lf}{Dp}$$

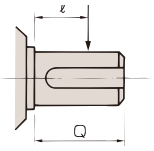
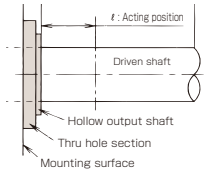
T_F : Corrected torque
f : OHL factor (Table 1)
Lf : Load acting position factor (Formula 1)
Dp : Pitch circle diameter of sprocket (mm)

Table 4. O.H.L. factor f

Chain	Toothed gear belt	V belt
1.0	1.25	1.5

Formula 1. Load acting position factor: Lf

ℓ /Q	0.25	0.38	0.5	0.75	1
Lf	0.8	0.9	1	1.5	2

Solid shaft	Hollow shaft*
	

*Q of hollow shaft: Refer to Table 5 on the next page for standard length.

Table 5. Standard length: Q

Hypoid motor

Model number	Reduction ratio	Q
HMMT40H	5 to 240	28
HMMS40H	5 to 240	
HMMT60H	5 to 240	36
HMMS60H	5 to 240	
HMMT90H	5 to 240	
HMMS90H	5 to 240	
HMAT010-20H	5 to 120	
HMTA020-20H	5 to 60	
HMTA010-30H	160 to 200	
HMTA010-30H	300 to 480	42
HMTA020-30H	80 to 200	
HMTA040-30H	5 to 50	
HMTA010-35H	600 to 1200	58
HMTA020-35H	300 to 480	
HMTA040-35H	60 to 200	
HMTR075-35H	5 to 50	

Model number	Reduction ratio	Q
HMTA020-45H	600 to 1200	66
HMTA040-45H	300 to 480	
HMTR075-45H	60 to 200	
HMTR150-45H	5 to 80	
HMTR220-45H	5 to 60	
HMTA040-55H	600 to 1200	82
HMTR075-55H	300 to 480	
HMTR150-55H	100 to 200	
HMTR220-55H	80 to 120	
HMTR370-55H	5 to 60	
HMTR550-55H	5 to 40	

Croise motor

Model number	Reduction ratio	Q
CSMA010-130H	10 to 60	20
CSMA020-130H	10 to 60	
HCMA010-16*H	40 to 200	25
HCMA020-16*H	40 to 75	
CSMA040-160H	10 to 30	
CSMA055-160H	10 to 30	
HCMA010-22*H	240 to 300	30
HCMA020-22*H	90 to 200	
HCMA040-22*H	40 to 75	
HCMA055-22*H	40 to 50	
CSMA040-220H	40 to 60	
CSMA055-220H	40 to 60	
CSME075-220H	10 to 30	
HCMA020-28*H	240 to 300	40
HCMA040-28*H	90 to 200	
HCMA055-28*H	60 to 150	
HCME075-28*H	40 to 75	
CSME075-280H	40 to 60	
CSME150-280H	10 to 30	

Model number	Reduction ratio	Q
HCMA040-32*H	240 to 300	50
HCMA055-32*H	180 to 200	
HCME075-32*H	90 to 150	
HCME150-32*H	40 to 50	
CSME150-32*H	40 to 60	
CSME220-32*H	10 to 40	
HCMA055-40*H	240 to 300	55
HCME075-40*H	180 to 200	
HCME150-40*H	60 to 120	
HCME220-40*H	40 to 75	
CSME220-40*H	50 to 60	
CSME370-40*H	10 to 30	
HCME075-50*H	240 to 300	70
HCME150-50*H	150 to 300	
HCME220-50*H	90 to 300	
CSME370-50*H	40 to 60	

Formula for Brake Life Span and Braking Distance

1. Braking workload

$$E_\ell = \frac{(I_M + I_\ell) \times n^2}{182.5} \times \frac{T_b}{(T_b \pm T_\ell)} \quad \left\{ E_\ell = \frac{(GD_M^2 + GD_\ell^2) \times n^2}{7160} \times \frac{T_b}{(T_b \pm T_\ell)} \right\}$$

E_ℓ : Braking workload per operation J {kgf·m}
I_M {GD_M^2} : Moment of inertia of brake-type hypoid motor (gear motor) kg·m² (Page 218)
I_ℓ {GD_ℓ^2} : Moment of inertia of motor shaft-equivalent load kg·m² {GD²·fm²)
n : Motor shaft revolution r/min {kgf·m}
T_b : Dynamic friction torque of brake N·m {kgf·m} (Brake specifications on pages 217 and 218)
T_ℓ : Motor shaft-equivalent load torque N·m{kgf·m}
± sign : (− T_ℓ) is applied for a negative load such as a suspension load.

2. Brake life span

$$Z = \frac{E_T}{E_\ell}$$

Z : Total number of working cycles
E_T: Total braking workload J {kgf·m}
(Brake specifications on pages 217 and 218)

3. Braking time

$t = t_a + t_b$

$$t_b = \frac{(I_M + I_\ell) \times n}{9.55 \times (T_b \pm T_\ell)} \quad \left\{ t_b = \frac{(GD_M^2 + GD_\ell^2) \times n}{375 \times (T_b \pm T_\ell)} \right\}$$

t_a: Braking delay time s
Time between operation signal issuing and brake operation
(Refer to brake specifications on pages 217 and 218.)

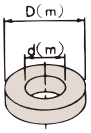
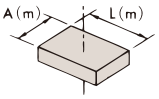
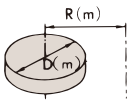
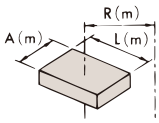
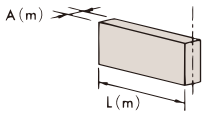
4. Braking distance

$$S = \left(t_a + \frac{1}{2} t_b \right) \times V$$

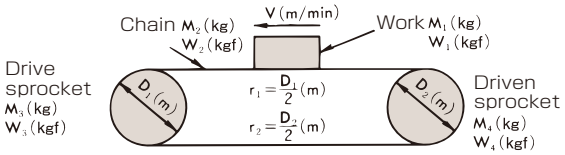
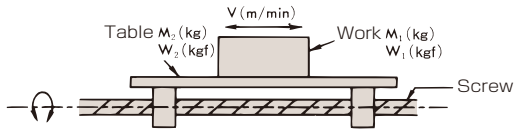
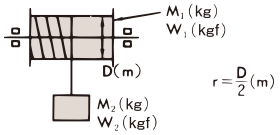
S: Braking distance mm
V: Speed of linear motion mm/s

How to Calculate Moment of Inertia

1. Moment of inertia of rotational body

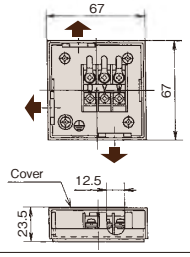
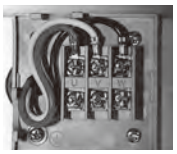
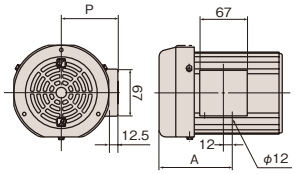
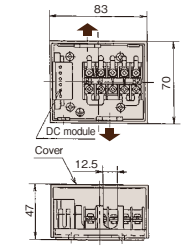
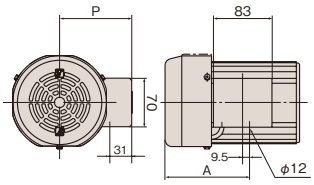
	Moving body	Moment of inertia formula SI units	GD^2 formula {Gravitational units}
When center of rotation is the same as shaft	 $r=\frac{D}{2}$(m) M(kg) W(kgf)	$I=\frac{1}{2}Mr^2$ (kg·m²)	$GD^2=\frac{1}{2}WD^2$ {kgf·m²}
	 $r_1=\frac{D}{2}$(m) $r_2=\frac{d}{2}$(m) M(kg) W(kgf)	$I=\frac{1}{2}M(r_1^2+r_2^2)$ (kg·m²)	$GD^2=\frac{1}{2}W(D^2+d^2)$ {kgf·m²}
	 M(kg) W(kgf)	$I=\frac{1}{12}M(A^2+L^2)$ (kg·m²)	$GD^2=\frac{1}{3}W(A^2+L^2)$ {kgf·m²}
When center of rotation is different from shaft	 $r=\frac{D}{2}$(m) M(kg) W(kgf)	$I=M\left(\frac{r^2}{2}+R^2\right)$ (kg·m²)	$GD^2=W\left(\frac{1}{2}D^2+4R^2\right)$ {kgf·m²}
	 M(kg) W(kgf)	$I=\frac{M}{4}\left(\frac{A^2+L^2}{3}+4R^2\right)$ (kg·m²)	$GD^2=W\left(\frac{A^2+L^2}{3}+4R^2\right)$ {kgf·m²}
	 M(kg) W(kgf)	$I=\frac{M}{12}(A^2+4L^2)$ (kg·m²)	$GD^2=\frac{1}{3}W(A^2+4L^2)$ {kgf·m²}

2. Moment of inertia of parallel moving body

	$I=M_1r_1^2+M_2r_1^2+\frac{M_3r_1^2+M_4r_2^2}{2}$ (kg·m²)	$GD^2=W_1D_1^2+W_2D_1^2+\frac{W_3D_1^2+W_4D_2^2}{2}$ {kgf·m²}
	$I=\frac{1}{4}(M_1+M_2)\times\left(\frac{V}{\pi n}\right)^2$ (kg·m²) n : Motor revolution speed to V (r/min)	$GD^2=(W_1+W_2)\times\left(\frac{V}{\pi n}\right)^2$ {kgf·m²} n : Motor revolution count to V (r/min)
	$I=\frac{1}{2}M_1r^2+M_2r^2$ (kg·m²)	$GD^2=\frac{1}{2}W_1D^2+W_2D^2$ {kgf·m²}

Standard Terminal Box Specifications Gear Motors, Hypoid Motors, Croise Motors

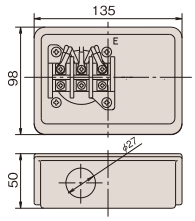
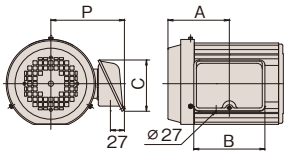
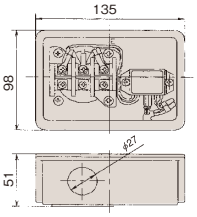
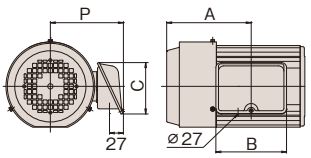
1. Motor output: 0.1 kW to 0.55 kW (Made of resin)

	Terminal dimensions	Terminal box position
Without brake	  1. Terminal screw size M3.5 [Tightening torque 0.8 N·m {0.08 kgf-m}] 2. Earth terminal screw size M4 [Tightening torque 1.2 N·m {0.12 kgf-m}] 3. Attaching a cover allows the customer to select from out of three directions indicated by the arrows to change the outlet direction of the terminal box.	
With brake	  1. Terminal screw size M3.5 [Tightening torque 0.8 N·m {0.08 kgf-m}] 2. Earth terminal screw size M4 [Tightening torque 1.2 N·m {0.12 kgf-m}] 3. Attaching a cover allows the customer to select from out of two directions indicated by the arrows to change the outlet direction of the terminal box.	

Motor output	A	P
0.1kW	64.5	81
0.2kW	102.5	81
0.4kW	102.5	81
0.55kW	102.5	81

Motor output	A	P
0.1kW	102.5	104.5
0.2kW	119,5	104.5
0.4kW	119.5	104.5
0.55kW	119.5	104.5

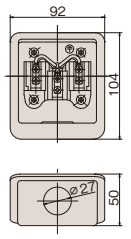
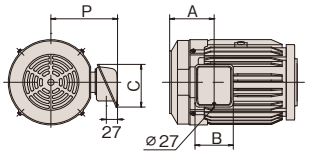
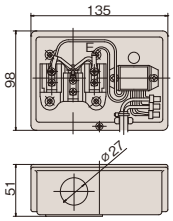
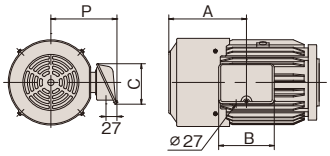
2. Motor output: 0.75 kW (Made of steel plate)

	Terminal dimensions	Terminal box position
Without brake	  1. Terminal screw size M4 [Tightening torque 1.2N·m {0.12 kgf-m}] 2. Earth terminal screw size M4 [Tightening torque 1.2N·m {0.12 kgf-m}]	
With brake	  1. Terminal screw size M4 [Tightening torque 1.2N·m {0.12 kgf-m}] 2. Earth terminal screw size M4 [Tightening torque 1.2N·m {0.12 kgf-m}]	

Motor output	A	B	C	P
0.75kW	116.5	135	98	140

Motor output	A	B	C	P
0.75kW	161.5	135	98	140

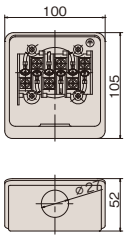
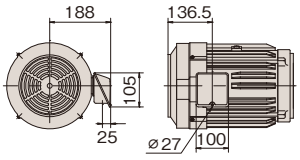
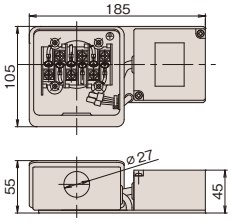
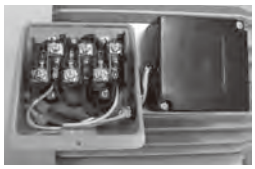
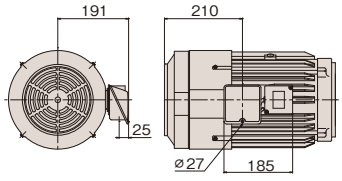
3. Motor output: 1.5 kW to 3.7 kW (Made of steel plate)

	Terminal dimensions	Terminal box position
Without brake	  1. Terminal screw size M4 [Tightening torque 1.2N·m {0.12 kgf-m}] 2. Earth terminal screw size M5 [Tightening torque 2.0N·m {0.2 kgf-m}]	
With brake	  1. Terminal screw size M4 [Tightening torque 1.2N·m {0.12 kgf-m}] 2. Earth terminal screw size M5 [Tightening torque 2.0N·m {0.2 kgf-m}]	

Motor output	A	B	C	P
1.5kW	90	93	104	149
2.2kW	108	93	104	162
3.7kW	112	93	104	173

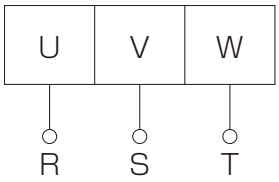
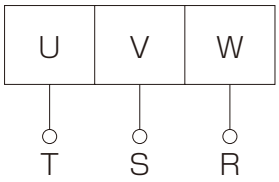
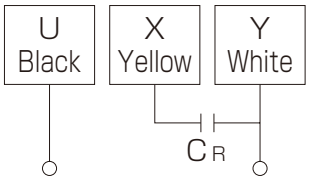
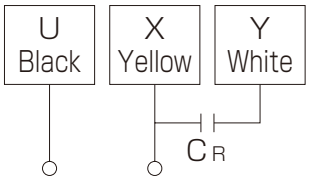
Motor output	A	B	C	P
1.5kW	177.5	135	98	147
2.2kW	188.5	135	98	160
3.7kW	218	135	98	171

4. Motor output: 5.5 kW (Made of steel plate)

	Terminal dimensions	Terminal box position
Without brake	  1. Terminal screw size M5 [Tightening torque 2.0N·m {0.2 kgf-m}] 2. Earth terminal screw size M6 [Tightening torque 2.5N·m {0.26 kgf-m}]	
With brake	  1. Terminal screw size M5 [Tightening torque 2.0N·m {0.2 kgf-m}] 2. Earth terminal screw size M6 [Tightening torque 2.5N·m {0.26 kgf-m}] Note: The diagram for 400 V-class models is the same as for a non-module, brake-less model. The DC module is shipped attached to the terminal box.	

■ Connection and Rotation Direction

1. Wiring

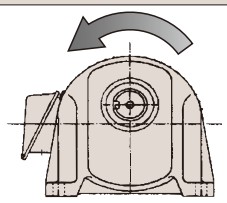
Three-phase motor (40 kW to 5.5 kW)		Single-phase motor (40 W to 90 W)	
			
A	B	A	B

2. Direction of rotation

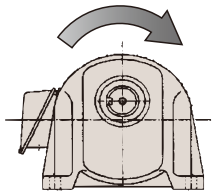
The arrows in the following drawings indicate the direction of rotation as viewed from the output shaft in connection A. In connection B, the motor rotates in the opposite direction.

Gear Motor

2/4-step reduction

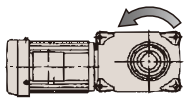


3-step reduction

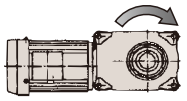


Hypoid Motor

2/4-step reduction



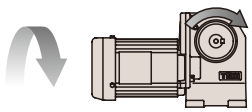
3-step reduction



Croise Motor

CSMA series rotation direction

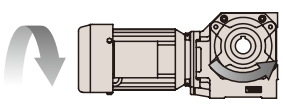
Rotation clockwise as viewed from the side of the motor opposite the load



Rotation clockwise as viewed toward the output shaft of reducer

HCMA series rotation direction

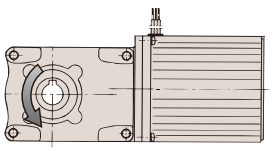
Rotation clockwise as viewed from the side of the motor opposite the load



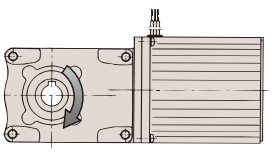
Rotation counterclockwise as viewed toward the output shaft of reducer

Hypoid Motor Mini

2-step reduction



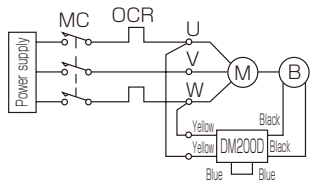
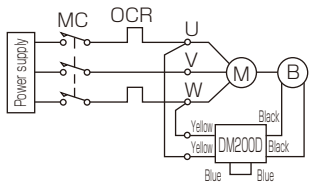
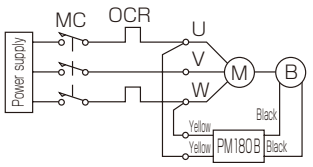
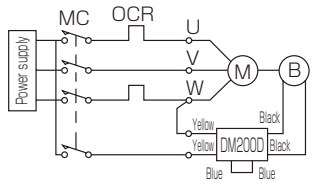
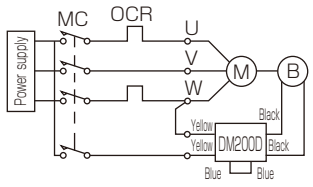
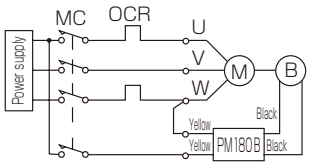
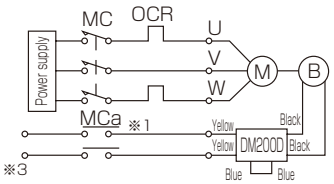
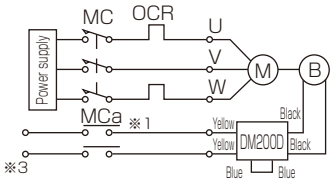
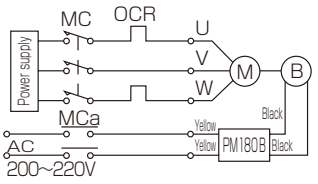
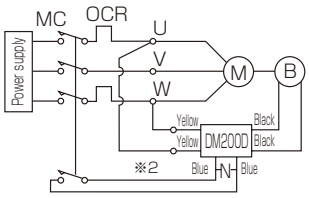
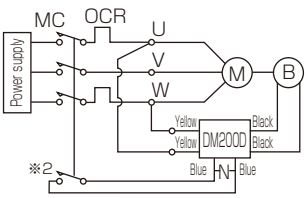
3-step reduction



Brake-Equipped Motor Connection

1. 0.1 kW to 5.5 kW, 200 V class: Gear Motors, Hypoid Motors, Croise Motors

- Standard products are shipped with AC internal wiring.
- Response time will differ depending on the connections. Refer to the following diagram and select the wiring suitable to the application.

Application		Gear motor / Hypoid motor / Croise motor		
		Three-phase 200 V 0.1 kW to 0.55 kW	Three-phase 200 V 0.75 kW to 3.7 kW	Three-phase 200 V 5.5 kW
AC internal wiring	•Normal use •Standard shipping specifications			
AC external wiring	•To shorten the stop time •When attaching a phase advancing condenser			
AC external operation	•For use with an inverter (Set the inverter to the MC section.) •When operating the brake separately	 Supply voltage to the brake at the point marked with ※3 should be 200 V to 254 V AC for 0.1 kW and 0.2 kW, 200 V to 220 V AC for 0.4 kW and 0.55 kW.	 Supply voltage to the brake at the point marked with ※3 should be 200 V to 220 V AC for 0.75 kW and 3.7 kW, and 200 V to 230 V AC for 1.5 kW to 2.2 kW.	
DC external wiring	•When stopping accuracy is required (for lift, etc.)			

Ⓜ : Motor Ⓑ : Brake MC: Electromagnetic contactor MCa: Auxiliary relay OCR: Overcurrent relay DM200D, PM180B: DC module
-N-: Protective element (varistor)

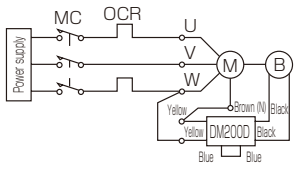
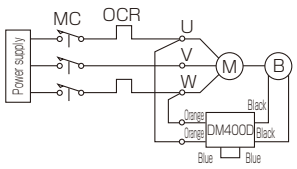
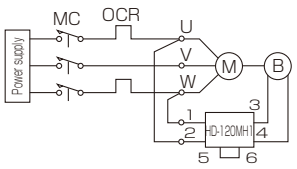
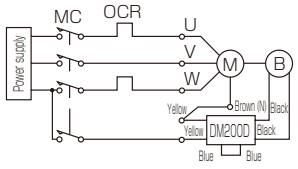
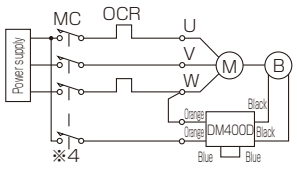
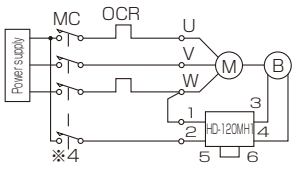
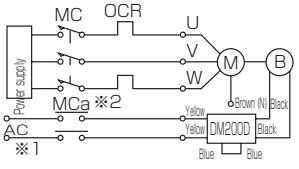
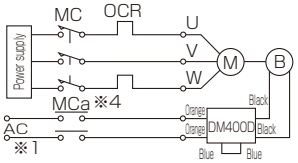
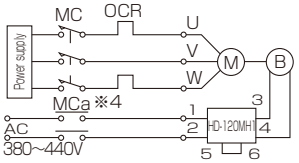
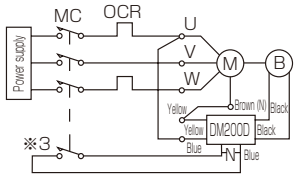
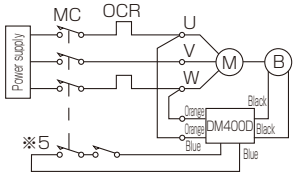
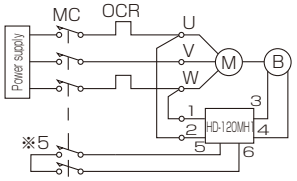
Note 1: Brake voltage is 90 V DC (when 200 V AC is input to DM200D and PM180B).
Note 2: When DC external wiring is used, the power supply module for the brake may be damaged due to the wire length, wiring method, relay type, or other factors. Therefore, connect a varistor between the terminals for DC external wiring.
For maximum effectiveness, connect the varistor near the power supply module for the brake (the blue lead wire sections). Refer to the varistor models below. Select a 470 V varistor voltage for the DM200D.

Product name	Manufacturer name	Model number For DM200D
Surge Absorber	Panasonic Corporation	ERZV14D471
Z-trap	Fuji Electric Device Technology Co., Ltd.	ENE471D-14A
Ceramic Varistor	Nippon Chemi-Con Corporation	TND14V-471KB00AAA0

Note 3: For the auxiliary relay (MCa) in ※ 1 (in the above diagram), use one with a contact capacity of 200 V AC, 7 A (resistance load) or higher. When an MC auxiliary contact point or auxiliary relay is used for ※ 2 (in the above diagram), use a contact capacity of 200 V AC, 10 A (resistance load) or higher.

2. 0.1 kW to 5.5 kW, 400 V class: Gear Motors, Hypoid Motors, Croise Motors

- Standard products are shipped with AC internal wiring. (Contact Tsubaki regarding the 5.5 kW model.)
- Response time will differ depending on the connections. Refer to the following diagram and select the wiring suitable to the application.

Application		Gear motor Hypoid motor Croise motor		
		Three-phase 400 V 0.1 kW to 0.55 kW	Three-phase 400 V 0.75 kW to 3.7 kW	Three-phase 400 V 5.5 kW
AC internal wiring	•Normal use •Standard shipping specifications			
AC external wiring	•To shorten the stop time •When attaching a phase advancing condenser			
AC external operation	•For use with an inverter Set the inverter to the MC section. •When operating the brake separately	 Note: Disconnect the brown N section from the terminal block with a closed-end connector. Then be sure to insulate the N section. When inputting power to the DC module using a transformer, the transformer should have 60 VA (0.1 kW to 0.4 kW). Supply voltage to the brake at the point marked with ※1 should be 200 V to 254 V AC for 0.1 kW and 0.2 kW, and 230 V to 254 V AC for 0.4 kW and 0.55 kW.	 ※1 380 V to 440 V AC for 0.75 kW and 3.7 kW. 380 V to 460 V AC for 1.5 kW and 2.2 kW.	
DC external wiring	•When stopping accuracy is required (for lift, etc.)			

Ⓜ: Motor Ⓑ: Brake MC: Electromagnetic contactor MCa: Auxiliary relay OCR: Overcurrent relay DM200D, DM400D, HD-120MH1: DC module
-N-: Protective element (varistor)

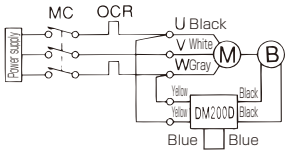
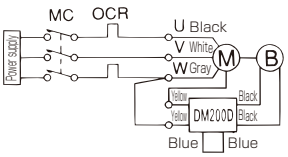
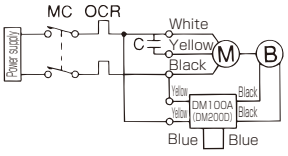
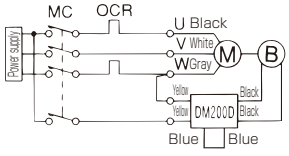
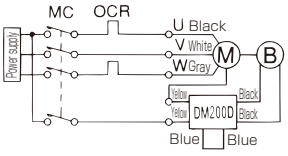
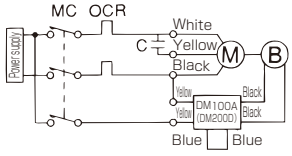
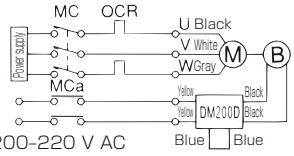
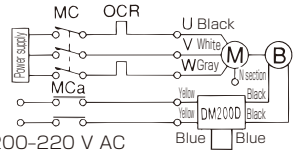
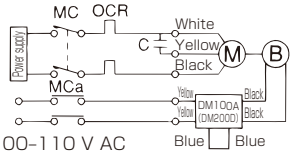
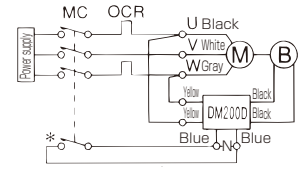
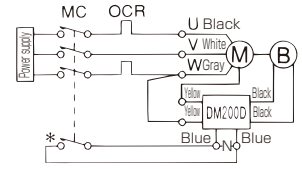
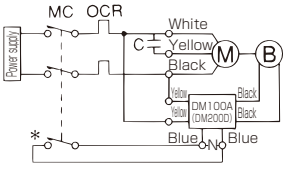
Note 1: Brake voltage is 90 V DC (when 200 V AC is input to DM200D).
Note 2: When DC external wiring is used, the power supply module for the brake may be damaged due to the wire length, wiring method, relay type, or other factors. Therefore, connect a varistor between the terminals for DC external wiring.
For maximum effectiveness, connect the varistor near the power supply module for the brake (the blue lead wire sections). Refer to the varistor models below. Select a 470 V varistor voltage for the DM200D.
Note 3: The HD-120MH1 DC module for 3.7 kW and 5.5 kW models is shipped separately. Wiring for this must be done by the customer. For dimensions, see page 217.
Note 4: The DM400D has a built-in varistor, so an external varistor is not necessary.
For the auxiliary relay (MCa) in ※ 4 (in the above diagram), use one with a contact voltage of 400–440 V AC and an inductive load of 1 A or higher.
For the auxiliary relay (MCa) in ※ 5 (in the above diagram), connect in a series of two or three relays with a contact voltage of 400–440 V AC and an inductive load of 1 A or higher.

Product name	Manufacturer name	Model number For DM200D
Surge Absorber	Panasonic Corporation	ERZV14D471
Z-trap	Fuji Electric Device Technology Co., Ltd.	ENE471D-14A
Ceramic Varistor	Nippon Chemi-Con Corporation	TND14V-471KB00AAA0

Note 5: For the auxiliary relay (MCa) in ※ 1 (in the above diagram), use one with a contact point capacity of 200 V AC, 7 A (resistance load) or higher.
When an MC auxiliary contact point or auxiliary relay is used for ※ 2 (in the above diagram), use one with a contact capacity of 200 V AC, 10 A (resistance load) or higher.

3. 40 W, 60 W, 90 W: Hypoid Motor Mini Series

- Standard products are shipped with AC internal wiring.
- Response time will differ depending on the connections. Refer to the following diagram and select the wiring suitable to the application.

Application	3-phase motor, standard voltage (200 V class)	3-phase motor, double voltage (400 V class)	Single-phase motor 100 V (200 V)
◦ Normal use ◦ Standard shipping specifications			
◦ To shorten the stop time ◦ When attaching a phase advancing condenser			
◦ When operating the brake separately Note: For the auxiliary relay (MCa), use one with a nominal load of 200 V AC, 7 A or higher.		 Note: Disconnect the N section with a closed-end connector. Then be sure to insulate the N section. When supplying 200 V voltage to the DC module using a transformer, the transformer should have a capacity of 60 VA or more.	
◦ When a lift and stopping accuracy are required Note: Contact capacity for the point marked with ※ should be 200 V AC, 10 A or higher.			

Ⓜ : Motor Ⓑ : Brake MC: Electromagnetic contactor MCa: Auxiliary relay OCR: Overcurrent relay C: Capacitor (accessory)
DM200D, DM100A: DC module, — N — : Protective element (varistor)

Note 1: After connecting and before turning on the power, confirm that the DC module's lead wires are placed as follows: the yellow wire is on the power supply side and the black wire is on the brake side.
Note 2: The DC module has a built-in diode. An erroneous connection will cause a short circuit that will damage the DC module.
Note 3: Add a protective element for protecting contact points as necessary.
Note 4: When using an inverter, do not use it in a circuit other than that for AC external operation.
Note 5: When DC external wiring is used, the power supply module for the brake may be damaged due to the wire length, wiring method, relay type, or other factors. Therefore, connect a varistor between the terminals for DC external wiring.
For maximum effectiveness, connect the varistor near the power supply module for the brake (the blue lead wire sections).
Refer to the varistor models below. Select a 470 V varistor voltage for the DM200D.

Product name	Manufacturer name	Model number For DM100A and DM200D
Surge Absorber	Panasonic Corporation	ERZV14D471
Z-trap	Fuji Electric Device Technology Co., Ltd.	ENE471D-14A
Ceramic Varistor	Nippon Chemi-Con Corporation	TND14V-471KB00AAA0

Note 6: Capacitor for single-phase motor operation
40 W: 15 μF, 60 W: 18 μF, 90 W: 27 μF (All have a resistance voltage of 220 V.)
Note 7: For the DM100A, the color differs from the diagram above. (Yellow → Red, Blue → None)

Heat generation from the motor

During motor operation, all the motor's internal loss turns into heat, which the motor generates. In particular, a single-phase capacitor-run motor will get very hot if the load rate is low. Depending on conditions, the motor's outer casing may exceed temperatures of 90° C during operation. This is not unusual. Be careful not to accidentally touch the motor, and avoid accidents by keeping flammable objects away from it.

When a Standard Motor Is Continuously Inverter-Driven

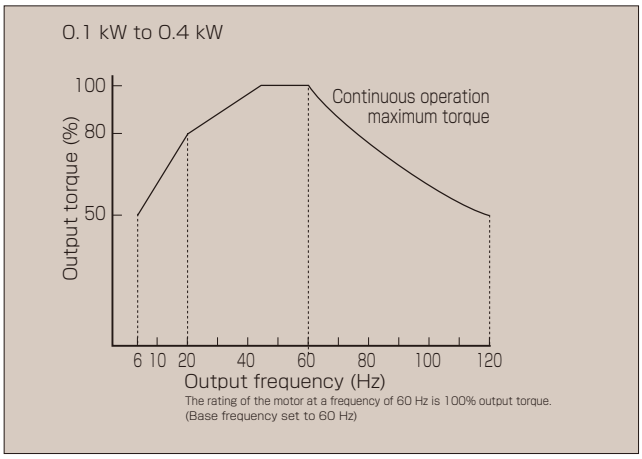
1. Frequency range

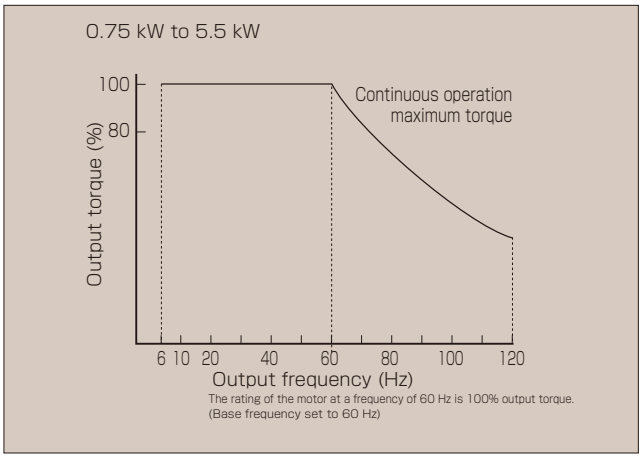
- Maximum 120 Hz. In the low-Hz range (low frequency), use within the allowable range of the inverter.
- 40/60/90 W models cannot be used in the low-frequency range and at continuous operation of 60 Hz or higher. Please contact Tsubaki.
- The 0.75 kW to 5.5 kW IE3 motors can be operated at constant torque between 6 Hz to 60 Hz. See page 233 for details.

2. Torque characteristics

For the frequency and torque characteristics, refer to the following graphs.

- At high frequencies, the torque decreases in reverse proportion to the revolution because of the constant kW. The motor noise, motor fan noise, reducer noise, and vibration increase because the revolution speed is high.
- At low frequencies, the temperature increases largely because the operating efficiency and cooling efficiency of the motor decrease. Use with a lower torque as shown below.





3. Brake type

- Because the brake requires a fixed power supply (frequency, voltage), set up the brake circuit separately. For the standard product, the brake lead wire and motor lead wire are shipped screwed together. Therefore, remove the screw and connect each lead wire separately.
- Perform braking at 60 Hz (1800 r/min) or less speed.
  Braking at high frequencies, above 60 Hz, may cause mechanical damage or excessive wear on the lining of the brake. Be sure to operate at 60 Hz or lower.

4. For single-phase motors and explosion-proof motors

Because the single-phase motor uses a capacitor, inverter drive is not available. Inverter drive is also not available for the explosion-proof motor because it is not covered by the applicable power supply (frequency, voltage) for explosion-proof testing.

5. Precautions

When using a motor with a low frequency or with a frequency of 60 Hz or higher, lower the torque as shown in the graphs above.

- When using inverter drive with a 400 V-class motor, dielectric breakdown may occur due to a high-voltage surge (micro surge) that occurs with switching of the inverter. Countermeasures are therefore needed for the motor (micro surge protection). Standard 400 V-class-and-higher motors come standard with micro surge protection. However, for 1,250 V and higher, install a suppression filter or a reactor on the inverter side.
- Increased temperatures, noise, and vibration result when compared with using a commercial power supply.
- To protect the motor from overheating, use an electronic thermal relay set to general-use motor specifications, or install a thermal relay between the inverter and the motor.
- When using the motor in the base frequency of 50 Hz, apply an output torque in the above table multiplied by 0.8. (For 0.1 kW to 0.4 kW models only.)

Inverter motor type

For 0.1 kW to 0.4 kW models, the inverter motor type is available as an option. For details, see page 232.

Brake Specifications

1. Motor output: 0.1 kW to 0.4 kW

		Gear motor, hypoid motor, croise motor			
Motor output	Three-phase	0.1 kW	0.2 kW	0.4 kW	※0.55 kW
Brake model number	Three-phase 200V	SLB01	SLB02	SLB04	SLB04
	Three-phase 400V	SLB01	SLB02	SLB04V	SLB04V
DC module model number	Three-phase 200V	DM200D			
	Three-phase 400V	DM200D			
Rated torque	Static friction torque N•m	0.98	1.96	3.92	3.92
	{kgf・m}	0.1	0.2	0.40	0.40
	Dynamic friction torque N•m	0.78	1.57	3.14	3.14
	{kgf・m}	0.08	0.16	0.32	0.32
Voltage	Three-phase 200V	DC90V			
	Three-phase 400V	DC90V			
Current at 20℃ A		0.178	0.178	0.232	0.232
Capacity at 20℃ W		16.0	16.0	20.9	20.9
Initial gap mm		0.15-0.20	0.15-0.20	0.15-0.20	0.15-0.20
Maximum gap mm		0.5	0.5	0.5	0.5
Total braking workload	J	1.31×10^{8}	1.85×10^{8}	1.85×10^{8}	1.85×10^{8}
	{kgf・m}	1.34×10^{7}	1.89×10^{7}	1.89×10^{7}	1.89×10^{7}
Allowable starting frequency		10 times/min.			
Braking delay time S (reference value)	AC internal wiring	0.18-0.25	0.15-0.21	0.14-0.17	0.14-0.17
	AC external wiring	0.11-0.18	0.09-0.12	0.06-0.09	0.06-0.09
	AC external operation	0.11-0.18	0.09-0.12	0.06-0.09	0.06-0.09
	DC external wiring	0.05-0.07	0.04-0.06	0.03-0.05	0.03-0.05

Note 1: The rated torque values shown above are static and dynamic friction torque values after break-in.
Note 2: Braking delay time is for reference only. It may vary depending on factors such as brake conditions, usage conditions, and individual machine differences. To shorten the braking delay time (when using the product in an elevating device, etc.), DC external wiring is recommended.
Note 3: ※ indicates for Croise motor only.

2. Motor output: 0.75 kW to 5.5 kW

		Gear motor, hypoid motor, croise motor				
Motor output	Three-phase	0.75 kW	1.5 kW	2.2 kW	3.7 kW	5.5 kW
Brake model number	Three-phase 200V	SLB07E	SLB15	SLB22	VNB371K NB-31190	VNB55K NB-31191
	Three-phase 400V	SLB07E 180V	SLB15 180V	SLB22 180V	VNB371KV NB-31192	
DC module model number	Three-phase 200V	DM200D			DM200D	PM180B
	Three-phase 400V	DM400D			DM400D	HD-120MH1
Rated torque	Static friction torque N•m	7.35	15	22	37	55
	{kgf・m}	0.75	1.50	2.20	3.77	5.61
	Dynamic friction torque N•m	5.88	12.0	17.6	29.6	44
	{kgf・m}	0.60	1.20	1.79	3.02	4.48
Voltage	Three-phase 200V	DC90V			DC90V	Instant 180V Constant 50V
	Three-phase 400V	DC180V			DC180V	Instant 270V Constant 90V
Current at 20℃ A		0.273 (0.142)	0.289 (0.145)	0.289 (0.145)	0.261(0.135)	0.253 (0.452)
Capacity at 20℃ W		24.6 (25.5)	26.0 (26.1)	26.0 (26.1)	26.1(26.1)	12.6 (40.7)
Initial gap mm		0.15-0.20	0.15-0.20	0.15-0.20	0.3	0.35
Maximum gap mm		0.5	0.5	0.5	0.7	1.2
Total braking workload	J	3.66×10^{8}	3.73×10^{8}	3.73×10^{8}	13.5×10^{8}	24.7×10^{8}
	{kgf・m}	3.73×10^{7}	3.81×10^{7}	3.81×10^{7}	13.8×10^{7}	25.2×10^{7}
Allowable starting frequency		10 times/min.				
Braking delay time S (reference value)	AC internal wiring	0.20-0.24	0.30-0.45	0.30-0.45	0.50-0.70	0.20-0.30 (0.50-0.70)
	AC external wiring	0.10-0.13	0.10-0.13	0.10-0.13	0.20-0.40	0.03-0.05 (0.20-0.40)
	AC external operation	0.10-0.13	0.10-0.13	0.10-0.13	0.20-0.40	0.03-0.05 (0.20-0.40)
	DC external wiring	0.04-0.06	0.04-0.06	0.04-0.06	0.02-0.04	— (0.03-0.05)

Note 1: The rated torque values shown above are static and dynamic friction torque values after break-in.
Note 2: Braking delay time is for reference only. It may vary depending on factors such as brake conditions, usage conditions, and individual machine differences. To shorten the braking delay time (when using the product in an elevating device, etc.), DC external wiring is recommended.
Note 3: The values in parentheses for braking delay time for 5.5 kW are the values in the case of 400 V. To shorten the braking delay time, use DC external wiring.
Note 4: The values in parentheses for current and capacity are the values in the case of 400 V.
Note 5: Values shown in the table above may differ for destination markets outside of Japan. Be sure to check prior to placing order.

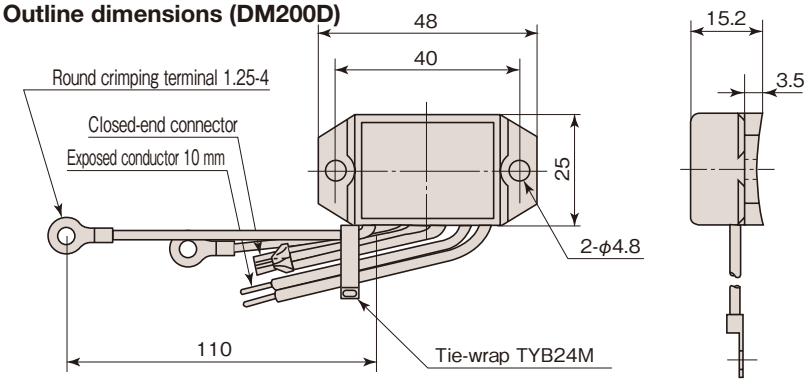
3. Motor output: 40 W to 90 W

		Hypoid Motor Mini Series		
Motor output	Three-phase	40W	60W	90W
	Single-phase			
Brake model number	Three-phase	BXW-04-10M-05-90V		BXW-04-10M-10-90V
	Single-phase			
DC module model number	Three-phase	DM200D		
	Single-phase	DM100A		
Rated torque	Static friction torque N・m{kgf・cm}	0.6 {6.1}		1.0 {10.2}
	Dynamic friction torque N・m{kgf・cm}	0.48 {4.8}		0.8 {8.1}
Operating voltage (V)	Three-phase	DC90V		
	Single-phase			
Current (A)	Three-phase	0.076		0.111
	Single-phase			
Capacity (W)		6.8		10
Gap (mm)	Initial	0.05–0.25		
	Max (three-phase)	0.4		
	Max (single-phase)	0.3		
Total braking workload J {kgf・m}	Three-phase	16.5×10^6 {16.8×10^5}		13.4×10^6 {13.7×10^5}
	Single-phase	8.0×10^6 {8.16×10^5}		7.1×10^6 {7.2×10^5}
Allowable starting frequency		10 times/min.		
Braking delay time (reference value) S	AC internal wiring	0.08		0.08
	AC external wiring	0.04		0.04
	AC external operation	0.04		0.04
	DC external wiring	0.01		0.01

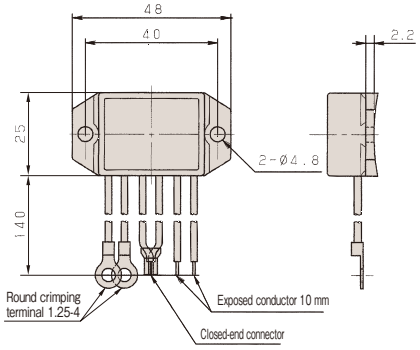
Rectifiers (DC Modules)

The built-in DC module is connected with the motor lead wire. When employing a DC external wiring circuit, follow the connecting diagrams on pages 206-208. If instructed by the customer at time of order, we will connect the DC external wiring before we ship the product to the customer. When separate delivery of the DC module is necessary, such as when the DM200D will be used in the control panel, etc., the items in the following illustration will be delivered if the customer requests this at time of order.

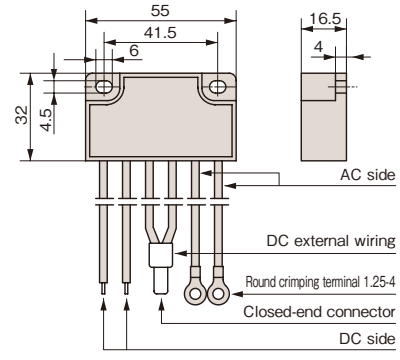
Outline dimensions (DM200D)



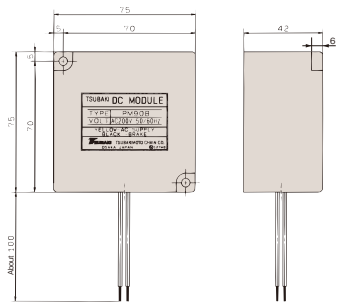
Outline dimensions (DM200D delivered seperately)



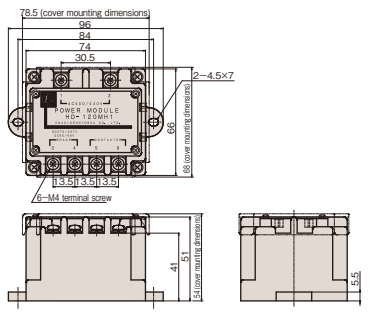
Outline dimensions (DM400D)



Outline dimensions (PM180B)



Outline dimensions (HD-120MH1 delivered seperately)



■ Moment of Inertia of Motor Shaft

1. Gear Motor and Hypoid Motor TA/TR Series

(· SI units: Moment of inertia · Gravitational units: GD²)

Motor capacity	Motor specifications	Three-phase, non-brake		Three-phase, brake		Single-phase, non-brake		Single-phase, brake	
		Moment of inertia	GD²	Moment of inertia	GD²	Moment of inertia	GD²	Moment of inertia	GD²
		kg·m²	{kgf·m²}	kg·m²	{kgf·m²}	kg·m²	{kgf·m²}	kg·m²	{kgf·m²}
0.1 kW	Standard/inverter motor	0.64×10^{-3}	$\{2.54\times10^{-3}\}$	0.66×10^{-3}	$\{2.64\times10^{-3}\}$	0.60×10^{-3}	$\{2.40\times10^{-3}\}$	0.85×10^{-3}	$\{3.40\times10^{-3}\}$
0.2 kW	Standard/inverter motor	0.74×10^{-3}	$\{2.96\times10^{-3}\}$	0.78×10^{-3}	$\{3.12\times10^{-3}\}$	0.88×10^{-3}	$\{3.50\times10^{-3}\}$	1.30×10^{-3}	$\{5.20\times10^{-3}\}$
0.4 kW	Standard/inverter motor	0.90×10^{-3}	$\{3.59\times10^{-3}\}$	0.94×10^{-3}	$\{3.74\times10^{-3}\}$				
0.75 kW	Standard	1.83×10^{-3}	$\{7.32\times10^{-3}\}$	1.94×10^{-3}	$\{7.76\times10^{-3}\}$				
1.5 kW	Standard	6.2×10^{-3}	$\{24.8\times10^{-3}\}$	6.4×10^{-3}	$\{24.8\times10^{-3}\}$				
2.2 kW	Standard	8.8×10^{-3}	$\{35.2\times10^{-3}\}$	9.3×10^{-3}	$\{37.2\times10^{-3}\}$				

Note: No inverter-type single-phase motor is available.

2. Croise Motor CSMA Series

(· SI units: Moment of inertia · Gravitational units: GD²)

Motor capacity			0.1kW		0.2kW		0.4kW		0.55kW	
Non-brake, brake			Non-brake	Brake	Non-brake	Brake	Non-brake	Brake	Non-brake	Brake
Reduction ratio 1/10–1/30	Moment of inertia	kg · m²	0.66×10^{-3}	0.69×10^{-3}	0.66×10^{-3}	0.70×10^{-3}	0.95×10^{-3}	0.99×10^{-3}	1.31×10^{-3}	1.35×10^{-3}
	GD²	{kgf · m²}	$\{2.65\times10^{-3}\}$	$\{2.75\times10^{-3}\}$	$\{2.65\times10^{-3}\}$	$\{2.81\times10^{-3}\}$	$\{3.81\times10^{-3}\}$	$\{3.96\times10^{-3}\}$	$\{5.25\times10^{-3}\}$	$\{5.40\times10^{-3}\}$
Reduction ratio 1/40–1/60	Moment of inertia	kg · m²	0.66×10^{-3}	0.69×10^{-3}	0.69×10^{-3}	0.73×10^{-3}	1.02×10^{-3}	1.06×10^{-3}	1.38×10^{-3}	1.42×10^{-3}
	GD²	{kgf · m²}	$\{2.65\times10^{-3}\}$	$\{2.75\times10^{-3}\}$	$\{2.75\times10^{-3}\}$	$\{2.91\times10^{-3}\}$	$\{4.08\times10^{-3}\}$	$\{4.23\times10^{-3}\}$	$\{5.52\times10^{-3}\}$	$\{5.67\times10^{-3}\}$

3. Croise Motor CSMR Series

(· SI units: Moment of inertia · Gravitational units: GD²)

Motor capacity			0.75kW		1.5kW		2.2kW		3.7kW		0.75kW	
Non-brake, brake			Non-brake	Brake	Non-brake	Brake	Non-brake	Brake	Non-brake	Brake	Non-brake	Brake
Reduction ratio 1/10–1/30	Moment of inertia	kg · m²	1.96×10^{-3}	2.07×10^{-3}	6.13×10^{-3}	6.36×10^{-3}	8.25×10^{-3}	8.46×10^{-3}	1.57×10^{-2}	1.62×10^{-2}	3.07×10^{-2}	3.24×10^{-2}
	GD²	{kgf · m²}	$\{7.82\times10^{-3}\}$	$\{8.26\times10^{-3}\}$	$\{2.45\times10^{-2}\}$	$\{2.54\times10^{-2}\}$	$\{3.30\times10^{-2}\}$	$\{3.38\times10^{-2}\}$	$\{6.26\times10^{-2}\}$	$\{6.46\times10^{-2}\}$	$\{1.23\times10^{-1}\}$	$\{1.29\times10^{-1}\}$
Reduction ratio 1/40–1/60	Moment of inertia	kg · m²	2.21×10^{-3}	2.32×10^{-3}	6.21×10^{-3}	6.44×10^{-3}	8.69×10^{-3}	8.90×10^{-3}	1.66×10^{-2}	1.71×10^{-2}	3.07×10^{-2}	3.24×10^{-2}
	GD²	{kgf · m²}	$\{8.86\times10^{-3}\}$	$\{9.30\times10^{-3}\}$	$\{2.49\times10^{-2}\}$	$\{2.58\times10^{-2}\}$	$\{3.47\times10^{-2}\}$	$\{3.56\times10^{-2}\}$	$\{6.64\times10^{-2}\}$	$\{6.84\times10^{-2}\}$	$\{1.23\times10^{-1}\}$	$\{1.29\times10^{-1}\}$

4. Croise Motor HCMA Series

(· SI units: Moment of inertia · Gravitational units: GD²)

Motor capacity			0.1kW		0.2kW		0.4kW		0.55kW	
Non-brake, brake			Non-brake	Brake	Non-brake	Brake	Non-brake	Brake	Non-brake	Brake
Reduction ratio 1/40–1/75	Moment of inertia	kg · m²	0.66×10^{-3}	0.69×10^{-3}	0.66×10^{-3}	0.70×10^{-3}	0.92×10^{-3}	0.96×10^{-3}	1.29×10^{-3}	1.33×10^{-3}
	GD²	{kgf · m²}	$\{2.65\times10^{-3}\}$	$\{2.75\times10^{-3}\}$	$\{2.65\times10^{-3}\}$	$\{2.81\times10^{-3}\}$	$\{3.67\times10^{-3}\}$	$\{3.82\times10^{-3}\}$	$\{5.15\times10^{-3}\}$	$\{5.30\times10^{-3}\}$
Reduction ratio 1/90–1/150	Moment of inertia	kg · m²	0.66×10^{-3}	0.69×10^{-3}	0.66×10^{-3}	0.70×10^{-3}	0.96×10^{-3}	1.00×10^{-3}	1.29×10^{-3}	1.33×10^{-3}
	GD²	{kgf · m²}	$\{2.65\times10^{-3}\}$	$\{2.75\times10^{-3}\}$	$\{2.65\times10^{-3}\}$	$\{2.81\times10^{-3}\}$	$\{3.83\times10^{-3}\}$	$\{3.98\times10^{-3}\}$	$\{5.16\times10^{-3}\}$	$\{5.31\times10^{-3}\}$
Reduction ratio 1/180–1/200	Moment of inertia	kg · m²	0.66×10^{-3}	0.69×10^{-3}	0.66×10^{-3}	0.70×10^{-3}	0.95×10^{-3}	0.99×10^{-3}	1.29×10^{-3}	1.33×10^{-3}
	GD²	{kgf · m²}	$\{2.65\times10^{-3}\}$	$\{2.75\times10^{-3}\}$	$\{2.65\times10^{-3}\}$	$\{2.81\times10^{-3}\}$	$\{3.81\times10^{-3}\}$	$\{3.96\times10^{-3}\}$	$\{5.17\times10^{-3}\}$	$\{5.32\times10^{-3}\}$
Reduction ratio 1/240–1/300	Moment of inertia	kg · m²	0.66×10^{-3}	0.69×10^{-3}	0.68×10^{-3}	0.72×10^{-3}	0.97×10^{-3}	1.01×10^{-3}	1.37×10^{-3}	1.41×10^{-3}
	GD²	{kgf · m²}	$\{2.65\times10^{-3}\}$	$\{2.75\times10^{-3}\}$	$\{2.73\times10^{-3}\}$	$\{2.89\times10^{-3}\}$	$\{3.87\times10^{-3}\}$	$\{4.02\times10^{-3}\}$	$\{5.47\times10^{-3}\}$	$\{5.62\times10^{-3}\}$

5. Croise Motor HCMR Series

(· SI units: Moment of inertia · Gravitational units: GD²)

Motor capacity			0.75kW		1.5kW		2.2kW		3.7kW		0.75kW	
Non-brake, brake			Non-brake	Brake	Non-brake	Brake	Non-brake	Brake	Non-brake	Brake	Non-brake	Brake
Reduction ratio 1/40–1/75	Moment of inertia	kg · m²	1.86×10^{-3}	1.97×10^{-3}	5.85×10^{-3}	6.08×10^{-3}	7.88×10^{-3}	8.11×10^{-3}	1.49×10^{-2}	1.53×10^{-2}	1.57×10^{-2}	1.57×10^{-2}
	GD²	{kgf · m²}	$\{7.44\times10^{-3}\}$	$\{7.88\times10^{-3}\}$	$\{2.34\times10^{-2}\}$	$\{2.43\times10^{-2}\}$	$\{3.15\times10^{-2}\}$	$\{3.24\times10^{-2}\}$	$\{5.94\times10^{-2}\}$	$\{6.14\times10^{-2}\}$	$\{6.28\times10^{-2}\}$	$\{6.30\times10^{-2}\}$
Reduction ratio 1/90–1/150	Moment of inertia	kg · m²	1.86×10^{-3}	1.97×10^{-3}	5.85×10^{-3}	6.08×10^{-3}	7.88×10^{-3}	8.11×10^{-3}	1.49×10^{-2}	1.53×10^{-2}	1.57×10^{-2}	1.57×10^{-2}
	GD²	{kgf · m²}	$\{7.44\times10^{-3}\}$	$\{7.88\times10^{-3}\}$	$\{2.34\times10^{-2}\}$	$\{2.43\times10^{-2}\}$	$\{3.15\times10^{-2}\}$	$\{3.24\times10^{-2}\}$	$\{5.94\times10^{-2}\}$	$\{6.14\times10^{-2}\}$	$\{6.28\times10^{-2}\}$	$\{6.30\times10^{-2}\}$
Reduction ratio 1/180–1/200	Moment of inertia	kg · m²	1.89×10^{-3}	2.00×10^{-3}	5.86×10^{-3}	6.08×10^{-3}	7.88×10^{-3}	8.11×10^{-3}	1.49×10^{-2}	1.53×10^{-2}		
	GD²	{kgf · m²}	$\{7.56\times10^{-3}\}$	$\{8.00\times10^{-3}\}$	$\{2.34\times10^{-2}\}$	$\{2.43\times10^{-2}\}$	$\{3.15\times10^{-2}\}$	$\{3.24\times10^{-2}\}$	$\{5.94\times10^{-2}\}$	$\{6.14\times10^{-2}\}$		
Reduction ratio 1/240–1/300	Moment of inertia	kg · m²	1.89×10^{-3}	2.00×10^{-3}	5.86×10^{-3}	6.08×10^{-3}	7.88×10^{-3}	8.11×10^{-3}	1.49×10^{-2}	1.53×10^{-2}		
	GD²	{kgf · m²}	$\{7.56\times10^{-3}\}$	$\{8.00\times10^{-3}\}$	$\{2.34\times10^{-2}\}$	$\{2.43\times10^{-2}\}$	$\{3.15\times10^{-2}\}$	$\{3.24\times10^{-2}\}$	$\{5.94\times10^{-2}\}$	$\{6.14\times10^{-2}\}$		

Note: Common to foot mount, face mount, and hollow shaft types.

6. Hypoid Motor Mini Series

(· SI units: Moment of inertia · Gravitational units: GD²)

Motor capacity	Three-phase, non-brake		Single-phase, non-brake		Three-phase, brake		Single-phase, brake	
	Moment of inertia	GD²	Moment of inertia	GD²	Moment of inertia	GD²	Moment of inertia	GD²
	kg · m²	{kgf · m²}	kg · m²	{kgf · m²}	kg · m²	{kgf · m²}	kg · m²	{kgf · m²}
40 W	1.84×10^{-4}	$\{7.35\times10^{-4}\}$	2.07×10^{-4}	$\{8.27\times10^{-4}\}$	1.86×10^{-4}	$\{7.45\times10^{-4}\}$	2.09×10^{-4}	$\{8.37\times10^{-4}\}$
60 W	1.62×10^{-4}	$\{6.46\times10^{-4}\}$	1.93×10^{-4}	$\{7.73\times10^{-4}\}$	1.64×10^{-4}	$\{6.56\times10^{-4}\}$	1.96×10^{-4}	$\{7.83\times10^{-4}\}$
90 W	2.15×10^{-4}	$\{8.61\times10^{-4}\}$	1.93×10^{-4}	$\{7.73\times10^{-4}\}$	2.18×10^{-4}	$\{8.71\times10^{-4}\}$	—	—

Output Shaft Backlash

1. Croise Motor CSMA (R) Series

Unit: Degree

Motor capacity / Reduction ratio	0.1kW	0.2kW	0.4kW	0.55kW	0.75kW	1.5kW	2.2kW	3.7kW	5.5kW
1/10	0.11~1.09	0.11~1.12	0.09~0.90	0.09~0.90	0.07~0.69	0.05~0.58	0.14~0.50	0.11~0.40	0.10~0.38
1/15	0.11~1.04	0.11~1.12	0.09~0.90	0.09~0.90	0.07~0.69	0.05~0.58	0.14~0.50	0.11~0.40	0.10~0.37
1/20	0.11~1.03	0.11~1.04	0.09~0.84	0.09~0.84	0.07~0.65	0.05~0.54	0.11~0.43	0.10~0.38	0.09~0.31
1/25	0.11~1.01	0.11~1.05	0.09~0.84	0.09~0.84	0.07~0.65	0.05~0.54	0.14~0.47	0.11~0.37	0.08~0.30
1/30	0.11~1.01	0.11~1.05	0.09~0.84	0.09~0.84	0.07~0.65	0.05~0.54	0.14~0.47	0.11~0.37	0.10~0.35
1/40	0.11~1.00	0.09~0.87	0.07~0.64	0.07~0.64	0.05~0.53	0.11~0.41	0.10~0.37	0.08~0.30	
1/50	0.11~0.99	0.09~0.85	0.06~0.63	0.06~0.63	0.05~0.52	0.11~0.41	0.08~0.33	0.08~0.29	
1/60	0.11~0.99	0.08~0.84	0.06~0.62	0.06~0.62	0.05~0.51	0.10~0.40	0.08~0.32	0.08~0.28	

2. Croise Motor HCMA (R) Series

Unit: Degree

Motor capacity / Reduction ratio	0.1kW	0.2kW	0.4kW	0.55kW	0.75kW	1.5kW	2.2kW	3.7kW	5.5kW
1/ 40	0.25~1.55	0.25~1.55	0.16~1.32	0.16~1.32	0.13~1.20	0.15~1.09	0.12~0.95	0.11~0.86	0.11~0.59(0.11~0.38)
1/ 50	0.25~1.55	0.25~1.55	0.16~1.32	0.16~1.32	0.13~1.20	0.15~1.09	0.12~0.95	0.11~0.85	0.11~0.59(0.11~0.38)
1/ 60	0.24~1.49	0.24~1.49	0.15~1.28	0.12~1.17	0.12~1.17	0.11~0.93	0.11~0.93	0.10~0.84	
1/ 75	0.24~1.49	0.24~1.49	0.15~1.28	0.12~1.17	0.12~1.17	0.11~0.93	0.11~0.93	0.10~0.84	0.07~0.46(0.07~0.25)
1/ 90	0.24~1.48	0.15~1.26	0.12~1.14	0.12~1.14	0.11~1.00	0.11~0.91	0.09~0.77	0.10~0.53(0.10~0.32)	0.10~0.53(0.10~0.32)
1/100	0.24~1.48	0.15~1.26	0.12~1.14	0.12~1.14	0.11~1.00	0.11~0.91	0.09~0.77	0.10~0.53(0.10~0.32)	0.10~0.53(0.10~0.32)
1/120	0.24~1.46	0.15~1.24	0.12~1.15	0.12~1.15	0.14~1.05	0.11~0.91	0.10~0.82	0.10~0.50(0.10~0.29)	
1/150	0.24~1.46	0.15~1.24	0.12~1.15	0.12~1.15	0.14~1.05	0.10~0.82	0.10~0.82	0.10~0.50(0.10~0.29)	
1/180	0.24~1.46	0.15~1.23	0.12~1.12	0.11~0.98	0.11~0.90	0.09~0.76	0.09~0.51(0.09~0.30)	0.09~0.51(0.09~0.30)	
1/200	0.24~1.46	0.15~1.23	0.12~1.12	0.11~0.98	0.11~0.90	0.09~0.76	0.09~0.51(0.09~0.30)	0.09~0.51(0.09~0.30)	
1/240	0.14~1.20	0.11~1.09	0.11~0.95	0.08~0.84	0.07~0.73	0.09~0.47(0.09~0.26)	0.09~0.47(0.09~0.26)	0.09~0.47(0.09~0.26)	
1/300	0.14~1.19	0.11~1.09	0.11~0.95	0.08~0.84	0.07~0.73	0.09~0.47(0.09~0.26)	0.09~0.47(0.09~0.26)	0.09~0.47(0.09~0.26)	

Note 1: The above figures are calculated values.
Note 2: Common to foot mount, face mount, and hollow shaft types.
Note 3: However, values within parentheses in (the shaded sections) of the table are values for hollow shaft models.

About Self-Lock

In the static condition, the input shaft (motor shaft) of a worm reducer (Croise motor) will not start to rotate even if the output shaft of the reducer is caused to rotate. This effect is called "self lock." In addition, although the input shaft (motor shaft) will rotate, a large force would have to be applied on the output shaft to make this happen. This effect is called the "self-locking effect" or "braking effect." This self-locking effect depends on the lead angle of the worm gear, the condition of the tooth surfaces, and the lubricating oil.

In our standard specification worm reducer (Croise motor), the self-locking effect can be expected in the static condition when the reduction ratio of the worm gear is 1/50 or 1/60. The self-locking effect and the braking effect can also be anticipated at other reduction ratios (1/10 to 1/40).

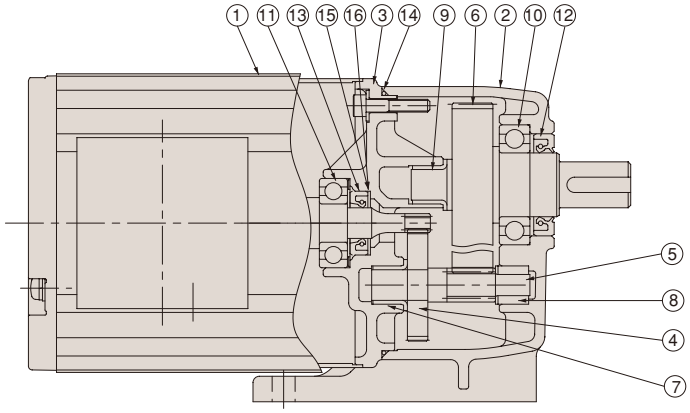
However, the self-locking effect may be diminished if the reducer is subject to shock or external vibrations. When reliable reverse rotation ("back driving") prevention is required, a brake option is recommended.

Also, in applications where the load inertia is very large (such as transport devices or circulating movement equipment), sudden braking may occur due to the self-lock or self-locking effect, which is extremely dangerous. For such applications, select a lower worm gear reduction ratio of 1/10 to 1/20.

Internal Structure

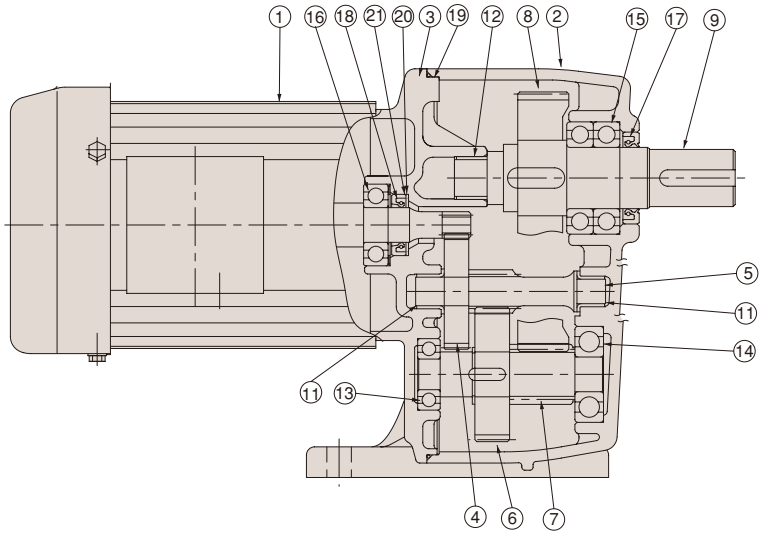
1. Gear Motor TA Series, TR Series

Two-step reduction



① Motor
② L case
③ M bracket
④ 1st stage wheel
⑤ 2nd shaft pinion
⑥ Output shaft wheel
⑦ Metal (2nd shaft M bracket side)
⑧ Metal (2nd shaft L case side)
⑨ Metal (output shaft M bracket side)
⑩ Bearing (output shaft L case side)
⑪ Bearing (motor shaft load side)
⑫ Oil seal (output side)
⑬ Oil seal (motor shaft)
⑭ O-ring
⑮ Filter
⑯ Shim

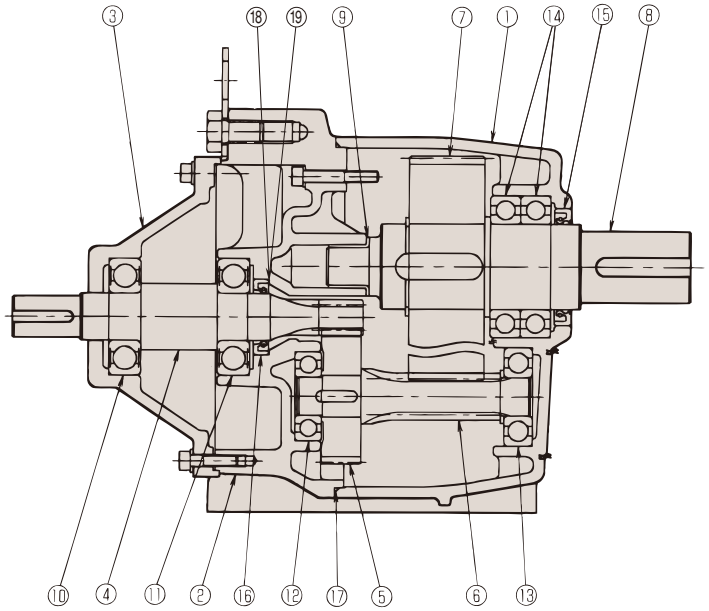
Three-step reduction



① Motor
② L case
③ M bracket
④ 1st stage wheel
⑤ 2nd shaft pinion
⑥ 2nd stage wheel
⑦ 3rd shaft pinion
⑧ 3rd stage wheel
⑨ Output shaft
⑩ Metal (2nd shaft M bracket side)
⑪ Metal (2nd shaft L case side)
⑫ Metal (output shaft M bracket side)
⑬ Bearing (3rd shaft M bracket side)
⑭ Bearing (3rd shaft L case side)
⑮ Bearing (output shaft L case side)
⑯ Bearing (motor shaft load side)
⑰ Oil seal (output side)
⑱ Oil seal (motor shaft)
⑲ O-ring
⑳ Filter
㉑ Shim

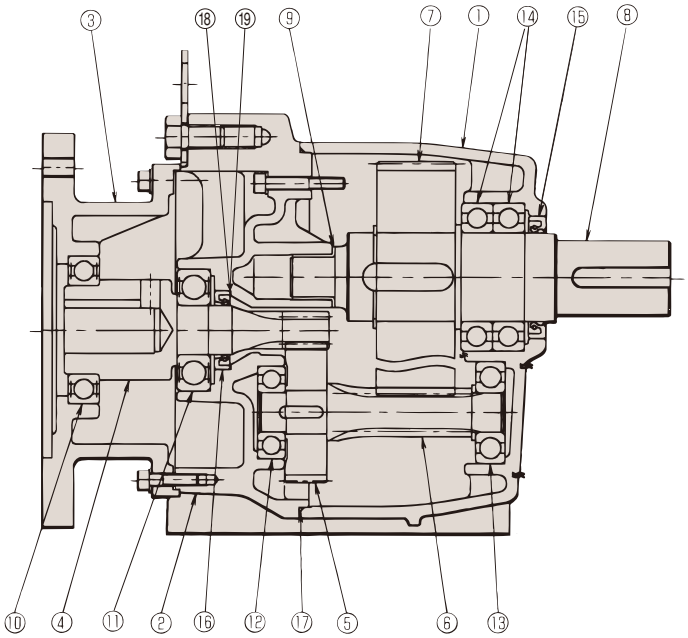
Note: The above structural drawings are representative drawings. Specification details will vary from model to model. Please contact Tsubaki.

■ Inline reducer type



① L case
② M bracket
③ R bracket
④ Pinion with input shaft
⑤ 1st stage wheel
⑥ 2nd shaft pinion
⑦ 2nd stage wheel
⑧ Output shaft
⑨ Plametal (output shaft M bracket side)
⑩ Bearing (input shaft R bracket side)
⑪ Bearing(input shaft M bracket side)
⑫ Bearing (2nd shaft M bracket side)
⑬ Bearing (2nd shaft L case side)
⑭ Bearing (output shaft L case side)
⑮ Oil seal (output side)
⑯ Oil seal (input shaft)
⑰ O-ring
⑱ Filter
⑲ Shim

■ Adapter type

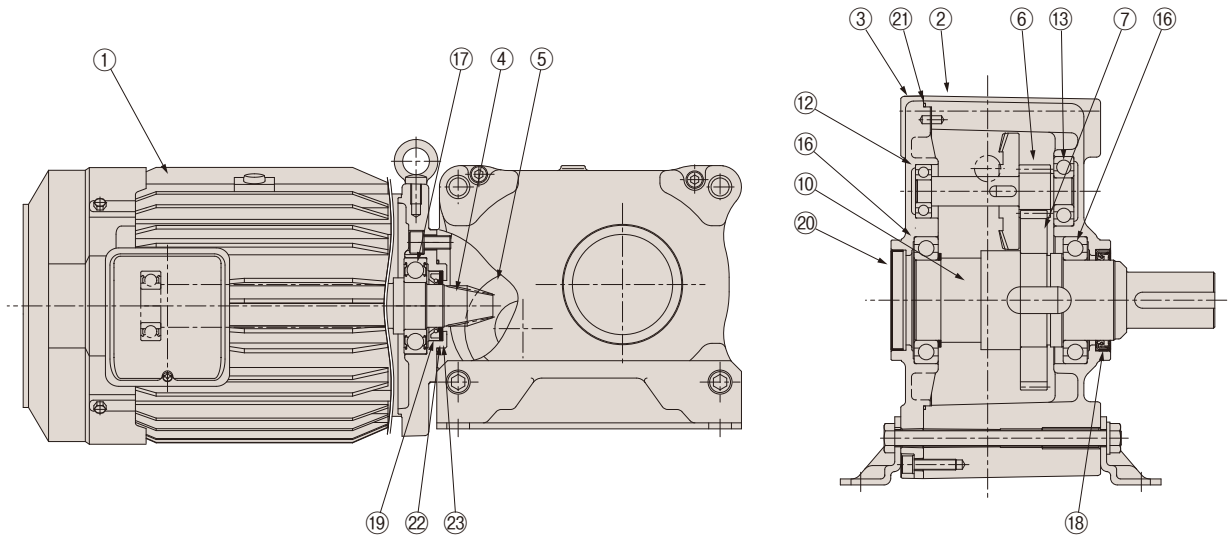


① L case
② M bracket
③ Motor flange
④ Adapter input shaft pinion
⑤ 1st stage wheel
⑥ 2nd shaft pinion
⑦ 2nd stage wheel
⑧ Output shaft
⑨ Plametal (output shaft M bracket side)
⑩ Bearing (input shaft motor flange side)
⑪ Bearing(input shaft M bracket side)
⑫ Bearing (2nd shaft M bracket side)
⑬ Bearing (2nd shaft L case side)
⑭ Bearing (output shaft L case side)
⑮ Oil seal (output side)
⑯ Oil seal (input shaft)
⑰ O-ring
⑱ Filter
⑲ Shim

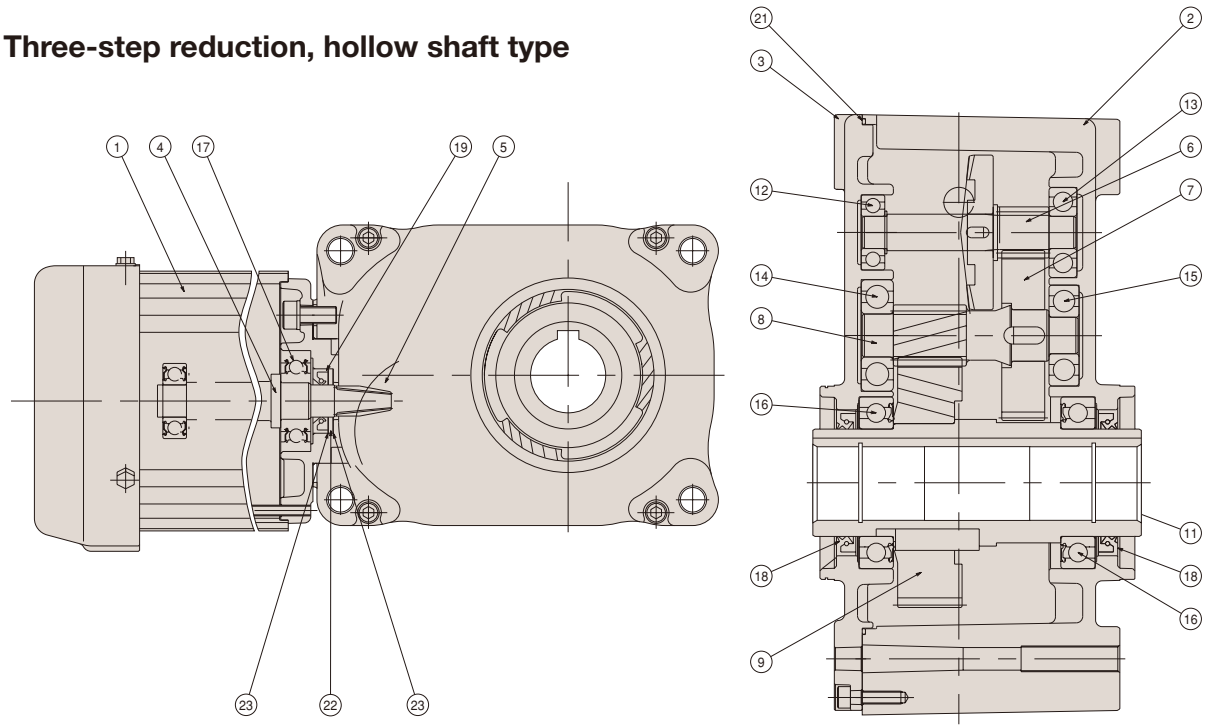
Note: The above structural drawings are representative drawings. Specification details will vary from model to model. Please contact Tsubaki.

2. Hypoid Motor TA Series, TR Series

■ Two-step reduction, foot mount type



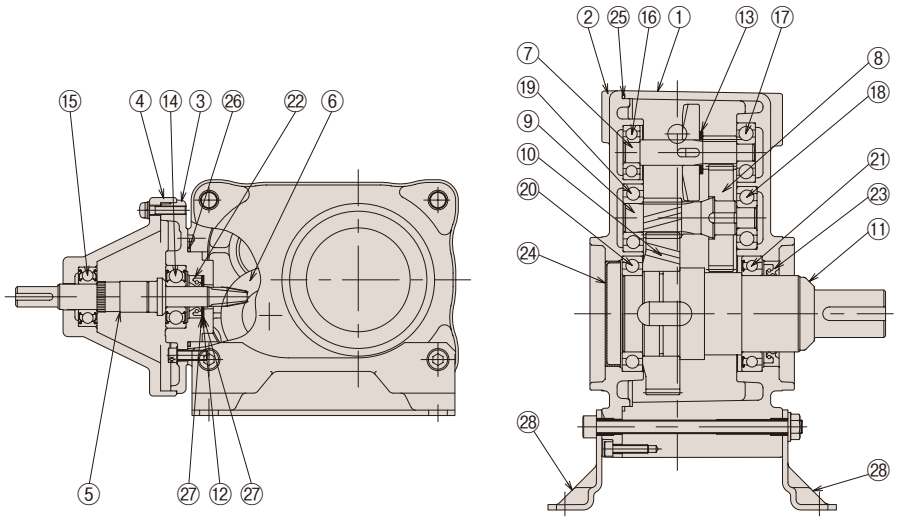
■ Three-step reduction, hollow shaft type



① Motor
② Case
③ Cover
④ Motor pinion (hypoid pinion)
⑤ 1st stage wheel (hypoid gear)
⑥ 2nd shaft pinion
⑦ 2nd stage wheel
⑧ 3rd shaft pinion
⑨ 3rd stage wheel
⑩ Output shaft
⑪ Hollow output shaft
⑫ Bearing (2nd shaft cover side)
⑬ Bearing (2nd shaft case side)
⑭ Bearing (3rd shaft cover side)
⑮ Bearing (3rd shaft case side)
⑯ Bearing (output shaft)
⑰ Bearing (motor shaft load side)
⑱ Oil seal (output side)
⑲ Oil seal (motor shaft)
⑳ Seal cap
㉑ O-ring
㉒ Filter
㉓ Shim

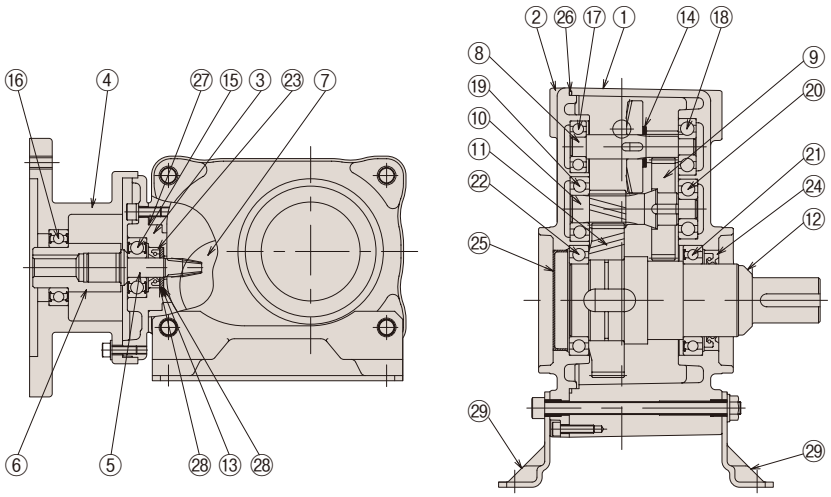
Note: The above structural drawings are representative drawings. Specification details will vary from model to model. Please contact Tsubaki.

■ Inline reducer type



① U case
② U cover
③ M bracket
④ R bracket
⑤ Input shaft pinion 020
⑥ 1st stage wheel
⑦ 2nd shaft pinion
⑧ 2nd stage wheel
⑨ 3rd shaft pinion
⑩ 3rd stage wheel
⑪ Solid output shaft
⑫ Felt
⑬ Collar 020U—2 shaft
⑭～㉑ Bearing
㉒～㉓ Oil seal
㉔ Seal cap
㉕～㉖ O-ring
㉗ Shim
㉘ L foot

■ Adapter type



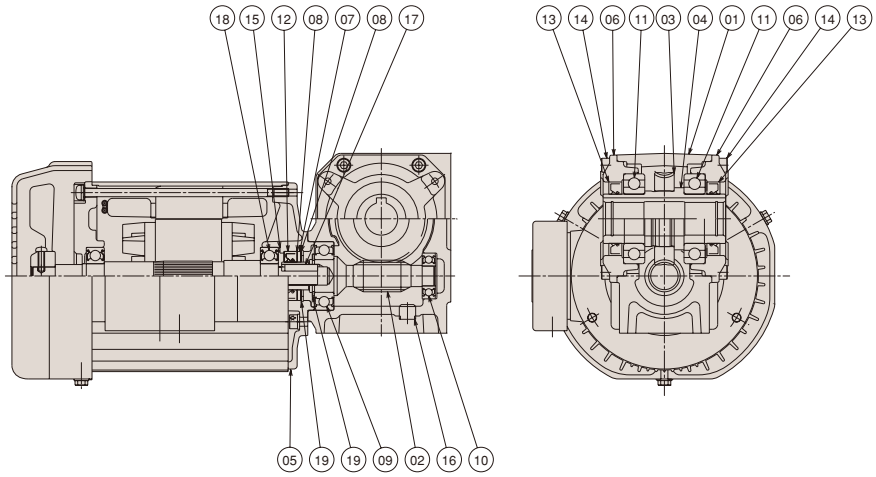
① U case
② U cover
③ M bracket
④ Motor flange 010
⑤ Adapter input shaft pinion 020
⑥ Adapter sleeve 020
⑦ 1st stage wheel
⑧ 2nd shaft pinion
⑨ 2nd stage wheel
⑩ 3rd shaft pinion
⑪ 3rd stage wheel
⑫ Solid output shaft
⑬ Felt
⑭ Collar 020
⑮～㉒ Bearing
㉓～㉔ Oil seal
㉕ Seal cap
㉖～㉗ O-ring
㉘ Shim
㉙ L foot

Note: The above structural drawings are representative drawings. Specification details will vary from model to model. Please contact Tsubaki.

3. Croise Motors

■ Hollow shaft type

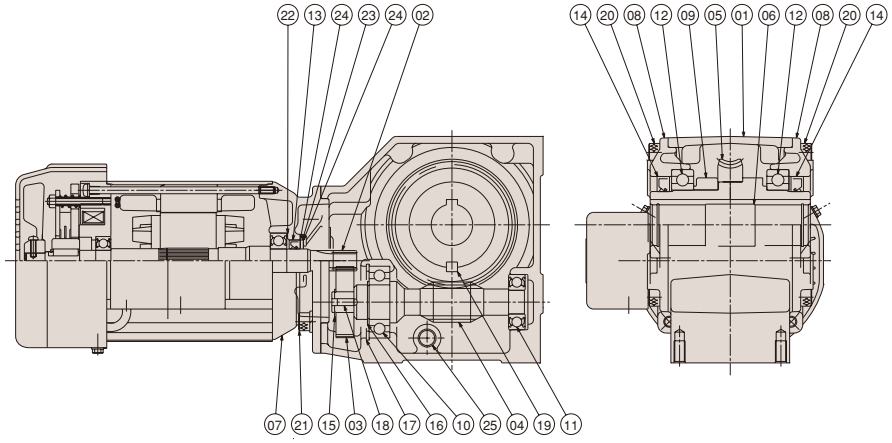
CSMA/CSMR series



⑪ Case
⑫ Worm
⑬ Worm wheel
⑭ Output shaft
⑮ M flange
⑯ Output bearing support III
⑰ Filter
⑱ Shim I
⑲ Bearing (input shaft load side)
⑩ Bearing (input shaft anti-load side)
⑪ Bearing (output shaft)
⑫ Oil seal (input shaft)
⑬ Oil seal (output shaft)
⑭ Hex socket head cap bolt
⑮ Spring washer
⑯ Hole plug
⑰ Parallel key square
⑱ Bearing (motor shaft load side)
⑲ Snap ring

■ Hollow shaft type

HCMA/HCMR series

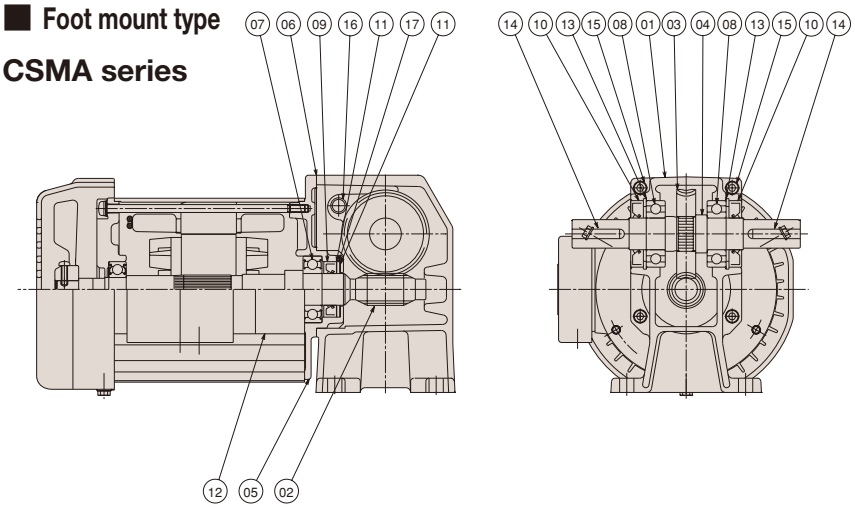


⑪ Case
⑫ Rotor shaft helical pinion
⑬ 1st helical gear
⑭ 2nd worm
⑮ 2nd worm wheel
⑯ Output shaft
⑰ M flange
⑱ Output bearing support III
⑲ Output collar
⑩ Bearing (input shaft load side)
⑪ Bearing (input shaft anti-load side)
⑫ Bearing (output shaft)
⑬ Oil seal (input shaft)
⑭ Oil seal (output side)
⑮ Jig snap ring
⑯ Jig snap ring
⑰ Hole retaining ring
⑱ Parallel key square
⑲ Parallel key square
⑳ Hex socket head cap bolt
㉑ Hex socket head cap bolt
㉒ Wave washer
㉓ Filter
㉔ Shim
㉕ Hex socket head plug

Note: The above structural drawings are representative drawings. Specification details will vary from model to model. Please contact Tsubaki.

■ Foot mount type

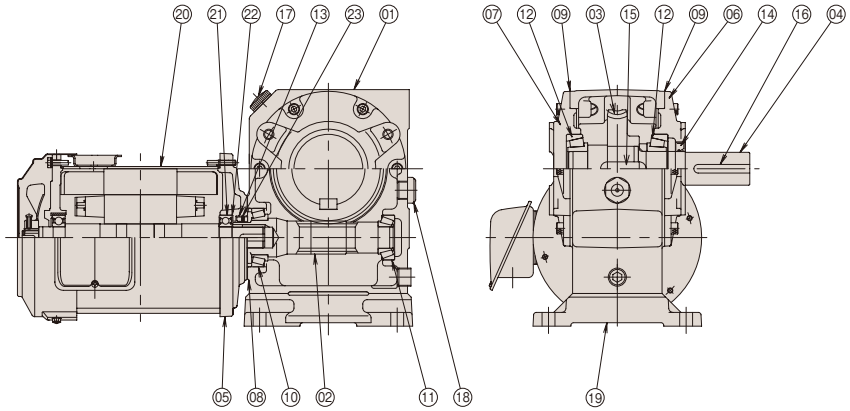
CSMA series



⑴ Case
⑵ Rotor worm
⑶ Worm wheel
⑷ Output shaft
⑸ M flange
⑹ Packing
⑺ Bearing (input shaft)
⑻ Bearing (output shaft)
⑼ Oil seal (input shaft)
⑽ Oil seal (output side)
⑾ Shim
⑬ Hole retaining ring
⑭ Parallel key square
⑰ Filter

■ Foot mount type

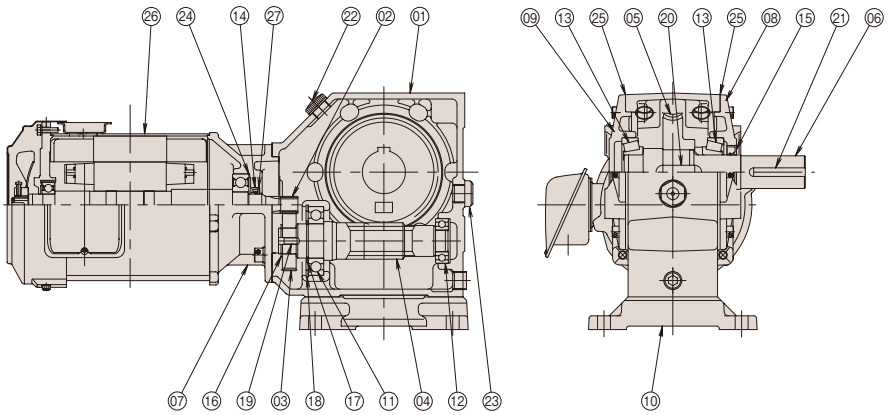
CSMR series



⑴ Case
⑵ Worm
⑶ Worm wheel
⑷ Output shaft
⑸ M flange
⑹ Output bearing support
⑺ Output bearing support
⑻ Shim
⑼ Shim
⑽ Bearing (input shaft load side)
⑾ Bearing (input shaft anti-load side)
⑿ Bearing (output shaft side)
⒀ Oil seal (input shaft)
⒁ Oil seal (output shaft)
⒂ Parallel key square
⒃ Parallel key square
⒄ Pressure vent
⒅ Oil gauge
⒆ Base
⒇ Motor
㉑ Bearing (motor shaft load side)
㉒ Wave washer
㉓ Filter

■ Foot mount type

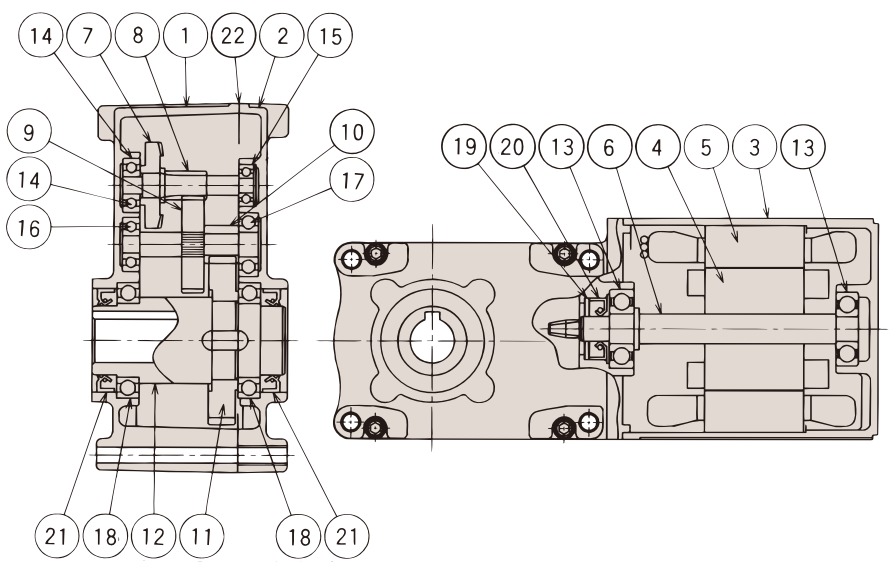
HCMA/HCMR series



⑴ Case
⑵ Rotor shaft helical pinion
⑶ 1st helical gear
⑷ 2nd worm
⑸ 2nd worm wheel
⑹ Output shaft
⑺ M flange
⑻ Output bearing support
⑼ Output bearing support
⑽ Base
⑾ Bearing (input shaft load side)
⑿ Bearing (input shaft anti-load side)
⒀ Bearing (output shaft side)
⒁ Oil seal (input shaft)
⒂ Oil seal (output shaft)
⒃ Jig snap ring
⒄ Jig snap ring
⒅ Hole retaining ring
⒆ Parallel key square
⒇ Parallel key square
㉑ Parallel key square
㉒ Pressure vent
㉓ Oil gauge
㉔ Wave washer
㉕ Shim
㉖ Motor
㉗ Filter

Note: The above structural drawings are representative drawings. Specification details will vary from model to model. Please contact Tsubaki.

4. Hypoid Motor Mini Series



① Case
② Cover
③ Motor frame
④ Rotor
⑤ Stator
⑥ Motor pinion
⑦ 1st stage wheel
⑧ 2nd shaft pinion
⑨ 2nd stage wheel
⑩ 3rd shaft pinion
⑪ 3rd stage wheel
⑫ Hollow output shaft
⑬ Ball bearing
⑭ Ball bearing
⑮ Ball bearing
⑯ Ball bearing
⑰ Ball bearing
⑱ Ball bearing
⑲ Filter
⑳ Oil seal
㉑ Oil seal
㉒ Gasket

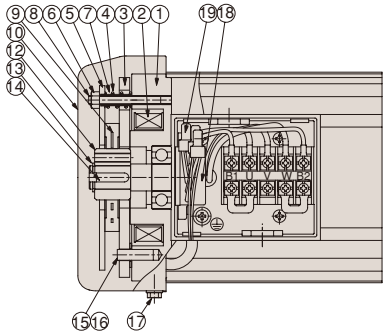
Note: The above structural drawings are representative drawings. Specification details will vary from model to model. Please contact Tsubaki.

Brake Structure

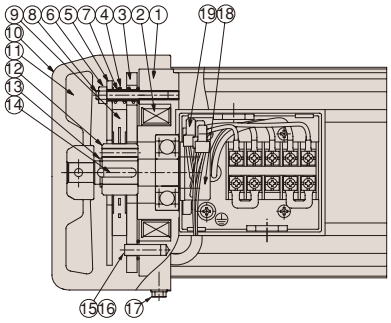
1. Three-phase 0.1 kW to 2.2 kW: Gear Motors, Hypoid Motors, Croise Motors

The optional one-touch manual release is also available. Refer to page 235 for details.

SLB brake

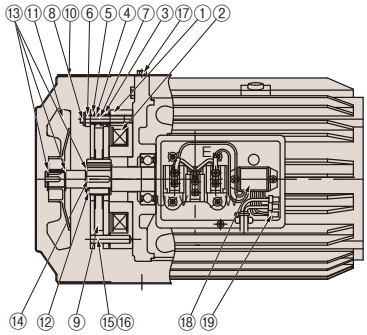


Gear motor, hypoid motor
Three-phase 0.1 kW



Gear motor, hypoid motor
Three-phase 0.2 kW to 0.4 kW
Croise motor
Three-phase 0.1 kW to 0.4 kW

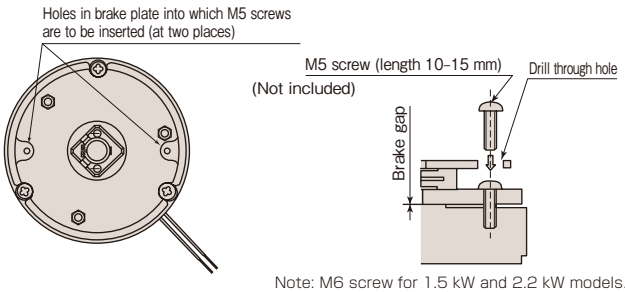
1. Anti-load bracket with yoke
2. Coil
3. Armature
4. Presser bar spring
5. Brake plate
6. U nut
7. Collar
8. Guide bolt
9. Lining
10. Fan cover
11. Fan
    (not provided in the left figure)
12. Square hub
13. Snap ring
14. Key
15. Spring pin
16. Brake spring
17. Fan cover set screw
18. DC module
19. Closed-end connector



Gear motor, hypoid motor, croise motor
Three-phase 0.75 kW to 2.2 kW

Manual release (standard equipment)

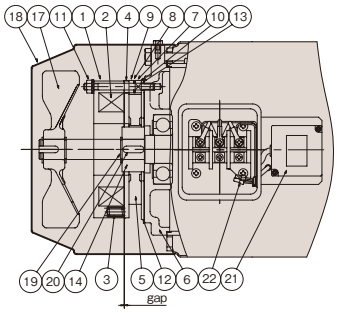
- Perform release with no load applied to the output shaft.
- Remove the fan cover and install the screws.
- After the completion of work, be sure to remove the screws and install the cover before starting operation.



Note: M6 screw for 1.5 kW and 2.2 kW models.

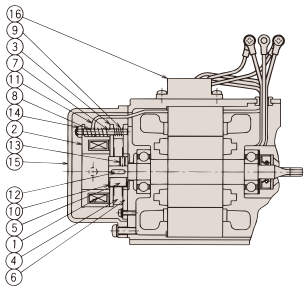
2. Three-phase 3.7 kW to 5.5 kW: Hypoid Motors, Croise Motors

VNB brake



1. Yoke
2. Coil
3. Brake spring
4. Armature
5. Lining
6. Anti-load bracket
7. Stud bolt
8. Liner
9. Distance collar
10. Protective liner
11. Hexagon nut
12. Brake plate
13. Sheet packing
14. Center hub
15. Silencer
16 O-ring
17. Fan
18. Fan cover
19. Snap ring
20. Key
21. DC module
22. Closed-end connector

3. Three-phase 40 W to 90 W, single-phase 40 W to 60 W: Hypoid Motor Mini Series



1. Coil
2. Stator
3. Armature
4. Rotor (lining)
5. Rotor hub
6. Mounting flange
7. Stud bolt
8. Torque spring
9. Auxiliary spring
10. Silencer spring
11. Lead wire (with protective tube)
12. Key
13. Set screw
14. Hexagon U nut
15. Brake cover
16. DC module

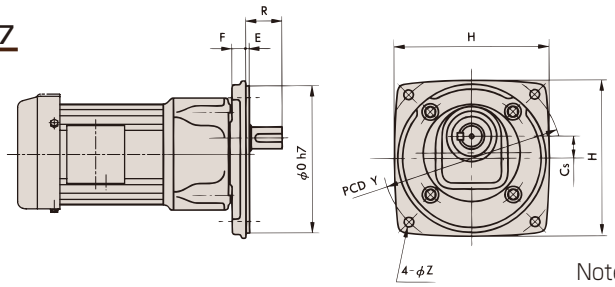
■ Gear Motors

Flange

When converting a face mount type to a flange mount type, use an S flange or an M flange. (Material: cast iron)

1. S flange (eccentric)

Model number: UFS27



Note: Four bolts are included with the flange.

Flange number

Reduction ratio	Motor output			
	0.1 kW	0.2 kW	0.4 kW	0.75 kW
5	UFS27 (UFS25)		UFS27 (UFS25)	UFS37
10, 15, 20, 25	UFS15 (UFS13)	UFS15(UFS13)		
30, 40, 50		UFS27 (UFS25)	UFS37	
60, 75	UFS27 (UFS25)			
100, 120, 165, 200		UFS37		

Note: Shown in parentheses is the one-frame smaller S flange.

Dimensions

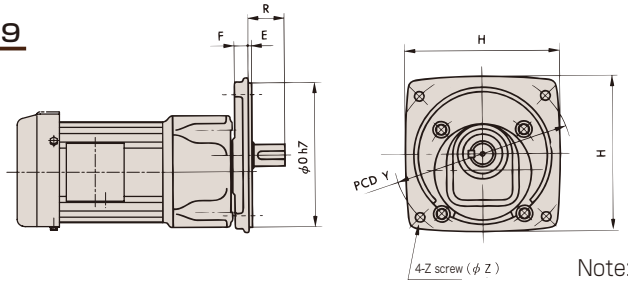
Unit: mm

Flange number	Cs	E	F	H	R	O	Y	Z	Mass kg
UFS13	18	4	12	135	32	125	150	9	1.2
UFS15	20	4	12	150	32	140	170	9	1.3
UFS25	20	4	16	150	41 (32)	140	170	9	1.4
UFS27	24	4	16	175	41 (32)	165	200	11	2.3
UFS37	24	4	18	175	47	165	200	11	2.1

Note: The dimensions in parentheses are applied when installing the 0.1 kW and 0.2 kW devices with a reduction ratio of 1/5.

2. M flange (concentric)

Model number: UFM39



Note: Four bolts are included with the flange.

Flange number

Reduction ratio	Motor output				
	0.1kW	0.2kW	0.4kW	0.75kW	1.5kW
5	UFM26		UFM26	UFM39	UFM48
10, 15, 20, 25	UFM15	UFM15			
30		UFM26	UFM39	UFM48	
40, 50					
60, 75	UFM26				
100, 120, 165, 200		UFM39	UFM48		

Dimensions

Unit: mm

Flange number	E	F	H	R	O	Y	Z	Mass kg
UFM15	3.5	12	155	32	145	170	M10	1.4
UFM26	3.5	16	165	41 (32)	148	185	M12	1.7
UFM39	4	18	190	47	180	215	M12	2.5
UFM48	5	26.5	280	60.5	260	290	φ12	7.5

Note 1: For the UFM48 only, the bolthole used for fixing the flange is a through-hole.
Note 2: The dimensions in parentheses are applied when installing the 0.1 kW, 0.2 kW, 100 W, and 200 W devices with a reduction ratio of 1/5.

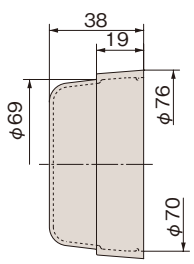
■ Hypoid Motors

1. Shaft end cover

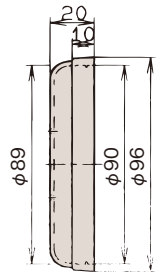
For the hollow shaft type, a cover for the shaft end opposite the mounting end is provided.
It is compatible with the adapter type and the inline reducer type. (Material: polypropylene resin; color: green)

Model number: HM140CAP

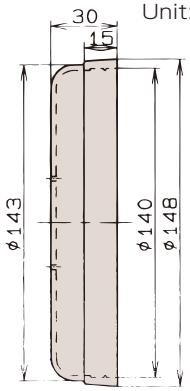
Unit: mm



HM70CAP



HM90CAP



HM140CAP

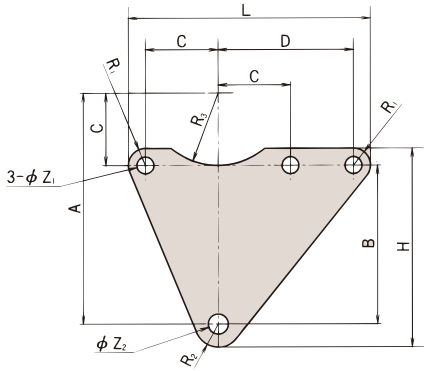
Model number	Applicable model
HM70CAP*	HMTA010-20H5～120
	HMTA020-20H5～60
HM90CAP*	HMTA010-30H160～35H1200
	HMTA020-30H80～45H1200
	HMTA040-30H5～45H480
	HMTR075-35H5～45H200
	HMTR150-45H5～80
	HMTR220-45H5～60
HM140CAP	HMTA040-55H600～1200
	HMTR075-55H300～480
	HMTR150-55H100～200
	HMTR220-55H80～120
	HMTR370-55H5～60
	HMTR550-55H5～40

* Paint color C0 (light gray) for HM70CAP and HM90CAP is also available.

2. Torque arm

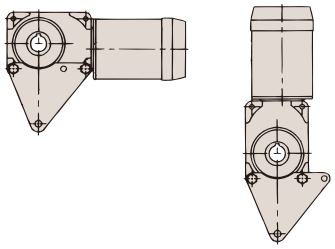
For the hollow shaft type, a torque arm used for on-shaft mounting is provided.
It is compatible with the adapter type and the inline reducer type. (Material: SS400)

Model number: HM150TA



Mounting example

The torque arm can be attached to either the short pitch or the long pitch side according to the mounting condition of the reducer.



Unit: mm

Model number	Applicable model	A	B	C	D	H	L	R1	R2	R3	φZ1	φZ2	Bolt	Plate thickness t
HM100TA	HMTA010-20H5～120 HMTA020-20H5～60	100	62	38	70	82	126	9	11	37	9	11	M10 recommended	4.5
HM150TA	HMTA010-30H160～480 HMTA020-30H80～200 HMTA040-30H5～50	150	103	47	88	129	157	11	15	47	11	13	M12 recommended	6
HM200TA	HMTA010-35H600～1200 HMTA020-35H300～480 HMTA040-35H60～200 HMTR075-35H5～50	200	142	58	106	171	188	12	17	47	13	17	M16 recommended	6
HM250TA	HMTA020-45H600～1200 HMTA040-45H300～480 HMTR075-45H60～200 HMTR150-45H5～80 HMTR220-45H5～60	250	177	73	123	214	228	16	21	—	17	21	M20 recommended	9
HM350TA	HMTA040-55H600～1200 HMTR075-55H300～480 HMTR150-55H100～200 HMTR220-55H80～120 HMTR370-55H5～60 HMTR550-55H5～40	350	245	105	182	293	331	22	26	—	22	22	M20 recommended	9

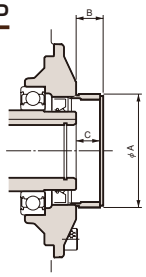
■ Croise Motors (When the frame numbers are the same, same-size shaft end covers can be used for both CSMA and HCMA series.)

1. Shaft end cover

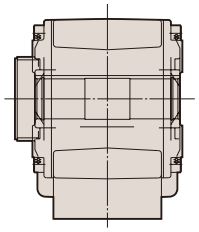
For the hollow shaft type, a cover for the shaft end opposite the mounting end is provided. (Material: SS400)

Unit: mm

Model number: CSM22CAP



<Mounting example>



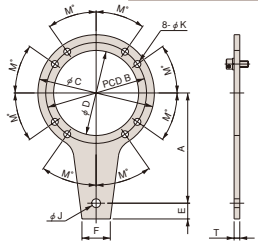
Model number	Frame number	φA	B	C
CSM13CAP	13	49	20	18
CSM16CAP	16	61	20	18
CSM22CAP	22	74	20	18
CSM28CAP	28	84	20	18
CSM32CAP	32	97	26	23
CSM40CAP	40	110	26	23
CSM50CAP	50	140	31	28

2. Torque arm

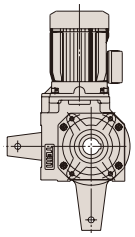
For the hollow shaft type, a torque arm used for on-shaft mounting is provided. (Material: SS400)

Unit: mm

Model number: CSM50TA



<Mounting example>



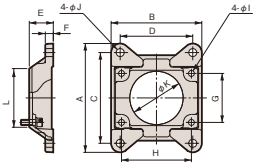
Model number	Reducer frame number	A	B PCD	φC	φD	E	F	φJ	φK	M degree	T	Bolt size	Tightening torque N·m	Tightening torque {kgf·m}	Mass kg
CSM13TA	13	90	80	92	68	10	20	9	5.5	35°	6	M5×16	6.3	{ 0.64}	0.3
CSM16TA	16	105	96	111	81	15	27	11	6.6	35°	6	M6×18	11	{ 1.1 }	0.4
CSM22TA	22	140	128	148	108	20	35	11	9	35°	6	M8×20	26	{ 2.6 }	0.7
CSM28TA	28	175	160	185	135	25	45	14	11	35°	9	M10×25	51	{ 5.2 }	1.6
CSM32TA	32	200	160	190	130	25	45	16	14	30°	9	M12×30	118	{12 }	1.9
CSM40TA	40	250	200	230	170	30	50	18	14	30°	9	M12×30	118	{12 }	2.6
CSM50TA	50	320	250	286	214	30	50	20	17	30°	12	M14×40	186	{19 }	4.1

3. Base

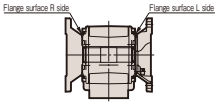
For face-mount L type and hollow shaft type, a base for base mounting and flange mounting is provided.

Unit: mm

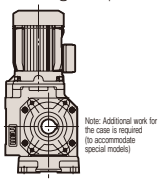
Model number: CSM13BA



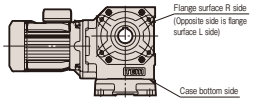
<Flange mounting example>



<Base mounting example 2>



<Base mounting example 1>



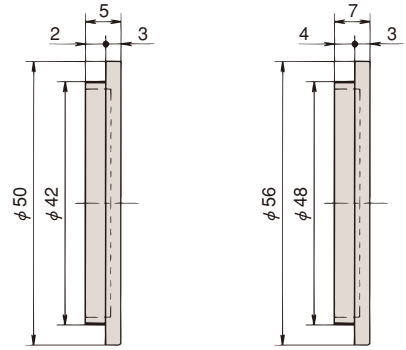
Model number	Reducer frame number	A	B	C	D	E	F	G	H	φI	φJ	φK	L	Bolt size	Tightening torque N·m	Tightening torque {kgf·m}	Mass kg
CSM13BA	13	104	88	86	70	30	9	45.8	65.5	5.5	6.6	50	55	M5×16	6.3	{ 0.64}	0.2
CSM16BA	16	127	106	105	84	36	11	55.0	78.6	6.6	9	60	66	M6×20	11	{ 1.1 }	0.3
CSM22BA	22	166	136	140	110	41	14	73.4	104.8	9	11	80	88	M8×25	26	{ 2.6 }	0.5
CSM28BA	28	204	170	170	136	45	15	91.8	131.0	11	15	100	110	M10×30	51	{ 5.2 }	0.9
CSM32BA	32	196	196	160	160	38	16	80.0	138.6	14	15	98	114	M12×35	118	{12 }	1.9
CSM40BA	40	230	230	190	190	47	18	100.0	173.0	14	17	110	124	M12×35	118	{12 }	3.5
CSM50BA	50	286	286	238	238	55	22	125.0	216.5	17	19	140	154	M14×40	186	{19 }	7.0

■ Mini Series

1. Shaft end cover

For the hollow shaft type, attach the cover to the shaft end opposite the mounting end.

Model number: HM42CAP HM48CAP



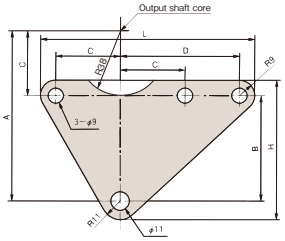
HM42CAP : 40W
HM48CAP : 60W, 90W

- The cover snaps on to the shaft end opposite the mounting end.
- The cover is made of polypropylene resin.

2. Torque arm

Used for on-shaft mounting on the hollow shaft type.

Model number: HM100TA



Note:
No R38 on the HM80TA.

Model number	Applicable model	A	B	C	D	H	L	Plate thickness t
HM80TA	40W	80	47	33	63	67	114	4.5
HM100TA	60W 90W	100	62	38	70	82	126	4.5

■ Supporting Voltage

1. 400 V class: Double voltage (option code: V)

(1) Supporting capacities: 0.1 kW to 0.55 kW

Motor that supports different voltages of three ratings in 400 V class: 400 V/50 Hz, 400 V/60 Hz, 440 V/60 Hz

(2) Supporting capacities: 0.75 kW to 5.5 kW

Motor that supports different voltages of four ratings in 400 V class: 380 V/50 Hz, 400 V/50 Hz, 400 V/60 Hz, 440 V/60 Hz

2. 400 V class: Different voltage (option code: V1, V2, V3, V4)

○ Optional product

Series	400 V class different voltage	Option code	Motor capacity								
			0.1 kW	0.2 kW	0.4 kW	0.55 kW	0.75 kW	1.5 kW	2.2 kW	3.7 kW	5.5 kW
Gear motor Hypoid motor Croise motor	380 V/50 Hz	V1	○	○	○	–	◎	◎	◎	◎	◎
	380 V/60 Hz	V2	○	○	○	–	○	○	–	–	–
	415 V/50 Hz	V3	○	○	○	–	○	○	○	○	○
	460 V/60 Hz	V4	○	○	○	–	○	○	○	○	○

Note: ◎ symbol indicates support for option code V (double voltage).

3. 200 V class: Different voltage

Motor that supports voltages in the 200 V class other than the three ratings shown above. (There are no option codes.)

○ Optional product

Series	200 V class different voltage		Motor capacity								
			0.1 kW	0.2 kW	0.4 kW	0.55 kW	0.75 kW	1.5 kW	2.2 kW	3.7 kW	5.5 kW
Gear motor Hypoid motor Croise motor	210 V	50 Hz	○	○	–	–	–	–	–	–	–
		60 Hz	○	○	○	–	–	–	–	–	–
	220 V	50 Hz	○	○	○	–	–	–	–	–	–
		60 Hz	–	–	–	–	–	△	△	△	△
	230V	50 Hz	○	○	○	–	–	–	–	–	–
		60 Hz	○	○	○	–	–	△	△	△	△
	240 V	60 Hz	–	–	–	–	–	△	–	△	△

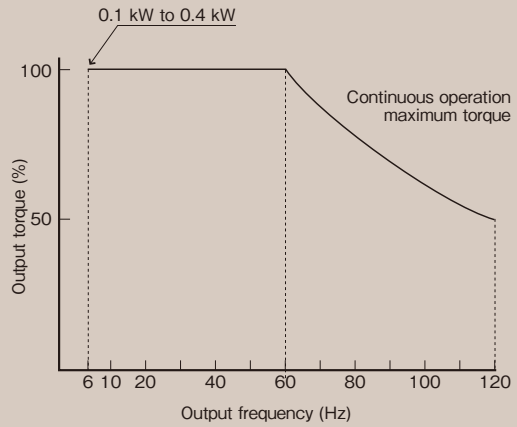
Note: △ symbol indicates made-to-order products.

Inverter Motor Type (Option Code: Z, ZV)

Motors used exclusively for inverters and can be run in constant torque in the range of 6 Hz to 60 Hz during inverter driving.

Supporting capacities: 0.1 kW to 0.4 kW, standard motor

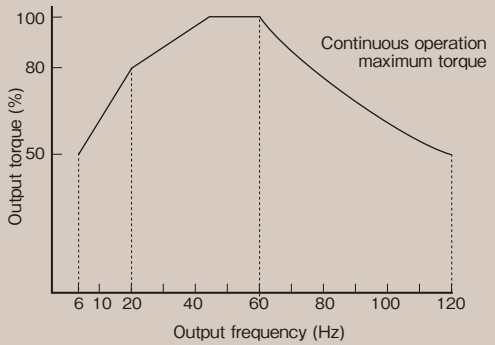
Inverter motor type: Torque characteristics



The rating of the motor at a frequency of 60 Hz is 100% output torque.
(Base frequency set to 60 Hz)

Standard motor: Torque characteristics

0.1 kW to 0.4 kW



The rating of the motor at a frequency of 60 Hz is 100% output torque.
(Base frequency set to 60 Hz)

Series	Voltage	Code	Motor capacity		
			0.1 kW	0.2 kW	0.4 kW
Gear mortor Hypoid motor Croise motor	200 V class	Z	○	○	○
	400 V class	ZV	○	○	○

Note: Rated voltage (0.1 kW–0.4 kW, 200 V class: 200/220 V, 60 Hz; 400 V class: 400/440 V, 60 Hz)

○ Optional products

Precautions

- At frequencies of 60 Hz to 120 Hz, as with the standard motor, there is a characteristic zone with constant horsepower and limited output torque. Care should therefore be taken with the load torque.
- Be sure to adjust the output voltage of the inverter so that the input voltage from the inverter to the motor conforms to the voltage and frequency indicated on the nameplate. (In the case of inverter motors, the base frequency must be 60 Hz.) In addition, do not directly connect the inverter motor without an inverter because doing so will result in drastic current increases due to voltage changes (except in cases of operation for only a short time, such as test runs or emergency runs). This phenomenon occurs frequently at 50 Hz.
- Be sure to set the base frequency of the inverter at 60 Hz.
- If 100% torque is required at low frequencies, apply a torque boost with the inverter as necessary. Continuous operation for a long time with too much torque boost applied will cause overheating, and should be avoided.
- The motor may resonate depending on the revolution speed and frequency. When operating continuously, avoid the resonance frequency by, for example, changing the carrier frequency setting of the inverter.
- When the load is low, for example, at the time of a trial run, the current may become large at low frequencies. This is due to motor characteristics and does not indicate an abnormal condition. It is possible to decrease the current by changing the setting of the inverter (reducing the torque boost, reducing the V/F ratio, and/or adjusting the torque vector).
- To protect the motor from overheating, use an electronic thermal relay set to general-use motor specifications, or install a thermal relay between the inverter and the motor.
- For brake-equipped models, refer to the wiring diagram on pages 211–213. Braking at high frequencies, above 60 Hz, may cause mechanical damage or excessive wear on the lining of the brake.

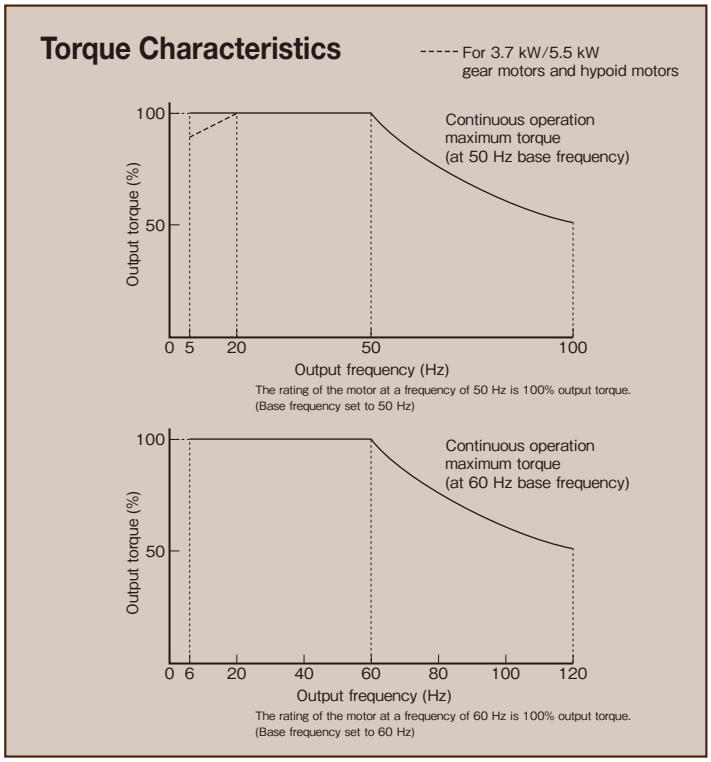
When an IE3 Motor Is Continuously Inverter-Driven

Supporting capacities: 0.75 kW to 5.5 kW, IE3 motor

1. Torque characteristics

For the frequency and torque characteristics, refer to the graphs to the right.

- At high frequencies, the torque decreases in reverse proportion to the revolution because of the constant kW. The motor noise, motor fan noise, reducer noise, and vibration increase because the revolution speed is high.
- At low frequencies, the temperature increases largely because the operating efficiency and cooling efficiency of the motor decrease.



2. Brake type

- Because the brake requires a fixed power supply (frequency, voltage), set up the brake circuit separately. For the standard product, the brake lead wire and motor lead wire are shipped screwed together. Therefore, remove the screw and connect each lead wire separately.
- Perform braking at 60 Hz (1800 r/min) or less. Braking at high frequencies, above 60 Hz, may cause mechanical damage or excessive wear on the lining of the brake.

3. Precautions

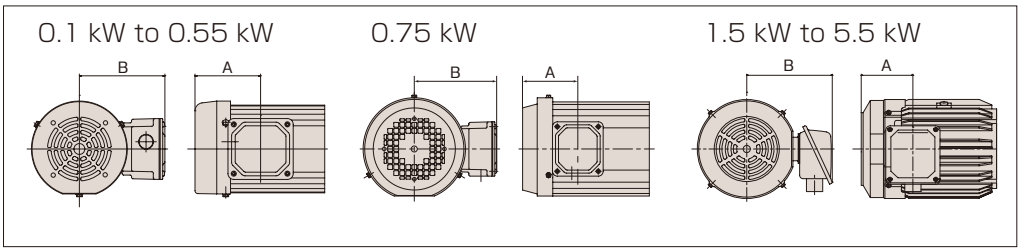
- At frequencies of 60 Hz to 120 Hz at a base frequency of 60 Hz, and frequencies of 50 Hz to 100 Hz at a base frequency of 50 Hz, as with the standard motor, there is a characteristic zone with constant horsepower and limited output torque. Care should therefore be taken with the load torque.
- Be sure to adjust the output voltage of the inverter so that the input voltage from the inverter to the motor conforms to the voltage and frequency indicated on the nameplate.
- If 100% torque is required at low frequencies, apply a torque boost with the inverter as necessary. Continuous operation for a long time with too much torque boost applied will cause overheating, and should be avoided.
- The motor may resonate depending on the revolution speed and frequency. When operating continuously, avoid the resonance frequency by, for example, changing the carrier frequency setting of the inverter.
- When the load is low, for example, at the time of a trial run, the current may become large at low frequencies. This is due to motor characteristics and does not indicate an abnormal condition. It is possible to decrease the current by changing the setting of the inverter (reducing the torque boost, reducing the V/F ratio, and/or adjusting the torque vector).
- In order to prevent the motor from overheating, use an electronic thermal relay between the inverter and motor.
- When using inverter drive with a 400 V-class motor, dielectric breakdown may occur due to a high-voltage surge (micro surge) that occurs with switching of the inverter. Countermeasures are therefore needed for the motor (micro surge protection). Standard 400 V-class-and-higher motors come standard with micro surge protection. However, for 1250 V and higher, install a suppression filter or a reactor on the inverter side.
- Increased temperatures, noise, and vibration result when compared with using a commercial power supply.

■ Outdoor Specification (Option Code: W)

Install the outdoor-type motor in a place with minimal dust. If installing in a place exposed to strong water flows, heavy rain, vapor, or snow, cover the motor appropriately. If the ambient temperature is 40° C or higher, protect it with a heat-insulating cover. Consult with Tsubaki before installing the motor on a sloped surface. Be sure that the terminal box outlet port is not subject to direct water spray or splashing.

Gear Motors, Hypoid Motors, Croise Motors

1. Terminal box positions and dimensions

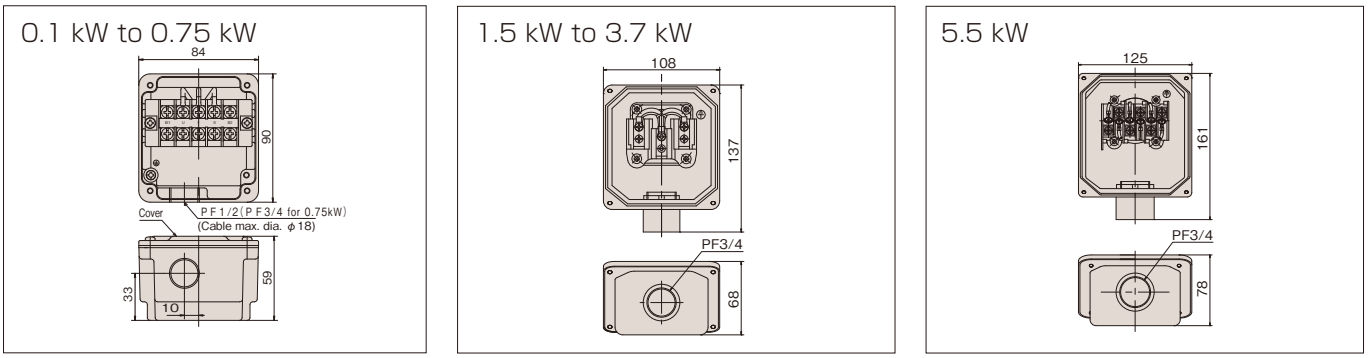


Note: When using foot mount for the gear motor, the terminal box interferes with tools and bolts in some models. The type of bolt should therefore be restricted to the following.
• GMTA010 (020)-18L: Thread length of bolts should be M 8-25 or less.
• GMTA020-28L: Hexagon socket head bolts should be used.

Motor capacity	A	B
0.1kW	52.5	118
0.1kW※1	90.5	118
0.2kW	90.5	118
0.4kW	90.5	118
0.55kW※1	90.5	118
0.75kW	91.5	136.5
1.5kW	90	157
2.2kW	108	166
3.7kW	112	179
5.5kW	136.5	214

Note: The entire length is the same as that of the indoor-type standard product.
※1 Applies to Croise motors.

2. Construction of the terminal box

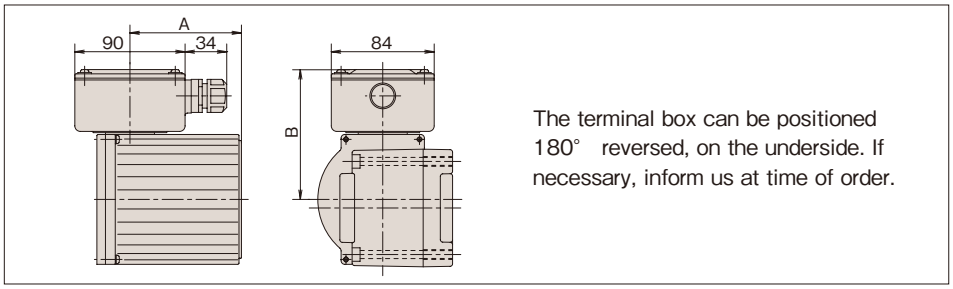


3. Changing the position and outlet direction of the terminal box

The position and outlet direction of the terminal box can be changed in swings of 90° and 180° .
Refer to the model number table and use an option code to instruct us to change the position.

Hypoid Motor Mini Series

1. Terminal box positions and dimensions



The terminal box can be positioned 180° reversed, on the underside. If necessary, inform us at time of order.

Motor capacity	A	B
40W	83 (126)	98
60W	91 (134)	106
90W	91 (134)	106

The dimensions in parentheses are for brake-type models.

2. Changing the terminal box outlet direction

The outlet direction of the terminal box can be changed by 90° .
If a change is necessary, inform us at time of order.

Hard Terminal Box (Option Code: H)

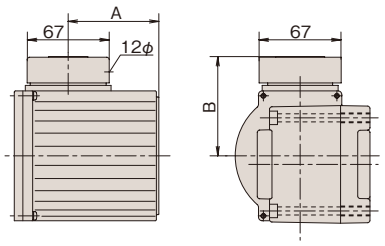
Aluminum terminal box is the same as the one for outdoor specifications.

Supporting capacities: 0.1 kW to 0.75 kW

- Terminal box positions and dimensions
- Terminal box construction
- Changing position and outlet direction

All are the same as for the outdoor terminal box.

Resin Terminal Box (Mini Series)



The terminal box can be positioned 180° reversed, on the underside. If necessary, inform us at time of order.

Hypoid motor Mini series

Motor capacity	Reduction ratio	A	B
40 W	1/5 to 1/240	70	72
60 W	1/5 to 1/240	77	80
90 W	1/5 to 1/240	77 (99)	80

The dimensions in parentheses are for single-phase 90 W motors.

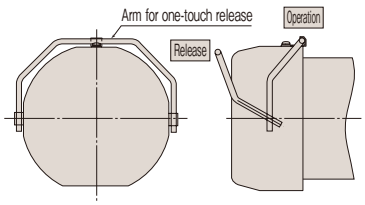
One-Touch Manual Release (Option Code: Q)

The brake of the motor can be released with a one-touch manual release function.

Supporting capacities: Three-phase 0.1 kW to 5.5 kW

Gear Motors, Hypoid Motors, Croise Motors
(0.1 kW to 2.2 kW)

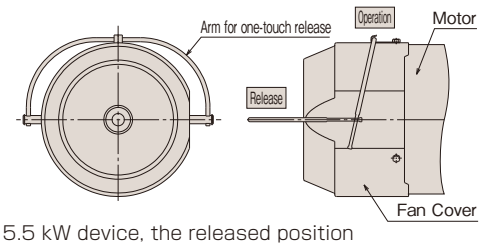
Three-phase 0.1 kW to 2.2 kW: SLB brake



In the 0.1 kW device, the fan cover is 25 mm longer in the longitudinal direction.

Gear Motors, Hypoid Motors
(3.7 kW, 5.5 kW)

Three-phase 3.7 kW and 5.5 kW: VNB brake



For the 5.5 kW device, the released position and operation position are reversed.

Note: Changing the position of the terminal box may change the phase of the arm. Confirm using a diagram or other documentation.

Manual Shaft (Option Code: M)

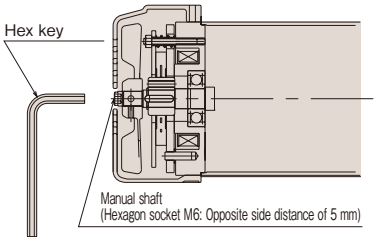
This is available for manual revolution from the motor fan side.

Supporting capacities: 0.1 kW to 2.2 kW

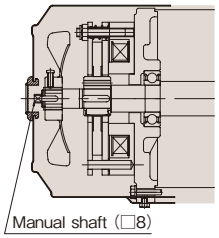
Note: Croise motors with 0.75 kW to 2.2 kW ratings are made-to-order products.

Supports 0.1 kW to 2.2 kW gear motors, hypoid motors and croise motors with brake.
Using a commercially available hex key, turn the hexagon socket (M6, opposite side distance of 5 mm) located in the center of the fan cover of the motor. Be sure to do so with the brake released manually. Never manually turn the unit during operation.
The motor configuration for 1.5 kW and 2.2 kW models is different. Refer to the diagram on the right.

0.1 kW to 0.75 kW



1.5 kW to 2.2 kW



Brake 400 V Direct Input Specifications (when operating separately from 400 V AC)

Capacity of 0.1 kW to 0.75 kW. Direct input of 400 V to the brake is possible. 200 V power supply is unnecessary when operating the brake separately. The brake parts will also change, so in that case please inform us at time of order. (The DC module is built into the hard terminal box.)

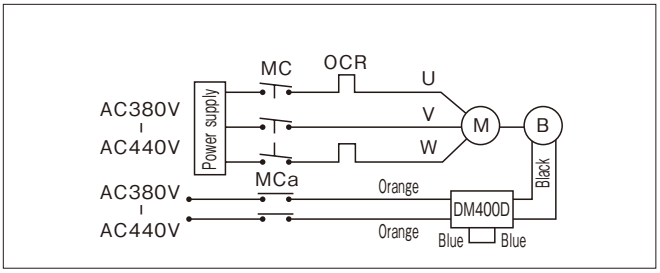
Supporting capacities: 0.1 kW to 0.75 kW

Ready for CE, UL, and CCC.

Brake specifications

Capacity	Brake model number	DC module model number	Voltage
0.1 kW	SLB01 180V	DM400D	180 V DC
0.2 kW	SLB02 180V		
0.4 kW	SLB04 180V		
0.55 kW	SLB04 180V		

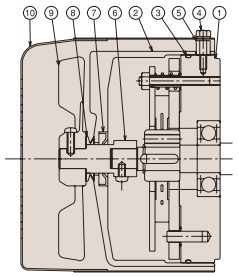
Wiring for separate AC operation (400 V)



Continuous Rating Specifications for the Outdoor Brake Type

Outdoor specifications for the brake type can be used in continuous rating. Because 0.75 kW to 2.2 kW devices are made to order, please contact Tsubaki regarding these.

Brake structure (reference)



1	Outdoor SLB brake
2	Brake cover
3	O-ring
4	Screw
5	Spacer
6	Joint
7	Oil seal
8	V-ring
9	Fan
10	Fan cover

Supporting capacities: 0.1 kW to 2.2 kW

Hypoid Motors, Gear Motors

- 0.2 kW to 0.75 kW — Option code: **BWC**
- 0.1 kW, 1.5 kW, 2.2 kW — Option code: **BW**

Croise Motors

- 0.1 kW to 0.75 kW — Option code: **BWC**
- 1.5 kW to 2.2 kW — Option code: **BW**

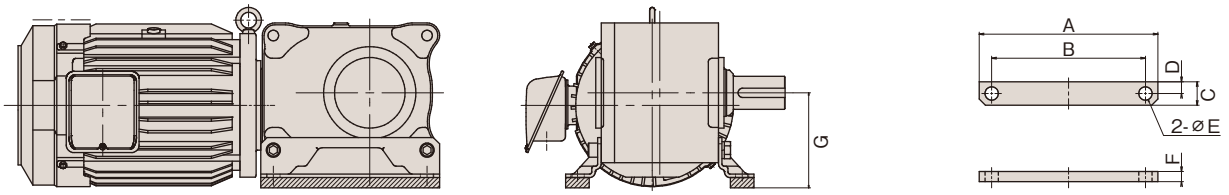
	Protection	Capacity						
		IP65 Note				IP55		
	Motor capacity	0.1 kW	0.2 kW	0.4 kW	0.55 kW	0.75 kW	1.5 kW	2.2 kW
Hypoid motor		●	●	●	—	●	●	●
Gear motor		●	●	●	—	●	●	●
Croise motor		●	●	● Note	● Note	● Note	●	●

Note: Croise motors HCMA series 0.4 kW (reduction ratios: 1/240 to 1/300), 0.55 kW (reduction ratios: 1/180 to 1/300), and 0.75 kW (reduction ratios: 1/90 to 1/300) are fitted with a pressure vent on the reduction section. Consequently, the protection rating for these models is IP54.

Raised Base for Hypoid Motor

When foot mounting is used for the hypoid motor, the motor protrudes beyond the attachment surface. There is a raised base to be used in this case.

Installation example (shaded part)



Base model number	Motor capacity	Reduction ratio	Motor model number			Dimensions						
						A	B	C	D	E	F	G
HM38LBA	0.75 kW	1/5–1/50	HMTR075-38L5-50	L T R	(B)	188	164	25	12.5	13	13	103
HM42LBA	1.5 kW	1/5–1/80	HMTR150-42L5-80		(B)	228	196	30	15	17	17	125
	2.2 kW	1/5–1/60	HMTR220-42L5-60		(B)	228	196	30	15	17	17	125

Note: The shaft height of the output shaft will be raised the height of the raised base.

Shaft Diameters Available for the Hollow Shaft Type

1. Hypoid motors (Option code: S1 to S8)

Other than the standard shaft hole diameters, the following hole diameters are optionally available.

Supporting capacities: 0.1 kW to 5.5 kW

Note: The key used is JIS B1301-1976 (new JIS key).

Model number	Motor capacity	Speed ratio	Code	Shaft diameter (H8) tolerance							
				S1	S2	S3	S4	S5	S6	S7	S8
			Hole diameter key	φ20 (6×6)	φ25 (8×7)	φ30 (8×7)	φ35 (10×8)	φ40 (12×8)	φ45 (14×9)	φ50 (14×9)	φ55 (16×10)
HMTA010-30H160 (B)～480 (B)	0.1 kW	1/160～1/480									
HMTA020-30H80 (B)～200 (B)	0.2 kW	1/80～1/200		○	○	●					
HMTA040-30H5 (B)～50 (B)	0.4 kW	1/5 ～1/50									
HMTA010-35H600 (B)～1200 (B)	0.1 kW	1/600～1/1200									
HMTA020-35H300 (B)～480 (B)	0.2 kW	1/300～1/480									
HMTA040-35H60 (B)～200 (B)	0.4 kW	1/60～1/200			○	○	●				
HMTR075-35H5 (B)～50 (B)	0.75kW	1/5～1/50									
HMTA020-45H600 (B)～1200 (B)	0.2 kW	1/600～1/1200									
HMTA040-45H300 (B)～480 (B)	0.4 kW	1/300～1/480									
HMTR075-45H60 (B)～200 (B)	0.75kW	1/60～1/200				○	○	○	●		
HMTR150-45H5 (B)～80 (B)	1.5 kW	1/5～1/80									
HMTR220-45H5 (B)～60 (B)	2.2 kW	1/5～1/60									
HMTA040-55H600 (B)～1200 (B)	0.4 kW	1/600～1/1200									
HMTR075-55H300 (B)～480 (B)	0.75kW	1/300～1/480									
HMTR150-55H100 (B)～200 (B)	1.5 kW	1/100～1/200						○	○	○	●
HMTR220-55H80 (B)～120 (B)	2.2 kW	1/80～1/120									
HMTR370-55H5 (B)～60 (B)	3.7 kW	1/5～1/60									
HMTR550-55H5 (B)～40 (B)	5.5 kW	1/5～1/40									

Also applies to the adapter and inline reducer types.

● Standard products ○ Optional products

2. Croise motors (made-to-order)

With the exception of hollow shaft types and standard diameter types, models can be optionally manufactured with any hole diameter desired. For information regarding dimensions, please contact Tsubaki.

Supporting capacities: 0.1 kW to 3.7 kW

Model number	Reduction rate	Hole diameter
CSMA010-130H	10～60	φ12～20
CSMA020-130H	10～60	φ12～20
CSMA040-160H	10～30	φ16～25
CSMA040-220H	40～60	φ22～30
CSMA055-160H	10～30	φ16～25
CSMA055-220H	40～60	φ22～30
CSME075-220H	10～30	φ22～30
CSME075-280H	40～60	φ28～40
CSME150-280H	10～30	φ28～40
CSME150-32＊H	40～60	φ35～50
CSME220-32＊H	10～40	φ35～50
CSME220-40＊H	50～60	φ40～55
CSME370-40＊H	10～30	φ40～55
CSME370-50＊H	40～60	φ48～70

Model number	Reduction rate	Hole diameter
HCMA010-16＊H	40～200	φ16～25
HCMA010-22＊H	240～300	φ22～30
HCMA020-16＊H	40～75	φ16～25
HCMA020-22＊H	90～200	φ22～30
HCMA020-28＊H	240～300	φ28～40
HCMA040-22＊H	40～75	φ22～30
HCMA040-28＊H	90～200	φ28～40
HCMA040-32＊H	240～300	φ35～50
HCMA055-22＊H	40～50	φ22～30
HCMA055-28＊H	60～150	φ28～40
HCMA055-32＊H	180～200	φ35～50
HCMA055-40＊H	240～300	φ40～55

Model number	Reduction rate	Hole diameter
HCME075-28＊H	40～75	φ28～40
HCME075-32＊H	90～150	φ35～50
HCME075-40＊H	180～200	φ40～55
HCME075-50＊H	240～300	φ48～70
HCME150-32＊H	40～50	φ35～50
HCME150-40＊H	60～120	φ40～55
HCME150-50＊H	150～300	φ48～70
HCME220-40＊H	40～75	φ40～55
HCME220-50＊H	90～300	φ48～70

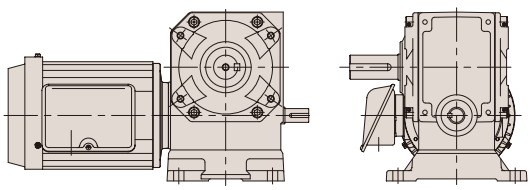
Double Input Worm Type (Made-to-order)

The worm shaft (input shaft) can be extended out from the housing on the side opposite the motor.

- Compatible models: CSMA, HCMA

Note: In the HCMA series, the rotation speeds of the motor shaft and the worm shaft will be different.

Worm shaft inline reducer model (reference example)



Gear Motor
Technical Information

+α Series

JUST FIT MODELS

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■ SHOCK RELAY Type (Specification Code: SR)

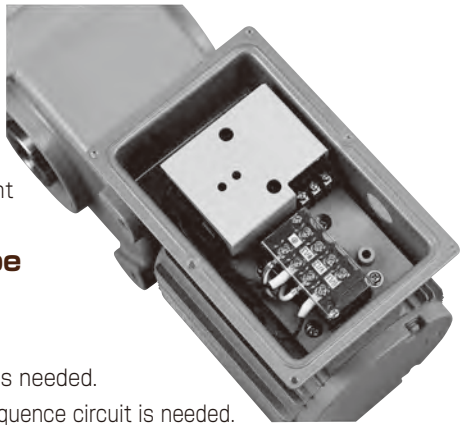
Gear Motors, Croise Motors, Hypoid Motors

A reducer is equipped with an electric overload protection device. In case the motor current exceeds the set value due to an overload, SHOCK RELAY functions after a given time to stop the motor directly, thus protecting the machinery.

Model Numbering Example

HMTA010-30H400SRN

- HMTA: Hypoid motor
- 010: 0.1 kW
- 30H: Hollow shaft
- 400: Reduction ratio 1/400
- SR: SHOCK RELAY type
- N: CE compliant



Features

- The Shock Relay is built into the motor's terminal box, meaning no extra control panel is needed.
- The motor is instantly and directly stopped upon detection of the motor's current, so no sequence circuit is needed.
- Trip signal (1c contact) output can be utilized, for example, for an alarm lamp or to stop the motor.
- After eliminating the cause of the overload, the motor restarts simply by turning on the power.
- Compliant with CE.

Note: Cannot be used for inverter operation.

Explanation of operation

① Start time

Set to prevent SHOCK RELAY from operating due to the motor's inrush current. During this time, overload detection cannot be carried out.

② Overload trip

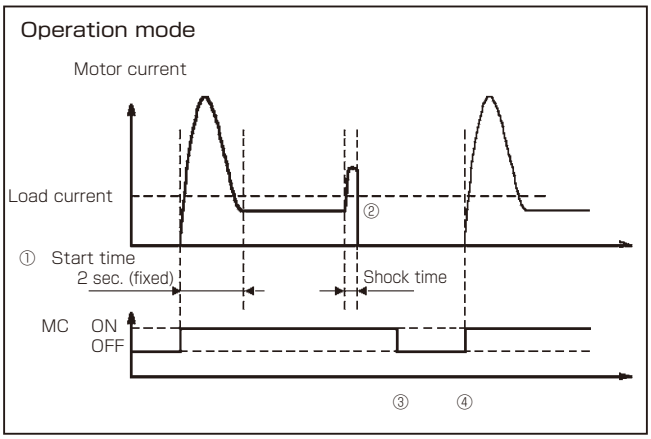
When an overload higher than the shock time set value is applied, SHOCK RELAY trips. During the overload trip, even when power is applied between U and W of SHOCK RELAY, the motor's current will be blocked.

③ Eliminating cause of overload trip

When eliminating the cause of the overload trip, be sure to turn off the power. The motor may restart due to a momentary power outage.

④ Recovery from overload trip

Turn the power back on (turn on MC). The motor restarts.



Note: Load current and shock time can only be set before shipment from Tsubaki. Contact Tsubaki about set values.

Supporting capacities

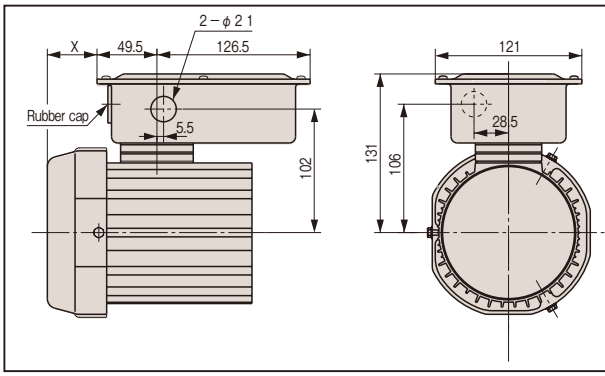
	200 V class (Non-brake type)		
Hypoid motor Croise motor Gear motor	0.1 kW	0.2 kW	0.4 kW
	○	○	○

Note: Please contact Tsubaki about 400 V-class products.

Ambient conditions

Temperature	0℃ to 40℃
Humidity	Less than 85% (non condensing)
Mounting direction	No limitations on mounting angles: horizontal, vertical, or inclined
Vibration	4.9m/s² {0.5G} or less (20 to 50 Hz)

Terminal box dimensions (all other dimensions are the standard except for the terminal box)



Unit: mm

Motor capacity	X
0.1 kW	3
0.2 kW	41
0.4 kW	41

Note 1: 0.1 kW hypoid motors and gear motors have no fan or fan cover.
Note 2: Depending on the model, the dimensions partially differ. Contact Tsubaki for details.
Note 3: The terminal box direction varies depending on the model.

Hollow-Shaft POWER-LOCK Type (Specification Code: K)

Hypoid Motors, Croise Motors

A special hollow shaft with POWER-LOCK enables keyless coupling and gives rise to further hollow shaft functions. Mounting and unmounting are easy, and a reduced number of machinery device parts helps save space.

Model Numbering Example

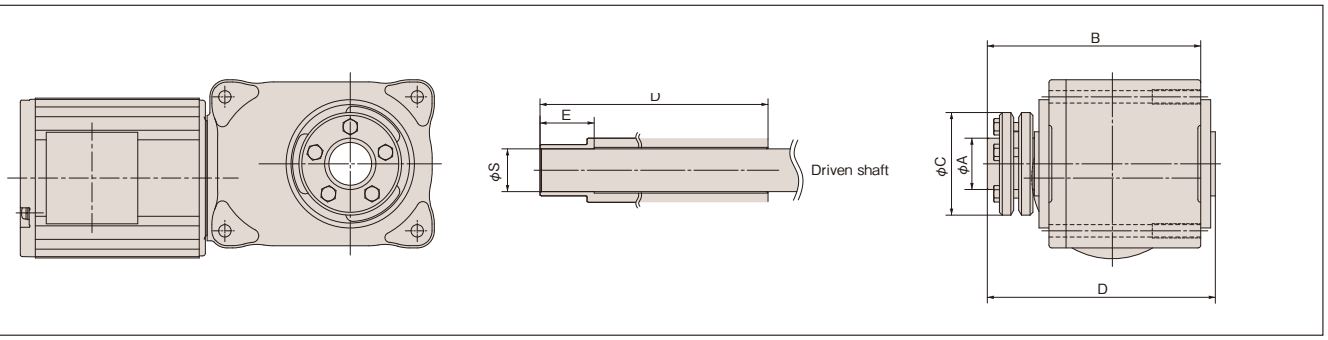
HMTA040-35H120K

- HMTA: Hypoid motor
- 040: 0.4 kW
- H: Hollow shaft
- 120: Reduction ratio 1/120
- K: POWER-LOCK type

Features

- There's no need for a keyway on the driven shaft.
- Mounting and unmounting of the reducer are easy.
- There's no backlash with the driven shaft.
- A special safety cap is available (shaft-end cover). (Hypoid motor: 0.1 kW to 0.4 kW, 0.75 kW, reduction ratios 1/5 to 1/50 only)

Hypoid motor specifications



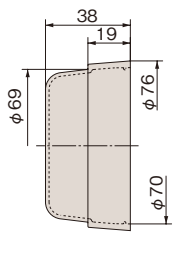
Unit: mm

Capacity kW	Reduction ratio	φS H7	φA	φC	E	D	B	POWER-LOCK model number	Bolt size	Tightening torque MA N·m {kgf·m}	Shaft-end cover (option)
0.1	1/5～1/120	20	30	60	31	122.5	118	PL030×060SL	M5×18	4.9 {0.5}	HM70CAP
	1/160～1/200	30	36	72	38	160	150	PL036×072SL	M6×20	11.8 {1.2}	HM90CAP-PL
0.2	1/5～1/60	20	30	60	31	122.5	118	PL030×060SL	M5×18	4.9 {0.5}	HM70CAP
	1/80～1/200	30	36	72	38	160	150	PL036×072SL	M6×20	11.8 {1.2}	HM90CAP-PL
0.4	1/5～1/50										
	1/60～1/200	35	44	80	40	188	178	PL044×080SL	M6×20	11.8 {1.2}	
0.75	1/5～1/50										
	1/60～1/200	45	55	100	45	210	200	PL055×100SL	M6×25	11.8 {1.2}	——
1.5	1/5～1/80										

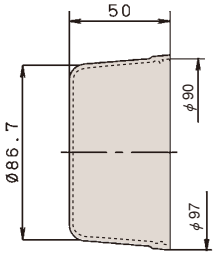
Note 1: The driven shaft to be coupled to the hypoid motor hollow shaft should have a dimensional tolerance of φS h6, a finish length of dimension E or longer, and a surface roughness of 12S or less. The finished surface of the driven shaft should be located within the range indicated by E.

Note 2: For 0.1 to 0.4 kW and 1/5 to 1/50 of 0.75 kW, a special shaft-end cover is available.

Option: Shaft-end cover for hypoid motor



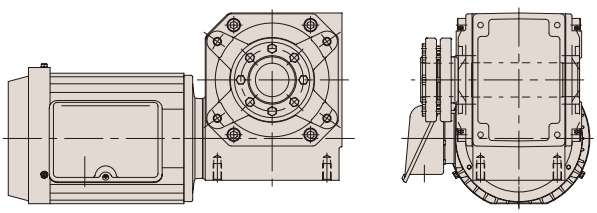
HM70CAP



HM90CAP-PL

Croise motor specifications (made-to-order)

Capacity: 0.1 kW to 1.5 kW



Rotary Encoder Type (Specification Code: E)

Gear Motors, Croise Motors, Hypoid Motors

By incorporating a rotary encoder on the motor shaft and utilizing the rotation signals of a hypoid motor, gear motor, and croise motor, various processes can be automated and operation streamlined.

Model Numbering Example

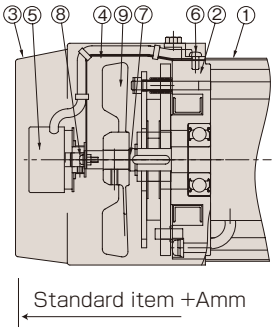
GMTA040-38L120BE

- GMTA: Gear motor
- 040: 0.4 kW
- L: Foot mount
- 120: Reduction ratio 1/120
- BE: Encoder type (brake type)

Features

- **Controllability** Open collector signals can be extracted from the reducer, making possible various operations.
- **Compact** Coupling is not necessary for connecting the motor shaft and the rotary encoder.
- **Cost saving** Unlike with the conventional separately placed types, coupling, base plate, and level adjustment processes are not necessary.

Construction and dimensions (rotary encoder mounting section)



1. Motor
2. Anti-load bracket with yoke
3. Fan cover
4. Encoder mounting plate
5. Encoder
6. Fixing screw
7. Motor shaft
8. Fixing screw
9. Fan (0.2 kW or more)

Dimensions

The connection dimensions are the same as for standard items. Only the length is increased, as shown in the table below, because the motor fan cover is extended.

Motor output kw	Fan cover extension +Amm
0.1	61
0.2, 0.4	44
0.75	40
1.5	28
2.2	28.5

Supporting capacities

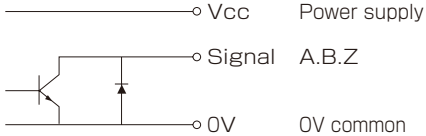
Motor capacity: 0.1 kW to 2.2 kW

Note: Dimensions are different for non-brake models. Please contact Tsubaki.

Actual reduction ratio of reducer

For the actual reduction ratios of hypoid and gear motors, refer to the specification charts of the inline reducer type. For the actual reduction ratios of Croise motors, refer to the specification charts.

Rotary encoder specifications

Power supply voltage	4.5 to 30 V DC
Pulse count	100 pulses
Output form	Open collector output (NPN type) 6 pcs AB90° phase difference signal + Z phase origin signal
Output circuit	
Current consumption	30 mA or less
Output voltage	0.5 V or less (max. pull-in)
Max. pull-in current	40 mA MAX
Signal rise/fall time	1 μS or less
Max. response frequency	240 kHz
Output circuit resistance	50 V MAX
Cable length	0.5 m connector cable (DF3-6S-2C from Hirose Electric Co., Ltd.)
Vibration	4.9 m/s² {0.5G} or less (20 to 50 Hz)

Wiring diagram

Pin no.	Color	Connection
1	Red	Power supply
2	Black	0V common
3	Blue	Signal A
4	White	Signal B
5	Yellow	Signal Z
6	Black	Shield

■ Pulsacion Type (Electromagnetic Encoder Attached) (Specification Code: E1)

Gear Motors, Croise Motors, Hypoid Motors

The motor has an integrated sensor that detects a permanent magnetic pole located on the motor shaft as a pulse string. This makes the magnetic encoder resistant to the surrounding environment and impact.

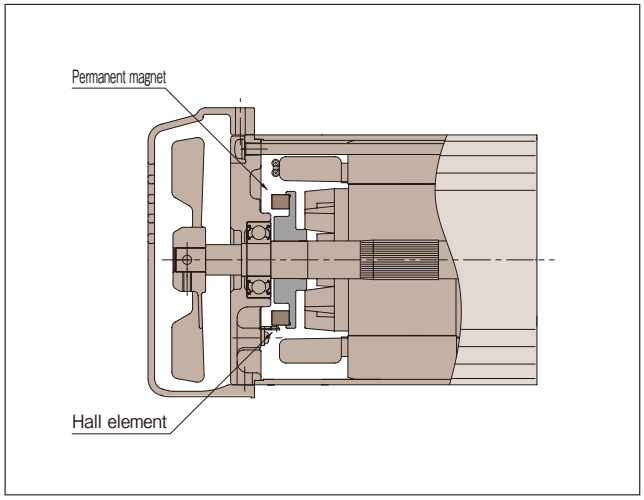
Supporting capacities

Motor capacity: 0.1 kW to 0.55 kW

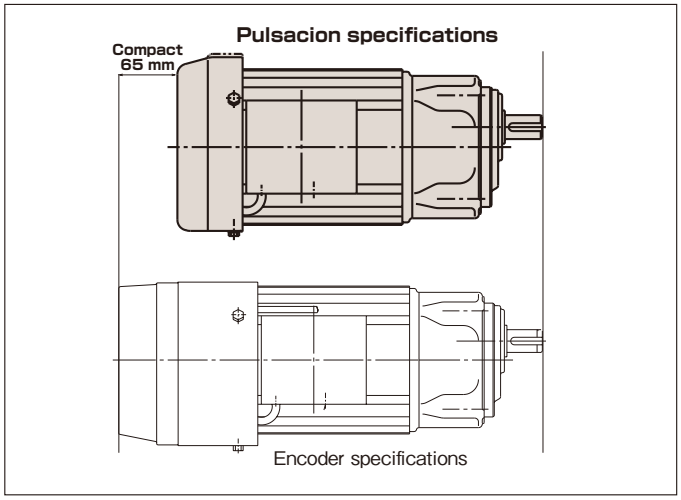
Features

- **Dimensions are nearly identical to those of standard gear motors.**
- **Can be used outside and in wet environments.**
- **Capable of speed control, position control, and overload detection.**

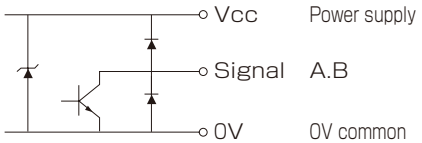
Construction (Pulsacion section)



Compact in longitudinal direction



Pulsacion specifications

Power supply voltage	4.5 to 26.4 V DC (5 to 24 V ± 10%)
Pulse count	50 pulses
Output form	Open collector output (NPN type) 5 pcs AB90° phase difference signal
Output circuit	
Current consumption	50 mA or less
Output voltage	0.5 V or less (max. pull-in)
Max. pull-in current	10 mA MAX
Signal rise/fall time	10 μS or less
Output circuit resistance	30 V MAX
Cable length	0.5 m
Vibration	9.8 m/s² {1G} or less (20 to 50 Hz)

Note: Can be made with a pulse count less than 50.
Please contact Tsubaki.

Wiring diagram

Color	Connection
Red	Power supply
Black	0V common
Green or blue	Signal A
White	Signal B
Yellow	-
Shield	NC

■ SHOCK GUARD Type (Specification Code : G)

Croise Motors, Hypoid Motors

A product can be equipped with a mechanical overload protection device (SHOCK GUARD) developed exclusively for the hollow output shaft. In case of unexpected overload, the SHOCK GUARD activates to protect the machinery device. It is compact and easy to handle. (For non-brake types only.)

Model Numbering Example

CSMA055-220H60LG

- CSMA: Croise motor
- 055: 0.55 kW
- H: Hollow shaft
- 60: Reduction ratio 1/60
- L: Left-hand output shaft
- G: SHOCK GUARD type

Features

- After the cause of the overload is eliminated, the motor automatically re-engages and starts operation.
- Unique alignment of the ball and pocket gives a one-to-one combination of engaging positions.
- Simply rotate the adjustment nuts to adjust the trip torque.
- If combined with non-contact SHOCK GUARD sensors, an overload can be detected and the motor can be stopped or an alarm set off.

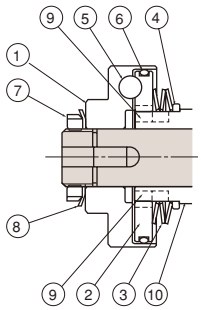
Construction, operating principle

[When engaged]

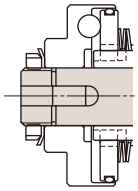
Torque is transmitted in the following order.

Output shaft ⇨ Center plate ⇨ Steel ball ⇨ Driven flange ⇨ Driven shaft

1: Driven flange
2: Center plate
3: Disc spring
4: Stop collar
5: Steel ball
6: O-ring
7: Shaft nut
8: Shaft washer
9: Parallel key
10: Hollow shaft







When tripping

- When there is an overload, a force stronger than the load of the disc spring is applied in the thrust direction.
- Then the center plate and steel ball become disengaged, and the center plate starts idling.

1. Trip torque setting

- Set the trip torque of the overload protection device by adjusting the tightening angle of the adjustment nut.
  (1) Place the nut on the driven shaft and tighten it manually. The condition with no clearance is set as the 0 point.
  (2) Refer to the "Tightening amount-torque correlation diagram" to find the tightening angle of the adjusting nut that corresponds to previously determined torque trip, then tighten the nut. To find the tightening amount that matches an individual machine, the best way is to use the graph as reference and conduct test runs with the nut tightened only lightly.
  (3) After setting the torque, secure the adjusting nut using the shaft washer.
  (4) Do not turn the adjusting nut more than the maximum value on the "Tightening amount-torque correlation diagram." At the time of tripping, the disc spring loses its curvature and becomes locked.

  Note: In some cases, the value on the specification chart (Items 145 to 148) is higher than the value on the torque correlation diagram. When setting the trip torque, be sure to set within the trip torque range.

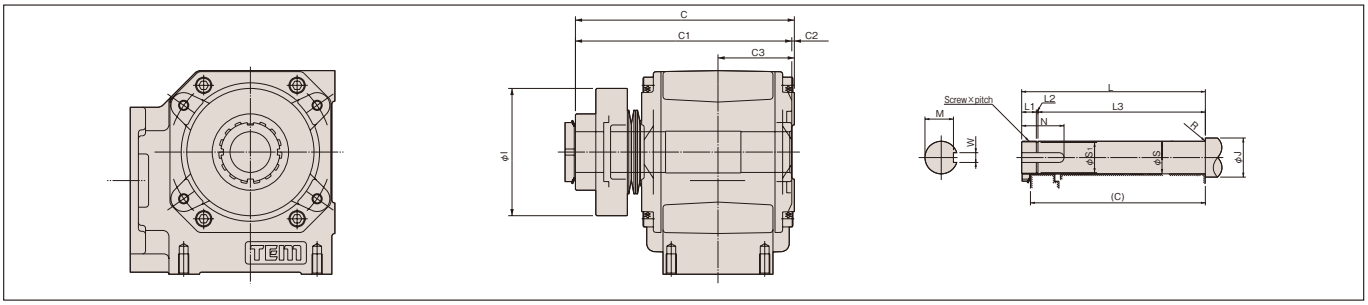
2. Precautions

- In normal operations, no noise and vibration occur. However, when there is an unexpected overload, large noise and vibration may occur. In that case, immediately stop the device. In this case, using the TG sensor is recommended.

3. Recovery

- Because the device uses the self-recovery method, just restarting the drive side of the motor automatically resets the device.
  (1) When the overload protection device activates due to an overload, stop revolution and eliminate the cause of the overload.
  (2) At time of device recovery, reset (re-engage) by an input revolution count of 50 r/min. or lower, or by motor inching.
  If resetting proves difficult, conduct inching by applying a small amount of load.
  Do not reset by manually rotating the overload protection device and shaft. Doing so is dangerous.
  (3) When the ball is inserted into the pocket, there should be a clicking sound.

Croise motor specifications (0.1 kW to 3.7 kW)

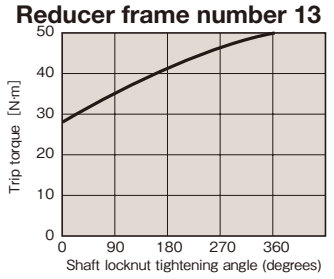


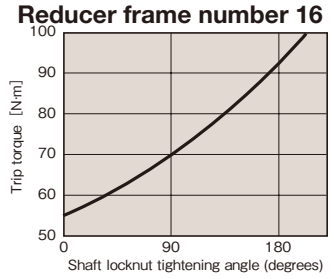
Unit: mm

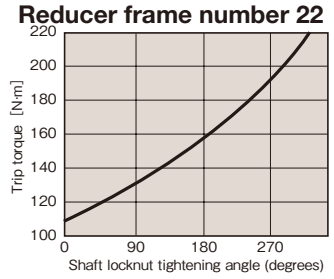
Reducer frame number	13	16	22	28	32	40	50
C	111	133	169	215	226	290	340
C_1	109.5	131.5	167	212.5	221	288	331
C_2	1.5	1.5	2	2.5	5	2	9
C_3	39	46	60	75	79	89	109
φI	69	79	100	125	125	166	200
φJ	25	30	38	48	59	65	80
L	119.5	141.5	178	225.5	237	304	348
L_1	11	13	14	18	19	28	30
L_2	2	2	2	2	2	3	3
L_3	106.5	126.5	162	205.5	216	273	315
M	16.5 -δ_1	21 -δ_2	26 -δ_2	35 -δ_2	44.5 -δ_2	49 -δ_2	62.5 -δ_2
N	27	34	38	52	59	78	86
R	0.5	0.5	0.5	1.0	1.5	1.5	1.5
φS (g7)	20	25	30	40	50	55	70
φS1	18	22	27	37	47	52	66
W (N9)	6	8	8	12	14	16	20
Shaft end screw X pitch	M20 x 1.0	M25 x 1.5	M30 x 1.5	M40 x 1.5	M50 x 1.5	M55 x 2.0	M70 x 2.0
Washer shaft nut	AN AW 04	AN AW 05	AN AW 06	AN AW 08	AN AW 10	AN AW 11	AN AW 14
Key size	6 x 6 x 11 ℓ	8 x 7 x 15 ℓ	8 x 7 x 18 ℓ	12 x 8 x 27 ℓ	14 x 9 x 32 ℓ	16 x 10 x 40 ℓ	20 x 12 x 44 ℓ

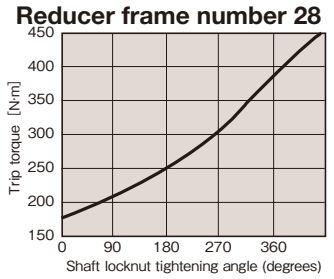
Note: Dimensions are identical whenever the reducer frame number is the same. For front-view dimensions, refer to the outline dimensions of the hollow shaft type for each series.

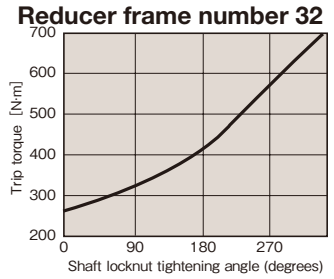
Tightening amount–torque correlation charts

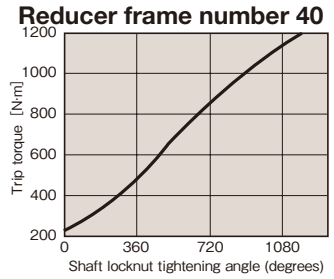


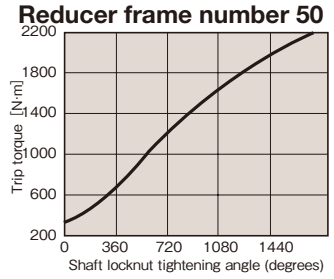












Hypoid motor specifications (made-to-order)

Capacity: 0.1 kW to 1.5 kW

Note: For more information regarding specifications and dimensions, contact Tsubaki.

■ Waterproof Type (Option Code: J)

Gear Motors, Hypoid Motors, Croise Motors

This small gear motor is waterproof with an IP65 rating. It can be used in applications, such as food processing machinery, subject to splashing and can be washed directly with water. A range of options allows it to be adapted to the application at hand.

Model Numbering Example

Hypoid Motor **HMTA040-30H50J**

Waterproof type

Basic specifications

- ■ Motor protection level: IP65 (0.1 kW to 0.4 kW); IP55 (0.75 kW to 2.2 kW)
- ■ Output shaft material: S45C or SCM415
- ■ Terminal box: Aluminum die-cast (40 W to 0.75 kW); Steel plate (1.5 kW, 2.2 kW)
- ■ Urethane coating
- ■ Paint color: Light silver metallic
- ■ Exposed bolts are stainless steel (Except fixing bolts for the reducer case and fan cover.)
- ■ Fan cover: Resin (0.2 kW to 0.4 kW); Steel plate (0.75 kW to 2.2 kW)

Note: Specification values are the same as for standard items. Refer to the specification charts of each series.
IP65: IP ratings indicate the level of protection against infusion of water and foreign objects. IP65 means the equipment is dust tight and protected against water projected from a nozzle from all directions.
This product cannot be used in an environment with high-pressure water jets. If the anti-load side of the motor is on top, please contact Tsubaki.

Model lineup

Gear Motor and Hypoid Motor TA/TR Series, 0.1 kW to 2.2 kW

● Mounting method [Gear motor: Foot mount, Flange] [Hypoid motor: Hollow shaft, Foot mount, Face mount]

Reduction ratio		5	7.5	10	12.5	15	20	25	30	40	50	60	75※1	100	120	165※2	200	300	360	450※3	600	720	1000	1200
Three-phase	0.1 kW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	▲
	0.2 kW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	▲
	0.4 kW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	▲
	0.75 kW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	▲	▲				
	1.5 kW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	2.2 kW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							

●: Standard item
▲: Made to order. Please contact Tsubaki.

For hypoid motor
※1…1/80
※2…1/160
※3…1/480

Note 1: Item with a brake is available as an option.
Note 2: Reduction ratios 1/7.5 and 1/12.5 are for the hypoid motor TA Series.

Hypoid Motor Mini Series, 40 W to 90 W

● Mounting method [Hypoid motor: Hollow shaft, Foot mount, Face mount]

Reduction ratio		1/5	1/8	1/10	1/15	1/20	1/25	1/30	1/40	1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240
Three-phase Single-phase	40 W	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	60 W	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	90 W	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Note: Except for single-phase 90 W (non-brake type, brake type).

Croise Motors, 0.1 kW to 0.75 kW

● Mounting method: Hollow shaft, foot mount, face mount

Reduction ratio		1/10	1/15	1/20	1/25	1/30	1/40	1/50	1/60	1/75	1/90	1/100	1/120	1/150	1/180	1/200	1/240	1/300
Three-phase	0.1 kW	●	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲
	0.2 kW	●	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲
	0.4 kW	●	●	●	●	●	●	●	●	▲	▲	▲	▲	▲	▲	▲		
	0.75 kW	●	●	●	●	●	●	●	●	▲								

Note: Item with a brake is available as an option.

Various Options

Select options for specific applications.

Inverter motor type

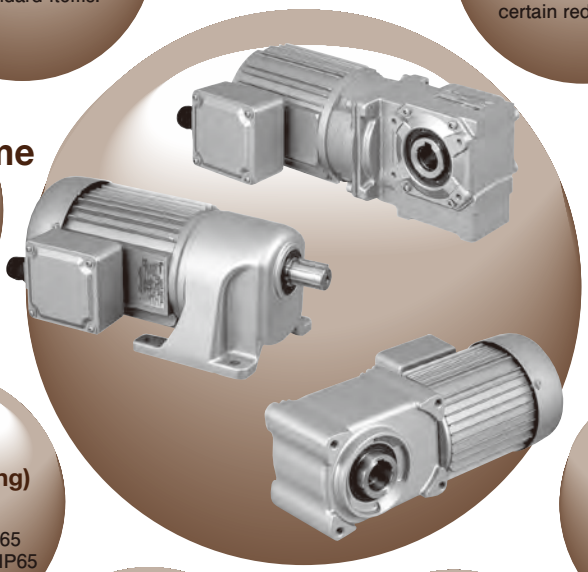
Inverter motor can be directly attached. 100% constant torque operation is possible in the 6 Hz to 60 Hz range.

Different voltage

Voltage support is the same as that for standard items.

Stainless steel output shaft (SUS420J2)

Maximum protection against rust.
Note that this may not be supported for certain reduction ratios.



Fin-less motor frame

(Aluminum)
0.1 kW to 0.4 kW

Hygienic: No mold and no accumulation of corrosive materials.

Steel-plate motor fan cover

0.2 kW to 0.55 kW

For outdoor use, a steel cover with high weatherability is recommended.

Brake

Brake type (continuous rating)
0.1 kW to 2.2 kW

Protection level: 0.1 kW to 0.4 kW IP65
0.75 kW to 2.2 kW IP65

Coating

Epoxy resin coating

Highly resistant to chemicals. Ideal for when acid-alkali cleaning solutions are used.

Chlorinated rubber coating

Highly adhesive to the coating film.
Highly waterproof and corrosion-proof.
Note: Color except silver.

Output shaft V-ring specifications

(Hollow type)

The oil seal at the output shaft is protected from the outer environment.

Hypoid motor Keyless coupling

(POWER-LOCK)
0.1 kW to 0.75 kW

Attaching a POWER-LOCK to the special hollow shaft allows keyless coupling. No key groove processing is required, and mounting and unmounting are easy. No need for countermeasures against loosening and falling off. No backlash occurs between the driven shaft and the hollow shaft.

For information about other options, please consult us.

■ Heat-Resistant Type (Option Code: A1)

Gear Motors, Hypoid Motors

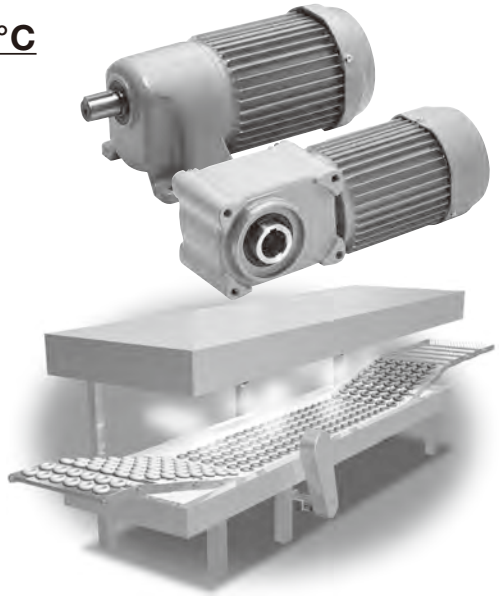
These motors can withstand continuous operation in environments such as ovens, where the ambient temperature is always high.

Model Numbering Example

Gear Motor **GMTA040-24L25BA1**

Heat-resistant type

Applicable temperature range: 0°C to 60°C
(without dew condensation)



Specifications

- ■ Output shaft torques of all models are the same as those of standard items (no limitation).
- ■ External dimensions of all models are the same as those of standard items.
- ■ The brake-equipped DC module (dedicated product) should be installed separately in a location where the ambient temperature is 40° C or lower.

Note: Inverter operation is not available.
Inverter motor type is not supported.

Model lineup

Gear Motor TA and TR Series

Non-brake, With Brake

Reduction ratio		5	10	15	20	25	30	40	50	60	75	100	120	165	200
Three-phase	0.1 kW	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.2 kW	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.4 kW	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.75 kW	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	1.5 kW	△	△	△	△	△	△	△	△	△	△	△	△	△	△
	2.2 kW	△	△	△	△	△	△	△	△	△	△				

○ : Supports both non-brake and brake type.
△ : Supports only non-brake type.

Hypoid Motor TA and TR Series

Non-brake, With Brake

Reduction ratio		5	7.5	10	12.5	15	20	25	30	40	50	60	80	100	120	160	200	300
Three-phase	0.1 kW	○	○※	○	○※	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.2 kW	○	○※	○	○※	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.4 kW	○	○※	○	○※	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.75 kW	○	○※	○	○※	○	○	○	○	○	○	○	○	○	○	○	○	○
	1.5 kW	△	—	△	—	△	△	△	△	△	△	△	△	△	△	△	△	
	2.2 kW	△	—	△	—	△	△	△	△	△	△	△	△	△	△	△	△	

○ : Supports both non-brake and brake type.
△ : Supports only non-brake type.
Note: Reduction ratio: 7.5 and 12.5 are for hollow shaft type only.

■ Cold-Resistant Type (Option Code: A2)

Gear Motors, Hypoid Motors

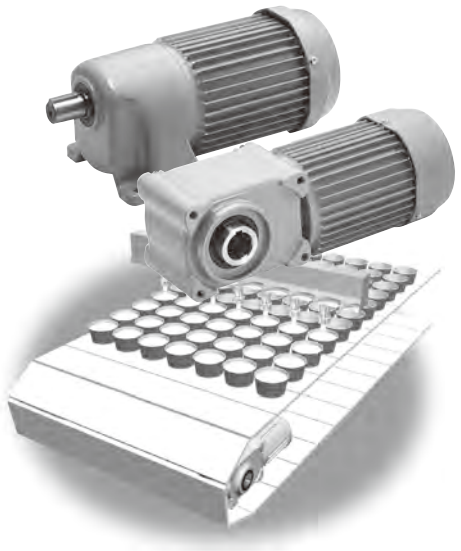
These motors can withstand continuous operation in environments such as refrigerated warehouses where the ambient temperature is always low.

Model Numbering Example

Hypoid Motor **HMTR150-45H200A2**

Cold-resistant type

Applicable temperature range: -30°C to 40°C
(without frost and dew condensation)



Specifications

- ■ Output shaft torques of all models are the same as those of standard items (no limitation).
- ■ Hard terminal box or steel-plate terminal box.
- ■ Steel-plate fan cover.
- ■ The brake-type model has a fully enclosed brake cover.
- ■ Solvent paint is outdoor specifications.

Note 1: External bolts are the same as those of standard items.
Note 2: After a long stoppage, there is a large no-load loss restart.

Model lineup

Gear Motor TA and TR Series

Non-brake, With Brake

Reduction ratio		5	10	15	20	25	30	40	50	60	75	100	120	165	200
Three-phase	0.1 kW	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.2 kW	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.4 kW	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.75 kW	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	1.5 kW	△	△	△	△	△	△	△	△	△	△	△	△	△	△
	2.2 kW	△	△	△	△	△	△	△	△	△	△				

○ : Supports both non-brake and brake type.
△ : Supports only non-brake type.

Hypoid Motor TA and TR Series

Non-brake, With Brake

Reduction ratio		5	7.5	10	12.5	15	20	25	30	40	50	60	80	100	120	160	200	300	360	450	600	720	1000	1200
Three-phase	0.1kW	○	○※	○	○※	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.2kW	○	○※	○	○※	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.4kW	○	○※	○	○※	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	0.75kW	○	○※	○	○※	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				
	1.5kW	△	—	△	—	△	△	△	△	△	△	△	△	△	△	△	△							
	2.2kW	△	—	△	—	△	△	△	△	△	△	△	△	△	△	△	△							

○ : Supports both non-brake and brake type.
△ : Supports only non-brake type.
Note: Reduction ratio: 7.5 and 12.5 are for hollow shaft type only.

Food Contact Type (Option Code: FS)

Gear Motors, Hypoid Motors

The GMTA, GMTR, HMTA, and HMTR series are compatible with food-grade lubricant, which is in high demand among food processing machinery users. These series use light gray antibacterial baked coating, and the terminal box and fan cover are made of resin-free steel plates. Choose from a wide-ranging lineup for food machinery and proprietary options.

Model Numbering Example (0.1 kW to 5.5 kW)

Hypoid Motor TA Series

HMTA 010 - 22 U 100 S **FS** □□□ □□

① ③ ④ ⑤ ⑥ ⑦ ⑧ Food contact type ⑨ ⑩

Gear Motor TR Series

GMTR 075 - 42 L 200 **BFS** □□□ □□

① ③ ④ ⑤ ⑥ ⑧ Food contact type ⑨ ⑩

① Product series name	HMTA	Hypoid motor
	HMTR	
	GMTA	Gear motor
	GMTR	
② Motor specifications	T	Three-phase
	S	Single-phase
③ Motor capacity	010	Three-phase 0.1 kW
	≀	to
	550	Three-phase 5.5 kW
④ Frame number (e.g.)	38	Frame number 38
⑤ Mounting type	H	Hollow shaft (HMTA only)
	L	Foot mount (not output shaft filter specifications)
	U	Face mount
⑥ Reduction ratio	80	E.g.: 1/80; Reduction ratio: 1/5 to 1/200
⑦ Shaft arrangement (Hypoid motor only)	No code	Hollow shaft type
	L	Output shaft located to the left as viewed from the motor side
	T	Output shaft located on both shafts
	R	Output shaft located to the right as viewed from the motor side
	S	Output shaft located on one side (face side: for face mount type only)
⑧ Specification code	FS	Food specifications
	BFS	Brake type
⑨ Option code A (Order of priority) Refer to "Combination of specification codes and option codes A."	K	POWER-LOCK (for hollow shaft type with standard hole diameter)
	Z	Inverter motor (0.1 kW to 0.4 kW only)
	J	Waterproof (see page 239 for details)
	V	400 V class (400/400/440 V, 50/50/60 Hz)
	V1	380 V, 50 Hz
	V2	380 V, 60 Hz
	V3	415 V, 50 Hz
	N	200 V class, CE conformity
	VN	400 V class, CE conformity
	Q	One-touch manual release type
	M	Manual shaft type
⑩ Option code B	Refer to page 15 or 51 for details.	

Note: Waterproof models of 0.75 kW and higher use spray paint and not antibacterial baked powder coating.

Food contact specifications

- H1 food-grade lubricant.
  Products are lubricated with H1 lubricant, certified by NSF International. According to NSF International, NSF H1 lubricant can be used in applications where the lubricant may accidentally come in contact with food.



- Antibacterial baked powder coating (light gray)
  Note: Waterproof specifications are not antibacterial (urethane spray coating).
- Aluminum die-cast terminal box
- Metal fan cover
- Hollow shaft type has output shaft cover (except HMTR075-45H with POWER-LOCK)
  Note: Motor is a standard type with fins.

Combination of specification codes and option codes A

Specification code: FS and KFS

Z	ZJ	ZJV
	ZV	
V	VN	
N		

Specification code: BFS

Z	ZV	ZVQ
		ZVM
	ZQ	
	ZM	
V	VN	
	VQ	VQM
	VM	
N		
Q		
M		

Hypoid Motor Food Conveyor Type (Option Code: FD)

The Tsubaki Eco Link® is a logo placed on products that have achieved environmental standards set by the Tsubaki Group.

These products are compatible with food-grade lubricant and are targeted at applications for the transfer of lightweight food items such as bread and sweets. Antibacterial baked coating and a finless motor ensure safety during cleaning.

Model Numbering Example

HMTA 040 - 30 H 50 FD K

① ② ③ ④ ⑤ ⑥ ⑦

① Product series name	HMTA	Hypoid motor
② Motor specifications	020	0.2 kW
	040	0.4 kW
③ Motor capacity	30	30 frames
	35	35 frames
④ Mounting method	H	Hollow shaft
⑤ Reduction ratio (example)	50	1/50
⑥ Food conveyor type	FD	Food conveyor type
⑦ Option code	K	With POWER-LOCK

Food-grade lubricant

Lubricated with H1 lubricant, certified by NSF International.



According to NSF International, NSF H1 lubricant can be used in applications where the lubricant may accidentally come in contact with food.

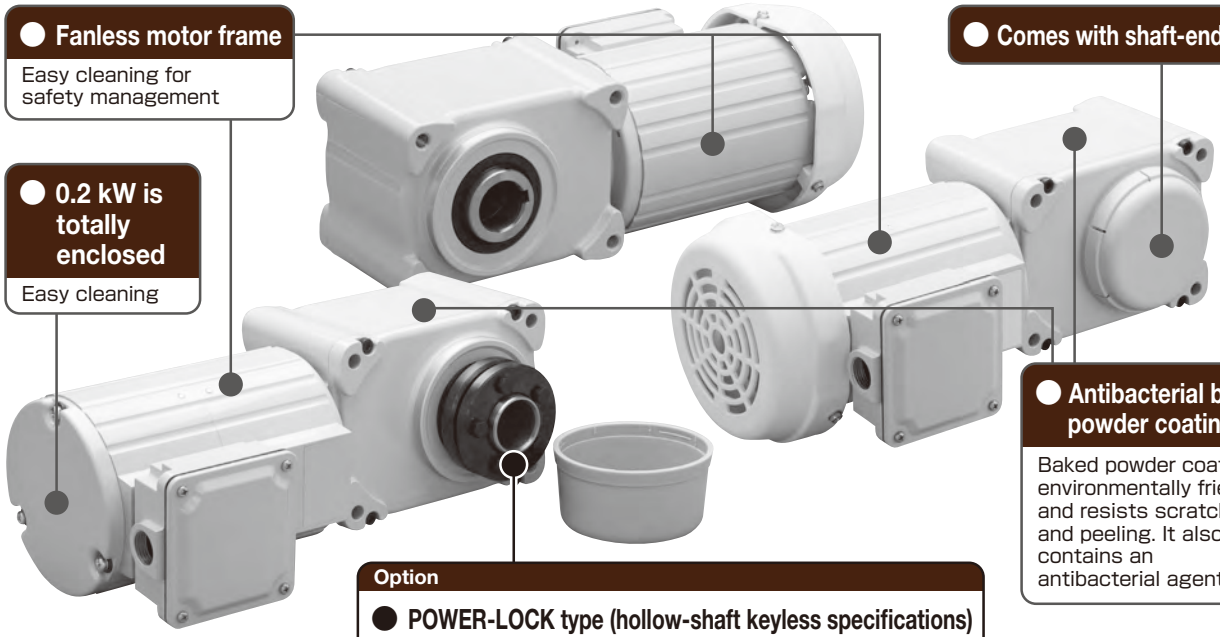
Fanless motor frame

Easy cleaning for safety management

0.2 kW is totally enclosed

Easy cleaning

Comes with shaft-end cover



Antibacterial baked powder coating

Baked powder coating is environmentally friendly and resists scratching and peeling. It also contains an antibacterial agent.

Option

POWER-LOCK type (hollow-shaft keyless specifications) optionally available (includes shaft-end cover)

Standard specifications

Motor	Output	Three-phase: 0.2, 0.4 kW
	Power supply	200/200/220 V, 50/60/60 Hz
	Number of poles	4
	Protection	0.2 kW: Totally enclosed type (IP44), 0.4 kW: Totally enclosed external fan type (IP44)
	Cooling	0.2 kW: Self-cooled type (IP410), 0.4 kW: Self-managed type (IP411)
	Rating	Continuous
	Insulation	120(E)
Reducer	Reduction ratio	1/10 to 1/200
	Lubrication	H1 lubricant
	Mounting method	Hollow shaft
Ambient conditions	Installation place	Indoor not exposed to dust or water
	Temperature	−20℃ to 40℃
	Humidity	Less than 85% (non condensing)
	Altitude	Elevations below 1,000 m
	Atmosphere	Free from corrosive gases, explosive gases, or steam
	Mounting direction	No limitations on mounting angles: horizontal, vertical, or inclined
Coating specifications		Baked powder coating containing antibacterial agent; color: Munsell N7.5 (light gray)
Accessories		Shaft-end cover for hollow shaft

Applicable models and frame numbers

Reduction ratio	Motor capacity 0.2 kW	Motor capacity 0.4 kW
10	30H	30H
15		
20		
25		
30		
40		
50		
60		35H
80		
100		
120		
160		
200		

Global Series

Gear Motors, Hypoid Motors

Global Series motors are compatible with worldwide directives, regulations, and systems. We have CE-compatible motors for Europe, UL-compatible motors for North America, and CCC-compatible motors for China. We also have Triple 200 products, in which each motor complies with all three standards—CE, UL, and CCC.
Note: For models for South Korea, see page 255.



▶CE conformity

Products exported to Europe must bear CE marking to show that they satisfy the safety requirements of applicable EC directives.
Products have CE conformity if they bear the CE mark.

▶Declaration Conformity

Manufacturers can carry out self-declaration for CE conformity.
Relevant directive: Low Voltage Directive 73/23/EEC
Relevant regulation: EN60034-1 (regulation for rotating electrical machines)



▶UL conformity

UL (Underwriters Laboratories) is an American third-party organization that tests and approves products for consumer safety. Products have UL conformity if they bear the UL mark.
Our C-UR model has been approved by UL, as well as by the CSA (Canadian Standards Association).

▶UL specifications

Relevant directive: UL1004
UL file no: E225995



▶CCC conformity

Motors 1.1 kW and smaller exported to China must bear the CCC mark to show that they satisfy the CCC system for product quality standardization.

▶Permission to use CCC mark

Tsubaki has been certified by the CQC (China Quality Certification Center).
National standard: GB12350

1. Motors for Europe (Option Code: N)

Products exported to Europe must bear CE marking to show that they satisfy the safety requirements of applicable EC directives.

Relevant Directives and Regulations

Directive: Low Voltage Directive 2014/35/EU
Regulation: EN 60034-1 (regulation for rotating electrical machines)

In addition, 0.75 kW to 375 kW motors must satisfy criteria for IE3 premium efficiency class (IEC 60034-30) under Commission Regulation (EC) No. 640/2009.

Model Numbering Example

Gear motor **GMTR150-42L75N**
For Europe

0.1kW to 5.5kW

		200 V class			400 V class		
Option code		N		WN	VN		WVN
Specifications		Indoor		Outdoor	Indoor		Outdoor
Brake		Non-brake	Brake	Non-brake	Non-brake	Brake	Non-brake
Protection		IP44	IP20	IP55	IP44	IP20	IP55
Insulation class		Class B (0.75 kW: Class F)					
0.1 kW	Rated voltage	200/200/220			380/400/400/440		
	Frequency	50/60/60			50/50/60/60		
0.2 kW	Rated voltage	200/200/220			380/400/400/440		
	Frequency	50/60/60			50/50/60/60		
0.4 kW	Rated voltage	200/200/220			380/400/400/440		
	Frequency	50/60/60			50/50/60/60		
0.75 kW	Rated voltage	200/200/220			380/400/400/440		
	Frequency	50/60/60			50/50/60/60		
1.5 kW	Rated voltage	200/200/220			380/400/415/400/440		
	Frequency	50/60/60			50/50/50/60/60		
2.2 kW	Rated voltage	200/200/220			380/400/415/400/440		
	Frequency	50/60/60			50/50/50/60/60		
3.7 kW	Rated voltage	200/200/220			380/400/415/400/440		
	Frequency	50/60/60			50/50/50/60/60		
5.5 kW	Rated voltage	200/200/220	200/200/220	200/200/220	380/400/415/400/440	380/400/415/400/440	380/400/415/400/440
	Frequency	50/60/60	50/60/60	50/60/60	50/50/50/60/60	50/50/50/60/60	50/50/50/60/60

Note 1: 0.55 kW is for Croise motors only.
Note 2: The terminal box shape differs from the standard type. Please contact Tsubaki.
Note 3: On ▨ models, connections differ from the standard type. Please contact Tsubaki.
Note 4: 3.7 kW and 5.5 kW are for hypoid motors and croise motors only.

2. Motors for North America (Option Code: N2)

UL (Underwriters Laboratories) is an American third-party organization that tests and approves products for consumer safety. Our C-UR model has been approved by UL, as well as by the CSA (Canadian Standards Association).

In addition, 0.75 kW to 375 kW motors must satisfy criteria for IE3 premium efficiency class (NEMA Premium) under the EISA (Energy Independence and Security Act) high-energy-efficiency regulations in the U.S., and the IE3 premium efficiency class (CSA C390) under the EEAct (Energy Efficiency Act) high-energy-efficiency regulations in Canada.

Model Numbering Example

Croise motor CSMA010-130H60B**N2**

For North America

0.1 kW to 0.4 kW

0.75 kW to 5.5 kW

Relevant Directive and Regulation File No.

Directive: UL 1004

UL file no.: E225995

60 W to 0.4 kW

		200 V class		400 V class	
Option code		N2		VN2	
Specifications		Indoor			
Brake		Non-brake	Brake	Non-brake	Brake
Protection		IP44	IP20	IP44	IP20
Insulation class		Class A			
60 W	Rated voltage	230	–	460	–
	Frequency	60	–	60	–
90 W	Rated voltage	230	–	460	–
	Frequency	60	–	60	–
0.1 kW	Rated voltage	230／240		460／480	460
	Frequency	60／60		60／60	60
0.2 kW	Rated voltage	230／240		460／480	460
	Frequency	60／60		60／60	60
0.4 kW	Rated voltage	230／240		460／480	460
	Frequency	60／60		60／60	60

0.75 kW to 5.5 kW

		200 V class		400 V class	
Option code		N2		VN2	
Specifications		Indoor			
Brake		Non-brake	Brake	Non-brake	Brake
Protection		IP44	IP20	IP44	IP20
Insulation class		Class F			
0.75 kW	Rated voltage	230	230	460	460
	Frequency	60	60	60	60
1.5 kW	Rated voltage	230	230	460	460
	Frequency	60	60	60	60
2.2 kW	Rated voltage	230	230	460	460
	Frequency	60	60	60	60
3.7 kW	Rated voltage	230	230	460	460
	Frequency	60	60	60	60
5.5 kW	Rated voltage	230	230	460	460
	Frequency	60	60	60	60

Note 1: The terminal box shape differs from the standard type. Please contact Tsubaki.
Note 2: On ▨ models, connections differ from the standard type. Please contact Tsubaki.
Note 3: 3.7 kW and 5.5 kW are for hypoid motors and croise motors only.

3. Motors for China (Option Code: N3, PN3, HN3, WN3)*

Motors 1.1 kW and smaller exported to China must bear the CCC mark to show that they satisfy the China Compulsory Certification (CCC) system for product quality.
In addition, 0.75 kW to 375 kW motors must satisfy Grade 2 efficiency class (GB2) under the GB18613-2012 standard.

0.1 kW to 0.75 kW

National Standard: GB12350

0.75 kW to 5.5 kW



Model Numbering Example

Hypoid motor HMTA040-35H200**PN3** (Indoor specifications, resin terminal box, resin fan cover)
HN3 (Indoor specifications, hard terminal box, resin fan cover)
WN3 (Outdoor specifications, hard terminal box, steel-plate fan cover)

For China

*N3, PN3, HN3, and WN3 are 200 V specifications. In case of 400 V class, the codes are VN3, PVN3, HVN3, and WVN3, respectively.

0.1 kW to 0.4 kW

		200 V class			400 V class		
Resin terminal box specifications	Option code	PN3		–	PVN3		–
	Specifications	Indoor		–	Indoor		–
	Brake	Non-brake	Brake	–	Non-brake	Brake	–
	Protection	IP44	IP20	–	IP44	IP20	–
	Insulation class	Class E	Class E	–	Class E	Class E	–
Hard terminal box specifications	Option code	HN3		WN3	HVN3		WVN3
	Specifications	Indoor		Outdoor	Indoor		Outdoor
	Brake	Non-brake	Brake	Non-brake	Non-brake	Brake	Non-brake
	Protection	IP44	IP23	IP55	IP44	IP23	IP55
	Insulation class	Class E	Class E	Class E	Class E	Class E	Class E
0.1 kW	Rated voltage	200/220/200/220			380		
	Frequency	50/50/60/60			50		
0.2 kW	Rated voltage	200/220/200/220			380		
	Frequency	50/50/60/60			50		
0.4 kW	Rated voltage	220/220			380		
	Frequency	50/60			50		

0.75 kW

		200 V class			400 V class		
Hard terminal box specifications	Option code	N3		WN3	VN3		WVN3
	Specifications	Indoor		Outdoor	Indoor		Outdoor
	Brake	Non-brake	Brake	Non-brake	Non-brake	Brake	Non-brake
	Protection	IP44	IP23	IP55	IP44	IP23	IP55
	Insulation class	Class F	Class F	Class F	Class F	Class F	Class F
0.75 kW	Rated voltage	200	200	200	380	380	380
	Frequency	50	50	50	50	50	50

1.5 kW to 5.5 kW

		200 V class			400 V class		
Steel terminal box specifications	Option code	N3		WN3	VN3		WVN3
	Specifications	Indoor		Outdoor	Indoor		Outdoor
	Brake	Non-brake	Brake	Non-brake	Non-brake	Brake	Non-brake
	Protection	IP44	IP20	IP55	IP44	IP20	IP55
	Insulation class	Class B	Class B	Class B	Class B	Class B	Class B
1.5 kW	Rated voltage	200			380		
	Frequency	50			50		
2.2 kW	Rated voltage	200			380		
	Frequency	50			50		
3.7 kW	Rated voltage	200			380		
	Frequency	50			50		
5.5 kW	Rated voltage	200			380		
	Frequency	50			50		

Note 1: The terminal box shape differs from the standard type. Please contact Tsubaki.
Note 2: Contact Tsubaki about production of 220 V/50 Hz products.
Note 3: On ▨ models, connections differ from the standard type. Please contact Tsubaki.
Note 4: 3.7 kW and 5.5 kW are for hypoid motors and croise motors only.

4. Motors for South Korea (Option Code: N8)

0.75 kW to 375 kW motors exported to South Korea must satisfy criteria for IE3 premium efficiency class (KS C 4202) under that country's system for rating energy consumption efficiency.

Model Numbering Example

Gear motor GMTR150-42L75**N8**

For South Korea



		200 V class			400 V class		
Option code		N8		WN8	VN8		WVN8
Specifications		Indoor		Outdoor	Indoor		Outdoor
Brake		Non-brake	Brake	Non-brake	Non-brake	Brake	Non-brake
Protection		IP44	IP20	IP55	IP44	IP20	IP55
Insulation class		Class B (0.75 kW: Class F)					
0.75 kW	Rated voltage	220			440		
	Frequency	60			60		
1.5 kW	Rated voltage	220			440		
	Frequency	60			60		
2.2 kW	Rated voltage	220			440		
	Frequency	60			60		
3.7 kW	Rated voltage	220			440		
	Frequency	60			60		
5.5 kW	Rated voltage	220			440		
	Frequency	60			60		

Note 1: Contact Tsubaki about production of 380 V/60 Hz products.
Note 2: 3.7 kW and 5.5 kW are for hypoid motors and croise motors only.

5. Standardized Motors for Europe, North America, and China

TRIPLE 200 (Option Code: N4)

One motor conforms to three standards: EU, UL, and CCC.
These models are ideal for machine tools and peripheral equipment that are shipped around the world. Since there's no need to worry about conforming to each different standard, you can have unified specifications and reduce stock.

Model Numbering Example

Gear motor **GMTA040-28U200N4**

TRIPLE200

Supporting Capacities: 0.1 kW to 0.4 kW

Voltage: 200/200/220 V, 50/60/60 Hz

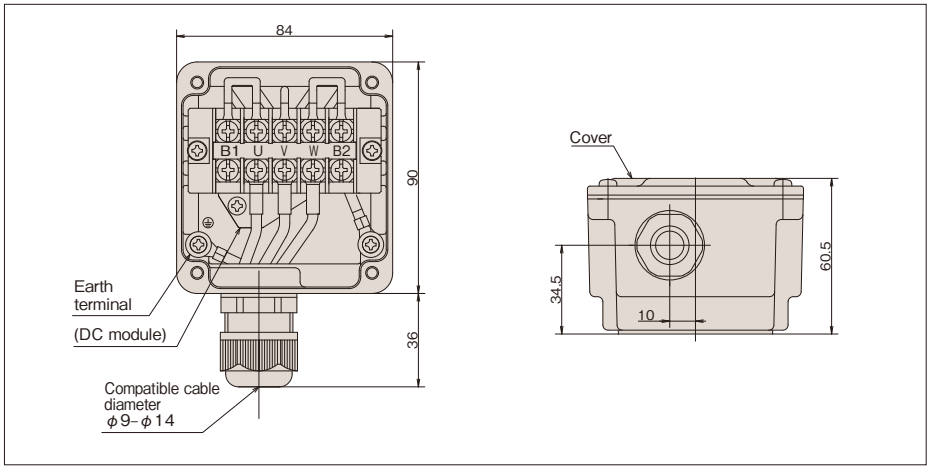
- Gear motor TA Series
- Hypoid motor TA Series
- Croise motor

Relevant EU Directives and Regulations
Directive: Low Voltage Directive 2006/95/EC
Regulation: EN 60034-1

Relevant North American Directive and Regulation File No.
Directive: UL 1004
UL file no.: E225995

China National Standard: GB12350

Terminal Box Specifications



6. Other Combinations

Products can also be made to correspond to any two of the three standards. Please contact Tsubaki.

Option code: N5 ➡

Option code: N6 ➡

Option code: N7 ➡

Voltage of Each Country (Reference)

	Country/region	Frequency (Hz)	Voltage (single-phase)	Voltage (three-phase)
	Japan	50／60	100／200	200／400
North America	United States	60	115／230	230／460
North America	Canada	60	120／347	208／240／600
Asia	India	50	240	240／415
Asia	Indonesia	50	220	380
Asia	South Korea	60	110／220	220／380／440
Asia	Singapore	50	230	415
Asia	Thailand	50	220	220／380
Asia	Taiwan	60	110／220	220／380
Asia	China	50	220	220／380
Asia	Philippines	60	220	380
Asia	Hong Kong	50	200	200／346／380
Asia	Malaysia	50	240	415
Oceania	Australia	50	220	415
Oceania	New Zealand	50	230	230／415
Europe	United Kingdom	50	230	400
Europe	Italy	50	220	380
Europe	Austria	50	220	400
Europe	Netherlands	50	230	400
Europe	Greece	50	230	400
Europe	Switzerland	50	230	400
Europe	Sweden	50	230／400	400／690
Europe	Spain	50	127／220	220／380
Europe	Denmark	50	230	400
Europe	Germany	50	230	400
Europe	Norway	50	220／230	380
Europe	Hungary	50	220	380
Europe	Finland	50	230	400
Europe	France	50	230	400
Europe	Bulgaria	50	230	380
Europe	Belgium	50	230	400
Europe	Poland	50	220	380
Europe	Portugal	50	230	400／480
Europe	Romania	50	220	380
Europe	Luxembourg	50	230	400

Note: Voltage may differ from the above even within the same country depending on the region.

This section describes general use of gear motors, hypoid motors, and croise motors. For a more detailed explanation, refer to the motor's instruction manual.

Inspection upon Receipt of Product

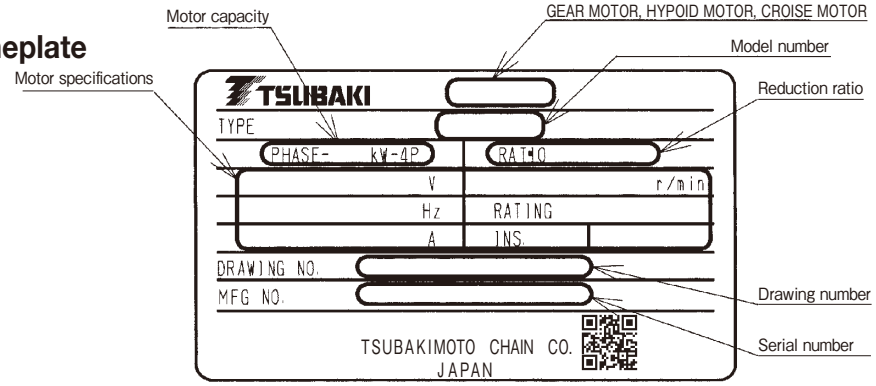
When you receive the product, check that:

(1) The outlet, reduction ratio, model number, voltage, and other items on the nameplate match the product you ordered.
(2) All accessories (such as pressure vent) are provided.
(3) No parts were damaged during transport.
(4) No screws or nuts are loose.

If there are any problems or questions, contact the dealer.

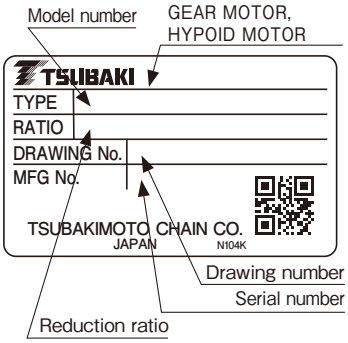
1. How to to read the nameplate

0.1 kW to 0.4 kW

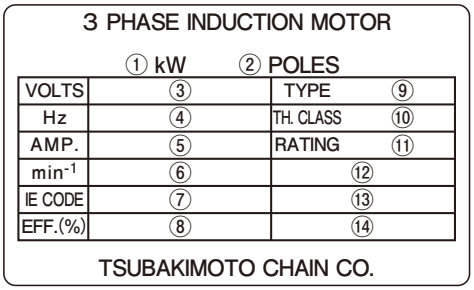


0.75 kW to 5.5 kW

Reducer Nameplate



Motor Nameplate



①	Output
②	No. of poles
③	Voltage
④	Frequency
⑤	Rated current
⑥	Revolution speed
⑦	IE code
⑧	Nominal efficiency
⑨	Type
⑩	Insulation
⑪	Rating
⑫	Applicable standard
⑬	Protection
⑭	Serial number

Labeling for IE3 motor



When you make an inquiry, provide us with the following information from the nameplate:
① TYPE (model number), ② RATIO (reduction ratio) ,
③ MFG.NO. (serial number), ④ DRAWING.NO. (drawing number)

Storage

If you will not be using a gear motor for a while, store it under the following conditions.

1. Storage place

Store indoors in a clean, dry place.

Do not store outdoors, in humid or dusty places, or in places subject to extreme temperature changes and corrosive gases.

2. Storage position

Products are shipped and packed in the direction they will be mounted. Store them in this same mounting direction (i.e., proper up and down direction). If products are made for special installation, storing them in the wrong storage position may result in bearing section grease mixing with lubricating oil and spilling out.

3. Storage period

(1) Do not store products for more than six months.
(2) If products are to be stored for more than six months, they will require special rust-proofing specifications. Please contact Tsubaki.

4. Usage following storage

(1) Non-metal parts such as the oil seal, oil gauge, and oil supply plug tend to deteriorate due to environmental factors. Inspect those sections before starting operation, and if there is any deterioration, replace with new parts.
(2) When starting the motor, make sure there is no unusual noise, vibration, or heat generation. If there is, immediately contact the dealer.

Installation

1. Mounting direction

- Gear motors, hypoid motors, mini series
  Motors can be mounted horizontally, vertically, or on an incline. There are no restrictions on mounting direction.
- Croise motors

CSMA/CSMR series

There are no restrictions on the mounting direction for reducer frame numbers 13 to 28. They can be mounted horizontally, vertically, or on an incline.
Horizontal mounting is the standard installation for reducer frame numbers 32 to 50. For other mounting directions, please consult with Tsubaki when placing the order.

HCMA/HCMR series

Horizontal mounting is standard. For other mounting directions, please consult with Tsubaki when placing the order.

Installation

1. Foot mount type

- Use a strong flat surface that is not susceptible to vibration during operation. Remove any dust and foreign matter on the mounting surface before attaching the four bolts.
- When coupling the reducer, make sure the shaft is precisely centered. If it is not, this will shorten the life of the bearing, gear, and shaft, and cause noise and vibration.
- Center the chain and belt precisely and adjust the tension so that the load applied to the output shaft does not exceed the specified value.
- During coupling, be sure not to forcefully hit the output shaft, coupling, pulley, or sprocket. Doing so may damage the output shaft bearing.

2. Flange mount type

- Use a strong flat flange mounting plate that is not susceptible to vibration during operation. Remove any dust and foreign matter on the mounting surface before attaching the four bolts.
- When coupling the reducer, make sure the shaft is precisely centered. If it is not, this will shorten the life of the bearing, gear, and shaft, and cause noise and vibration.
- Center the chain and belt precisely and adjust the tension so that the load applied to the output shaft does not exceed the specified value.
- During coupling, be sure not to forcefully hit the output shaft, coupling, pulley, or sprocket. Doing so may damage the output shaft bearing.

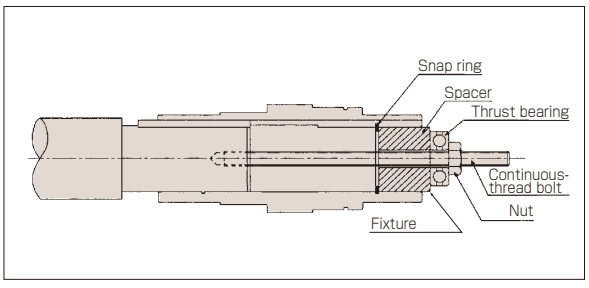
3. Face mount type

- When attaching the motor to the machine, use a tap of the case.
- When coupling the reducer, make sure the shaft is precisely centered. If it is not, this will shorten the life of the bearing, gear, and shaft, and cause noise and vibration.
- Center the chain and belt precisely and adjust the tension so that the load applied to the output shaft does not exceed the specified value.
- During coupling, be sure not to forcefully hit the output shaft, coupling, pulley, or sprocket. Doing so may damage the output shaft bearing.

4. Hollow shaft type

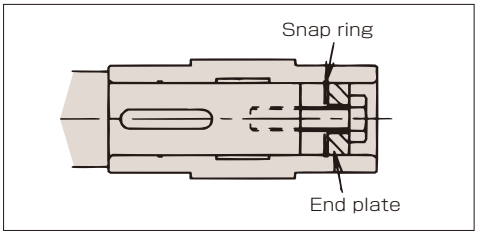
4-1. Mounting to the driven shaft

- The internal diameter of the hollow shaft is manufactured to JIS H8 tolerance. For normal applications, the finish of the driven shaft should be h7. For applications involving large shock or radial load, use a slightly tighter fit of js6 or k6.
- When installing to the driven shaft, apply molybdenum disulfide grease to the driven shaft surface and hollow output shaft internal diameter before inserting.
- Use the jig shown on the right for smooth insertion.

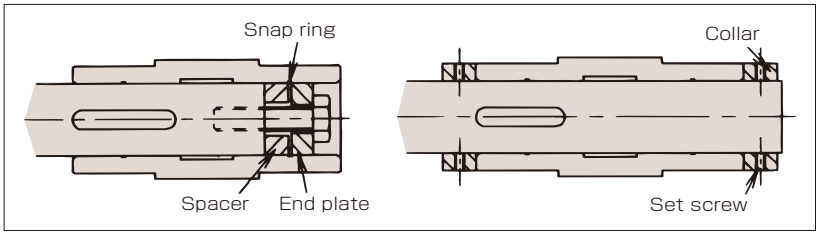


4-2. Fixing to the driven shaft

A. When there are steps on the driven shaft
Fabricate the end plate as shown in the figure below. Fix the hollow output shaft and driven shaft.

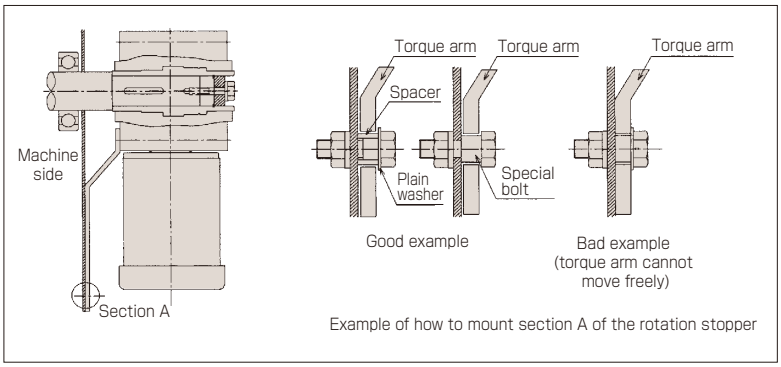


B. When there are no steps on the driven shaft
There are the following two types of fixing methods.



4-3. Preventing the torque arm from rotating

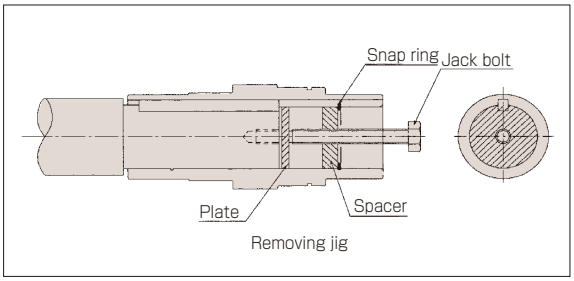
- Mount the torque arm to the driven-machine side of the hypoid motor. Mount using a hex bolt. Provide sufficient clearance for the rotation stopper of the torque arm between the hypoid motor and the driven shaft. Do not fix the torque arm with a rotation-preventing bolt. If there is no clearance, the bearing in the reducer will get damaged.
- When the motor is started and stopped frequently or when it is repeatedly run forward and then reversed, install a rubber bush between the torque arm and the rotation-preventing bolt (or spacer) to reduce shock.



Example of how to mount section A of the rotation stopper

4-4. Removal from the driven shaft

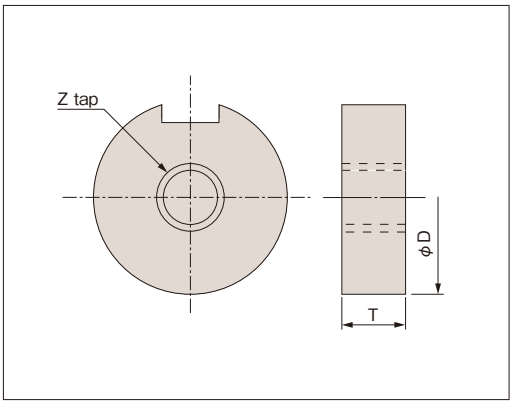
- Remove the driven shaft from the hollow shaft while making sure that excessive force is not applied between the housing and hollow output shaft.
- Use the jig shown on the right for smooth removal.



Removing jig

Recommended plate dimensions (HMMT, HMTA, HMTR, Croise Motor)

Applicable product (frame number example)	Output hollow shaft hole diameter	Plate			Stop ring size
		φD	T	Z	
HMMT40	φ18	17.5	8	M8	C18
HMTA - Frame 20	φ20	19.5	6	M8	C20
HMMT60・90	φ22	21.5	8	M8	C22
CSMA - Frame 16	φ25	24.5	9	M10	C25
HMTA - Frame 30 CSMA-Frame 22	φ30	29.5	9	M12	C30
HMTA-Frame 35	φ35	34.5	12	M12	C35
CSMA - Frame 28	φ40	39.6	12	M12	C40
HMTA-Frame 45	φ45	44.5	15	M16	C45
CSMA-Frame 32	φ50	49.5	12	M16	C50
HMTA-Frame 55	φ55	54.5	18	M18	C55
CSMA-Frame 40	φ70	69.5	14	M24	C70



■ Torque arm design

Whether a standard torque arm is used or whether you design and make a torque arm, check the strength of each element in the following manner.

1. Check the torque arm and fixing bolt.
   Check according to the torque arm reaction force R.

$$R=\frac{T+W\times G}{C}$$

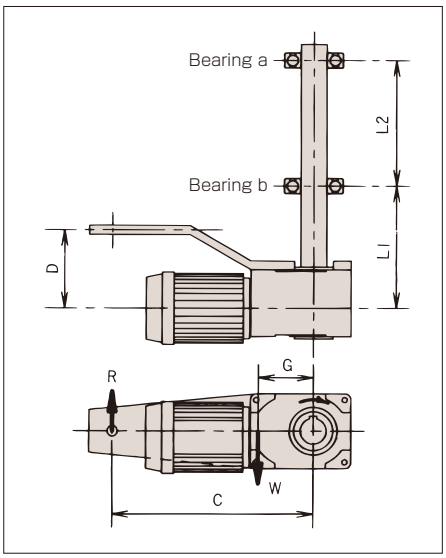
2. Selection of bearing
   Check according to the bearing reaction forces A and B.

$$A(\text{shaft bearing a})=\frac{L1\times(R-W)-D\times R}{L2}$$

$$B(\text{shaft bearing b})=\frac{(L1+L2)\times(R-W)-D\times R}{L2}$$

T : Output torque N·m {kgf·m}
W : Weight of reducer kg {kgf}
R : Torque arm reaction force kg {kgf}
G : Distance between center of driven shaft and center of gravity of reducer (m)
C : Distance between center of driven shaft and rotation stopper (m)
D : Distance between center of reducer and rotation stopper (m)
L1 : Distance between center of reducer and bearing b (m)
L2 : Distance between bearing a and bearing b (m)

Note: For the direction of rotation shown in the figure to the left, the output torque is positive. When it is reversed, the output torque is negative.



Dimensions when optional torque arm is used (approximate value) Also applies to adapter and inline reducer types.

Model number	HMTA010-30H5 - 35H1200 HMTA020-30H5 - 200 HMTA020-45H600 - 1200 HMTA040-55H600 - 1200	HMTA020-35H300 - 480 HMTA040-30H5 - 35H200 HMTR220-45H5 - 55H120	HMTR075-35H5 - 55H480 HMTR150-55H100 - 200	HMTA040-45H300 - 480 HMTR150-45H5 - 80 HMTR370-55H5 - 60FI	HMTR550-55H5 - 40FI
G	0.10 m	0.12 m	0.13 m	0.15 m	0.26 m

Operation

1. Inspection before starting

After installation and wiring are completed, check the following items before turning on the switch.

- Confirm that the appropriate breaker and overcurrent relay are used.
- Confirm that the wiring is correct.
- Confirm that the installation wires are securely connected.

In addition, take measures to prevent dangers. For example, take appropriate measures when dangers can be expected during the operation of gear motors, hypoid motors, or croise motors, and take appropriate measures when these motors stop working properly.

2. Fluctuation of voltage and frequency

When the voltage and frequency applied to the motor are not specified values, characteristics may change. A fluctuation in the motor voltage of +/- 10% of the rated voltage will not affect operation.

3. Trial operation

Shipped products have not undergone trial operation. For croise motors in particular, to demonstrate proper performance, a trial run should be conducted for a period of about one day by applying a load on the order of one-half to one-third of full load.

4. Load

A load higher than the specified value may shorten the life of the motor and gear, and may damage the gear motor, hypoid motor, and croise motor. Rated current values are written on the nameplates of the gear motor, hypoid motor, and croise motor. Be sure not to exceed these values.

5. Inspection after starting

After starting operation, inspect the following items.

a. Confirm that the direction of rotation is correct.
b. Confirm that the maximum value of the current is within the value specified on the nameplate.
c. Confirm that there is no abnormal vibration or noise.
d. Confirm that startup is not too frequent.
e. Confirm that there is no shock.

Maintenance

Conducting daily maintenance requires only that the operators use measuring tools and their senses. Check the following.

- Noise: Make sure that noise is not louder than usual and that there are no periodic abnormal sounds.
- Vibration: Make sure there is no abnormal vibration.
- Temperature: Make sure the motor temperature is not higher than usual.

Grease Lubrication (Gear Motor, Hypoid Motor, Mini Series)

1. Grease lubrication

Grease is used for lubrication.

2. Grease injected

A specified amount of lead-free grease is already injected prior to delivery. Use the motor as is.

3. Grease change

Changing or replenishing grease is usually not necessary. However, changing the grease after 20,000 hours of operation will prolong the life.

4. Grease specifications

Use grease for high-grade gears with a viscosity No. 000 or equivalent.

5. Recommended grease

Nippon Grease Co., Ltd.: Nigtight LMS No. 000 (This is the lead-free grease injected before delivery.)
Showa Shell Sekiyu K.K.: Alvania EP Grease R000
JXTG Nippon Oil & Energy Corp.: Pyronoc Universal 000

6. Grease quantity

Gear Motor TA and TR Series

· Gear motor
· Brake-type gear motor
· Inline reducer
· Adapter type reducer

Motor output	Reduction ratio	Grease quantity kg
0.1 kW	1/10 - 1/50	0.14
	1/5 · 1/60 - 1/200	0.3
0.2 kW	1/10 - 1/25	0.14
	1/5 · 1/30 - 1/75	0.3
	1/100 - 1/200	0.5
0.4 kW	1/5 - 1/25	0.3
	1/30 - 1/75	0.5
	1/100 - 1/200	1.1
0.75 kW	1/5 - 1/25	0.5
	1/30 - 1/75	1.1
	1/100 - 1/200	1.3
1.5 kW	1/5 - 1/30	1.3
	1/40 - 1/75	1.4
2.2 kW	1/5 - 1/30	1.3

Note: The values in parentheses are for the 1st step speed reduction part of the 4-step speed reduction (1/300 to 1/1200).

Hypoid Motor TA and TR Series

(H: Hollow shaft, U; Face mount)

Motor capacity	Frame number		Reduction ratio	Grease quantity kg
	H	U		
0.1 kW	20	22	1/5 - 1/50	0.27
			1/60 - 1/120	0.23
	30	24	1/160 - 1/200	0.33
		28	1/300 - 1/480	0.33+(0.15)
	35	38	1/600 - 1/1200	0.53+(0.15)
0.2 kW	20	22	1/5 - 1/25	0.27
			1/30 - 1/60	0.23
	30	28	1/80 - 1/200	0.33
	35	38	1/300 - 1/480	0.53+(0.15)
	45	42	1/600 - 1/1200	1.15+(0.20)
0.4 W	30	28	1/5 - 1/50	0.33
	35	38	1/60 - 1/200	0.53
	45	42	1/300 - 1/480	1.15+(0.40)
	55	50	1/600 - 1/1200	3.80+(0.40)
0.75 kW	35	38	1/5 - 1/30	0.67
			1/40 - 1/50	0.53
	45	42	1/60 - 1/200	1.15
	55	50	1/300 - 1/480	3.70+(0.70)
1.5 kW	45	42	1/5 - 1/30	1.40
			1/40 - 1/80	1.15
	55	50	1/100 - 1/200	3.80
2.2 kW	45	42	1/5 - 1/20	1.40
			1/25 - 1/60	1.15
	55	50	1/80 - 1/120	3.80
3.7 kW	55	50	1/5 - 1/20	3.70
			1/25 - 1/60	3.40
5.5 kW	55	50	1/5 - 1/20	3.70
			1/25 - 1/40	3.40

Note: The values in parentheses are for the 1st step speed reduction part.

(L: Foot mount)

Motor capacity	Frame number	Reduction ratio	Grease quantity kg
0.1 kW	22	1/5 - 1/50	0.23
		1/60 - 1/120	0.23
	24	1/60	0.40
		1/80 - 1/200	0.33
	28	1/300 - 1/480	0.33+(0.15)
	38	1/600 - 1/1200	0.53+(0.15)
0.2 kW	22	1/5 - 1/50	0.23
		1/60	0.23
	28	1/60	0.40
		1/80 - 1/200	0.33
	38	1/300 - 1/480	0.53+(0.20)
	42	1/600 - 1/1200	1.14+(0.20)
0.4 W	28	1/5 - 1/50	0.33
	38	1/60 - 1/200	0.53
	42	1/300 - 1/480	1.14+(0.40)
	50	1/600 - 1/200	3.80+(0.40)
0.75 kW	38	1/5 - 1/50	0.53
	42	1/60 - 1/200	1.15
	50	1/300 - 1/480	3.70+(0.70)
1.5 kW	42	1/5 - 1/30	1.40
		1/40 - 1/80	1.15
	50	1/100 - 1/200	3.80
2.2 kW	42	1/5 - 1/20	1.40
		1/25 - 1/60	1.15
	50	1/80 - 1/120	3.80
3.7 kW	50	1/5 - 1/20	3.70
		1/25 - 1/60	3.40
5.5 kW	50	1/5 - 1/20	3.70
		1/25 - 1/40	3.40

Hypoid Motor Mini Series

Motor capacity	Reduction ratio	Grease quantity g
40 W	1/5 - 1/60	180
	1/80 - 1/240	150
60 W	1/5 - 1/60	300
	1/80 - 1/240	230
90 W	1/5 - 1/60	300
	1/80 - 1/240	230

Oil Lubrication (Croise Motor)

1. Oil lubrication

Oil is used for lubrication.

2. Oil injected

A specified amount of oil (Daphne Alpha Oil TE260) is filled at the time of delivery. Use the motor as is.

3. Oil change

- Reducer frame numbers 13 to 28 have a sealed structure. Consequently, replacing or refilling lubricating oil will not be necessary in most cases. However, if operating conditions cause severe deterioration in the lubricating oil, change the oil after 2,500 hours of operation. Doing so will extend the service life of the unit.
- For frame numbers 32 to 50, maintenance is as follows:
  ① For the first time after initial start of operation, change the oil shortly after 1,000 hours of operation or after a period of three months.
  ② For the second time onwards, change the oil shortly after every 5,000 hours of operation or every year depending on operating conditions.

4. Pressure vent

- Reducer frame numbers 13 to 28 have a sealed structure. Consequently, no pressure vent is necessary.
- For frame numbers 32 to 50, be sure to check that the reducer is mounted in the standard installation direction and then install the supplied pressure vent. After installation is complete, check the oil level using the oil gauge. For other than the standard installations, please specify at the time the order is placed.

5. Recommended lubricating oils

Manufacturer	Recommended lubricating oil
Industrial gear oil Class 2 (worm gear)	ISO VG320
EMG Lubricants	Mobile 600 W cylinder oil (ISO VG380)
	Spartan EP 320
Showa Shell Sekiyu	Omala S2 G 320
Idemitsu Kosan	Daphne CE compound 320S

Note: Maintenance when using the recommended lubricating oils in the table above is as follows:
① For the first time after initial start of operation, change the oil after 500 hours of operation.
② For the second time onwards, change the oil after every 5,000 hours of operation, depending on operating conditions.

6. Oil amounts (L)

	CSMA/CSMR series			HCMA/HCMR series		
Reducer frame number	Foot mount	Face mount	Hollow shaft	Foot mount	Face mount	Hollow shaft
13	0.13	0.05	0.05	—	—	—
16	0.20	0.10	0.10	0.37	0.37	0.29
22	0.36	0.24	0.24	0.7	0.7	0.6
28	0.55	0.55	0.55	1.4	1.4	1.2
32	1.0	1.0	1.0	1.6	1.6	1.4
40	1.2	1.2	1.2	2.8	2.8	2.5
50	3.3	3.3	3.3	5.3	5.3	4.7

Note 1: The oil amounts above are for standard mounting directions (mounting No. 0 or No. 1). Regardless of the motor kW and reduction ratio, the same amount of oil is used for reducers with the same frame numbers in the same series.
Note 2: For mounting No. 5 of the HCMA/HCMR series, increase the oil amount by 60% (approximate oil amount).

Oil Seal

A contact-type oil seal is used to seal the shaft of the speed reducer housing. In most cases, it is not necessary to replace the oil seal. If the oil seal is replaced after 10,000 hours of operation, though, the life of the reducer will be prolonged. Because the life of the oil seal depends on usage conditions, there may be cases where the oil seal needs to be replaced before 10,000 hours of operation.

If the product is used in equipment for which oil leakage should be particularly avoided, such as food processing machines, install an oil pan or similar device in preparation for unexpected oil leakage due to breakdowns, end of product life, or other reasons.

Note: In rare cases, grease discharges from the oil seal lip at the beginning of startup. This is only excess grease from filling during the assembly process; it does not indicate a function failure of the reducer.

■ Troubleshooting

1. Troubleshooting gear motors, hypoid motors, and croise motors

Problem	Possible cause	Action
Motor does not turn in unloaded state	Power outage	Check power supply, contact power company
	Broken connection wiring	Chec circuit
	Poor switch contact	Repair or replace
	Broken stator coil wiring	Send to repair plant
	Three-phase is single-phase	Check terminal voltage
	Gear/shaft/bearing damage	Send to repair plant
Motor does not turn when load is applied	Voltage drop	Check length of wiring
	Gear wear	Send to repair plant
	Overload operation	Reduce load
Abnormal heat	Overload operation	Reduce load
	Motor is stopped/started too frequently	Reduce frequency
	Bearing damage	Repair or replace
	Voltage is too high or too low	Check voltage
Noisy	Continuous noise: Bearing damage, gear wear	Send to repair plant
	Intermittent noise: Scratched gear of foreign matter in machinery	Send to repair plant
Large vibration	Gear/bearing wear	Send to repair plant
	Faulty mounting, loose bolt	Re-tighten
Grease leakage	Loose tightened parts	Re-tighten
	Oil seal damage	Replace

2. Troubleshooting gear motors, hypoid motors, and croise motors with brake

Problem	Possible cause	Action
Brake does not work	Incorrect wiring	Check wiring
	Switch is faulty	Replace or repair
Brake is not effective Braking time is long	Oil, dirt, or other contaminant on lining	Overhaul
	Life of lining exceeded	Replace or repair
	Inertia of load is too large	Reduce inertia of load
	Brake is wired across motor phases	Change to DC injection braking
Motor does not turn Motor is abnormally hot Thermal relay is activated Loud brake noise	Incorrect brake wiring	Check wiring
	Brake gap is too large	Adjust gap
	DC module is broken	Replace or repair
	Broken wiring in brake coil, or short	Send to repair plant
	Poor switch contact	Replace or repair
Abnormal heat	Brake is used frequently	Reduce frequency
	High load torque/inertia	Reduce load

The above table shows the most common problems in daily operation, and their countermeasures.
For problems other than these, please contact your dealer.
When you make an inquiry, provide the dealer with the following information from the nameplate.

(1) Serial number (MFG NO.)
(2) Model number (TYPE)
(3) Motor capacity (POWER)
(4) Reduction ratio (RATIO) or revolution speed (OUTPUT SPEED)
(5) Drawing number (DRAWING NO.)

Notes

Safety Precautions

⚠ Caution

General

- Strictly observe the relevant safety regulations related to installation location and the equipment to be used. (Occupational safety and health regulations, electrical equipment technical standards, building codes, etc.)
- Read the instruction manual thoroughly beforehand, and always refer to it to use the equipment correctly. If you do not have a copy of the instruction manual, please request one from the dealer where the product was purchased or from Tsubaki. Make certain that the instruction manual is provided to the customer who will use the product.
- The product information in this catalog is mainly for helping select the right product. Before using a product, read the instruction manual thoroughly and always refer to it to use the equipment correctly.

Selection

- Choose a product that is suitable for both the intended use and the operation environment.
- When using a product in equipment for the transport of people or in elevator equipment, install the necessary protective equipment to maintain safety.
- In explosive environments, use explosion-proof motor models. Furthermore, use an explosion-proof motor model with specifications that are suitable to the dangerous place.
- When operating an explosion-proof motor with an inverter, a 1:1 motor and inverter combination is permitted. Furthermore, the inverter itself is not explosion proof, so always operate it in a place that is free of explosive gas.
- When operating a motor with a 400 V-class inverter, install a control filter or a reactor with the inverter, or else apply strengthened insulation to the motor.
- If the product is used in equipment for which oil leakage should be particularly avoided, such as food processing machines, install an oil pan or similar device in preparation for unexpected oil leakage due to breakdowns, end of product life, or other reasons.

Warranty

1. Warranty period

This period of warranty shall be 18 months from the time of shipment or 12 months from the time the product was first used (including completed assembly of this product to the equipment of the customer), whichever is shorter. Please note, however, that there may be charges in certain cases.

2. Scope of warranty

If the product malfunctions during the warranty period despite correct installation, operation, and maintenance by the customer according to the product catalog or instruction manual, the malfunctioning part(s) shall be replaced or repaired at no cost once the Tsubaki product has been returned to Tsubaki.
However, the warranty only covers the Tsubaki product purchased by the customer and does not include the following costs. (This includes special instructions to the customer that are written in the instruction manual.)

(1) Costs required to remove or install the product for replacement or repair from the customer's equipment and any associated work costs.
(2) Costs required to transport the product to the location for repair.
(3) Any lost profits or financial damages incurred by the customer as a result of the product's malfunction or its need to be repaired.

3. Repairs outside of warranty

If the product malfunctions due to any of the following situations, even within the warranty period, the product will be examined and repaired at a cost to the customer.

(1) The customer did not correctly install the product in accordance with the instruction manual.
(2) The customer did not provide proper maintenance and did not operate the product correctly.
(3) The product malfunctioned due to a problem with it being connected to another device.
(4) The construction of the product was changed due to alterations by the customer.
(5) The product was repaired by a company other than Tsubaki or by a company not specified by Tsubaki.
(6) The product was used outside the proper operation environment as specified in the instruction manual.
(7) The product malfunctioned due to disasters or other acts of God, or unlawful acts by a third party.
(8) A malfunction on the customer's equipment caused secondary damage to the product.
(9) The product malfunctioned due to parts received and mounted by the customer, or parts specified and used by the customer.
(10) The product malfunctioned due to faulty wiring by the customer or faulty parameter settings input by the customer.
(11) The product has reached the end of its service life due to usage conditions.
(12) Damage occurs due to factors outside the responsibility of Tsubaki.

4. Dispatch of Tsubaki engineers

Customers will be charged for services such as examination, adjustment, and trial operation performed by Tsubaki engineers dispatched to the customer's location.

⚠ Caution	The product information in this catalog is mainly for helping select the right product. Before using a product, read the instruction manual thoroughly and always refer to it to use the equipment correctly.

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CHINA

China	Tsubakimoto Chain (Shanghai) Co., Ltd.	https://www.tsubaki-sh.cn/

The Tsubaki Eco Link logo is used only on products that satisfy the standards for environmental friendliness set by the Tsubaki Group.

Note: In accordance with the policy of TSUBAKIMOTO CHAIN CO. to constantly improve its products, the specifications in this catalog are subject to change without notice.
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