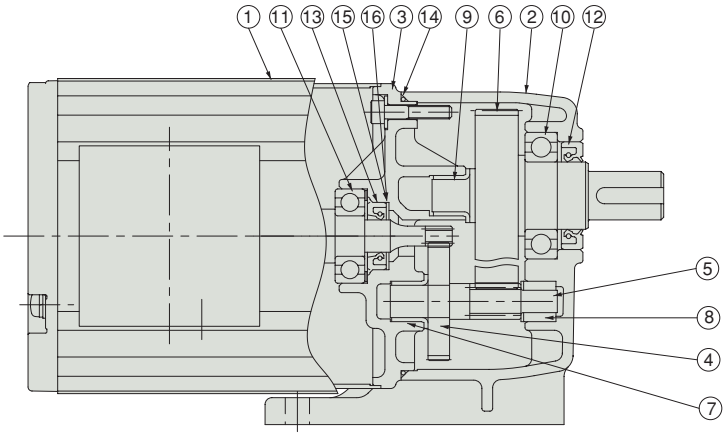
Gear Motor TA Series Structure

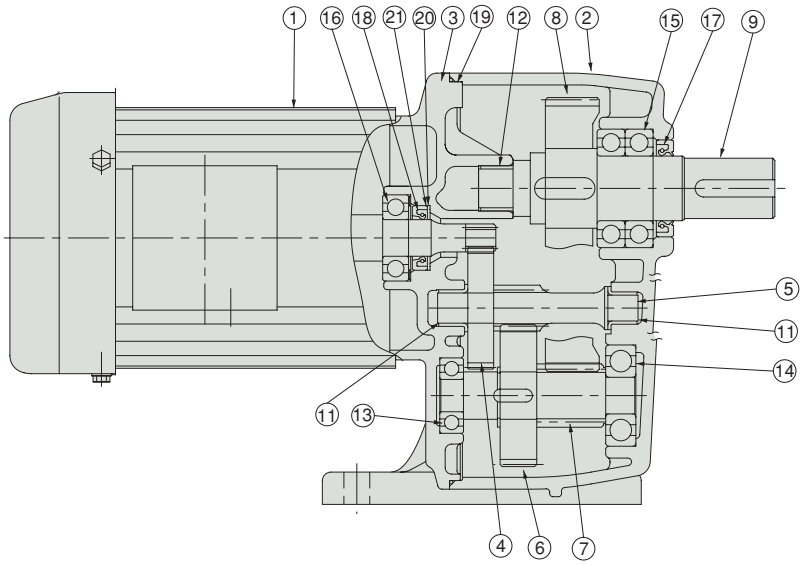
Structure

■GMTA010-18L20



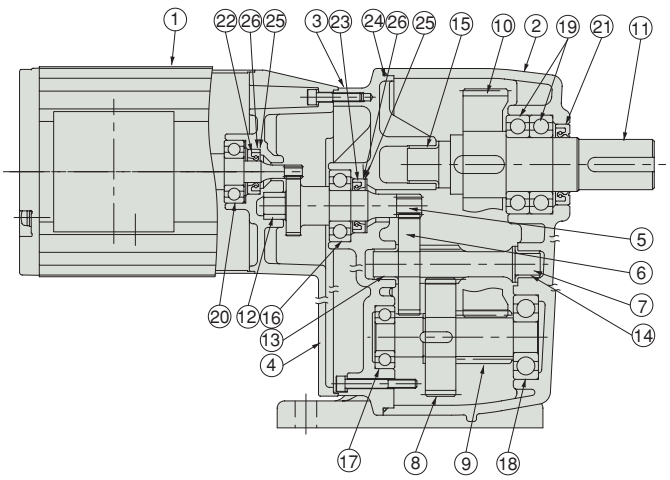
1. Motor
2. L case
3. M bracket
4. 1st stage wheel
5. 2nd shaft with pinion
6. Output shaft with wheel
7. Bearing metal (2nd shaft M bracket side)
8. Bearing metal (2nd shaft L case side)
9. Bearing metal (output shaft M bracket side)
10. Bearing (output shaft L case side)
11. Bearing (motor shaft load side)
12. Oil seal (output side)
13. Oil seal (motor shaft)
14. O-ring
15. Filter
16. Shim

■GMTA040-28L50



1. Motor
2. L case
3. M bracket
4. 1st stage wheel
5. 2nd shaft with pinion
6. 2nd stage wheel
7. 3rd shaft with pinion
8. 3rd stage wheel
9. Output shaft
10. Bearing metal (2nd shaft M bracket side)
11. Bearing metal (2nd shaft L case side)
12. Bearing 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 shaft)
18. Oil seal (motor shaft)
19. O-ring
20. Filter
21. Shim

■GMTA010-28L450



1. Motor
2. L case
3. M bracket
4. H bracket
5. 1st stage wheel with pinion
6. 2nd stage wheel
7. 3rd shaft with pinion
8. 3rd stage wheel
9. 4th shaft with pinion
10. 4th stage wheel
11. Output shaft
12. Bearing metal (2nd shaft H bracket side)
13. Plametal (3rd shaft M bracket side)
14. Plametal (3rd shaft L case side)
15. Plametal (output shaft M bracket side)
16. Bearing (2nd shaft M bracket side)
17. Bearing (4th shaft M bracket side)
18. Bearing (4th shaft L case side)
19. Bearing (output shaft L case side)
20. Bearing (motor shaft load side)
21. Oil seal (output shaft)
22. Oil seal (motor shaft)
23. Oil seal (2nd shaft)
24. O-ring
25. Filter
26. Shim

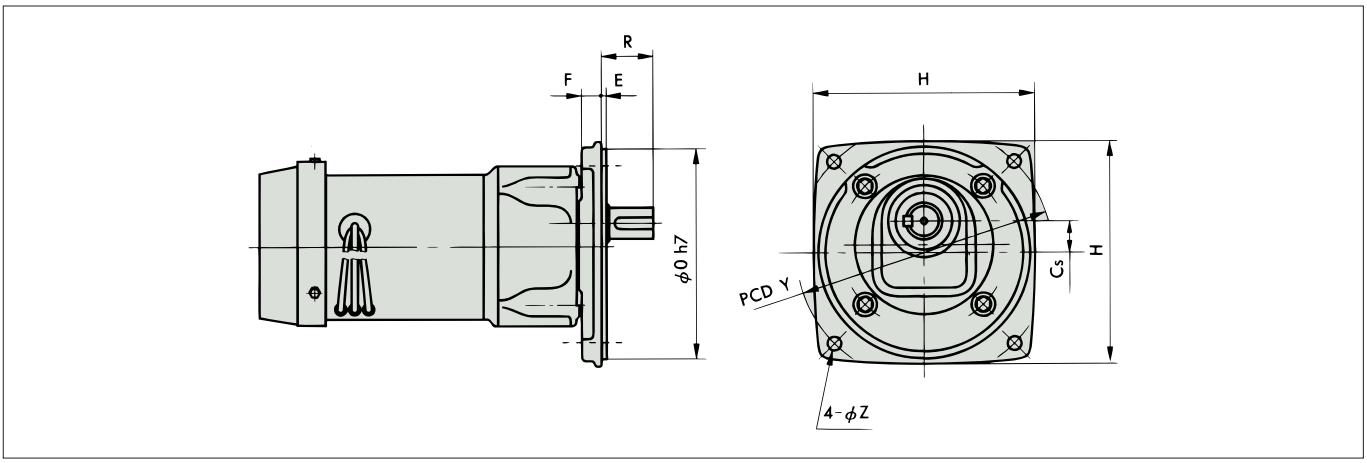
Gear Motor TA Series Options

Flange

- When converting a face mount type (U) to a flange mount type (F), place an order separately for an S flange (eccentric) or an M flange (concentric).
- The S flange (eccentric) and M flange (concentric) are both made of cast iron.

1. S flange (eccentric)

This flange can be installed easily with four bolts. Please utilize it according to your need. (The four bolts are included with the flange.)



(1) Flange number

Reduction ratio	Motor output			
	0.1kW	0.2kW	0.4kW	0.75kW
	100W	200W	400W	—
1/5	UFS27		UFS27	UFS37
1/10	UFS15 (UFS13)	UFS15		
1/15				
1/20				
1/25				
1/30		UFS27 (25)	UFS37	
1/40		UFS27		
1/50				
1/60	UFS27 (UFS25)			
1/75				
1/100		UFS37		
1/120	UFS27			
1/165				
1/200				
1/300	UFS37			
1/360				
1/450				

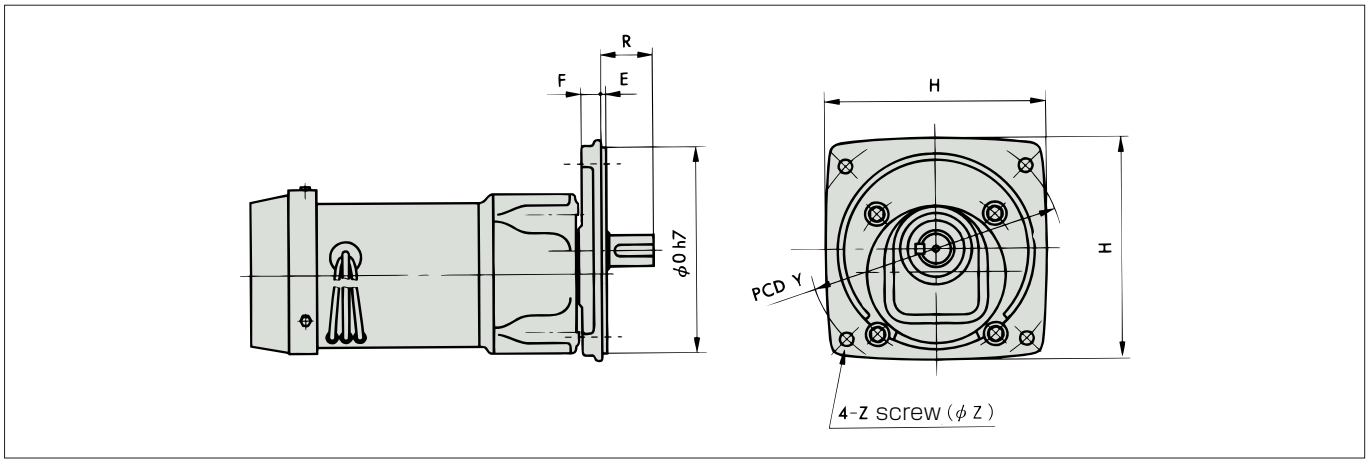
(Note) Shown in parentheses is the one-frame smaller S flange.
Either can be used by customer's choice.

(2) Dimension list

Flange number	Cs	E	F	H	R	O	Y	Z	Weight 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	140	170	9	1.4
UFS27	24	4	16	175	41	165	200	11	2.3
UFS37	24	4	18	175	47	165	200	11	2.1

2. M flange (concentric)

This flange can be installed easily with four bolts. Please utilize it according to your need. (The four bolts are included with the flange.)



(1) Flange number

Reduction ratio	Motor output				
	0.1kW	0.2kW	0.4kW	0.75kW	1.5kW
	100W	200W	400W	—	—
1/5	UFM26		UFM26	UFM39	UFM48
1/10	UFM15	UFM15			
1/15					
1/20					
1/25					
1/30		UFM26	UFM39	UFM48	
1/40					
1/50					
1/60	UFM26				
1/75					
1/100		UFM39	UFM48		
1/120					
1/165					
1/200					
1/300	UFM39	UFM48			
1/360					
1/450					
1/600	UFM48				
1/720					
1/1000					
1/1200					

(2) Dimension list

Flange number	E	F	H	R	O	Y	Z	Weight 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 dimension in parentheses is applied when installing the 0.1 kW, 0.2 kW, 100 W and 200 W devices with a reduction ratio of 1/5.

Gear Motor TA Series Installation

■Lubrication

1. Grease lubrication
Grease is used for lubrication.

2. Grease injection
The product is delivered with the correct amount of unleaded grease already installed.

3. Grease change
In most cases, it is not necessary to change or replenish the grease, but if the grease is changed after 20,000 hours of operation, the life will be prolonged.

4. Grease specification
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 unleaded grease installed before delivery)
Showa Shell Sekiyu K.K.: Alvania EP Grease R000
Nippon Oil Mitsubishi Co., Ltd.: Pyronoc Universal 000

6. Grease quantity

・Gear motor ・Gear motor with brake type ・Inline reducer ・Adapter-type reducer		
Motor output	Reduction ratio	Grease quantity kg
0.1 kW (100W)	1/10~1/50	0.14
	1/5・1/60~1/200	0.3
	1/300~1/450	0.5+(0.35)
	1/600~1/1200	1.1+(0.35)
0.2 kW (200W)	1/10~1/25	0.14
	1/5・1/30~1/75	0.3
	1/100~1/200	0.5
	1/300~1/450	1.1+(0.6)
	1/600~1/1200	1.3+(0.6)
0.4 kW	1/5~1/25	0.3
	1/30~1/75	0.5
	1/100~1/200	1.1
	1/300~1/450	1.4+(0.8)
	1/600~1/1200	2.8+(0.8)
0.75 kW	1/5~1/25	0.5
	1/30~1/75	1.1
	1/100~1/200	1.3
	1/300~1/450	2.8+(1.0)
1.5 kW	1/5~1/30	1.3
	1/40~1/75	1.4
	1/100~1/200	2.8
2.2 kW	1/5~1/30	1.3
	1/40~1/75	2.8
	1/100~1/200	4.2
3.7 kW	1/5~1/30	2.8
	1/40・1/50	2.8
5.5 kW	1/5~1/30	3.3

CB gear motor		
Motor output	Reduction ratio	Grease quantity kg
0.1 kW (100W)	1/10~1/25	0.14
	1/5・1/30~1/75	0.3
	1/100~1/200	0.5
0.2 kW (200W)	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	2.8
	1/100~1/200	4.2
2.2 kW	1/5~1/30	1.3
	1/40~1/75	2.8
	1/100~1/200	4.2
3.7 kW	1/5~1/30	2.8
	1/40・1/50	2.8

Note) The values in parentheses under "Grease quantity" are for the 1st step speed reduction part of the 4-step speed reduction (1/300 to 1/1200).

7. 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 the use 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 failure, life expiration or other cause.

Gear Motor TA Series Installation

■Installation

1. Mounting direction

Because all the models employ grease lubrication, they can be mounted in any position: horizontal, vertical or inclined.

2. Ambient conditions

Installation place	Indoor place not exposed to dust or water
Ambient temperature	−20℃ to 40℃ (0℃ to 40℃ for CB gear motors)
Ambient 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

3. Bolt tightening

(1) Foot mount type

- Use a strong flat mounting surface that is not significantly affected by vibration during operation. After cleaning dirt and foreign matter from the mounting face, securely fasten the product with four bolts.
- When a none directly connected drive is employed or the product is started and stopped frequently, we recommend installing a stopper on the foot section.

(2) Face mount type

When installing a face mount type, please note the following in particular.

① Mounting

If the length of engagement of the mounting bolt and the female threads of the main body is short or the tightening torque is too high, the female threads of the main body will be damaged. If the tightening torque is too low, the bolts fastening the reducer may loosen durring operation.

② Mounting bolt

A) Use hexagon head bolts (JIS B1051, Strength 4.6) or hexagon socket bolts (JIS B1051, Strength 10.9).
B) Bolt length
Determine the bolt length based on <Thickness of mounting flange + Length of engagement of bolt > (shown in the table below).

Threaded portion of case	Length of engagement of bolt
M8-26mm	18 mm or more
M10-32mm	22 mm or more
M12-38mm	26 mm or more
M16-34mm	24 mm or more

③ Tightening torque

Tighten the bolt to the tightening torque shown in the table below.

Screw size	Hexagon head bolt		Hexagon socket bolt	
	N·m	{kgf·m}	N·m	{kgf·m}
M8	9.8～10.3	{1.0～1.05}	9.8～19.6	{1.0～ 2.0}
M10	19.6～20.6	{2.0～2.1 }	19.6～39.2	{2.0～ 4.0}
M12	34.3～36.6	{3.5～3.7 }	34.3～68.6	{3.5～ 7.0}
M16	84.3～88.2	{8.6～9.0 }	84.3～168.6	{8.6～17.2}

Note) When mounting an optional flange, be sure to use the bolts and washers that are included.

(3) Flange mount type

Securely fasten to the flange mounting plate.

Gear Motor TA Series Installation

■Coupling

1. For direct coupling

- When easy removal and safety are required, we recommend the compact and strong Tsubaki Roller Chain Coupling.
- When the product is used in places where lubrication is impossible, we recommend the Tsubaki Nylon Chain Coupling.
- When shaft misalignment or vibration is anticipated, we recommend the Tsubaki Neo-flex Coupling or Tsubaki Jaw-flex Coupling.

2. For parallel coupling

- We recommend a strong and safe roller chain transmission.

3. Notes on coupling

(1) Accurately aligning the coupling and shaft center will prolong the operating life of the reducer and shaft coupling.

(2) For roller chain transmissions, make sure that the reducer's shaft and the mating shaft are parallel and adjust the tension of the chain to eliminate slack.

4. Recommended couplings to be used for direct coupling to the output shaft

Motor output kW	Reduction ratio	Output shaft diameter mm	Recommended coupling		
			Roller chain coupling	Neo-flex coupling	Nylon chain coupling
0.1	1/5～1/50	18	CR4012-J	NF 303	CN411
	1/60～1/100	24	CR4014-J	NF 403	CN415
	1/120～1/200		CR4014-J	NF 503	CN611
	1/300	28	CR4014-J	NF 603	CN613
	1/360・1/450		CR4014-J	NF 603	CN617
	1/600・1/720	38	CR5016-J	NF 703	—
	1/1000・1/1200		CR5016-J	NF 804	—
0.2	1/5～1/25	18	CR4012-J	NF 303	CN411
	1/30～1/60	24	CR4014-J	NF 403	CN417
	1/75		CR4014-J	NF 503	CN419
	1/100・1/120	28	CR4014-J	NF 603	CN613
	1/165・1/200		CR4014-J	NF 603	CN617
	1/300・1/360	38	CR5016-J	NF 703	—
	1/450		CR5016-J	NF 804	—
	1/600	42	CR5018-J	NF 904	—
	1/720～1/1200		CR5018-J	NF 1004	—
0.4	1/5～1/25	24	CR4014-J	NF 403	CN416
	1/30～1/50	28	CR4014-J	NF 503	CN612
	1/60・1/75		CR4014-J	NF 603	CN615
	1/100・1/120	38	CR5016-J	NF 703	—
	1/165・1/200		CR5016-J	NF 804	—
	1/300	42	CR5018-J	NF 904	—
	1/360・1/450		CR5018-J	NF 1004	—
	1/600～1/1200	50	CR6018-J	—	—

Motor output kW	Reduction ratio	Output shaft diameter mm	Recommended coupling		
			Roller chain coupling	Neo-flex coupling	Nylon chain coupling
0.75	1/5～1/25	28	CR4014-J	NF 503	CN611
	1/30～1/50	38	CR5016-J	NF 603	CN618
	1/60・1/75		CR5016-J	NF 703	—
	1/100・1/120	42	CR5018-J	NF 804	—
	1/165・1/200		CR5018-J	NF 1004	—
	1/300～1/450	50	CR6018-J	—	—
1.5	1/5・1/10	38	CR5016-J	NF 503	CN614
	1/15・1/20		CR5016-J	NF 603	CN615
	1/25・1/30		CR5016-J	NF 703	—
	1/40・1/60	42	CR5018-J	NF 804	—
	1/75		CR5018-J	NF 904	—
	1/100	50	CR6018-J	NF 1004	—
	1/120・1/200		CR6018-J	—	—
2.2	1/5・1/15	42	CR5018-J	NF 603	CN616
	1/20・1/25		CR5018-J	NF 703	—
	1/30		CR5018-J	NF 804	—
	1/40・1/50	50	CR6018-J	NF 904	—
	1/60・1/75		CR6018-J	NF 1004	—
	1/100・1/200	63	CR6022-J	—	—
3.7	1/5・1/10	50	CR6018-J	NF 603	CN618
	1/15・1/20		CR6018-J	NF 804	—
	1/25・1/30		CR6018-J	NF 904	—
	1/40		CR6018-J	NF 1004	—
	1/50		CR6018-J	—	—
5.5	1/5・1/10	50	CR6018-J	NF 703	—
	1/15・1/20		CR6018-J	NF 904	—
	1/25・1/30		CR6018-J	NF 1004	—

5. Recommended roller chain and sprocket tooth numbers to be used for parallel coupling to output shafts

※Use the following sprocket sizes to prevent the overhang load applied to the output shaft from becoming too high.

Motor output kW	Reduction ratio	Output shaft diameter mm	Recommended roller chain and sprocket tooth numbers
0.1	1/5～1/50	18	RS 35-13T
	1/60～1/200	24	RS 40-14T
	1/300～1/450	28	RS 80-13T
	1/600～1/1200	38	RS100-14T
0.2	1/5～1/25	18	RS 40-13T
	1/30～1/75	24	RS 50-13T
	1/100～1/200	28	RS 60-13T
	1/300～1/450	38	RS100-15T
	1/600～1/1200	42	RS120-15T
0.4	1/5～1/25	24	RS 50-13T
	1/30～1/75	28	RS 60-13T
	1/100～1/200	38	RS 80-13T
	1/300～1/450	42	RS120-16T
	1/600～1/1200	50	RS160-16T
0.75	1/5～1/25	28	RS 60-13T
	1/30～1/75	38	RS 80-13T
	1/100～1/200	42	RS120-13T
	1/300～1/450	50	RS140-15T
1.5	1/5～1/30	38	RS 80-13T
	1/40～1/75	42	RS100-14T
	1/100～1/200	50	RS140-16T
2.2	1/5～1/30	42	RS100-13T
	1/40～1/75	50	RS120-13T
	1/100～1/200	63	RS160-16T
3.7	1/5～1/30	50	RS100-14T
	1/40・1/50		RS140-15T
5.5	1/5～1/30	50	RS120-15T

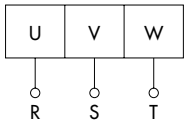
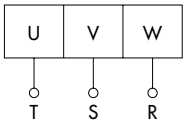
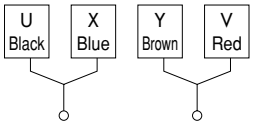
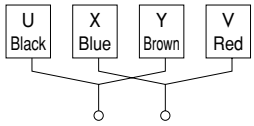
6. Recommended couplings to be used for direct coupling between input shafts of inline reducers and motors

Motor output kW	Input shaft diameter mm	Recommended coupling		
		Roller chain coupling	Nylon chain coupling	Jaw-flex coupling
0.1	12	CR3812	CN310	LO50-S
0.2	12	CR3812	CN310	LO50-S
0.4	14	CR3812	CN311	LO50-S
0.75	19	CR4012-J	CN315	LO70-S
1.5	22	CR4012-J	CN317	LO75-S
2.2	24	CR4014-J	CN317	LO75-S
3.7	28	CR4014-J	CN415	LO90-S
5.5	32	CR4016-J	CN417	LO99-S

Gear Motor TA Series Installation

■Wiring

1. Wiring of motors

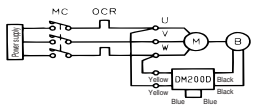
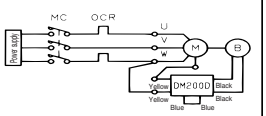
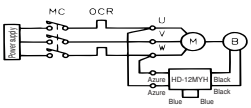
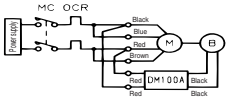
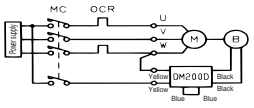
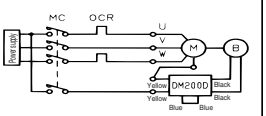
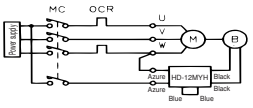
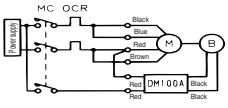
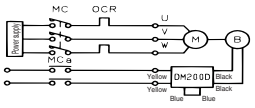
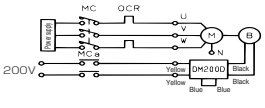
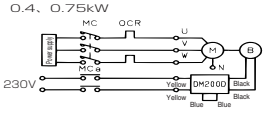
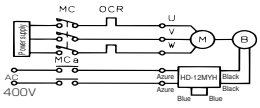
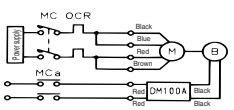
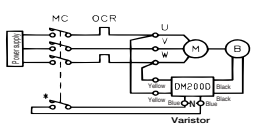
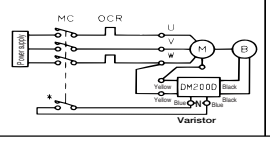
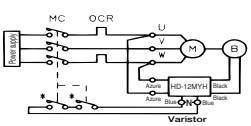
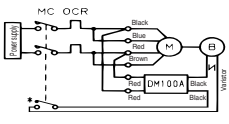
	Three-phase motor（0.1kW～5.5kW）		Single-phase motor（100W、200W）	
Connection				
Direction of rotation				

- The direction of rotation shown above is for two-step and 4-step reduction as viewed from the output shaft side.
  For three-step reduction, the direction of rotation is reversed.
  For the number of reduction steps, refer to the characteristics charts shown on the following pages.
  Gear motors: Pages 25 to 27
  Gear motors with brakes: Pages 25 to 27
  CB gear motors: Page 106 to 107
- For the three-phase motor, interchange any two of U, V and W to reverse the rotation direction.

2. Wiring of gear motors with brakes

- There are various methods for wiring the brake. While referring to the diagram below, select a wiring method suitable for your application.
  For further details, refer to the instruction manual included with the product.

■Wiring diagram

Application		Wiring method: Three-phase 200 V 0.1kW～5.5kW	Three-phase 400 V 0.1kW～0.75kW	Three-phase 400 V 1.5kW～3.7kW	Single-phase 100 V 100W～200W
AC internal wiring	•Normal use •Standard shipping specifications				
AC external wiring	•When you want 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		0.1、0.2kW  0.4、0.75kW 		
DC external wiring	•When stopping accuracy is required (For lift, etc.)				

Ⓜ : Motor, Ⓑ : Brake, MC: Electromagnetic contactor, MCa: Auxiliary relay, OCR: Overcurrent relay, ⊣⁄⊢: Protective element (varistor)
DM200D, HD-12MYH, HD100A: DC module (The three-phase 200 V 3.7 kW device is PM90B; the 5.5 kW device is PM180B.)
Notes:
1. Use an auxiliary relay with rated load of 250 V AC, 7A or more.
2. The contact capacity of the contacts marked with an asterisk in the DC external wiring diagram should be 250 V AC, 10A or more.
3. When performing AC external operation on the 0.1 kW-0.75 kW three-phase 400 V level motors, disconnect the N section with a closed end connection binder. Then be sure to insulate the N section. In this case, the necessary input power to the DC module is 200 V for 0.1 kW and 0.2 kW and 230 V for 0.4 kW and 0.75 kW. If a 200 V or 230 V power supply is not available, reduce the voltage to 200 V or 230 V using a transformer. (For the inverter motor type, the input power to the DC module should be 200 V). Use a transformer with the following capacity: (0.1 kW-0.2 kW: 60 VA or more, 0.4 kW-0.75 kW: 150 VA or more).
4. The contact capacity of the contacts marked with an asterisk in the DC external wiring diagram for 1.5 kW to 3.7 kW and 400 V should be 400 to 440 V AC: two (or three) contacts with an inductive load of 1A or more should be connected serially.
5. The DC module (DM200D, HD-12MYH) includes a protective element for absorbing surges.
6. Add a protective element for protecting contacts as necessary.

■Precautions for connecting a varistor when using DC external wiring

When DC external wiring is employed, the power supply module for the brake may be damaged depending on the length of the wiring, the method of wiring, the type of relay, etc. Therefore, connect a varistor between the terminals for DC external wiring.
Connecting it near the power supply module for the brake (to the blue lead wire section for the three-phase motor) will be more effective. The model number of the varistor to be used is as shown below.
The varistor voltage should be 470 V for DM100A and DM200D and 910 V for HD-12MYH.

Name of product	Name of maker	Model number	
		For DM100A、DM200D	For HD-12MYH
Surge absorber	Matsushita Electric Industrial Co., Ltd.	ERZV14D471	ERZV14D911
Set-Lap	Fuji Electric Co., Ltd.	ENC471D-14A	ENC911D-14A
Ceramic varistor	Marcon Electronics Co., Ltd.	TNR15G471K	TNR15G102K

■Inverter drive (when a standard motor is continuously inverter-driven)

At present, an inverter and gear motor are usually set up to perform speed control.
Because inverter driving enables soft starting, it is possible to prevent the reducer and transmission system from being damaged due to shock torque caused at the time of starting. To meet such needs, the Gear Motor TA Series is designed and manufactured to perform effectively over a wide frequency range.

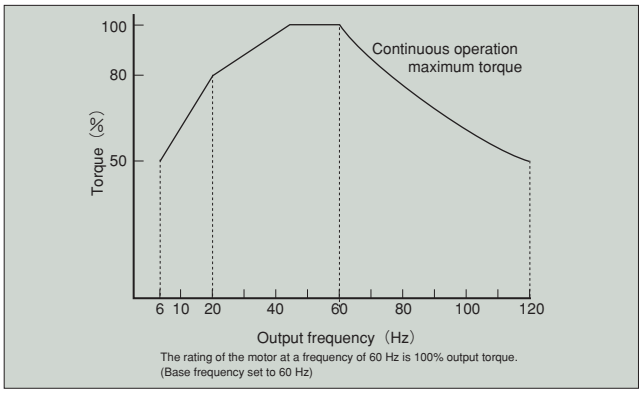
1. Frequency range

The maximum frequency is 120 Hz. At low frequencies (low speed), use within the inverter's allowable range.

2. Torque Specification

For the frequency and torque characteristics, refer to the figure below.

- 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 medium frequencies, almost constant torque characteristics are shown.
- At low frequencies, the temperature increases largely because the operating efficiency and cooling efficiency of the motor decrease. To prevent this, reduce the required torque as shown in the figure below.



3. Brake type

- Because the brake requires a fixed power supply (frequency, voltage), set up the brake circuit separately by referring to the wiring diagram on page 105. 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.
- At low frequencies, the heat-resistant life may be shortened due to a reduction in cooling performance. In such cases, minimize the time the brake is powered-on.

4. For CB gear motors

There may be cases where tripping is caused due to motor torque being generated instantaneously when the clutch is engaged. Therefore, the capacity of the inverter should generally be two to three times the capacity of the motor.

5. For single-phase motors and explosion-proof motors

Because the single-phase motor uses a centrifugal switch and condenser, it cannot be inverter-driven. For the explosion-proof motor, an inverter cannot be used because the explosion-proof verified power supply (frequency, voltage) is not satisfied.

6. Cautions

- Increased temperatures, noise and vibration result when compared with using a commercial power supply.
- In order to prevent the motor from overheating, use an electronic thermal relay adjusted to the general motor characteristics or provide a thermal relay, etc., between the inverter and motor.
- If you will inverter-drive a 400 V level unit, we recommend use of an inverter motor.
  There may be cases where high-voltage surges (micro surges) generated from switching of the inverter cause dielectric breakdowns. When the wiring length is long (20 m or more), dielectric breakdowns are likely to occur.
- When the base frequency is set to 50 Hz, the output torque should be 80% of that shown in the table above.

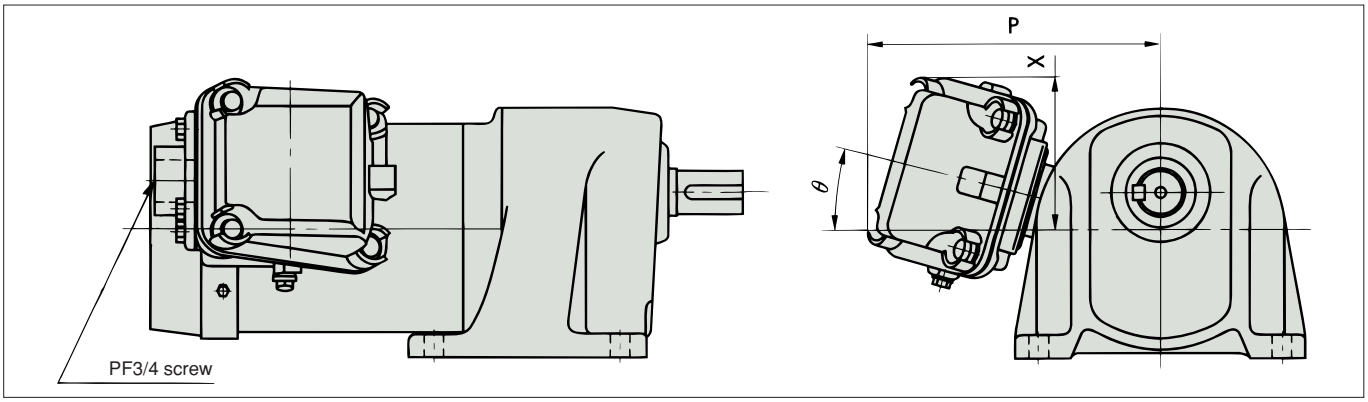
We also manufacture an inverter-motor-type gear motor and hypoid motor to which an inverter-ready motor is coupled directly. Running with 100% constant torque is possible even at low frequencies (6 Hz or more). For the 2.2 kW and 3.7 kW devices, reduction of torque is produced at frequencies of 10 Hz or less. For further datails, refer to pages 57 and 109.

Explosion-proof type specifications

(1) Model: Motor capacity…0.1 kW to 0.75 kW

(2) Explosion-proof level: eG3

(3) Dimensions



Motor output	Reduction ratio	P	X	θ°
0.1 kW	1/5~1/200	170	94	15
0.2 kW	1/300~1/1200	163	62	0
0.4 kW	1/5~1/200	179	96	15
	1/300~1/1200		61.5	15
0.75 kW	1/5~1/200	188	99	15
	1/300~1/450		57.5	15

Note 1)
The frame of the 0.1 kW motor is the same as that of the 0.2 kW motor.
Because the frame number of the reducer is also the same as that of the 0.2 kW motor, the 0.1 kW motor has the same appearance and dimensions as the 0.2 kW motor.
Note 2)
For the 0.1 kW and 0.2 kW motors, the orientation of the motors with a reduction ratio of 1/300 or more is turned 15 degrees counterclockwise as compared with that of motors with a reduction ratio of 1/200 or less, and therefore there is a difference in the dimension <P> between the former and the latter.
Note 3)
The dimension <X> represents the distance from the center of the motor.

Gear Motor TA Series Others

Special products

We manufacture special products in addition to our standard series. Please place orders for special products using the option code and the specification code as listed on page 56 and 57.
For example, the following specifications are available. For the meaning of model numbers, refer to pages 14 and 15.
①Outdoor motor type ②Special voltage motor type ③Inverter motor type
④Ready for CE marking (0.1 kW to 0.75 kW) ⑤One-touch brake manual release type ⑥Position of terminal box
⑦Paint color ⑧Encoder type ⑨Shock relay specification (described in the section for hypoid motors)
⑪Manual shaft type (0.1 kW-0.75 kW gear motors and hypoid motors)
In addition, steel plate fan covers, steel plate terminal boxes, lead wire lagging, etc. are available for 0.1 kW to 0.75 kW models; special variable voltage, hot-zone-passing processing, class B insulation, class F insulation, cold-resistant, and heat-resistant types, etc. are available for 0.1 kW to 5.5 kW models. Please contact us with any requests.

Special product specifications

■Ready for CE marking (0.1 kW to 0.75 kW)

Manufacturers are obliged to attach the CE marking to products conforming to the Directive on Product Safety (EU directive) from the European Union (EU), a system that ensures the free distribution and safety of products in the EU. For the Hypoid Motor TA Series and Gear Motor TA Series, brakeless-type and brake-type 200 V level and 400 V level motors conforming to the Directive on Machinery and the Directive on Low Voltage can be incorporated in products with short lead times.

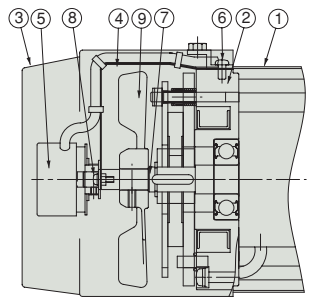
■Encoder type

It is possible to set a rotary encoder in the shaft end of the motor (brake-type) to take revolution signals from the reducer.
This is available for the 0.1 kW-2.2 kW gear motors and hypoid motors.

Features

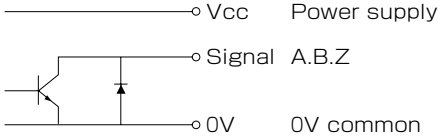
(1) Controllability Because open-collector signals can be taken from the reducer, various types of operation are possible.
(2) Compact It is not necessary to connect the motor shaft and rotary encoder by a coupling.
(3) Cost reduction Unlike the conventional separate component types, couplings, base plates and concerns for a level surface are not necessary.
(4) Quick delivery The rotary encoder type is now a semi-standard product allowing quick delivery.

Construction (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)

Encoder section specifications

Power supply voltage	DC10.8～26.4V
Pulse count	100 pulses
Output form	Open-collector output (NPN type) 6 pcs
Output circuit	 Vcc Power supply; Signal A.B.Z; 0V 0V common
Electric current consumption	60 mA or less
Output voltage	0.5 V or less (at the time of maximum incoming)
Maximum incoming current	20mA MAX
Signal rise/fall time	1μS or less
Maximum response frequency	200kHz
Output circuit resistance	50V MAX
Cable length	0.5m
Vibration	4.9m/s² {0.5G} or less (20～50Hz)

Actual reduction ratio of reducer

For the actual reduction ratio of hypoid and gear motors, refer to their specification charts.

Wiring diagram

Color	Connection
Red	Power supply
Black	0 V common
Green or blue	Signal A
White	Signal B
Yellow	Signal Z
Shield	NC

Dimensions

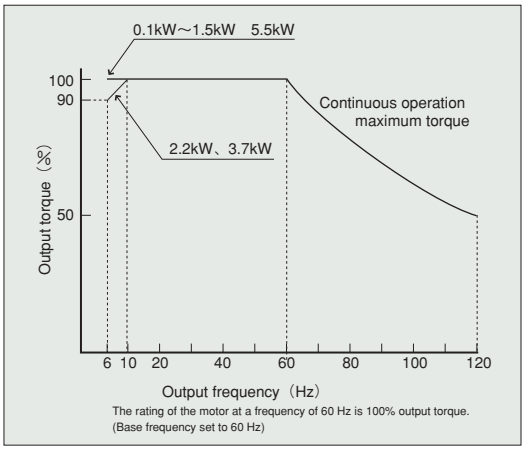
The connection dimensions are the same as the for the brake-type standard product.
Only the length is increased, as shown in the table below, because the motor fan cover is extended.

Motor output kw	Fan cover extension mm
0.1	61
0.2、0.4	45
0.75	43
1.5	37
2.2	37

■Inverter motor type

(Optimum for inverter driving)

Output torque characteristics



Quick-delivery made-to-order product

★Exactly the same size as the standard product
★Quick delivery time of one week
★Low price

An inverter-ready motor optimum for inverter driving is coupled directly.

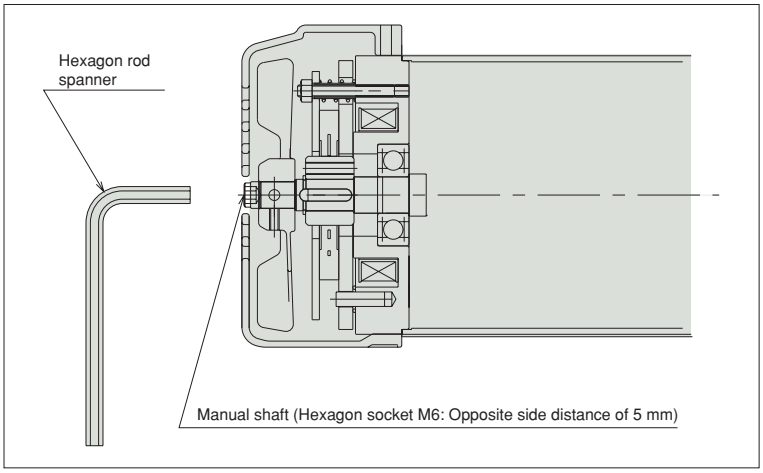
At frequencies of 6 to 60 Hz, constant-torque running at a level equal to that available at 60 Hz is possible.

For the 2.2 kW and 3.7 kW devices, reduction of torque is produced at frequencies of 10 Hz or less. (90% torque at a frequency of 6 Hz.)

- At frequencies of 60 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.
- 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 adjusted to the general motor characteristics or provide a thermal relay, etc., between the inverter and motor.
- For the brake-types, refer to the wiring diagram on page 63. If braking is performed at high frequencies above 60 Hz, mechanical damage or excessive wear on the lining of the brake may be caused. Therefore, be sure to perform braking at frequencies of 60 Hz or less.

■Manual shaft type

This is available for the brake-type 0.1 kW-0.75 kW gear motors and hypoid motors.



Using a commercially available hexagon rod spanner, 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.