

GEARED MOTOR (GE Series)

Features

- Compact and lightweight
Small-sized motor is for geared motor use only.
- Quietness
Two-piece body case improves the accuracy of process and assembly, and also reduces gear meshing noise.
Fan cover made of vibration damping steel lowers noise.
Fan lining and movable iron core made of vibration damping steel are also used in geared motor.
- Flexible mounting direction
- High-performance grease

Features

Nominal Type

Main specifications

Model Number

Output shaft end tapping dimensions

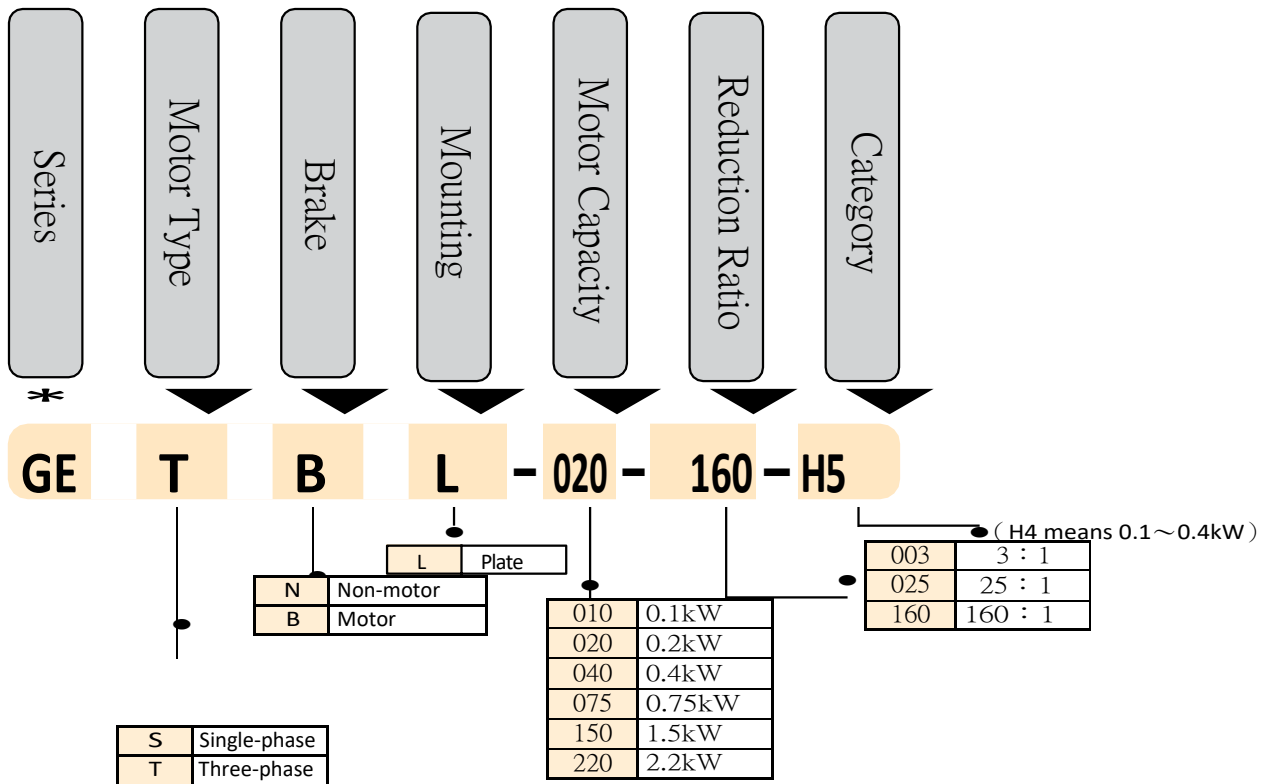
Selecting method

Rated Transmission Capacities

Main Specification of Brake/Terminal Box

Structure of Brake

Nominal Type



Main Specifications

Standard

Items	Specifications
Protective structure	Indoor Type
Voltage/Frequency	Single-phase (100V 50/60Hz) Three-phase (200/200/220V 50/60/60Hz)
Number of poles	4P
Rated	Continuous
Insulation	E Type (0.1~0.4kW) B Type (0.75~2.2kW)
Brake type	DC spring braking type (built-in power supply · unable to release manually) (manual release lever is available as option)
Torque of brake	Over 150% (50Hz motor rated torque) · (0.1kW is 300%)
Method of lubricating	Grease (geared motor is filled with grease at our factory)
Grease	JXTG Energy PIRNOC UNIVERSAL-000 (Extreme pressure additive urethane type)
Method of lead wire	Terminal box · Terminal block (mounted on the left side when viewed from the output shaft)
Ambient temperature	-15~40°C (no condensation)
Temperature rise limit	Ambient temperature +75°C (0.1~0.4kW) +80°C (0.75~2.2kW)
Paint color	P13-747 (Munsell 5B7/6) Light sky blue
Accessories	Output shaft · shaft end key (JIS B 1301-1996)
Output shaft	Shaft end tapping
Power supply	Half-wave rectification fast-cut surge absorption type (built into the terminal box)

Standard

Items	Specifications
Protective structure	Outdoor type (Not available for single phase)
Voltage/Frequency	Single phase (200V 50/60Hz) Three-phase (400V Class 50Hz 400V Class 60Hz)
Inverter	For inverter drive only (0.4kW)
Brake torque	Higher than 100% (50Hz)
Mounting method of terminal box	Right side when viewed from the output shaft
Manual release tool	Manual release lever

Geared motor dedicated to inverter drive

Items	Specifications
Motor capacity kW	0.4
Motor Type	Three-phase motor
Number of poles	4
Protection method	Totally enclosed fan cooled
Power	200/220V 60/60 Hz · 400/440V 60/60 Hz
Insulation type	B
Temperature rise limit	Ambient temperature + 80°C

※Inverter constant torque motor is standard for motor of which capacity is higher than 0.75kW.

Model number · Output shaft end tapping dimensions

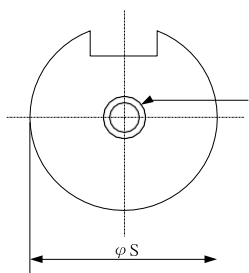


Model number

Output RPM				50Hz	500	300	150	100	75	60	50	37.5	30	25	18.8	15	12.5	9.4	7.5	
				60Hz	600	360	180	120	90	72	60	45	36	30	22.5	18	15	11.3	9	
Model	Motor capacity kW	Phase	Starting or Cooling method	Nominal reduction ratio																
				3	5	10	15	20	25	30	40	50	60	80	100	120	160	200		
Plate	0.1	Single	Split phase and totally enclosed fan cooled	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.2		Capacitor-start/capacitor run totally enclosed fan cooled	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.4			o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.1	Three	Directly insert/totally enclosed self-cooling	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.2			o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.4			o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.75		Directly insert/totally enclosed	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
	1.5			o	o	o	o	o	o	o	o	o	o	o	o	o	-	-	-	-
2.2		o	o	o	o	o	o	o	o	o	o	o	-	-	-	-	-	-		
Brake & Plate	0.1	Single	Split phase and totally enclosed fan cooled	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.2		Capacitor-start/capacitor run totally enclosed fan cooled	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.4			o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.1	Three	Directly insert and totally enclosed self-cooling	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.2			o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.4			o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
	0.75		Directly insert/totally enclosed self-cooling	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
	1.5			o	o	o	o	o	o	o	o	o	o	o	o	o	-	-	-	-
2.2		o	o	o	o	o	o	o	o	o	o	o	-	-	-	-	-	-		

Geared motor

Output shaft end tapping dimensions



output shaft end tapping dimensions

Motor output kW	Reduction ratio	Output shaft diameter ϕS_{mm}	Tapping dimension	Tapping depth
0.1	3~50	16	M6	10
	60~100	19	M6	10
	120~200	22	M8	12
0.2	3~30	16	M6	10
	40~50	19	M6	10
	60~100	22	M8	12
	120~200	28	M8	12
0.4	3~30	19	M6	10
	40~50	22	M8	12
	60~100	28	M8	12
	120~200	32	M8	12
0.75	3~30	22	M8	12
	40~50	28	M8	12
	60~100	32	M8	12
	120~200	40	M8	12
1.5	3~30	32	M8	12
	40~50	32	M8	12
	60~100	40	M8	12
2.2	3~30	32	M8	12
	40~50	40	M8	12

Selecting method

How to select?

1) Load coefficient

Select the load coefficient from the table according to the operating conditions, such as type of load, operating time, frequency of start/stop and whether or not load fluctuates dramatically. And then calculate the equivalent input capacity or output capacity.

2) Overhung load

2-1) What is Overhung load (OHL)?

OHL is the load which acts on the output shaft vertically. It must be considered to select a speed reducer.

Normally, OHL is the result of dividing load torque by radius of the rotating object, such as sprocket, pulley and so on.

2-2) Calculation of equivalent allowable OHL

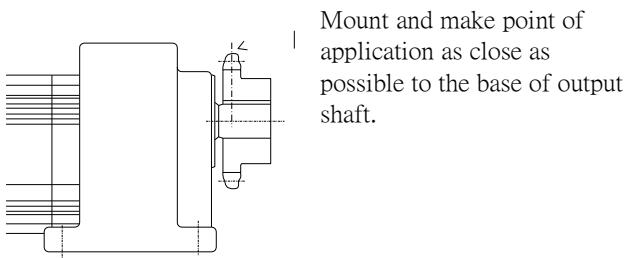
Value in the equivalent allowable OHL table is calculated only when point of application is the center of output shaft.

If point of application is not the center, value in this table shall not be applied. Please calculate the equivalent allowable OHL by applying the formular and table which is available in the selection procedure.

2-3) Load coefficient

If the reducer drives the driven machine indirectly, load coefficient will be different depending on the elements of connection. Please apply the load coefficient in the attached table.

$$\text{Correction radial load} = \text{Allowable radial load} \times \frac{\text{Point of application correction coefficient}}{\text{Correction factor (driving force method)}}$$

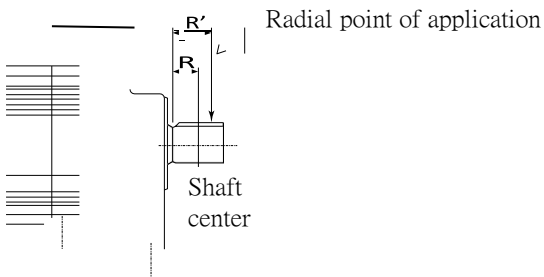


R'/R	Correction coefficient
0.75	1.08
1.0	1.0
1.25	0.9
1.5	0.8

Correction factor (driving force method)

Driving method	Correction coefficient
Single row chain	1.0
Multiple row chain	1.25
V belt	1.5
Flat belt	2.5
Gear	1.25

OHL point of application



Rated Transmission Capacities



Output shaft allowable Torque/ OHL

Motor capacity kW	Output shaft (RPM)		Nominal Reduction Ratio	Actual Reduction Ratio	Output shaft allowable Torque (N · m)		Output shaft allowable OHL (N)	Output shaft allowable Thrust Load (N)
	50Hz	60Hz			50Hz	60Hz		
0.1	500.0	600.0	3	3.05	1.7	1.5	690	3
	300.0	360.0	5	4.90	2.9	2.5	690	4
	150.0	180.0	10	9.93	5.9	4.9	690	8
	100.0	120.0	15	14.81	8.8	7.4	735	13
	75.0	90.0	20	20.08	11.3	9.5	1030	17
	60.0	72.0	25	23.85	14.2	11.8	1180	21
	50.0	60.0	30	28.88	17.2	14.2	1180	25
	37.5	45.0	40	37.92	22.6	19.1	1230	25
	30.0	36.0	50	47.32	27.5	23.5	1280	25
	25.0	30.0	60	58.98	33.4	27.5	1620	30
	18.8	22.5	80	80.05	45.1	37.2	1670	30
	15.0	18.0	100	95.44	55.9	47.1	1720	30
	12.5	15.0	120	114.05	66.8	55.9	2350	60
	9.4	11.3	160	151.67	90.3	75.5	2350	60
7.5	9.0	200	168.76	112.0	94.2	2350	60	
0.2	500.0	600.0	3	3.05	3.5	2.9	690	3
	300.0	360.0	5	4.90	5.9	4.9	690	4
	150.0	180.0	10	9.93	11.8	9.8	690	8
	100.0	120.0	15	14.81	17.7	14.7	880	13
	75.0	90.0	20	20.08	23.5	19.6	1180	17
	60.0	72.0	25	23.85	29.4	24.5	1180	21
	50.0	60.0	30	28.88	33.4	29.4	1230	25
	37.5	45.0	40	41.07	43.2	39.2	1570	30
	30.0	36.0	50	48.96	58.9	49.1	1620	30
	25.0	30.0	60	60.54	68.7	57.9	2350	50
	18.8	22.5	80	80.50	92.2	76.5	2350	50
	15.0	18.0	100	89.57	115.0	95.2	2350	50
	12.5	15.0	120	112.29	138.0	116.0	2650	50
	9.4	11.3	160	148.08	183.0	153.0	2700	50
7.5	9.0	200	182.78	230.0	191.0	2750	50	
0.4	500.0	600.0	3	2.93	6.7	5.6	690	3
	300.0	360.0	5	5.03	12.8	10.3	690	5
	150.0	180.0	10	9.80	24.5	20.6	1370	10
	100.0	120.0	15	14.44	36.3	30.4	1470	15
	75.0	90.0	20	19.60	48.1	40.2	1570	20
	60.0	72.0	25	25.73	60.8	50.0	1620	25
	50.0	60.0	30	28.51	69.7	60.8	1770	30
	37.5	45.0	40	38.89	94.2	78.5	2350	50
	30.0	36.0	50	44.12	119.0	99.1	2350	50
	25.0	30.0	60	61.95	140.0	118.0	2550	50
	18.8	22.5	80	81.69	187.0	156.0	2650	50
	15.0	18.0	100	100.84	234.0	195.0	2750	50
	12.5	15.0	120	112.93	284.0	236.0	2920	70
	9.4	11.3	160	154.00	375.0	313.0	3920	70
7.5	9.0	200	192.40	471.0	392.0	3920	70	

Rated Transmission Capacities

Output shaft allowable Torque/ OHL

Motor capacity kW	Output shaft (RPM)		Nominal Reduction Ratio	Actual Reduction Ratio	Output shaft allowable Torque (N · m)		Output shaft allowable OHL (N)	Output shaft allowable Thrust Load (N)
	50Hz	60Hz			50Hz	60Hz		
0.75	500.0	600.0	3	2.88	14.0	11.0	980	5
	300.0	360.0	5	4.86	23.5	19.6	980	8
	150.0	180.0	10	10.00	47.1	39.2	1470	17
	100.0	120.0	15	14.54	69.7	57.9	1570	25
	75.0	90.0	20	19.44	92.2	76.5	1770	33
	60.0	72.0	25	22.95	115.0	95.2	1960	42
	50.0	60.0	30	30.60	133.0	114.0	2160	50
	37.5	45.0	40	37.15	180.0	149.0	2650	50
	30.0	36.0	50	45.86	223.0	185.0	2750	50
	25.0	30.0	60	55.82	273.0	228.0	3920	70
	18.8	22.5	80	76.12	351.0	299.0	3920	70
	15.0	18.0	100	95.11	439.0	366.0	3920	70
	12.5	15.0	120	113.20	541.0	476.0	6670	120
	9.4	11.3	160	157.42	703.0	586.0	6970	120
7.5	9.0	200	174.91	770.0	741.0	7060	120	
1.5	500.0	600.0	3	2.96	27.0	22.0	1960	7
	300.0	360.0	5	4.93	46.1	38.3	1960	12
	150.0	180.0	10	9.57	92.2	76.5	2450	23
	100.0	120.0	15	14.49	140.0	117.0	2940	35
	75.0	90.0	20	20.31	186.0	155.0	3430	47
	60.0	72.0	25	24.80	230.0	193.0	4220	58
	50.0	60.0	30	27.72	273.0	227.0	4900	70
	37.5	45.0	40	39.27	362.0	301.0	3920	70
	30.0	36.0	50	49.07	447.0	373.0	3920	70
	25.0	30.0	60	58.42	538.0	439.0	5890	120
	18.8	22.5	80	81.24	711.0	594.0	6180	120
	15.0	18.0	100	90.27	770.0	744.0	6380	120
2.2	500.0	600.0	3	2.96	39.0	33.0	2160	7
	300.0	360.0	5	4.89	68.7	56.9	2160	12
	150.0	180.0	10	9.57	137.0	115.0	3140	23
	100.0	120.0	15	14.71	204.0	170.0	2530	35
	75.0	90.0	20	18.93	278.0	231.0	3830	47
	60.0	72.0	25	25.45	333.0	278.0	4120	58
	50.0	60.0	30	28.50	399.0	333.0	4410	70
	37.5	45.0	40	41.91	523.0	437.0	6970	120
	30.0	36.0	50	46.57	668.0	556.0	7060	120

※ RPM in this table is NOT actual RPM. It will be affected by motor slip and actual reduction ratio.

Main specifications of brake / Terminal box

Main specifications of brake

Motor Capacity kW	Rated braking Torque			Approximate brake coil current (A)		
	N · m	50Hz (%)	60Hz (%)	200V 50Hz	200V 60Hz	220V 60Hz
0.1	1.91	300	360	0.16	0.16	0.17
0.2	1.91	150	180	0.16	0.16	0.17
0.4	3.82	150	180	0.27	0.27	0.30
0.75	7.16	150	180	0.27	0.27	0.30
1.5	14.30	150	180	0.42	0.42	0.46
2.2	21.0	150	180	0.42	0.42	0.46

Cautions:

There is a red insulated crimp terminal on the brake lead wire. Be careful and do not mistake it for motor lead wire while connecting.

- 1) If inverter or input power control is necessary, connect brake to the power side (separate circuit).
- 2) If Voltage is higher than 400V, connection protection and resistors which can reduce surge voltage are necessary for 1.5kW and 2. 2kW.Braking lag may be slightly longer than the others.
- 3) Braking lag could be affected by specifications of load and brake torque.
- 4) If a condenser which can improve the power factor is inserted into the motor circuit, a separate circuit is MUST.
(Do NOT insert the condenser when inverter is still running.)
Select turn-off contact point by the electric current of DC200V/DC11.

Resistor

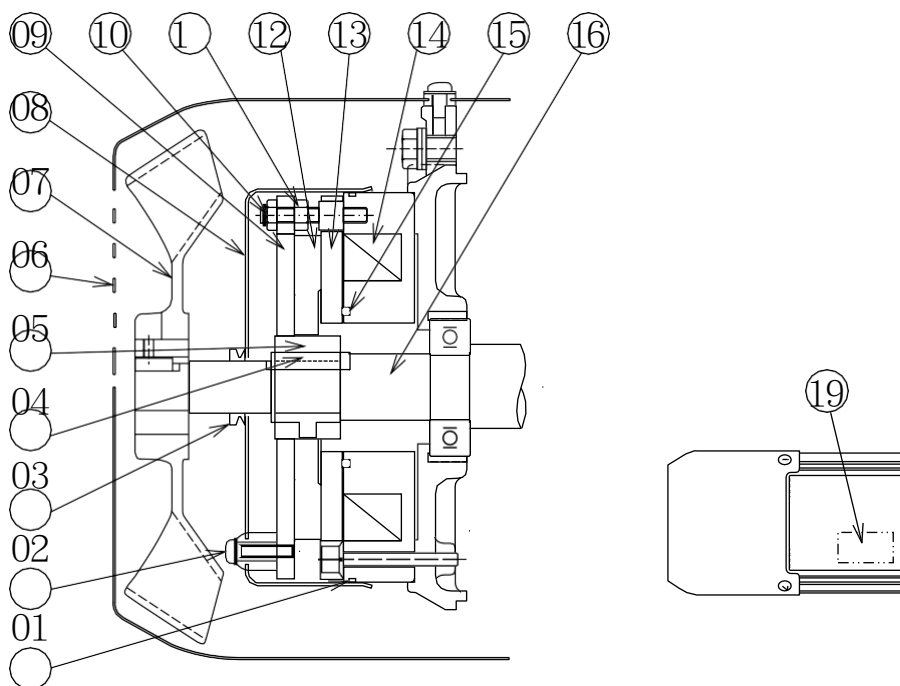
Motor output kW	Resistor specifications
1.5 ~ 2.2	3.5kΩ 40W

Terminal box

0.1 ~ 0.4kW Non brake	0.1 ~ 0.4kW Brake
<p>0.1 ~ 0.4kW Non brake</p>	<p>0.1 ~ 0.4kW Brake</p>
0.75 ~ 2.2kW Non brake	0.75 ~ 2.2kW Brake
<p>0.75 ~ 2.2kW Non brake</p>	<p>0.75 ~ 2.2kW Brake</p>

Features and structure of brake

1. Low noise
Brake cover and O-ring significantly reduces brake's noise (release and drive)
2. Built-in power supply
Surge absorber is built in the power supply. This reduces the surge of fast-cut and allows the use of auxiliary contact.
3. Easy connection
The adoption of 6 or 7 terminals makes it easy to connect. It also reduces the necessary of aerial wiring at the time of fast-cut of inverter. (0.1~2.2kW)
4. Long-life
Two-sided control improves the efficiency of brake and keeps brake stable, powerful and long-life.
5. Safety brake
Non-excitation braking (spring braking) method ensures safety.
6. Non asbestos
Brake lining is non asbestos.
7. Clean
Totally enclosed structure keeps the environment clean by scattering friction particle of brake lining.



Geared motor

Item	Part name	Item	Part name	Item	Part name
1	O-Ring	8	Brake cover	15	O-Ring
2	Pan head machine screw with cross hole	9	Support plate	16	Motor shaft
3	V-Ring (Outdoor Type only)	10	Hexagon nut	19	Power supply (0.1~2.2kW)
4	Key	11	Stop nut		
5	Brake hub	12	Brake lining		
6	Fan cover	13	Movable iron core		
7	Fan	14	Fixed iron core		

●Dimension of manual release lever

Out put	Dimension (mm)	
	L1	L2
0.1kW	53	78.5
0.2kW	31	
0.4kW		
0.75kW	56.5	108.5
1.5kW	37.5	
2.2kW	48	123.5

(Remark) The other dimensions are as same as the standard ones.

External view

