Hitachi Gear Motors
Applicable for various purposes
because of compactness and powerfulness
Meet various needs as power sources for FA. Leave anything about gear motors to Hitachi.

**CA Series**
Compact type suitable to light impact loads

- Small size and light weight
- Low noise
- Employment of double seal

- Output range: 0.1kW ~ 2.2kW
- For light impact loads
  Suitable to constant operation where less impact loads are applied.

**Examples of application**
- Food conveyor
- Small package conveyor
- Seat shutter
- Workpiece feeder for plane
- Conveyor for metal detector
- Parking garage

**GA Series**
Basic model to meet various needs

- Low noise
- Long life
- Employment of double seal

- Output range: 0.4kW ~ 11kW
- For medium loads
  Suitable to medium
  Can operate at least constant load or light
  10 hours/day when a impact loads are applied.

**Examples of application**
- General-purpose conveyor
- Metal working machine
- Machine tool (General)
- Machine for feed plant

**RA Series**
Hollow shaft construction

- Compact and various installation
- Double seal structure is employed as the same as CA and GA Series.

- Output range: 0.1kW ~ 1.5kW
- For light impact loads
  Suitable to constant operation where less impact loads are applied.

**Examples of application**
- Conveyor
- Machine tool (General)
  Especially for the part in less space
**List of models**

- **CA, GA and RA Series**
  - **CA Series**
    - **CA series** 3-phase
      - Installation by legs
        - Without brake: 0.1, 0.2, 0.4 kW
        - With brake: 0.75 kW, 1.5 kW, 2.2 kW
  - **GA Series**
    - **GA series** 3-phase
      - Installation by flange
        - Without brake: 0.75 kW, 1.5 kW, 2.2 kW
        - With brake: 0.1, 0.2, 0.4 kW
  - **RA Series**
    - **RA series** 3-phase
      - Hollow shaft
        - Installation by flange
          - Without brake: 0.75 kW, 1.5 kW, 2.2 kW
          - With brake: 0.1, 0.2, 0.4 kW

(Note) A brake cannot be built in a motor of output enclosed in ( ).

**How to read model symbols**

- **CA Series** 0.2 kW, 1/30, horizontal type, with brake
  - CA19-020-30B

**Series name**
- CA: CA Series
- GA: GA Series
- RA: RA Series

**Installation method**
- No letter: Horizontal installation by legs
- V: Vertical installation (by flange)

**Motor output**
- 0.1 kW: 010
- 0.2 kW: 020
- 0.3 kW: 030
- 0.4 kW: 040
- 0.75 kW: 075
- 1.5 kW: 150
- 2.2 kW: 220
- 3.7 kW: 370
- 5.5 kW: 550
- 7.5 kW: 750
- 11 kW: 11K

**Shaft diameter**
- φ 19: 19
- φ 24: 24
- φ 28: 28
- φ 32: 32
- φ 38: 38
- φ 42: 42
- φ 48: 48
- φ 55: 55
- φ 60: 60
- φ 70: 70

**Rough reduction ratio**
- 1/120: 1.15
- 1/100: 1.10
- 1/80: 1.05
- 1/75: 1.00
- 1/60: 1.00
- 1/50: 1.00
- 1/45: 1.00
- 1/40: 1.00
- 1/30: 1.00
- 1/25: 1.00
- 1/20: 1.00
- 1/15: 1.00
- 1/10: 1.00
- 1/8: 1.00

**Auxiliary symbol**
- B: With brake
- T: Single-phase motor
- A: Outdoor type
- X: Increased safety explosion-proof type
- XA: Increased safety explosion-proof outdoor type

**Contents**
- Main Features 5, 6
- CA Series Technical data 7, 8
- GA Series Technical data 9, 10
- RA Series Technical data 11
The impact of compactness for expanding needs.
The CA Series is born.

Gear motors are employed in various fields such as food, agriculture, flour milling, feed, as well as Conveyor machinery.
The scope of the application of the gear motors is still expanding and their importance is heightened more and more.
Hitachi meets the expanding needs and works to develop smaller, lighter, quieter, and cleaner gear motors with the technologies and know-how which Hitachi accumulated for long years.
The GX Jr Series low-output gear motors and GX Series gear motors for even loads were reborn as a new CA Series.
Hitachi Gear Motors, CA Series, have the toughness and easy operation design of the CX Series and are cleaner and more compact.
As the power sources of various machines, they can contribute to the creation of more comfortable working environments.

Structure and strong points

- Prevention of deterioration
- Double seal
- Special grease for lip: Clean special grease maintains the function of the oil seal for a long time.

Reduction of weight and volume by about 20% (compared with our former models)
The size of the gear reducer unit is reduced with the latest heat treatment technology for the gears. The aluminum alloy frames, "THE MOTORS" are employed for the models of 0.2kW and larger to reduce both weight and volume by about 20% without reducing the toughness of the former CX Series.
The weight and size of each model in this series are reduced largely.

Compact size despite its large power
High performance gear trains, high-class bearings, optimum design criteria, the short leg distance and the terminal box on the top of the motor all make it possible to minimize the installation space.

Wide lineup of 588 models
The models having reduction ratios from 1/1,150 to 1/280 have been added. As a result, the wide lineup of 588 models having reduction ratios from 1/1,150 to 1/5 is prepared to meet various needs in wide fields.

Noise reduced with the latest technologies
The working sound of the gears is reduced by improving the actual working ratio with the optimum gear design realized with the computer analysis technology and by employing the unique precision tooth surface finishing technology. The models of this series contribute to quiet environment.

Employment of grease lubrication for all models
Grease lubrication is employed for the all models of CA Series, from 0.1kW model to 2.2kW model. Accordingly, these models can be installed in any direction.

New simple and compact designs of gear reducers
As the sizes of the gears, etc. are reduced, simple and novel designs are applied to the gear reducers.

Employment of new installation dimensions
The installation dimensions of the legs and the shaft diameters are different from those of the former models.
CA Series (0.1kW ~ 2.2kW)

Compact type suitable to various machines which need light impact loads and small size of motors.

### Standard specifications table

#### Single-phase motors

<table>
<thead>
<tr>
<th>Item</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>0.1~0.4kW</td>
</tr>
<tr>
<td>Number of pole</td>
<td>4</td>
</tr>
<tr>
<td>Motor</td>
<td>Open drip proof type</td>
</tr>
<tr>
<td>Installation method</td>
<td>Vertical type (installation by flange)</td>
</tr>
<tr>
<td>Installation rating</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
<td>0.1~0.4kW Totally enclosed fan-cooled type</td>
</tr>
<tr>
<td>Number of pole</td>
<td>4</td>
</tr>
<tr>
<td>Installation method</td>
<td>Vertical type (installation by flange)</td>
</tr>
<tr>
<td>Installation rating</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

#### Three-phase motors

<table>
<thead>
<tr>
<th>Item</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>0.1~0.3kW</td>
</tr>
<tr>
<td>Number of pole</td>
<td>5</td>
</tr>
<tr>
<td>Motor</td>
<td>0.3~2.2kW Totally enclosed fan-cooled type</td>
</tr>
<tr>
<td>Installation method</td>
<td>Vertical type (installation by flange)</td>
</tr>
<tr>
<td>Installation rating</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
<td>0.3~2.2kW Totally enclosed fan-cooled type</td>
</tr>
<tr>
<td>Number of pole</td>
<td>5</td>
</tr>
<tr>
<td>Installation method</td>
<td>Vertical type (installation by flange)</td>
</tr>
<tr>
<td>Installation rating</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

### Terminal box

<table>
<thead>
<tr>
<th>kW</th>
<th>Without brake</th>
<th>With brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1~0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.75~1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Gear motors with brakes

#### Standard specifications of brake unit (Non-excitation brake type)

<table>
<thead>
<tr>
<th>Item</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer case</td>
<td>0.1<del>0.2kW Totally enclosed type, 0.4</del>2.2kW Open type</td>
</tr>
<tr>
<td>Braking method</td>
<td>Non-excitation Brake type (OFF brakes)</td>
</tr>
<tr>
<td>Class of installation</td>
<td>Class B</td>
</tr>
<tr>
<td>Brake unit</td>
<td>Button switch box</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>−20~+40°C</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>Must be installed below 85% humidity and must be free from corrosive or explosive gas or vapor.</td>
</tr>
</tbody>
</table>

#### Brake specifications table

<table>
<thead>
<tr>
<th>Motor (kW)</th>
<th>Type of brake</th>
<th>Max. cruising torque (N·m)</th>
<th>Max. braking power (W)</th>
<th>Life of braking J (m·kg)</th>
<th>Lag time in braking (s)</th>
<th>Electromagnetic brake (N)</th>
<th>Ecert. value</th>
<th>300V class</th>
<th>400V class</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>MS+HBC</td>
<td>1.0 (11)</td>
<td>57.3 (43)</td>
<td>4.3 (3.5)</td>
<td>0.15~0.2</td>
<td>0.01~0.35</td>
<td>0.5</td>
<td>BS-01A</td>
<td>BS-01A</td>
</tr>
<tr>
<td>0.2</td>
<td>MS+HBC</td>
<td>2.0 (21)</td>
<td>71.3 (46)</td>
<td>4.3 (3.5)</td>
<td>0.15~0.2</td>
<td>0.01~0.35</td>
<td>0.5</td>
<td>BS-01A</td>
<td>BS-01A</td>
</tr>
<tr>
<td>0.4</td>
<td>MS+HBC</td>
<td>4.0 (41)</td>
<td>90.3 (60)</td>
<td>4.3 (3.5)</td>
<td>0.15~0.2</td>
<td>0.01~0.35</td>
<td>0.5</td>
<td>BS-01A</td>
<td>BS-01A</td>
</tr>
<tr>
<td>0.75</td>
<td>MS+HBD</td>
<td>7.0 (77)</td>
<td>96.3 (63)</td>
<td>4.3 (3.5)</td>
<td>0.15~0.2</td>
<td>0.01~0.35</td>
<td>0.5</td>
<td>BS-01</td>
<td>BS-01</td>
</tr>
<tr>
<td>1.5</td>
<td>MS+HBD</td>
<td>15.0 (150)</td>
<td>164.0 (80)</td>
<td>4.3 (3.5)</td>
<td>0.15~0.2</td>
<td>0.01~0.35</td>
<td>0.5</td>
<td>BS-01</td>
<td>BS-01</td>
</tr>
<tr>
<td>2.2</td>
<td>MS+HBD</td>
<td>22.0 (220)</td>
<td>114.0 (60)</td>
<td>4.3 (3.5)</td>
<td>0.15~0.2</td>
<td>0.01~0.35</td>
<td>0.5</td>
<td>BS-01</td>
<td>BS-01</td>
</tr>
</tbody>
</table>

### Structure of brake

#### For 0.1~0.2kW

![structure_diagram_0_1_0_2kw]

#### For 0.4kW and 1.5kW

![structure_diagram_0_4_1_5kw]

#### For 0.75kW and 2.2kW

![structure_diagram_0_75_2_2kw]
GA Series (0.4kW ~ 11kW)

A new concept in lightness, introducing the GA Series that employs the aluminum alloy frame "The Motor."

- **Features**
  - Large reduction in size and weight
  - Prevention of oil leakage by oil slinger (11kW)
  - Employment of high-performance gear and reinforced frame

Enriched series with new models

The new models having reduction ratios of 1/3, 1/40, and 1/50 are added to GA Series. You can select the best one for each purpose.

Enriched series with new models

Structural drawing of models lubricated with oil (Example: G470-11K-30)

- **Standard specifications table**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of phase</td>
<td>Three-phase</td>
</tr>
<tr>
<td>Brake power</td>
<td>0.4~2.2kW</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>40°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>Max. 90%RH</td>
</tr>
<tr>
<td>Paint color</td>
<td>Regal gray (Mitsubishi B-8Y5-103)</td>
</tr>
</tbody>
</table>

- **Terminal box**

- **Structural drawing**

MS-HBA brake

MS-FA brake

GA Series gear motors with brakes (0.4kW ~ 11kW)

- **Features**
  - Small size
  - Easy releasing of brake
  - Easy wiring of brake

Easy releasing of brake

Equipped with the manual releasing function which is convenient for positioning, etc. (0.4~1.5kW with MS-FA brake)

Easy wiring of brake

The rectification unit is installed in the terminal box. The motor unit and rectification unit are of terminal block type for the ease of wiring.

- **Standard specifications table of brake unit**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of phase</td>
<td>Three-phase</td>
</tr>
<tr>
<td>Brake power</td>
<td>0.4~2.2kW</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>40°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>Max. 90%RH</td>
</tr>
<tr>
<td>Paint color</td>
<td>Regal gray (Mitsubishi B-8Y5-103)</td>
</tr>
</tbody>
</table>

- **Notes**
  - The brake design of open type. When using in a place where there is significant heat, oil mist, dust, etc., consult us.
### Standard specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Basic Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>0.1, 0.2kW</td>
</tr>
<tr>
<td></td>
<td>0.4—1.5kW</td>
</tr>
<tr>
<td>Phase</td>
<td>Three phase</td>
</tr>
<tr>
<td>Number of poles</td>
<td>4 Pole</td>
</tr>
<tr>
<td>Output speed</td>
<td>25/30—150/180min⁻¹</td>
</tr>
<tr>
<td>Gear Ratio</td>
<td>1/80—1/10</td>
</tr>
<tr>
<td>Insulation Class</td>
<td>B (with brake : B)</td>
</tr>
<tr>
<td>Rating</td>
<td>Continuous</td>
</tr>
<tr>
<td>Stating Method</td>
<td>Direct</td>
</tr>
<tr>
<td>Standard</td>
<td>IEC-2137-2000</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Grease Lubrication</td>
</tr>
<tr>
<td>Deceleration</td>
<td>Hypoid Gear &amp; Involute Gear</td>
</tr>
<tr>
<td>Load</td>
<td>Light Impact Load</td>
</tr>
<tr>
<td>Protection</td>
<td>IP42 (with Brake : IP20)</td>
</tr>
<tr>
<td></td>
<td>IP44 (with Brake : IP20)</td>
</tr>
<tr>
<td>Terminal Box</td>
<td>Available (Resin made)</td>
</tr>
<tr>
<td></td>
<td>Available (Steel made)</td>
</tr>
<tr>
<td>Ambient Temp</td>
<td>−20—40°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>Less than 95%RH (With Brake)</td>
</tr>
<tr>
<td></td>
<td>Less than 90%RH</td>
</tr>
<tr>
<td>Altitude</td>
<td>Less than 1,000m</td>
</tr>
<tr>
<td>Place of installation</td>
<td>Indoor Use</td>
</tr>
</tbody>
</table>

### Precautions for safety

(General)
- Observe the safety rules necessary to the place where a motor is used and the device for which the motor is used.
- (Labor Safety and Sanitation Rules, Technical Standards for Electrical Equipment, Building Standards Act, etc.)
- Before using a motor, read its instruction manual carefully and use it correctly.
- If the instruction manual is not at your hand, ask the shop at which you bought the motor or our sales department for it.

(Selection)
- Select a gear motor suitable to the using environment and purpose.
- When using a gear motor for a people carrying equipment or an elevator, install a protective equipment to the equipment for safety.
- In an explosive atmosphere, use an explosion-proof gear motor. In this case, the selected explosion-proof gear motor must have specifications suitable to a dangerous place.
- When an explosion-proof gear motor is driven with an inverter, only one-to-one combine is approved. Be sure to use the special inverter indicated for the motor. Since the inverter is not explosion-proof, be sure to install it in a place free from explosive gas.

(Installation of oil receiver)
- When using a gear motor for a food machine, etc. which is very sensitive to oil, install an oil receiver under the motor so that the lubricating oil will not enter the food, etc. even if it leaks.