

FUJI SERVO SYSTEM

# ALPHA5 Smart



# ALPHA5

Smart

## Main Products/Combination Table

### Middle Inertia Type GYB Series Servo Motor (Rated speed 3000r/min)

| Voltage                      | Rated output | Motor Type (Standard) | Amplifier Type |
|------------------------------|--------------|-----------------------|----------------|
| Single or<br>3-phase<br>200V | 0.2kW        | GYB201D5-□□2 (-B)     | RYH201F5-VV2   |
|                              | 0.4kW        | GYB401D5-□□2 (-B)     | RYH401F5-VV2   |
|                              | 0.75kW       | GYB751D5-□□2 (-B)     | RYH751F5-VV2   |



### **NEW** Middle Inertia Type GYH Series Servo Motor (Rated speed 2000r/min)

| Voltage         | Rated output | Motor Type (Standard) | Amplifier Type |
|-----------------|--------------|-----------------------|----------------|
| 3-phase<br>200V | 1.0kW        | GYH102C6-TC2(-B)      | RYH751F5-VV2   |
|                 | 1.5kW        | GYH152C6-TC2(-B)      | RYH152F5-VV2   |
|                 | 2.0kW        | GYH202C6-TC2(-B)      | RYH152F5-VV2   |
|                 | 3.0kW        | GYH302C6-TC2(-B)      | RYH202F5-VV2   |
|                 | 4.0kW        | GYH402C6-TC2(-B)      | RYH302F5-VV2   |
|                 | 5.5kW        | GYH552C6-TC2(-B)      | RYH402F5-VV2   |
|                 | 7.0kW        | GYH702C6-TC2(-B)      | RYH502F5-VV2   |

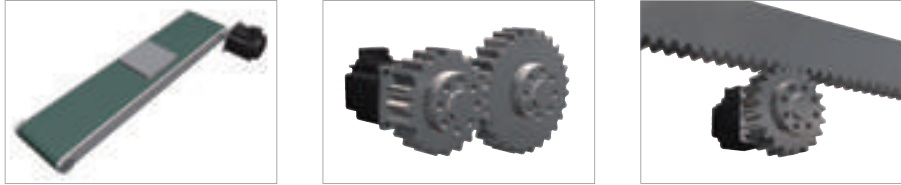


## Contents

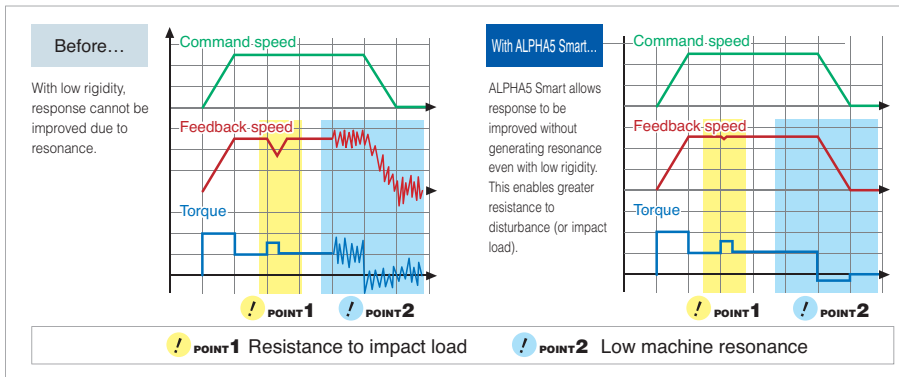
|                                     |    |                                                            |    |
|-------------------------------------|----|------------------------------------------------------------|----|
| Main Products/Combination table     | 2  | Servo Motor External Dimensions                            | 15 |
| Features                            | 3  | Optional shaft extension specifications [with key, tapped] | 19 |
| Application Example                 | 5  | Configuration Diagram/Peripheral Equipment                 | 20 |
| Product Family                      | 6  | Options                                                    | 21 |
| Model Codes                         | 7  | Model List                                                 | 23 |
| Servo Amplifier Specification       | 8  | Service Network                                            | 25 |
| Connection Diagram                  | 9  | Product Warranty                                           | 26 |
| Servo Motor Specifications          | 10 |                                                            |    |
| Servo amplifier External Dimensions | 14 |                                                            |    |

Feature 1 | Wide Range of Applications

**With the new auto-tuning function, optimal tuning can be realized even for low-rigidity devices!!**

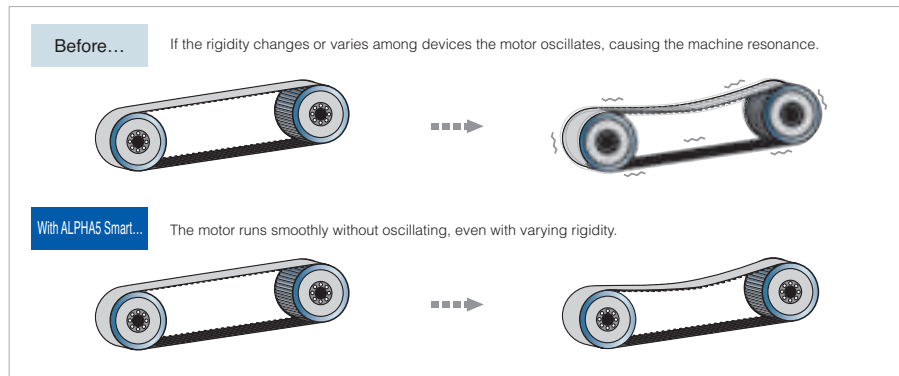


Easy adjustment even for long belt mechanisms, gears with considerable backlash, and rack and pinion mechanisms.



Feature 2 | Super Stability

**Smooth, stable operation even with changes due to wear or variation\* among devices.**



\* Variations in device rigidity such as belt tension or parts.

Other Features

**Smart Operation**

New handy-sized portable servo operator makes the operation much smarter

**Long-life design**

- Electrolytic capacitor 10years
- Cooling fan 10years

\* Operating conditions  
 - Ambient temperature: Average 30°C/year  
 - Load factor: Within 80%  
 - Operation rate: Within 20 hours/day

**Easy ABS battery replacement**

ABS backup battery can be mounted on front face of servo amplifier for easy replacement

**Regulatory compliance**

Global Compatibility. The standard model complies with CE marking, UL/cUL and TÜV.

\* Some of the models are in the process to be certified.

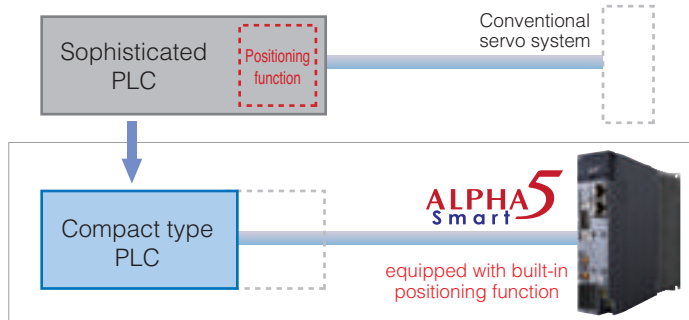
**RoHS Directive**

Compliant with the European Restriction of Hazardous Substances (ROHS) Directive. The use of six hazardous substances has been reduced for a more environmentally-friendly servo system.  
 <Six hazardous materials>  
 Lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB), polybrominated diphenylether (PBDE)

Feature 3 | Smart Design

PTP positioning

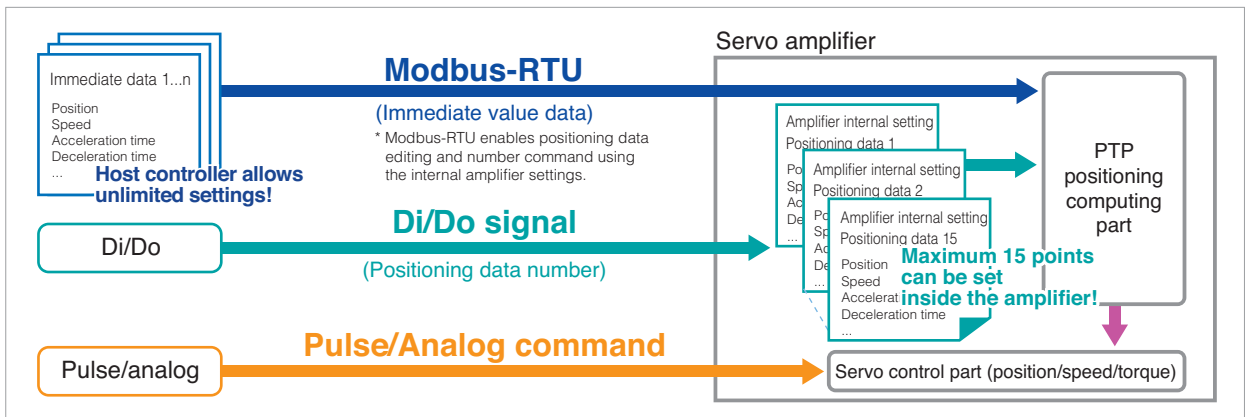
- Positioning function built in as standard
- No external units or special equipment required for positioning



3-in1 functionality

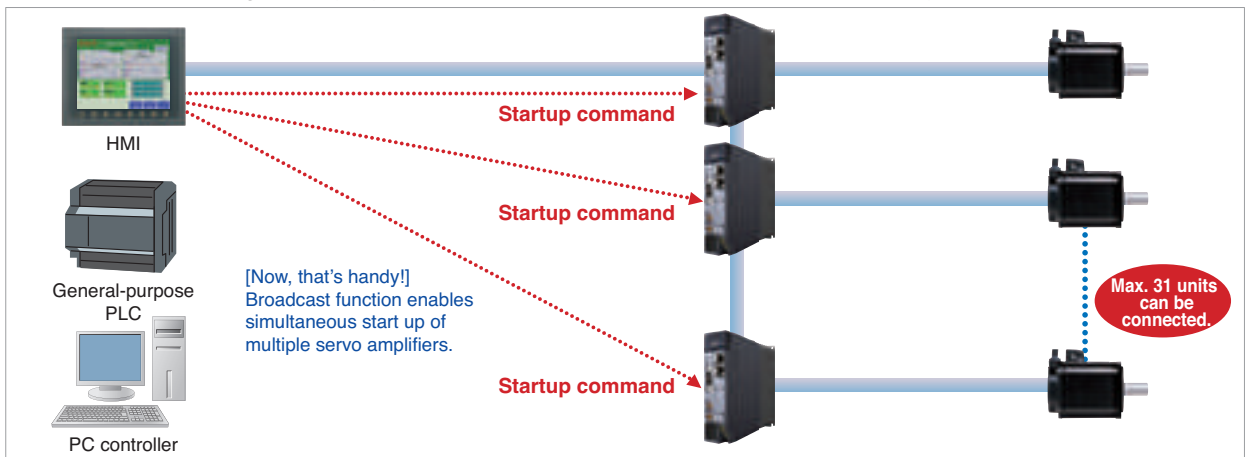
Three operations via one unit:

- Positioning via Modbus-RTU communications (immediate value data)
- Positioning via Di/Do signal (positioning data 15 points\*)
- Position, speed, and torque control via pulse/analog input



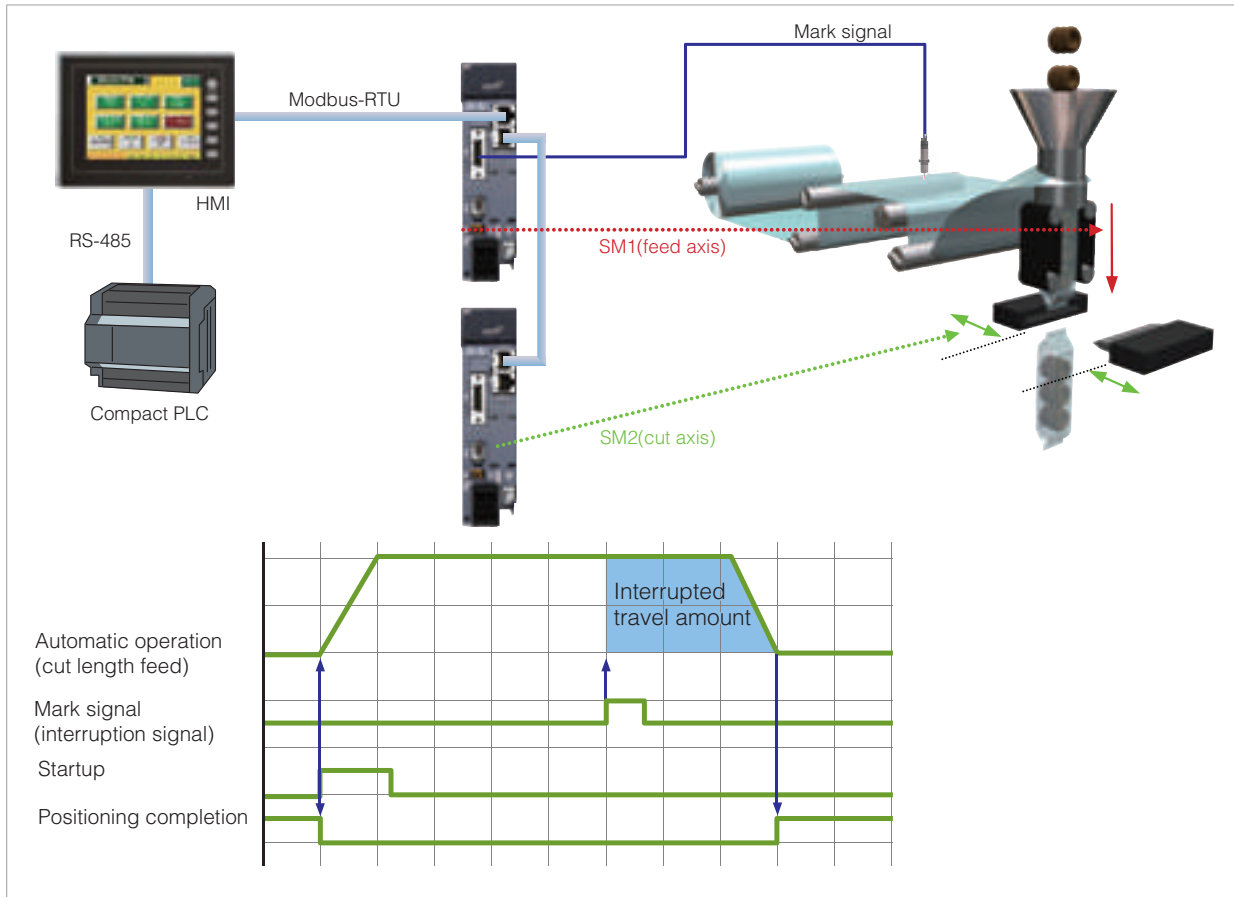
Simple operation via Modbus-RTU communications

Modbus-RTU communications enables PTP positioning, parameter editing, and the use of various monitors. Just connect an HMI, general-purpose PLC, or PC controller directly to the servo amplifier.



Products of all makers compatible with Modbus-RTU Any HMI, general-purpose PLC, or PC controller compatible with Modbus-RTU can be connected to servo amplifier easily regardless of maker.

# Packaging Machine



**Features**

**1. Servo amplifier features a built-in positioning function**

The servo amplifier's positioning data enables film feeding without the positioning controller.

**2. Less wiring required**

Wiring requires fewer man-hours as basic positioning is carried out via Modbus-RTU communications.

**3. Interrupted positioning**

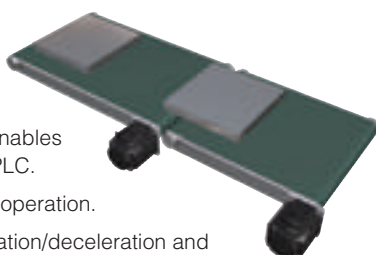
The interrupted positioning function allows a specified amount of travel after the mark is detected for more precise mark operation.

## Conveyor

Workpiece feeder, carrier, etc.

<Key Points>

- The positioning data enables positioning without a PLC.
- Enables simultaneous operation.
- Enables rapid acceleration/deceleration and high-speed operation.
- Enables high-accuracy positioning.
- High-tact operation mode allows high-frequency operation.



## XY Table






Engraving machine, 2D positioning unit, etc.

<Key Points>

- The positioning data enables positioning without a PLC.
- Enables rapid acceleration/deceleration and high-speed operation.
- Enables high-accuracy positioning.
- Trace operation mode allows optimal operation.



# Servo Amplifier / Motor

| Inertia         |                  | Middle                                                                                                                                       |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  | Ultra-low                                                                                                                                        |
|-----------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Servo Amplifier | Applicable Motor | Applicable motor output                                                                                                                      |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  |                                                                                                                                                  |
|                 |                  | <br><b>GYB Motor</b><br>3000 [r/m]<br>Brake: without (with) | <br><b>GYH Motor</b><br>2000 [r/min]<br>Brake: without (with) | <br><b>GYG Motor</b><br>2000 [r/min]<br>Brake: without (with) | <br><b>GYG Motor</b><br>1500 [r/min]<br>Brake: without (with) | <br><b>GYS Motor</b><br>3000 [r/min]<br>Brake: without (with) |
| RYH201F5-VV2    | 0.05kW           |                                                                                                                                              |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  | GYS500D5-□□2 (-B)                                                                                                                                |
|                 | 0.1kW            |                                                                                                                                              |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  | GYS101D5-□□2 (-B)                                                                                                                                |
|                 | 0.2kW            | GYB201D5-□□2 (-B)                                                                                                                            |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  | GYS201D5-□□2 (-B)                                                                                                                                |
| RYH401F5-VV2    | 0.4kW            | GYB401D5-□□2 (-B)                                                                                                                            |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  | GYS401D5-□□2 (-B)                                                                                                                                |
| RYH751F5-VV2    | 0.5kW            |                                                                                                                                              |                                                                                                                                                | GYG501C5-□□2 (-B)                                                                                                                               | GYG501B5-□□2 (-B)                                                                                                                                |                                                                                                                                                  |
|                 | 0.75kW           | GYB751D5-□□2 (-B)                                                                                                                            |                                                                                                                                                | GYG751C5-□□2 (-B)                                                                                                                               |                                                                                                                                                  | GYS751D5-□□2 (-B)                                                                                                                                |
|                 | 1.0kW            |                                                                                                                                              | GYH102C6-TC2 (-B)                                                                                                                              |                                                                                                                                                 |                                                                                                                                                  |                                                                                                                                                  |
| RYH152F5-VV2    | 0.85kW           |                                                                                                                                              |                                                                                                                                                |                                                                                                                                                 | GYG851B5-□□2 (-B)                                                                                                                                |                                                                                                                                                  |
|                 | 1.0kW            |                                                                                                                                              |                                                                                                                                                | GYG102C5-□□2 (-B)                                                                                                                               |                                                                                                                                                  | GYS102D5-□□2 (-B)                                                                                                                                |
|                 | 1.5kW            |                                                                                                                                              | GYH152C6-TC2 (-B)                                                                                                                              | GYG152C5-□□2 (-B)                                                                                                                               |                                                                                                                                                  | GYS152D5-□□2 (-B)                                                                                                                                |
|                 | 2.0kW            |                                                                                                                                              | GYH202C6-TC2 (-B)                                                                                                                              |                                                                                                                                                 |                                                                                                                                                  |                                                                                                                                                  |
| RYH202F5-VV2    | 1.3kW            |                                                                                                                                              |                                                                                                                                                |                                                                                                                                                 | GYG132B5-□□2 (-B)                                                                                                                                |                                                                                                                                                  |
|                 | 2.0kW            |                                                                                                                                              |                                                                                                                                                | GYG202C5-□□2 (-B)                                                                                                                               |                                                                                                                                                  | GYS202D5-□□2 (-B)                                                                                                                                |
|                 | 3.0kW            |                                                                                                                                              | GYH302C6-TC2 (-B)                                                                                                                              |                                                                                                                                                 |                                                                                                                                                  |                                                                                                                                                  |
| RYH302F5-VV2    | 3.0kW            |                                                                                                                                              |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  | GYS302D5-□□2 (-B)                                                                                                                                |
|                 | 4.0kW            |                                                                                                                                              | GYH402C6-TC2 (-B)                                                                                                                              |                                                                                                                                                 |                                                                                                                                                  |                                                                                                                                                  |
| RYH402F5-VV2    | 4.0kW            |                                                                                                                                              |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  | GYS402D5-□□2 (-B)                                                                                                                                |
|                 | 5.5kW            |                                                                                                                                              | GYH552C6-TC2 (-B)                                                                                                                              |                                                                                                                                                 |                                                                                                                                                  |                                                                                                                                                  |
| RYH502F5-VV2    | 5.0kW            |                                                                                                                                              |                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                  | GYS502D5-□□2 (-B)                                                                                                                                |
|                 | 7.0kW            |                                                                                                                                              | GYH702C6-TC2 (-B)                                                                                                                              |                                                                                                                                                 |                                                                                                                                                  |                                                                                                                                                  |

Product Family (Amplifier/Motor)

## Servo Amplifier

**RYH 201 F 5 - V V 2**

| Code | [Basic Type]        |
|------|---------------------|
| RYH  | ALPHA5 Smart series |

| Code | [Applicable Motor Output]             |
|------|---------------------------------------|
| 201  | $20 \times 10^1 = 200W, 100W, 50W$    |
| 401  | $40 \times 10^1 = 400W$               |
| 751  | $75 \times 10^1 = 750W, 500W$         |
| 152  | $15 \times 10^2 = 1.5kW, 1.0kW, 850W$ |
| 202  | $20 \times 10^2 = 2.0kW$              |
| 302  | $30 \times 10^2 = 3.0kW, 4.0kW$       |
| 402  | $40 \times 10^2 = 4.0kW, 5.5kW$       |
| 502  | $50 \times 10^2 = 5.0kW, 7.0kW$       |

| Code | [Series]                 |
|------|--------------------------|
| F    | 1500 to 3000r/min series |

| Code | [Input voltage] |
|------|-----------------|
| 2    | 3-phase 200V    |

| Code | [Upper interface]                                 |
|------|---------------------------------------------------|
| V    | General-purpose interface (pulse, analog voltage) |

| Code | [Major functions]                  |
|------|------------------------------------|
| V    | Position, speed and torque control |

| Code | [Development Order] |
|------|---------------------|
| 5    | 5                   |

## Servo Motor

**GYB 201 D 5 - R C 2 - B**

| Code | [Basic Type]           |
|------|------------------------|
| GYB  | Middle Inertia Type    |
| GYH  | Middle Inertia Type    |
| GYG  | Middle Inertia Type    |
| GYS  | Ultra-low Inertia Type |

| Code | [Rated Output]           |
|------|--------------------------|
| 500  | $50 \times 10^0 = 50W$   |
| 101  | $10 \times 10^1 = 100W$  |
| 201  | $20 \times 10^1 = 200W$  |
| 401  | $40 \times 10^1 = 400W$  |
| 751  | $75 \times 10^1 = 750W$  |
| 851  | $85 \times 10^1 = 850W$  |
| 102  | $10 \times 10^2 = 1.0kW$ |
| 132  | $13 \times 10^2 = 1.3kW$ |
| 152  | $15 \times 10^2 = 1.5kW$ |
| 202  | $20 \times 10^2 = 2.0kW$ |
| 302  | $30 \times 10^2 = 3.0kW$ |
| 402  | $40 \times 10^2 = 4.0kW$ |
| 502  | $50 \times 10^2 = 5.0kW$ |
| 552  | $55 \times 10^2 = 5.5kW$ |
| 702  | $70 \times 10^2 = 7.0kW$ |

| Code | [Rated Speed]    |
|------|------------------|
| D    | 3000r/min series |
| C    | 2000r/min series |
| B    | 1500r/min series |

| Code | [Development Order] |
|------|---------------------|
| 5    | 5                   |
| 6    | 6                   |

| Code  | [Brake] |
|-------|---------|
| Blank | Without |
| B     | With    |

| Code | [Input voltage] |
|------|-----------------|
| 2    | 3-phase 200V    |

| Code | [Oil seal/shaft]                                   |
|------|----------------------------------------------------|
| A    | Without oil seal, straight shaft, with key         |
| B    | Without oil seal, straight shaft, without key      |
| C    | Without oil seal, straight shaft, with key, tapped |
| E    | With oil seal, straight shaft, with key            |
| F    | With oil seal, straight shaft, without key         |
| G    | With oil seal, straight shaft, with key, tapped    |

| Code | [Encoder]       |
|------|-----------------|
| H    | ABS/INC(18bit)* |
| R    | INC(20bit)      |
| T    | INC(17bit)      |

\* Battery is necessary for ABS type.  
Note: Please see the model list on page 16, 17 for the combination detail.

# Servo Amplifier Specification

## Common specifications

| Applicable motor rated speed                       |                               | 3000r/min                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |     |     |         |     |     |     | 2000r/min             |     |     |     |                           |     |     |          | 1500r/min             |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|----------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|---------|-----|-----|-----|-----------------------|-----|-----|-----|---------------------------|-----|-----|----------|-----------------------|-----|-----|-----|---------|-----|------|-----|-----|--|-----|--|-----|--|-----|--|-----|--|
| Applicable motor output [kW]                       |                               | 0.05                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.1 | 0.2 | 0.4 | 0.75    | 1.0 | 1.5 | 2.0 | 3.0                   | 4.0 | 5.0 | 0.5 | 0.75                      | 1.0 | 1.5 | 2.0(GYG) | 2.0(GYG)              | 3.0 | 4.0 | 5.5 | 7.0     | 0.5 | 0.85 | 1.3 |     |  |     |  |     |  |     |  |     |  |
| Amplifier type                                     | RYH F5-VV2                    | 201                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     | 401 |     | 751     |     | 152 |     | 202                   |     | 302 |     | 402                       |     | 502 |          | 751                   |     | 152 |     | 202     |     | 302  |     | 402 |  | 502 |  | 751 |  | 152 |  | 202 |  |
| Outer frame number                                 |                               | 1a                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     | 1b  |     | 2a      |     | 2b  |     | 3a                    |     | 3b  |     | 4a                        |     | 4b  |          | 2a                    |     | 2b  |     | 3a      |     | 3b   |     | 4a  |  | 4b  |  | 2a  |  | 2b  |  | 3a  |  |
| Mass [kg]                                          |                               | 0.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |     |     | 1.2     |     | 1.3 |     | 2.2                   |     | 3.6 |     | 1.2                       |     |     |          | 1.3                   |     |     |     | 2.2     |     |      |     | 3.6 |  |     |  | 1.2 |  | 1.3 |  | 2.2 |  |
| Protective construction / cooling                  |                               | Open / natural cooling                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |     |         |     |     |     |                       |     |     |     | Open / mechanical cooling |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Power supply                                       | Phase                         | Single-phase, 3-phase                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |     |     | 3-phase |     |     |     | Single-phase, 3-phase |     |     |     | 3-phase                   |     |     |          | Single-phase, 3-phase |     |     |     | 3-phase |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Voltage / frequency           | 200 to 240VAC 50/60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Allowable voltage fluctuation | 3-phase : 170 to 264 VAC, Single-phase : 180 to 264 VAC                                                                                                                                                                                                                                                                                                                                                                                                                  |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Control system                                     |                               | Fully-digital sinusoidal PWM drive                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Max voltage for regenerative resistance [V]        | Built-in resistor             | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     | 20  |     | 30      |     | 60  |     | 20                    |     | 30  |     | 60                        |     | 20  |          | 30                    |     | 60  |     | 20      |     | 30   |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | External resistor             | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     | 50  |     | 260     |     | 300 |     | 50                    |     | 260 |     | 300                       |     | 50  |          | 260                   |     | 300 |     | 50      |     | 260  |     |     |  |     |  |     |  |     |  |     |  |
| Feedback                                           |                               | INC 20bit/rev, ABS/INC 18bit/rev                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Overload capability                                |                               | 300% / 3 sec.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Speed fluctuation ratio*                           | Load fluctuation              | Within ± 0.01% (load fluctuation 0 to 100% at rated operation speed)                                                                                                                                                                                                                                                                                                                                                                                                     |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Power supply fluctuation      | 0% (power supply fluctuation -10 to +10% at rated operation speed)                                                                                                                                                                                                                                                                                                                                                                                                       |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Temperature fluctuation       | Within ± 0.2% (25 ± 10°C at rated operation speed)                                                                                                                                                                                                                                                                                                                                                                                                                       |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Capability and function VV type                    | Speed control                 | Closed loop control with speed adjuster, acceleration/deceleration time setting, manual feed rate/max. rotation speed, speed command zero clamp, etc.                                                                                                                                                                                                                                                                                                                    |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Number of position data sets  | 15-point (position, speed, acceleration/deceleration time setting, timer, M code and various statuses)                                                                                                                                                                                                                                                                                                                                                                   |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Position control              | Closed loop control with position adjuster, electronic gear, output pulse setting, feed forward, homing, interrupt positioning, auto startup, etc.                                                                                                                                                                                                                                                                                                                       |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Torque control                | Closed loop control with current adjuster (proportional open loop control of current and torque), torque limit, speed limit at torque control, etc.                                                                                                                                                                                                                                                                                                                      |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Protective function (Alarm display)                | Accessory functions           | Easy tuning, profile operation, sequence test mode, auto tuning, auto notch filter, vibration suppressing online learning, etc.                                                                                                                                                                                                                                                                                                                                          |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    |                               | Over Current (oc1, oc2), Over Speed (oS), High Voltage (Hu), Encoder Trouble (Et1, Et2), Circuit Trouble (ct), Data Error (dE), Combination Error (cE), Resistor Tr Heat (tH), Encoder Communication Error (Ec), Cont (CONTRol signal) Error (ctE), Over Load (oL1, oL2), Power Low Voltage (LuP), Resistor Heat (rH1, rH2, rH3), Over Flow (oF), Amp Heat (AH), Encoder Heat (EH), Absolute Data Lost (dL1, dL2, dL3), Absolute Data Over Flow (AF), Initial Error (iE) |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Operation and display section of main body(keypad) |                               | 4-digit alphanumeric display with 7-segment LED 4 operation switches (MODE, SET, UP and DOWN)                                                                                                                                                                                                                                                                                                                                                                            |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Working conditions                                 | Installation place            | Indoors at altitude ≤ 1000m, free from dust, corrosive gases and direct sunlight<br>In case of compliance with CE marking: pollution degree 2, over voltage category III                                                                                                                                                                                                                                                                                                 |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Temperature / humidity        | -10 to 55°C/10 to 90%RH (without condensation)                                                                                                                                                                                                                                                                                                                                                                                                                           |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
|                                                    | Vibration / shock resistance  | Vibration resistance: 3mm: 2 to 9Hz or less, 9.8m/s <sup>2</sup> : 9 to 20Hz or less, 2m/s <sup>2</sup> : 20 to 55Hz or less, 1m/s <sup>2</sup> : 55 to 200Hz or less<br>Shock resistance: 19.6m/s <sup>2</sup> (2G)                                                                                                                                                                                                                                                     |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |
| Standards                                          |                               | UL/cUL (UL508c), CE marking (low voltage directive EN61800-5-1), RoHS directive (Some of the models are in the process to be certified.)                                                                                                                                                                                                                                                                                                                                 |     |     |     |         |     |     |     |                       |     |     |     |                           |     |     |          |                       |     |     |     |         |     |      |     |     |  |     |  |     |  |     |  |     |  |

\*This value represents the average value of the speed fluctuation that is generated from load fluctuation, power supply fluctuation, and temperature fluctuation as the percentage to the rated rotation speed.

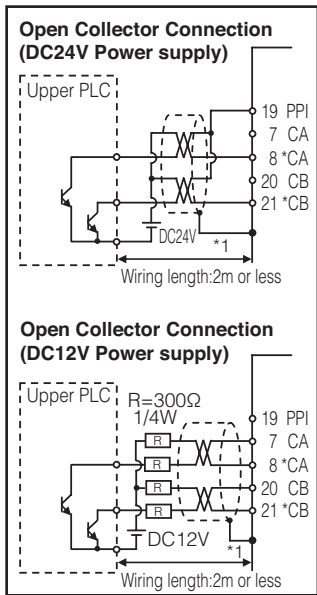
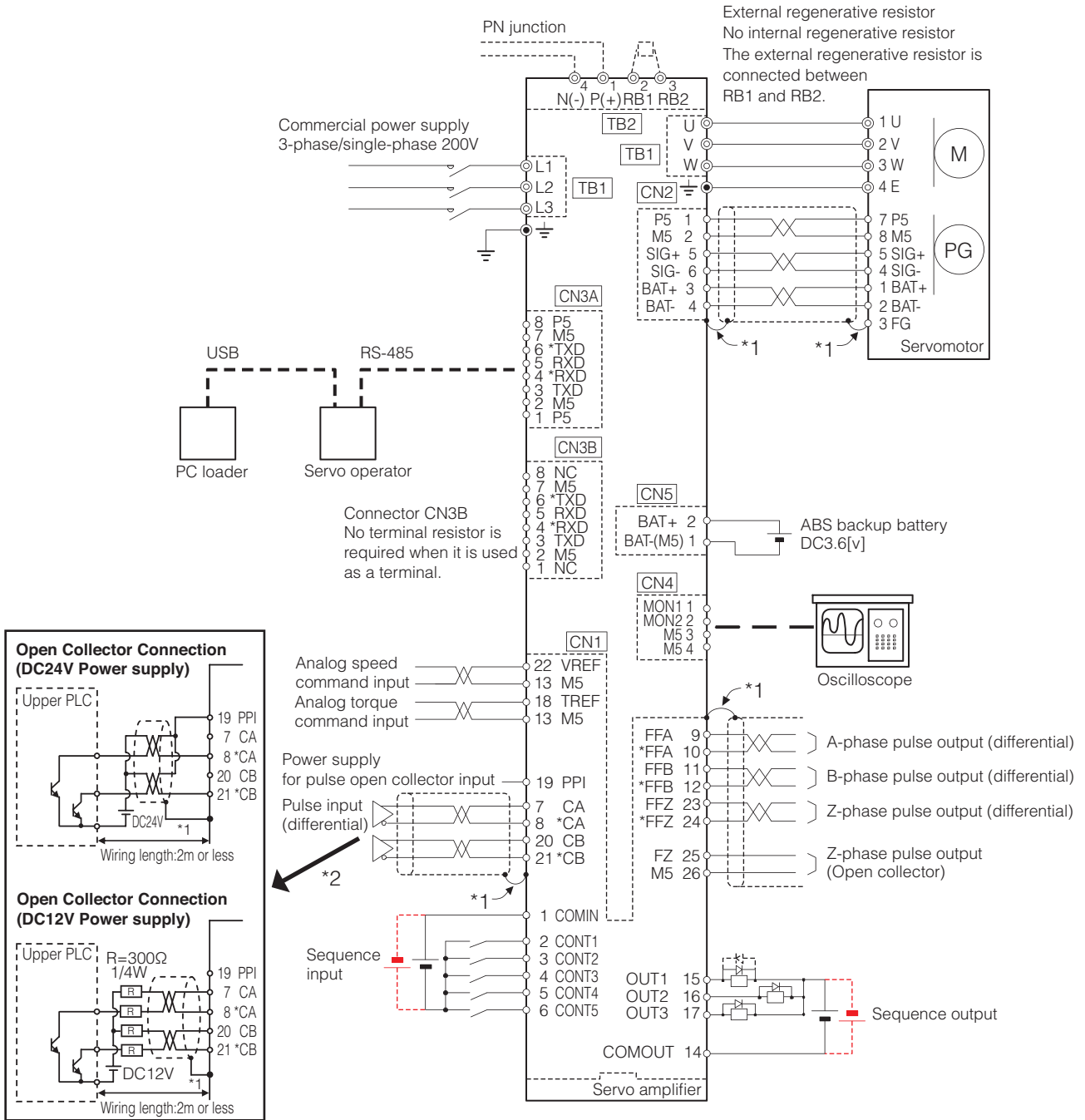
## Interface Specifications

| Terminal name                                       | Symbol               | Specifications                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pulse input                                         | CA,*CA<br>CB,*CB     | Differential input: max. input frequency ≤ 1.0MHz<br>Open collector input: max. input frequency ≤ 200kHz<br>(in case of signals at 90-degree phase difference, the above relationship is true for the four-fold frequency.)<br>Pulse format<br>Command pulse/Command direction } Select one of these formats<br>Forward/Reverse pulse } with a parameter setting.<br>Two signals at 90-degree phase difference |
|                                                     | PPI                  | Pull-up power input at open collector input (24VDC ± 5%)                                                                                                                                                                                                                                                                                                                                                       |
| Pulse output                                        | FFA,*FFA<br>FFB,*FFB | Differential output: max. output frequency ≤ 1MHz<br>Two signals at 90-degree phase difference<br>Pulse output count setting n (pulses/rev): 16 ≤ n ≤ 262144                                                                                                                                                                                                                                                   |
|                                                     | FFZ,*FFZ             | Differential output: 1 pulse/rev                                                                                                                                                                                                                                                                                                                                                                               |
|                                                     | FZ                   | Open collector output: 1 pulse/rev                                                                                                                                                                                                                                                                                                                                                                             |
|                                                     | M5                   | Reference potential (0V)                                                                                                                                                                                                                                                                                                                                                                                       |
| Analog monitor voltage output                       | MON1                 | 0V to ± 10VDC                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                     | MON2                 | Resolution: 14bits / ± full scale<br>The output data depends on internal parameter.                                                                                                                                                                                                                                                                                                                            |
|                                                     | M5                   | Reference potential (0V)                                                                                                                                                                                                                                                                                                                                                                                       |
| Common for sequence I/O                             | COMIN                | Common for sequence input signal                                                                                                                                                                                                                                                                                                                                                                               |
|                                                     | COMOUT               | Common for sequence output signal                                                                                                                                                                                                                                                                                                                                                                              |
| Sequence input signal                               | CONT1 to<br>CONT5    | 12VDC-10% to 24VDC+10%<br>Current consumption 8mA (per contact; used at circuit voltage of 12 to 24VDC)<br>Function of each signal depends on parameter setting<br>Compatible with both sink and source input methods                                                                                                                                                                                          |
|                                                     | COMIN                | Reference potential                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                     | OUT1 to<br>OUT3      | 30VDC / 50mA (max.)<br>Function of each signal depends on parameter setting<br>Compatible with both sink and source output methods                                                                                                                                                                                                                                                                             |
| Analog voltage input (for speed and torque control) | COMOUT               | Reference potential                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                     | VREF                 | Speed command voltage input<br>Input range: from -10 to 0 to +10V, input impedance 20kΩ. Resolution: 15 bits / ± full scale                                                                                                                                                                                                                                                                                    |
|                                                     | TREF                 | Torque command voltage input<br>Input range: from -10 to 0 to +10V, input impedance 20kΩ. Resolution: 14 bits / ± full scale                                                                                                                                                                                                                                                                                   |
|                                                     | M5                   | Reference potential (0V)                                                                                                                                                                                                                                                                                                                                                                                       |

| Item                    | Specifications                                                                                                                                          |                            |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Command interface       | Positioning function                                                                                                                                    | RS-485 (Modbus-RTU), Di/Do |
|                         | Position control                                                                                                                                        | Pulse input                |
|                         | Speed control                                                                                                                                           | Analog voltage input       |
|                         | Torque control                                                                                                                                          | Analog voltage input       |
| Communication interface | Two RS-485 ports (for parameter editing and monitor)<br>Fuji's original protocol Modbus-RTU<br>9600/19200/38400/115200 bps, connection of max. 31 units |                            |

**VV Connection Diagram**

Sample: frame 1



\*1: Connect the shield to the connector shell of CN1 and CN2. The connector shell is at the ground potential.

\*2: When connecting the open collector, the wiring length should be 2 m or less.

**Caution** The diagram shown above is given as a reference for model selection. When actually using the selected servo system, make wiring connections according to the connection diagram and instructions described in the user's manual.

# Servo Motor Specifications

## ■ Middle Inertia GYB Motor [3000r/min]

### ■ Standard specifications

| Motor type<br>(-B indicates the brake-incorporated type.)                | GYB201<br>D5- 2 (-B)                                                                                                            | GYB401<br>D5- 2 (-B)                                  | GYB751<br>D5- 2 (-B)                                  |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| Rated output [kW]                                                        | 0.2                                                                                                                             | 0.4                                                   | 0.75                                                  |
| Rated torque [N · m]                                                     | 0.637                                                                                                                           | 1.27                                                  | 2.39                                                  |
| Rated speed [r/min]                                                      | 3000                                                                                                                            |                                                       |                                                       |
| Max. speed [r/min]                                                       | 6000 <sup>*1</sup>                                                                                                              |                                                       |                                                       |
| Max. torque [N · m]                                                      | 1.91                                                                                                                            | 3.82                                                  | 7.17                                                  |
| Inertia [kg · m <sup>2</sup> ]<br>( ) indicates brake-incorporated type. | 0.24 × 10 <sup>-4</sup><br>(0.29 × 10 <sup>-4</sup> )                                                                           | 0.42 × 10 <sup>-4</sup><br>(0.46 × 10 <sup>-4</sup> ) | 1.43 × 10 <sup>-4</sup><br>(1.61 × 10 <sup>-4</sup> ) |
| Rated current [A]                                                        | 1.5                                                                                                                             | 2.7                                                   | 5.2                                                   |
| Max. current [A]                                                         | 4.5                                                                                                                             | 8.1                                                   | 15.6                                                  |
| Winding insulation class                                                 | Class B                                                                                                                         |                                                       |                                                       |
| Degree of enclosure protection                                           | Totally enclosed, self-cooled (IP 67, excluding the shaft-through) <sup>*2</sup>                                                |                                                       |                                                       |
| Terminals (motor)                                                        | 0.3m cable                                                                                                                      |                                                       |                                                       |
| Terminals (encoder)                                                      | 0.3m cable                                                                                                                      |                                                       |                                                       |
| Overheat protection                                                      | Not provided (The servo amplifier detects temperature.)                                                                         |                                                       |                                                       |
| Mounting method                                                          | By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)                                                                     |                                                       |                                                       |
| Encoder                                                                  | 18-bit serial encoder (absolute/incremental), 20-bit serial encoder (incremental)                                               |                                                       |                                                       |
| Vibration level                                                          | V5 or below                                                                                                                     |                                                       |                                                       |
| Installation place, altitude and environment                             | For indoor use (free from direct sunlight), 1000m or below, locations without corrosive and flammable gases, oil mist and dust  |                                                       |                                                       |
| Ambient temperature, humidity                                            | -10 to +40°C, within 90% RH (without condensation)                                                                              |                                                       |                                                       |
| Vibration resistance [m/s <sup>2</sup> ]                                 | 49                                                                                                                              |                                                       |                                                       |
| Mass [kg]<br>( ) indicates brake-incorporated type.                      | 1.0<br>(1.5)                                                                                                                    | 1.5<br>(2.1)                                          | 3.0<br>(3.9)                                          |
| Compliance with standards                                                | UL/cUL (UL508c) (Some models are in the process to be certified), CE marking (low power directive EN61800-5-1), RoHS directive. |                                                       |                                                       |

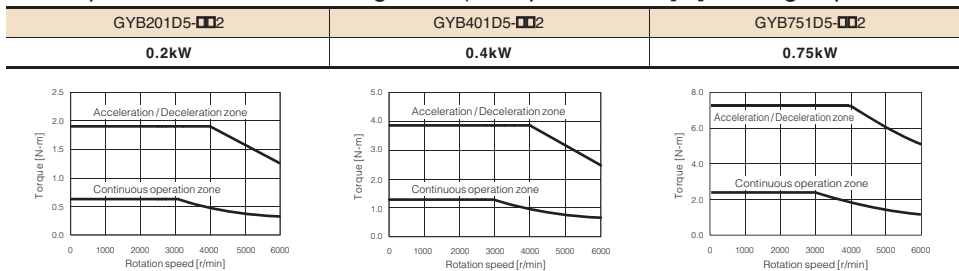
\*1: The max. speed of 5000r/min can be reached by using it with Fuji's gear head

\*2: Protection degree IP67 is initial value

### ■ Brake specifications (motor equipped with a brake)

| Motor type                     | GYB201<br>D5- 2-B | GYB401<br>D5- 2-B | GYB751<br>D5- 2-B |
|--------------------------------|-------------------|-------------------|-------------------|
| Static friction torque [N · m] | 1.27              |                   | 2.45              |
| Rated DC voltage [V]           | DC24±10%          |                   |                   |
| Attraction time [ms]           | 40                |                   | 60                |
| Release time [ms]              | 20                |                   | 25                |
| Power consumption [W]          | 7.2 (at 20 °C)    |                   | 8.5 (at 20 °C)    |

### ■ Torque characteristics diagrams (at 3-phase 200 [V] or single-phase 230 [V] source voltage)



These characteristics indicate typical values of each servomotor combined with the corresponding servo amplifier RYH series.

The rated torque indicates the value obtained when the servo amplifier is installed to the following aluminum heat sink.

- Model GYB201, 401 : 250 × 250 × 6 [mm]
- Model GYB751 : 300 × 300 × 6 [mm]

## ■ Middle Inertia GYH Motor [2000r/min]

### ■ Standard specifications

| Motor type<br>(-B) indicates the brake-incorporated type.                | GYH102<br>C6-T 2 (-B)                                                                                                          | GYH152<br>C6-T 2 (-B)                              | GYH202<br>C6-T 2 (-B)                                | GYH302<br>C6-T 2 (-B)                                | GYH402<br>C6-T 2 (-B)                                | GYH552<br>C6-T 2 (-B)                                | GYH702<br>C6-T 2 (-B)                                |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Rated output [kW]                                                        | 1.0                                                                                                                            | 1.5                                                | 2.0                                                  | 3.0                                                  | 4.0                                                  | 5.5                                                  | 7.0                                                  |
| Rated torque [N · m]                                                     | 4.77                                                                                                                           | 7.16                                               | 9.55                                                 | 14.32                                                | 19.10                                                | 26.26                                                | 33.42                                                |
| Rated speed [r/min]                                                      | 2000                                                                                                                           |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Max. speed [r/min]                                                       | 2500                                                                                                                           |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Max. torque [N · m]                                                      | 14.3                                                                                                                           | 21.4                                               | 28.6                                                 | 42.9                                                 | 47.7                                                 | 65.6                                                 | 83.5                                                 |
| Inertia [kg · m <sup>2</sup> ]<br>( ) indicates brake-incorporated type. | $6.26 \times 10^{-4}$<br>( $6.96 \times 10^{-4}$ )                                                                             | $8.88 \times 10^{-4}$<br>( $9.58 \times 10^{-4}$ ) | $12.14 \times 10^{-4}$<br>( $12.84 \times 10^{-4}$ ) | $17.92 \times 10^{-4}$<br>( $18.62 \times 10^{-4}$ ) | $39.99 \times 10^{-4}$<br>( $40.80 \times 10^{-4}$ ) | $51.44 \times 10^{-4}$<br>( $52.31 \times 10^{-4}$ ) | $63.52 \times 10^{-4}$<br>( $67.36 \times 10^{-4}$ ) |
| Rated current [A]                                                        | 5.1                                                                                                                            | 7.3                                                | 9                                                    | 13.7                                                 | 16                                                   | 22.5                                                 | 29                                                   |
| Max. current [A]                                                         | 15.3                                                                                                                           | 21.9                                               | 27                                                   | 41.1                                                 | 40.8                                                 | 57.4                                                 | 74.0                                                 |
| Winding insulation class                                                 | Class F                                                                                                                        |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Degree of enclosure protection                                           | Totally enclosed, self-cooled (IP 67, excluding the shaft-through)*2                                                           |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Terminals (motor)                                                        | Cannon connector                                                                                                               |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Terminals (encoder)                                                      | Cannon connector                                                                                                               |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Overheat protection                                                      | Not provided (The servo amplifier detects temperature.)                                                                        |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Mounting method                                                          | By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)                                                                    |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Encoder                                                                  | 17-bit serial encoder (incremental)                                                                                            |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Vibration level                                                          | V15 or below                                                                                                                   |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Installation place, altitude and environment                             | For indoor use (free from direct sunlight), 1000m or below, locations without corrosive and flammable gases, oil mist and dust |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Ambient temperature, humidity                                            | 0 to +40°C (there should be no freezing), within 90% RH (without condensation)                                                 |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Vibration resistance [m/s <sup>2</sup> ]                                 | 19.6                                                                                                                           |                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |
| Mass [kg]<br>( ) indicates brake-incorporated type.                      | 6.5<br>(8.1)                                                                                                                   | 8.1<br>(9.7)                                       | 10.2<br>(11.8)                                       | 13.9<br>(15.5)                                       | 19.5<br>(23.0)                                       | 26.2<br>(30.0)                                       | 30.0<br>(34.8)                                       |

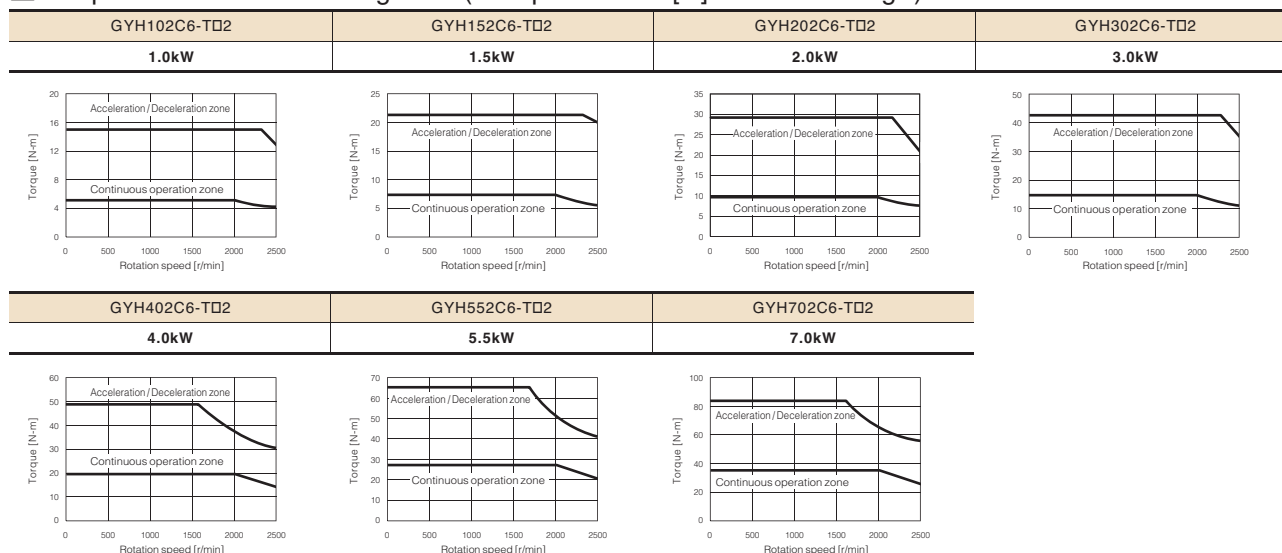
\*1 The load inertia ratio to the inertia of servo motor. If the moment of load inertia ratio value exceeds the list value, please contact us.

\*2 If the motor is used in the environment rated to IP67 protection degree, use the wiring connector suitable for the protection degree.

### ■ Brake specifications (motor equipped with a brake)

| Motor type                     | GYH102<br>C6-T 2 (-B) | GYH152<br>C6-T 2 (-B) | GYH202<br>C6-T 2 (-B) | GYH302<br>C6-T 2 (-B) | GYH402<br>C6-T 2 (-B) | GYH552<br>C6-T 2 (-B) | GYH702<br>C6-T 2 (-B) |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Static friction torque [N · m] | 20                    |                       |                       |                       | 30                    |                       | 50                    |
| Rated DC voltage [V]           | DC24±10%              |                       |                       |                       | DC24±5%               |                       |                       |
| Attraction time [ms]           | 100                   |                       |                       |                       | 110                   |                       | 150                   |
| Release time [ms]              | 27                    |                       |                       |                       | 25                    |                       | 40                    |
| Power consumption [W]          | 19.5 (at 20°C)        |                       |                       |                       | 23 (at 20°C)          |                       | 27 (at 20°C)          |

### ■ Torque characteristics diagrams (at 3-phase 200 [V] source voltage)



These characteristics indicate typical values of each servomotor combined with the corresponding servo amplifier RYH series.

The rated torque indicates the value obtained when the servo amplifier is installed to the following aluminum heat sink.

- Model GYH102,152,302 : 400 × 400 × 12 [mm]
- Model GYH402,552,702 : 600 × 600 × 25 [mm]

# Servo Motor Specifications

## Middle Inertia GYG Motor [2000r/min, 1500r/min]

### Standard specifications

| Motor type<br>(-B indicates the brake-incorporated type.)                | GYG501C5<br>- 2 (-B)                                                                                                           | GYG751C5<br>- 2 (-B)                                   | GYG102C5<br>- 2 (-B)                                   | GYG152C5<br>- 2 (-B)                                   | GYG202C5<br>- 2 (-B)                                   | GYG501B5<br>- 2 (-B)                                   | GYG851B5<br>- 2 (-B)                                   | GYG132B5<br>- 2 (-B)                                   |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| Rated output [kW]                                                        | 0.5                                                                                                                            | 0.75                                                   | 1.0                                                    | 1.5                                                    | 2.0                                                    | 0.5                                                    | 0.85                                                   | 1.3                                                    |
| Rated torque [N · m]                                                     | 2.39                                                                                                                           | 3.58                                                   | 4.77                                                   | 7.16                                                   | 9.55                                                   | 3.18                                                   | 5.41                                                   | 8.28                                                   |
| Rated speed [r/min]                                                      | 2000                                                                                                                           |                                                        |                                                        |                                                        |                                                        | 1500                                                   |                                                        |                                                        |
| Max. speed [r/min]                                                       | 3000                                                                                                                           |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Max. torque [N · m]                                                      | 7.2                                                                                                                            | 10.7                                                   | 14.3                                                   | 21.5                                                   | 28.6                                                   | 9.5                                                    | 16.2                                                   | 24.8                                                   |
| Inertia [kg · m <sup>2</sup> ]<br>( ) indicates brake-incorporated type. | 7.96 × 10 <sup>-4</sup><br>(10.0 × 10 <sup>-4</sup> )                                                                          | 11.55 × 10 <sup>-4</sup><br>(13.6 × 10 <sup>-4</sup> ) | 15.14 × 10 <sup>-4</sup><br>(17.2 × 10 <sup>-4</sup> ) | 22.33 × 10 <sup>-4</sup><br>(24.4 × 10 <sup>-4</sup> ) | 29.51 × 10 <sup>-4</sup><br>(31.6 × 10 <sup>-4</sup> ) | 11.55 × 10 <sup>-4</sup><br>(13.6 × 10 <sup>-4</sup> ) | 15.15 × 10 <sup>-4</sup><br>(17.3 × 10 <sup>-4</sup> ) | 22.33 × 10 <sup>-4</sup><br>(24.5 × 10 <sup>-4</sup> ) |
| Rated current [A]                                                        | 3.5                                                                                                                            | 5.2                                                    | 6.4                                                    | 10.0                                                   | 12.3                                                   | 4.7                                                    | 7.3                                                    | 11.5                                                   |
| Max. current [A]                                                         | 10.5                                                                                                                           | 15.6                                                   | 19.2                                                   | 30.0                                                   | 36.9                                                   | 14.1                                                   | 21.9                                                   | 34.5                                                   |
| Winding insulation class                                                 | Class F                                                                                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Degree of enclosure protection                                           | Totally enclosed, self-cooled (IP 67, excluding the shaft-through)*2                                                           |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Terminals (motor)                                                        | Cannon connector                                                                                                               |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Terminals (encoder)                                                      | Cannon connector                                                                                                               |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Overheat protection                                                      | Not provided (The servo amplifier detects temperature.)                                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Mounting method                                                          | By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)                                                                    |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Encoder                                                                  | 18-bit serial encoder (absolute/incremental), 20-bit serial encoder (incremental)                                              |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Vibration level                                                          | V10 or below                                                                                                                   |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Installation place, altitude and environment                             | For indoor use (free from direct sunlight), 1000m or below, locations without corrosive and flammable gases, oil mist and dust |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Ambient temperature, humidity                                            | -10 to +40°C, within 90% RH (without condensation)                                                                             |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Vibration resistance [m/s <sup>2</sup> ]                                 | 24.5                                                                                                                           |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |
| Mass [kg]<br>( ) indicates brake-incorporated type.                      | 5.3<br>(7.5)                                                                                                                   | 6.4<br>(8.6)                                           | 7.5<br>(9.7)                                           | 9.8<br>(12.0)                                          | 12.0<br>(14.2)                                         | 6.4<br>(8.6)                                           | 7.5<br>(9.7)                                           | 9.8<br>(12.0)                                          |
| Compliance with standards                                                | UL/cUL (UL1004), CE marking (EN60034-1, EN60034-5), RoHS directive                                                             |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |                                                        |

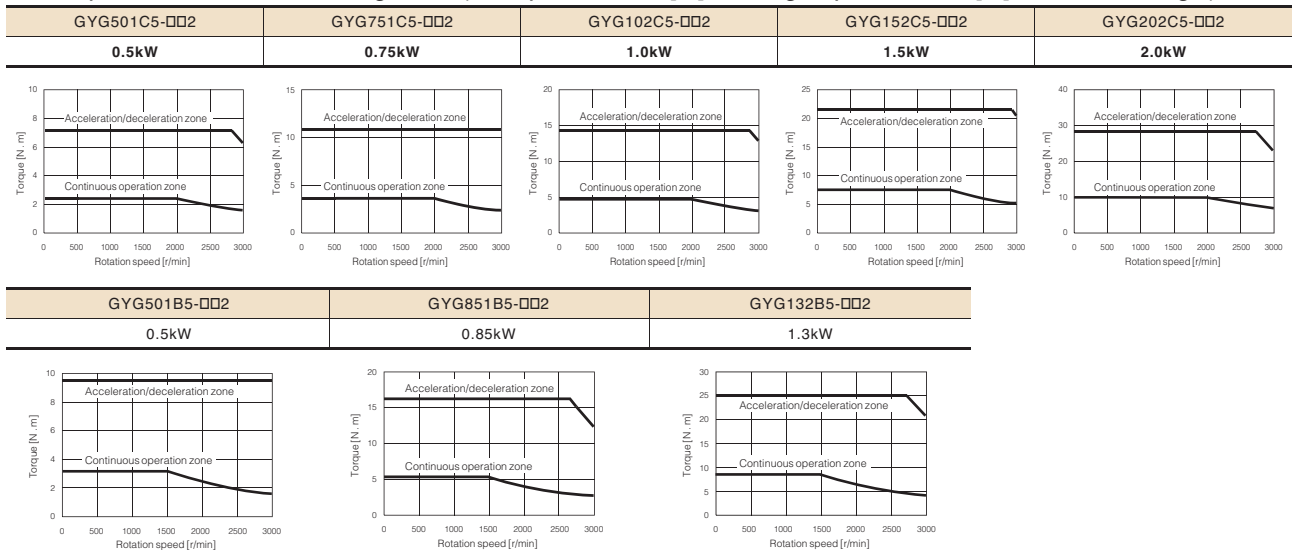
\*1 The load inertia ratio to the inertia of servo motor. If the moment of load inertia ratio value exceeds the list value, please contact us.

\*2 If the motor is used in the environment rated to IP67 protection degree, use the wiring connector suitable for the protection degree.

### Brake specifications (motor equipped with a brake)

| Motor type                     | GYG501C5<br>- 2-B | GYG751C5<br>- 2-B | GYG102C5<br>- 2-B | GYG152C5<br>- 2-B | GYG202C5<br>- 2-B | GYG501B5<br>- 2-B | GYG851B5<br>- 2-B | GYG132B5<br>- 2-B |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Static friction torque [N · m] | 17                |                   |                   |                   |                   |                   |                   |                   |
| Rated DC voltage [V]           | DC24±10%          |                   |                   |                   |                   |                   |                   |                   |
| Attraction time [ms]           | 120               |                   |                   |                   |                   |                   |                   |                   |
| Release time [ms]              | 30                |                   |                   |                   |                   |                   |                   |                   |
| Power consumption [W]          | 12 (at 20 °C)     |                   |                   |                   |                   |                   |                   |                   |

### Torque characteristics diagrams (at 3-phase 200 [V] or single-phase 230 [V] source voltage)



These characteristics indicate typical values of each servomotor combined with the corresponding servo amplifier RYH series.

The rated torque indicates the value obtained when the servo amplifier is installed to the following aluminum heat sink.

- Model GYG501C, 751C, 102C : 300 × 300 × 12 [mm]
- Model GYG152C, 202C : 400 × 400 × 12 [mm]
- Model GYG501B, 851B : 300 × 300 × 12 [mm]
- Model GYG132B : 400 × 400 × 12 [mm]

## Ultra-low Inertia GYS Motor [3000r/min]

### Standard specifications

| Motor type<br>(-B) indicates the brake-incorporated type.                | GYS500D5<br>- 2 (-B)                                                                                                           | GYS101D5<br>- 2 (-B)                                  | GYS201D5<br>- 2 (-B)                                | GYS401D5<br>- 2 (-B)                                | GYS751D5<br>- 2 (-B)                                | GYS102D5<br>- 2 (-B)                                                                                    | GYS152D5<br>- 2 (-B)                              | GYS202D5<br>- 2 (-B)                              | GYS302D5<br>- 2 (-B)                               | GYS402D5<br>- 2 (-B)                              | GYS502D5<br>- 2 (-B)                              |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------|----------------------------------------------------|---------------------------------------------------|---------------------------------------------------|
| Rated output [kW]                                                        | 0.05                                                                                                                           | 0.1                                                   | 0.2                                                 | 0.4                                                 | 0.75                                                | 1.0                                                                                                     | 1.5                                               | 2.0                                               | 3.0                                                | 4.0                                               | 5.0                                               |
| Rated torque [N · m]                                                     | 0.159                                                                                                                          | 0.318                                                 | 0.637                                               | 1.27                                                | 2.39                                                | 3.18                                                                                                    | 4.78                                              | 6.37                                              | 9.55                                               | 12.7                                              | 15.9                                              |
| Rated speed [r/min]                                                      | 3000                                                                                                                           |                                                       |                                                     |                                                     |                                                     |                                                                                                         |                                                   |                                                   |                                                    |                                                   |                                                   |
| Max. speed [r/min]                                                       | 6000 *1                                                                                                                        |                                                       |                                                     |                                                     |                                                     | 5000                                                                                                    |                                                   |                                                   |                                                    |                                                   |                                                   |
| Max. torque [N · m]                                                      | 0.478                                                                                                                          | 0.955                                                 | 1.91                                                | 3.82                                                | 7.17                                                | 9.55                                                                                                    | 14.3                                              | 19.1                                              | 28.7                                               | 38.2                                              | 47.8                                              |
| Inertia [kg · m <sup>2</sup> ]<br>( ) indicates brake-incorporated type. | 0.0192×10 <sup>-4</sup><br>(0.0223×10 <sup>-4</sup> )                                                                          | 0.0371×10 <sup>-4</sup><br>(0.0402×10 <sup>-4</sup> ) | 0.135×10 <sup>-4</sup><br>(0.159×10 <sup>-4</sup> ) | 0.246×10 <sup>-4</sup><br>(0.270×10 <sup>-4</sup> ) | 0.853×10 <sup>-4</sup><br>(0.949×10 <sup>-4</sup> ) | 1.73×10 <sup>-4</sup><br>(2.03×10 <sup>-4</sup> )                                                       | 2.37×10 <sup>-4</sup><br>(2.67×10 <sup>-4</sup> ) | 3.01×10 <sup>-4</sup><br>(3.31×10 <sup>-4</sup> ) | 8.32×10 <sup>-4</sup><br>(10.42×10 <sup>-4</sup> ) | 10.8×10 <sup>-4</sup><br>(12.9×10 <sup>-4</sup> ) | 12.8×10 <sup>-4</sup><br>(14.9×10 <sup>-4</sup> ) |
| Rated current [A]                                                        | 0.85                                                                                                                           | 0.85                                                  | 1.5                                                 | 2.7                                                 | 4.8                                                 | 7.1                                                                                                     | 9.6                                               | 12.6                                              | 18.0                                               | 24.0                                              | 30.0                                              |
| Max. current [A]                                                         | 2.55                                                                                                                           | 2.55                                                  | 4.5                                                 | 8.1                                                 | 14.4                                                | 21.3                                                                                                    | 28.8                                              | 37.8                                              | 54.0                                               | 72.0                                              | 90.0                                              |
| Winding insulation class                                                 | Class B                                                                                                                        |                                                       |                                                     |                                                     |                                                     | Class F                                                                                                 |                                                   |                                                   |                                                    |                                                   |                                                   |
| Degree of enclosure protection                                           | Totally enclosed, self-cooled (IP 67, excluding the shaft-through and connectors)                                              |                                                       |                                                     |                                                     |                                                     | Totally enclosed, self-cooled (IP 67, excluding the shaft-through)*2                                    |                                                   |                                                   |                                                    |                                                   |                                                   |
| Terminals (motor)                                                        | Cable 0.3m (with connector)                                                                                                    |                                                       |                                                     |                                                     |                                                     | Cannon connector                                                                                        |                                                   |                                                   |                                                    |                                                   |                                                   |
| Terminals (encoder)                                                      | Cable 0.3m (with connector)                                                                                                    |                                                       |                                                     |                                                     |                                                     | Cannon connector                                                                                        |                                                   |                                                   |                                                    |                                                   |                                                   |
| Overheat protection                                                      | Not provided (The servo amplifier detects temperature.)                                                                        |                                                       |                                                     |                                                     |                                                     |                                                                                                         |                                                   |                                                   |                                                    |                                                   |                                                   |
| Mounting method                                                          | By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)                                                                    |                                                       |                                                     |                                                     |                                                     |                                                                                                         |                                                   |                                                   |                                                    |                                                   |                                                   |
| Encoder                                                                  | 18-bit serial encoder (absolute/incremental), 20-bit serial encoder (incremental)                                              |                                                       |                                                     |                                                     |                                                     |                                                                                                         |                                                   |                                                   |                                                    |                                                   |                                                   |
| Vibration level                                                          | V5 or below                                                                                                                    |                                                       |                                                     |                                                     |                                                     | Up to rated rotation speed: V10 or below<br>Over rated rotation speed and up to 5000r/min: V15 or below |                                                   |                                                   |                                                    |                                                   |                                                   |
| Installation place, altitude and environment                             | For indoor use (free from direct sunlight), 1000m or below, locations without corrosive and flammable gases, oil mist and dust |                                                       |                                                     |                                                     |                                                     |                                                                                                         |                                                   |                                                   |                                                    |                                                   |                                                   |
| Ambient temperature, humidity                                            | -10 to +40°C, within 90% RH (without condensation)                                                                             |                                                       |                                                     |                                                     |                                                     |                                                                                                         |                                                   |                                                   |                                                    |                                                   |                                                   |
| Vibration resistance [m/s <sup>2</sup> ]                                 | 49                                                                                                                             |                                                       |                                                     |                                                     |                                                     | 24.5                                                                                                    |                                                   |                                                   |                                                    |                                                   |                                                   |
| Mass [kg]<br>( ) indicates brake-incorporated type.                      | 0.45<br>(0.62)                                                                                                                 | 0.55<br>(0.72)                                        | 1.2<br>(1.7)                                        | 1.8<br>(2.3)                                        | 3.4<br>(4.2)                                        | 4.4<br>(5.9)                                                                                            | 5.2<br>(6.8)                                      | 6.3<br>(7.9)                                      | 11.0<br>(13.0)                                     | 13.5<br>(15.5)                                    | 16.0<br>(18.0)                                    |
| Compliance with standards                                                | UL/cUL (UL1004), CE marking (EN60034-1, EN60034-5), RoHS directive                                                             |                                                       |                                                     |                                                     |                                                     |                                                                                                         |                                                   |                                                   |                                                    |                                                   |                                                   |

\*1 The maximum rotation speed is 5000r/min when using the motor in combination with Fuji's gear head.

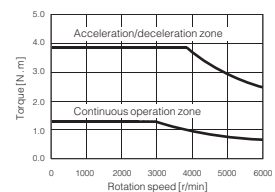
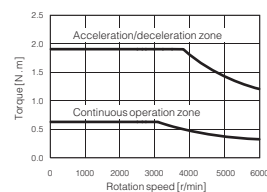
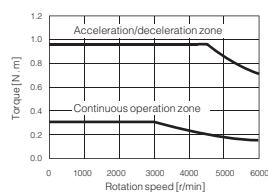
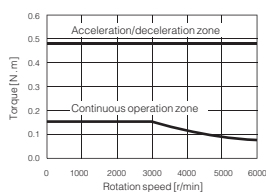
\*2 If the motor is used in the environment rated to IP67 protection degree, use the wiring connector suitable for the protection degree.

### Brake specifications (motor equipped with a brake)

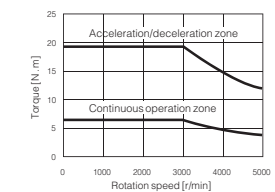
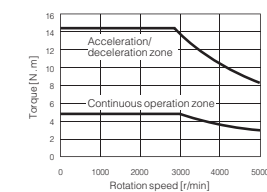
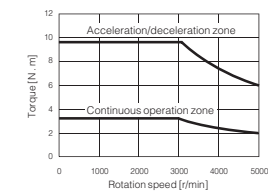
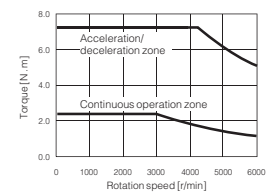
| Motor type                     | GYS500D5<br>- 2-B | GYS101D5<br>- 2-B | GYS201D5<br>- 2-B | GYS401D5<br>- 2-B | GYS751D5<br>- 2-B | GYS102D5<br>- 2-B | GYS152D5<br>- 2-B | GYS202D5<br>- 2-B | GYS302D5<br>- 2-B | GYS402D5<br>- 2-B | GYS502D5<br>- 2-B |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Static friction torque [N · m] | 0.34              |                   | 1.27              |                   | 2.45              |                   | 6.86              |                   | 17                |                   |                   |
| Rated DC voltage [V]           | DC24±10%          |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Attraction time [ms]           | 35                |                   | 40                |                   | 60                |                   | 100               |                   | 120               |                   |                   |
| Release time [ms]              | 10                |                   | 20                |                   | 25                |                   | 40                |                   | 30                |                   |                   |
| Power consumption [W]          | 6.1 (at 20 °C)    |                   | 7.3 (at 20 °C)    |                   | 8.5 (at 20 °C)    |                   | 17.7 (at 20 °C)   |                   | 12 (at 20 °C)     |                   |                   |

### Torque characteristics diagrams (at 3-phase 200 [V] or single-phase 230 [V] source voltage)

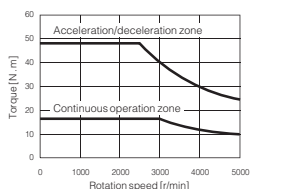
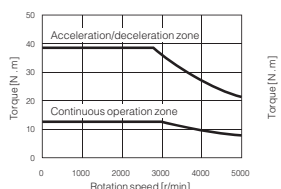
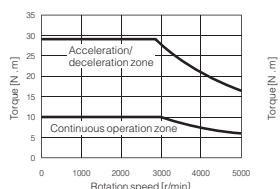
| GYS500D5-□□2<br>0.05kW | GYS101D5-□□2<br>0.1kW | GYS201D5-□□2<br>0.2kW | GYS401D5-□□2<br>0.4kW |
|------------------------|-----------------------|-----------------------|-----------------------|
|------------------------|-----------------------|-----------------------|-----------------------|



| GYS751D5-□□2<br>0.75kW | GYS102D5-□□2<br>1.0kW | GYS152D5-□□2<br>1.5kW | GYS202D5-□□2<br>2.0kW |
|------------------------|-----------------------|-----------------------|-----------------------|
|------------------------|-----------------------|-----------------------|-----------------------|



| GYS302D5-□□2<br>3.0kW | GYS402D5-□□2<br>4.0kW | GYS502D5-□□2<br>5.0kW |
|-----------------------|-----------------------|-----------------------|
|-----------------------|-----------------------|-----------------------|

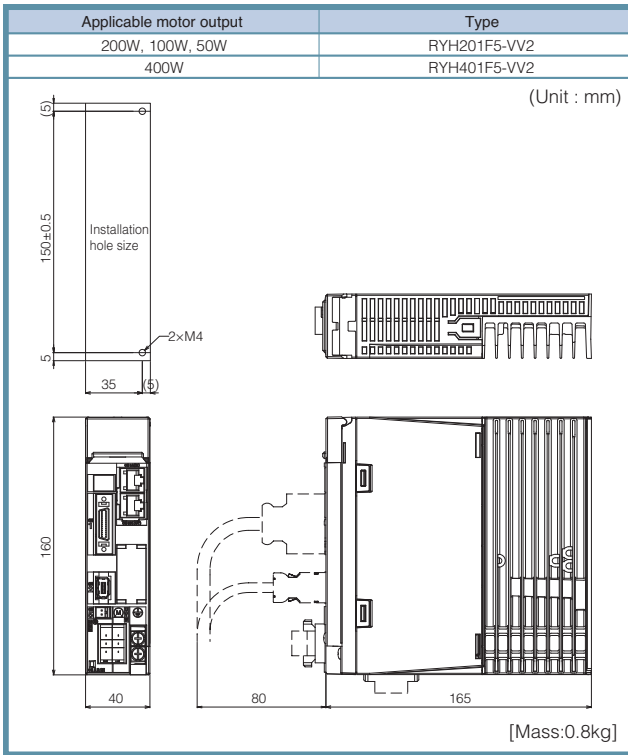


These characteristics indicate typical values of each servomotor combined with the corresponding servo amplifier RYH series. The rated torque indicates the value obtained when the servo amplifier is installed to the following aluminum heat sink.

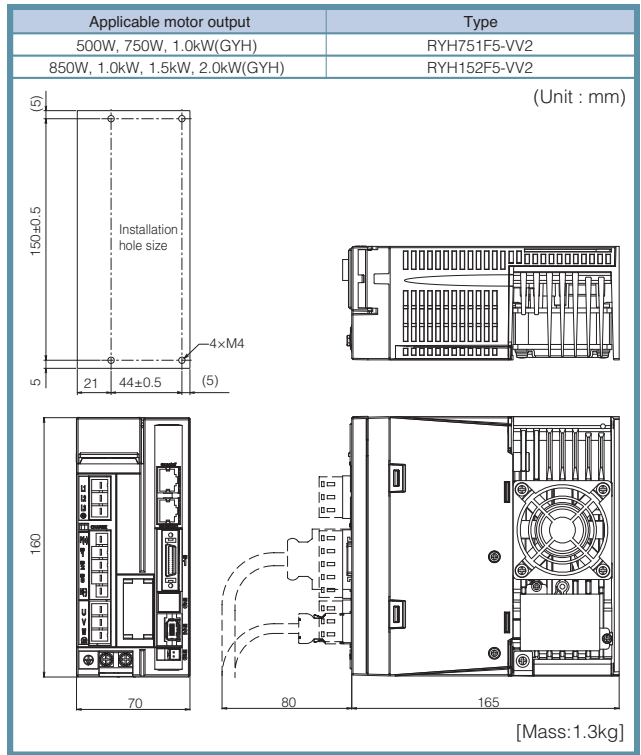
- Model GYS500D, 101D : 200×200×6 [mm]
- Model GYS101D, 401D : 250×250×6 [mm]
- Model GYS751D : 300×300×6 [mm]
- Model GYS102D, 152D, 202D : 350×350×8 [mm]

## Servo amplifier

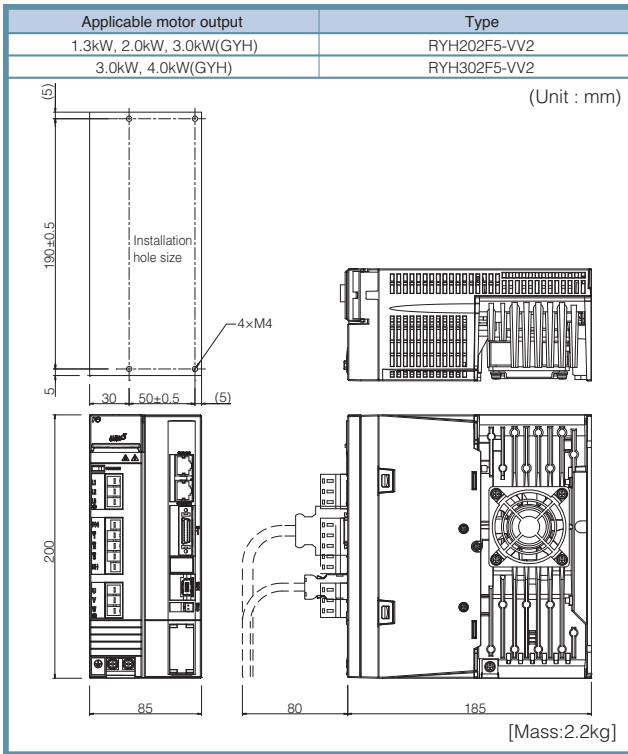
### Frame 1



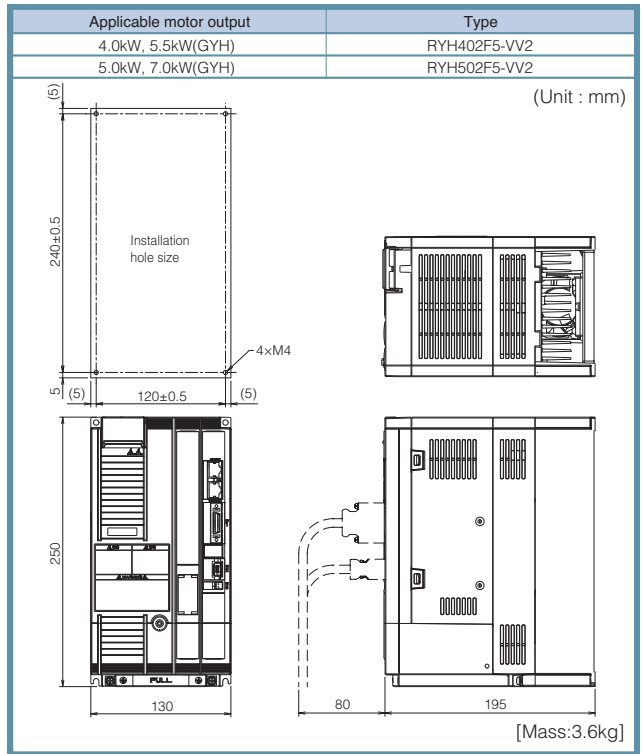
### Frame 2



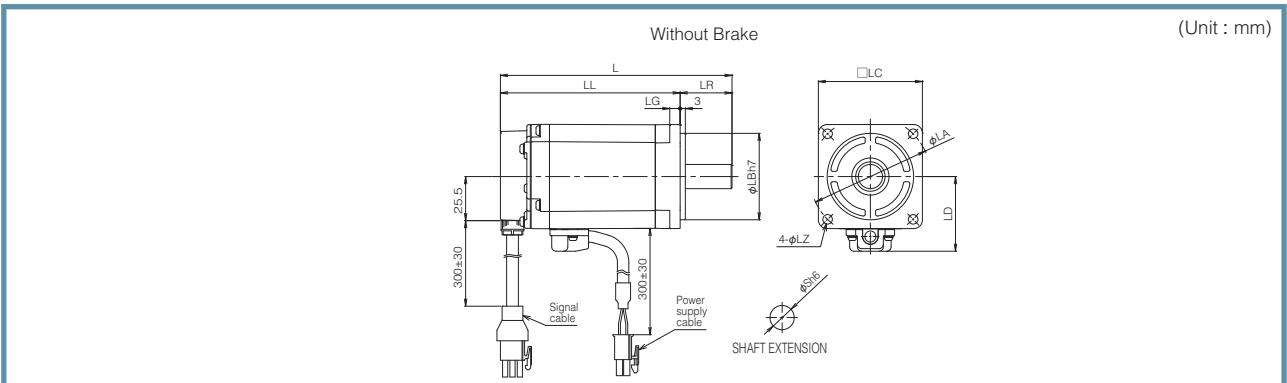
### Frame 3



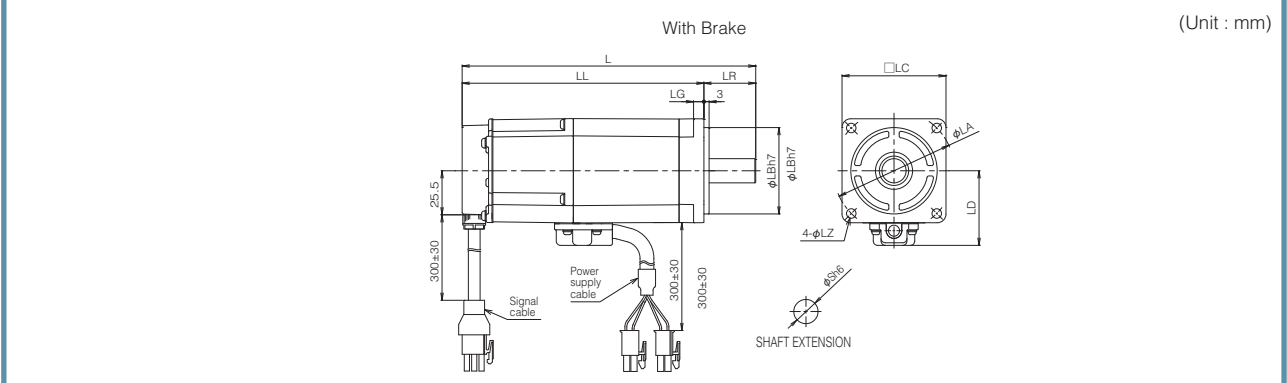
### Frame 4



▣ Middle Inertia GYB Motor [3000r/min]



| Rated speed [r/min] | Rated output [kW] | Model codes (without brake) | L   | LL  | Flange dimensions |    |    |    |    |    |     | S  | Mass [kg] |
|---------------------|-------------------|-----------------------------|-----|-----|-------------------|----|----|----|----|----|-----|----|-----------|
|                     |                   |                             |     |     | LR                | LG | LB | LC | LA | LD | LZ  |    |           |
| 3000                | 0.2               | GYB201D5-□B2                | 112 | 82  | 30                | 6  | 50 | 60 | 70 | 43 | 5.5 | 14 | 1.0       |
|                     | 0.4               | GYB401D5-□B2                | 134 | 104 | 30                | 6  | 50 | 60 | 70 | 43 | 5.5 | 14 | 1.5       |
|                     | 0.75              | GYB751D5-□B2                | 157 | 117 | 40                | 8  | 70 | 80 | 90 | 53 | 7   | 19 | 3.0       |

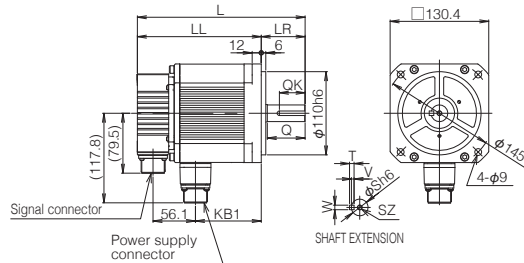


| Rated speed [r/min] | Rated output [kW] | Model codes (with brake) | L     | LL    | Flange dimensions |    |    |    |    |    |     | S  | Mass [kg] |
|---------------------|-------------------|--------------------------|-------|-------|-------------------|----|----|----|----|----|-----|----|-----------|
|                     |                   |                          |       |       | LR                | LG | LB | LC | LA | LD | LZ  |    |           |
| 3000                | 0.2               | GYB201D5-□B2-B           | 148   | 118   | 30                | 6  | 50 | 60 | 70 | 43 | 5.5 | 14 | 1.5       |
|                     | 0.4               | GYB401D5-□B2-B           | 170   | 140   | 30                | 6  | 50 | 60 | 70 | 43 | 5.5 | 14 | 2.1       |
|                     | 0.75              | GYB751D5-□B2-B           | 194.5 | 154.5 | 40                | 8  | 70 | 80 | 90 | 53 | 7   | 19 | 3.9       |

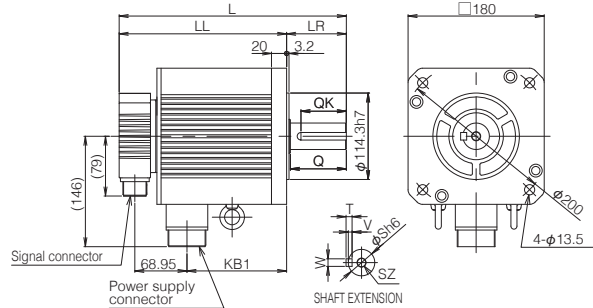
□ : Encoder type R : INC(20bit), H : ABS(18bit)

## ■ Middle Inertia GYH Motor [2000r/min]

Without Brake  
A



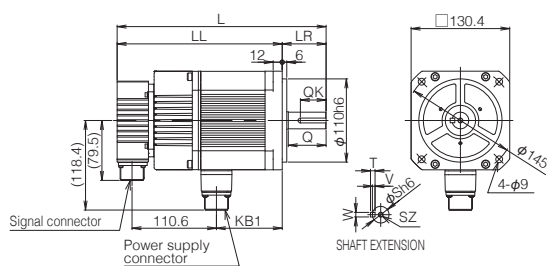
B



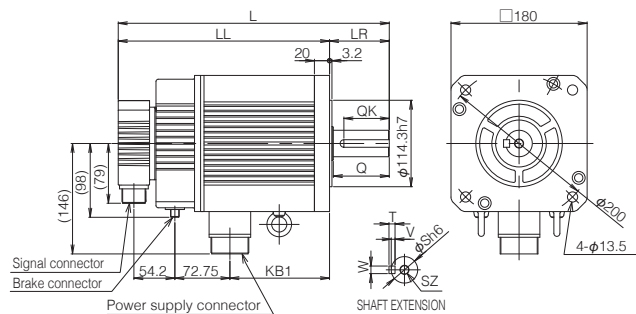
(Unit : mm)

| Rated speed [r/min] | Rated output [kW] | Model codes (without brake) | Fig   | L     | LL    | LR | S   | Q  | QK | W  | T | V            | SZ           | KB1    |
|---------------------|-------------------|-----------------------------|-------|-------|-------|----|-----|----|----|----|---|--------------|--------------|--------|
| 2000                | 1.0               | GYH102C6-TC2                | A     | 221.8 | 163.8 | 58 | 22  | 50 | 35 | 6  | 6 | 3.5          | M6 depth:15  | 87     |
|                     | 1.5               | GYH152C6-TC2                | A     | 241.8 | 183.8 | 58 | 22  | 50 | 35 | 6  | 6 | 3.5          | M6 depth:15  | 107    |
|                     | 2.0               | GYH202C6-TC2                | A     | 271.8 | 213.8 | 58 | 22  | 50 | 35 | 6  | 6 | 3.5          | M6 depth:15  | 137    |
|                     | 3.0               | GYH302C6-TC2                | A     | 321.8 | 263.8 | 58 | 22  | 50 | 35 | 6  | 6 | 3.5          | M6 depth:15  | 187    |
|                     | 4.0               | GYH402C6-TC2                | B     | 332.4 | 253.4 | 79 | 35  | 74 | 60 | 10 | 8 | 5            | M12 depth:24 | 163.75 |
|                     | 5.5               | GYH552C6-TC2                | B     | 361.4 | 282.4 | 79 | 35  | 74 | 60 | 10 | 8 | 5            | M12 depth:24 | 192.75 |
| 7.0                 | GYH702C6-TC2      | B                           | 409.4 | 296.4 | 113   | 42 | 108 | 90 | 12 | 8  | 5 | M16 depth:32 | 206.75       |        |

With Brake  
C



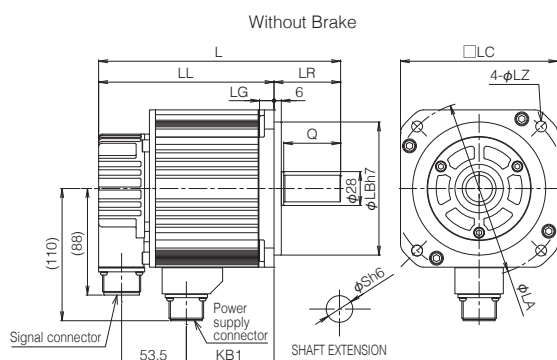
D



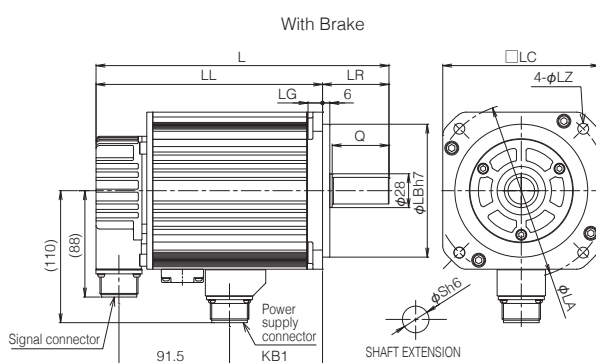
(Unit : mm)

| Rated speed [r/min] | Rated output [kW] | Model codes (with brake) | Fig   | L     | LL    | LR | S   | Q  | QK | W  | T | V            | SZ           | KB1    |
|---------------------|-------------------|--------------------------|-------|-------|-------|----|-----|----|----|----|---|--------------|--------------|--------|
| 2000                | 1.0               | GYH102C6-TC2-B           | C     | 276.3 | 218.3 | 58 | 22  | 50 | 35 | 6  | 6 | 3.5          | M6 depth:15  | 87     |
|                     | 1.5               | GYH152C6-TC2-B           | C     | 296.3 | 238.3 | 58 | 22  | 50 | 35 | 6  | 6 | 3.5          | M6 depth:15  | 107    |
|                     | 2.0               | GYH202C6-TC2-B           | C     | 326.3 | 268.3 | 58 | 22  | 50 | 35 | 6  | 6 | 3.5          | M6 depth:15  | 137    |
|                     | 3.0               | GYH302C6-TC2-B           | C     | 376.3 | 318.3 | 58 | 22  | 50 | 35 | 6  | 6 | 3.5          | M6 depth:15  | 187    |
|                     | 4.0               | GYH402C6-TC2-B           | D     | 390.4 | 311.4 | 79 | 35  | 74 | 60 | 10 | 8 | 5            | M12 depth:24 | 163.75 |
|                     | 5.5               | GYH552C6-TC2-B           | D     | 419.4 | 340.4 | 79 | 35  | 74 | 60 | 10 | 8 | 5            | M12 depth:24 | 192.75 |
| 7.0                 | GYH702C6-TC2-B    | D                        | 467.4 | 354.4 | 113   | 42 | 108 | 90 | 12 | 8  | 5 | M16 depth:32 | 206.75       |        |

## ■ Middle Inertia GYG Motor [2000r/min, 1500r/min]



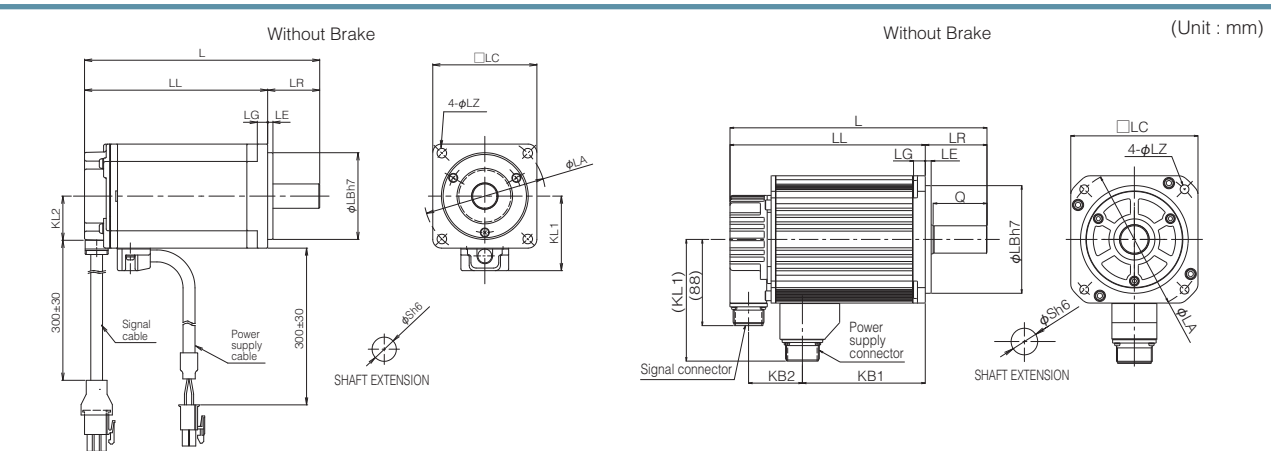
| Rated speed [r/min] | Rated output [kW] | Model codes (without brake) | L     | LL    | Flange dimensions |    |    |     |       |     |     |    | S  | Mass [kg] |
|---------------------|-------------------|-----------------------------|-------|-------|-------------------|----|----|-----|-------|-----|-----|----|----|-----------|
|                     |                   |                             |       |       | LR                | LG | Q  | LB  | KB1   | LC  | LA  | LZ |    |           |
| 2000                | 0.5               | GYG501C5-□B2                | 175   | 120   | 55                | 12 | 47 | 110 | 47.5  | 130 | 145 | 9  | 19 | 5.3       |
|                     | 0.75              | GYG751C5-□B2                | 187.5 | 132.5 | 55                | 12 | 47 | 110 | 60    | 130 | 145 | 9  | 19 | 6.4       |
|                     | 1.0               | GYG102C5-□B2                | 200   | 145   | 55                | 12 | 47 | 110 | 72.5  | 130 | 145 | 9  | 22 | 7.5       |
|                     | 1.5               | GYG152C5-□B2                | 225   | 170   | 55                | 12 | 47 | 110 | 97.5  | 130 | 145 | 9  | 22 | 9.8       |
|                     | 2.0               | GYG202C5-□B2                | 250   | 195   | 55                | 12 | 47 | 110 | 122.5 | 130 | 145 | 9  | 22 | 12        |
| 1500                | 0.5               | GYG501B5-□B2                | 190.5 | 132.5 | 58                | 12 | 40 | 110 | 60    | 130 | 145 | 9  | 19 | 6.4       |
|                     | 0.85              | GYG851B5-□B2                | 203   | 145   | 58                | 12 | 40 | 110 | 72.5  | 130 | 145 | 9  | 19 | 7.5       |
|                     | 1.3               | GYG132B5-□B2                | 228   | 170   | 58                | 12 | 40 | 110 | 97.5  | 130 | 145 | 9  | 22 | 9.8       |



| Rated speed [r/min] | Rated output [kW] | Model codes (without brake) | L     | LL    | Flange dimensions |    |    |     |      |     |     |    | S  | Mass [kg] |
|---------------------|-------------------|-----------------------------|-------|-------|-------------------|----|----|-----|------|-----|-----|----|----|-----------|
|                     |                   |                             |       |       | LR                | LG | Q  | LB  | KB1  | LC  | LA  | LZ |    |           |
| 2000                | 0.5               | GYG501C5-□B2-B              | 217.5 | 162.5 | 55                | 12 | 47 | 110 | 52   | 130 | 145 | 9  | 19 | 7.5       |
|                     | 0.75              | GYG751C5-□B2-B              | 230   | 175   | 55                | 12 | 47 | 110 | 64.5 | 130 | 145 | 9  | 19 | 8.6       |
|                     | 1.0               | GYG102C5-□B2-B              | 242.5 | 187.5 | 55                | 12 | 47 | 110 | 77   | 130 | 145 | 9  | 22 | 9.7       |
|                     | 1.5               | GYG152C5-□B2-B              | 267.5 | 212.5 | 55                | 12 | 47 | 110 | 102  | 130 | 145 | 9  | 22 | 12        |
|                     | 2.0               | GYG202C5-□B2-B              | 292.5 | 237.5 | 55                | 12 | 47 | 110 | 127  | 130 | 145 | 9  | 22 | 14.2      |
| 1500                | 0.5               | GYG501B5-□B2-B              | 233   | 175   | 58                | 12 | 40 | 110 | 64.5 | 130 | 145 | 9  | 19 | 8.6       |
|                     | 0.85              | GYG851B5-□B2-B              | 245.5 | 187.5 | 58                | 12 | 40 | 110 | 77   | 130 | 145 | 9  | 19 | 9.7       |
|                     | 1.3               | GYG132B5-□B2-B              | 270.5 | 212.5 | 58                | 12 | 40 | 110 | 102  | 130 | 145 | 9  | 22 | 12        |

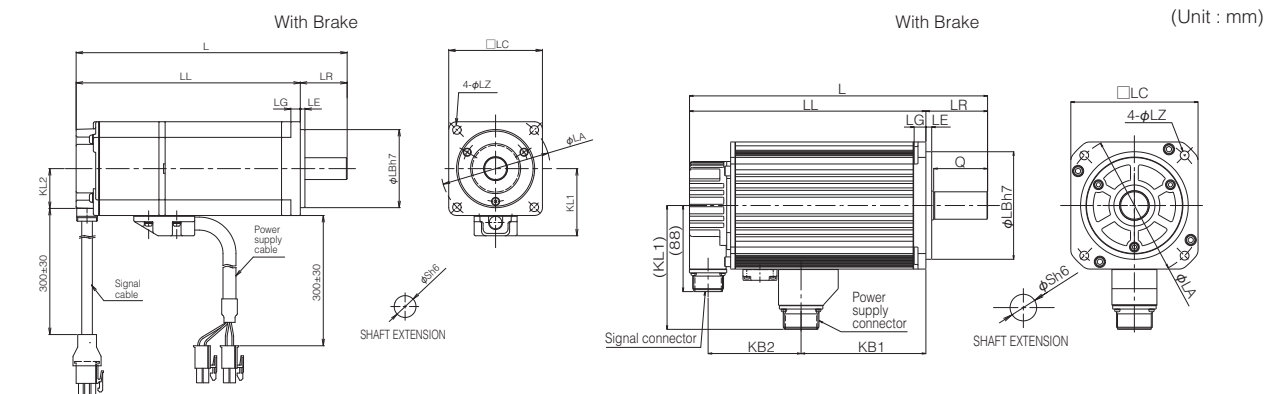
□ : Encoder type R : INC(20bit), H : ABS(18bit)

## Ultra-low Inertia GYS Motor [3000r/min]



| Rated speed [r/min] | Rated output [kW] | Model codes (without brake) | L     | LL    | Flange dimensions |    |     |    |      |    |    |     |     | S  | Mass [kg] |
|---------------------|-------------------|-----------------------------|-------|-------|-------------------|----|-----|----|------|----|----|-----|-----|----|-----------|
|                     |                   |                             |       |       | LR                | LG | LE  | LB | KL2  | LC | LA | LZ  | KL1 |    |           |
| 3000                | 0.05              | GYS500D5-□B2                | 89    | 64    | 25                | 5  | 2.5 | 30 | 21   | 40 | 46 | 4.3 | 33  | 6  | 0.45      |
|                     | 0.1               | GYS101D5-□B2                | 107   | 82    | 25                | 5  | 2.5 | 30 | 21   | 40 | 46 | 4.3 | 33  | 8  | 0.55      |
|                     | 0.2               | GYS201D5-□B2                | 107.5 | 77.5  | 30                | 6  | 3   | 50 | 25.5 | 60 | 70 | 5.5 | 43  | 14 | 1.2       |
|                     | 0.4               | GYS401D5-□B2                | 135.5 | 105.5 | 30                | 6  | 3   | 50 | 25.5 | 60 | 70 | 5.5 | 43  | 14 | 1.8       |
|                     | 0.75              | GYS751D5-□B2                | 161   | 121   | 40                | 8  | 3   | 70 | 25.5 | 80 | 90 | 7   | 53  | 16 | 3.4       |

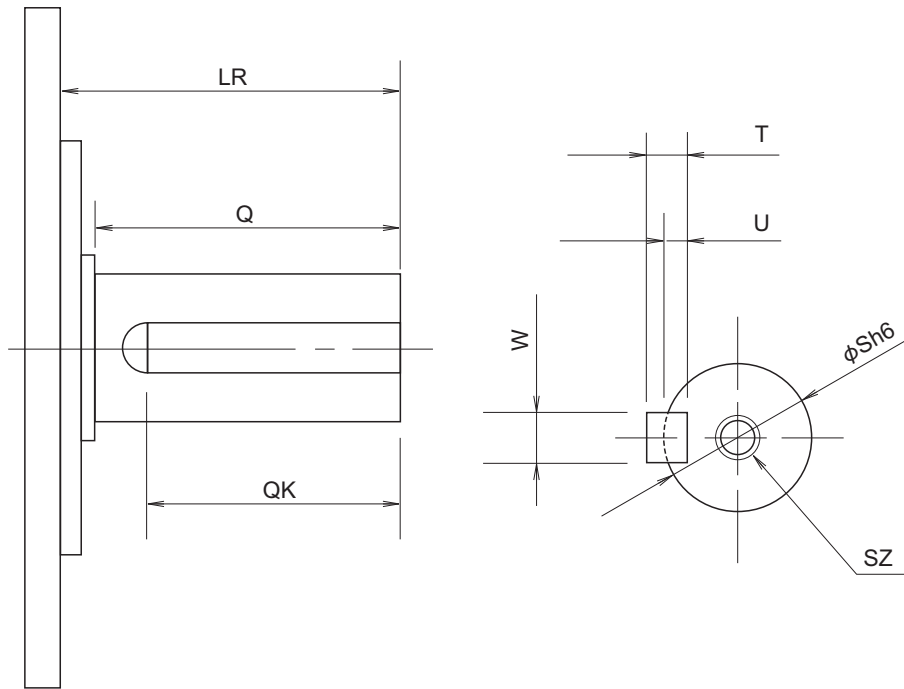
| Rated speed [r/min] | Rated output [kW] | Model codes (without brake) | L     | LL    | Flange dimensions |    |    |    |     |       |     |     |     | S | Mass [kg] |    |      |
|---------------------|-------------------|-----------------------------|-------|-------|-------------------|----|----|----|-----|-------|-----|-----|-----|---|-----------|----|------|
|                     |                   |                             |       |       | LR                | LG | LE | Q  | LB  | KB1   | KB2 | LC  | LA  |   |           | LZ | KL1  |
| 3000                | 1.0               | GYS102D5-□B2                | 198   | 153   | 45                | 10 | 3  | 40 | 95  | 77    | 57  | 100 | 115 | 9 | 95.5      | 24 | 4.4  |
|                     | 1.5               | GYS152D5-□B2                | 220.5 | 175.5 | 45                | 10 | 3  | 40 | 95  | 99.5  | 57  | 100 | 115 | 9 | 95.5      | 24 | 5.2  |
|                     | 2.0               | GYS202D5-□B2                | 243   | 198   | 45                | 10 | 3  | 40 | 95  | 122   | 57  | 100 | 115 | 9 | 95.5      | 24 | 6.3  |
|                     | 3.0               | GYS302D5-□B2                | 262.5 | 199.5 | 63                | 12 | 6  | 55 | 110 | 125.5 | 55  | 130 | 145 | 9 | 125       | 28 | 11   |
|                     | 4.0               | GYS402D5-□B2                | 292.5 | 229.5 | 63                | 12 | 6  | 55 | 110 | 155.5 | 55  | 130 | 145 | 9 | 125       | 28 | 13.5 |
|                     | 5.0               | GYS502D5-□B2                | 322.5 | 259.5 | 63                | 12 | 6  | 55 | 110 | 185.5 | 55  | 130 | 145 | 9 | 125       | 28 | 16   |



| Rated speed [r/min] | Rated output [kW] | Model codes (with brake) | L     | LL    | Flange dimensions |    |     |    |      |    |    |     |     | S  | Mass [kg] |
|---------------------|-------------------|--------------------------|-------|-------|-------------------|----|-----|----|------|----|----|-----|-----|----|-----------|
|                     |                   |                          |       |       | LR                | LG | LE  | LB | KL2  | LC | LA | LZ  | KL1 |    |           |
| 3000                | 0.05              | GYS500D5-□B2-B           | 123.5 | 98.5  | 25                | 5  | 2.5 | 30 | 21   | 40 | 46 | 4.3 | 33  | 6  | 0.62      |
|                     | 0.1               | GYS101D5-□B2-B           | 141.5 | 116.5 | 25                | 5  | 2.5 | 30 | 21   | 40 | 46 | 4.3 | 33  | 8  | 0.72      |
|                     | 0.2               | GYS201D5-□B2-B           | 145.5 | 115.5 | 30                | 6  | 3   | 50 | 25.5 | 60 | 70 | 5.5 | 43  | 14 | 1.7       |
|                     | 0.4               | GYS401D5-□B2-B           | 173.5 | 143.5 | 30                | 6  | 3   | 50 | 25.5 | 60 | 70 | 5.5 | 43  | 14 | 2.3       |
|                     | 0.75              | GYS751D5-□B2-B           | 197   | 157   | 40                | 8  | 3   | 70 | 25.5 | 80 | 90 | 7   | 53  | 16 | 4.2       |

| Rated speed [r/min] | Rated output [kW] | Model codes (with brake) | L     | LL    | Flange dimensions |    |    |    |     |       |     |     |     | S | Mass [kg] |    |      |
|---------------------|-------------------|--------------------------|-------|-------|-------------------|----|----|----|-----|-------|-----|-----|-----|---|-----------|----|------|
|                     |                   |                          |       |       | LR                | LG | LE | Q  | LB  | KB1   | KB2 | LC  | LA  |   |           | LZ | KL1  |
| 3000                | 1.0               | GYS102D5-□B2-B           | 239   | 194   | 45                | 10 | 3  | 40 | 95  | 79    | 96  | 100 | 115 | 9 | 96        | 24 | 5.9  |
|                     | 1.5               | GYS152D5-□B2-B           | 261.5 | 216.5 | 45                | 10 | 3  | 40 | 95  | 101.5 | 96  | 100 | 115 | 9 | 96        | 24 | 6.8  |
|                     | 2.0               | GYS202D5-□B2-B           | 284   | 239   | 45                | 10 | 3  | 40 | 95  | 124   | 96  | 100 | 115 | 9 | 96        | 24 | 7.9  |
|                     | 3.0               | GYS302D5-□B2-B           | 304.5 | 241.5 | 63                | 12 | 6  | 55 | 110 | 127.5 | 95  | 130 | 145 | 9 | 127       | 28 | 13   |
|                     | 4.0               | GYS402D5-□B2-B           | 334.5 | 271.5 | 63                | 12 | 6  | 55 | 110 | 157.5 | 95  | 130 | 145 | 9 | 127       | 28 | 15.5 |
|                     | 5.0               | GYS502D5-□B2-B           | 364.5 | 301.5 | 63                | 12 | 6  | 55 | 110 | 187.5 | 95  | 130 | 145 | 9 | 127       | 28 | 18   |

□ : Encoder type R : INC(20bit), H : ABS(18bit)

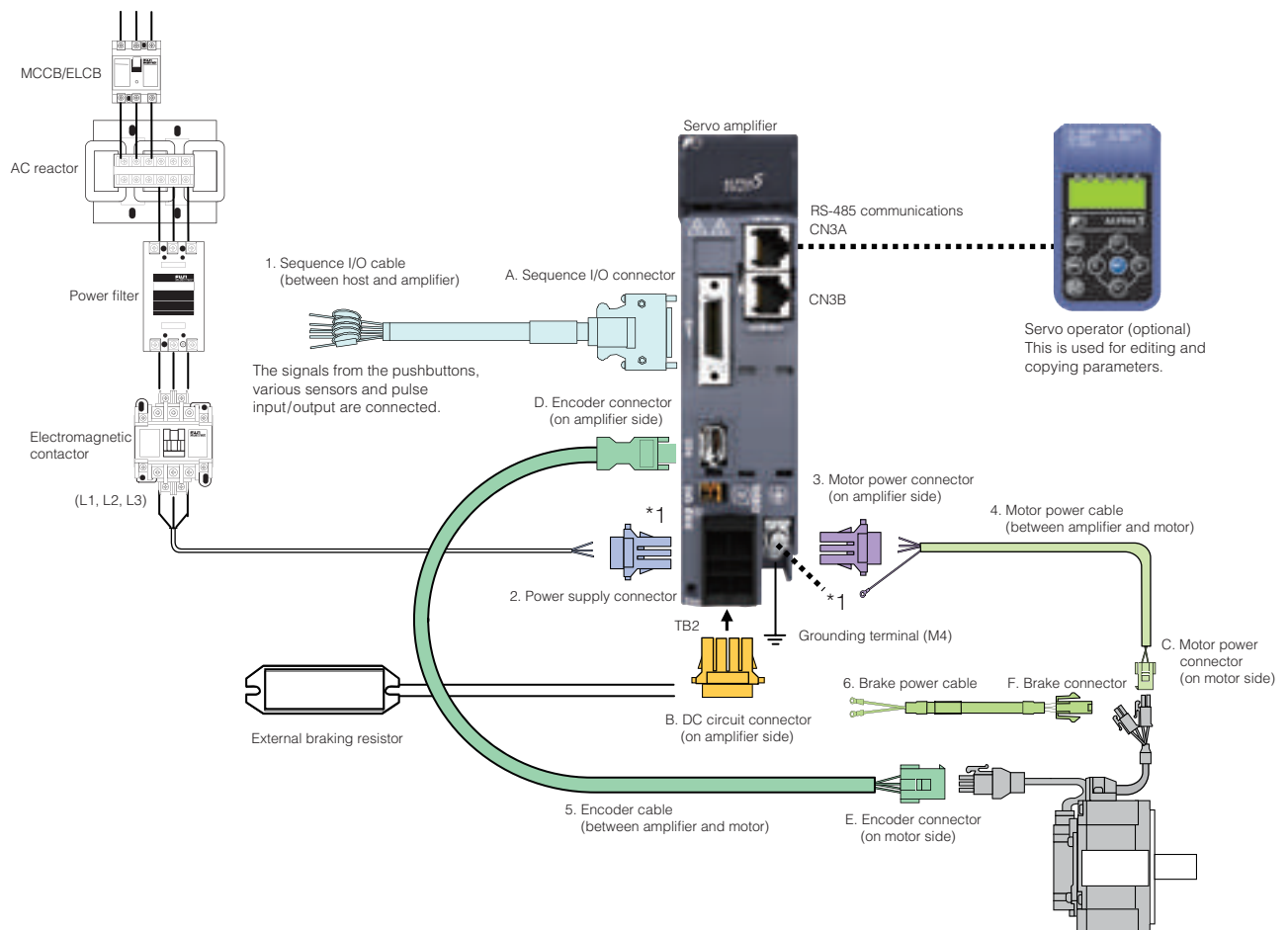


| Motor type                 | LR | Q  | QK | S  | T  | U   | W | SZ          |  |
|----------------------------|----|----|----|----|----|-----|---|-------------|--|
| <b>GYB motor</b>           |    |    |    |    |    |     |   |             |  |
| GYB201D5-□C2-□             | 30 | -- | 14 | 14 | 5  | 3   | 5 | M5 depth:8  |  |
| GYB401D5-□C2-□             |    |    |    |    |    |     |   |             |  |
| GYB751D5-□C2-□             | 40 | -- | 22 | 19 | 6  | 3.5 | 6 | M6 depth:10 |  |
| <b>GYG motor 2000r/min</b> |    |    |    |    |    |     |   |             |  |
| GYG501C5-□C2-□             | 55 | 47 | 35 | 19 | 6  | 3.5 | 6 | M6 depth:12 |  |
| GYG751C5-□C2-□             |    |    |    | 22 | 7  | 4   | 8 | M8 depth:16 |  |
| GYG102C5-□C2-□             |    |    |    |    |    |     |   |             |  |
| GYG152C5-□C2-□             |    |    |    |    |    |     |   |             |  |
| GYG202C5-□C2-□             |    |    |    |    |    |     |   |             |  |
| <b>GYG motor 1500r/min</b> |    |    |    |    |    |     |   |             |  |
| GYG501B5-□C2-□             | 58 | 40 | 30 | 19 | 6  | 3.5 | 6 | M6 depth:12 |  |
| GYG851B5-□C2-□             |    |    |    | 22 | 7  | 4   | 8 | M8 depth:16 |  |
| GYG132B5-□C2-□             |    |    |    |    |    |     |   |             |  |
| <b>GYS motor</b>           |    |    |    |    |    |     |   |             |  |
| GYS500D5-□A□-□*1           | 25 | -- | 14 | 6  | 2  | 1.2 | 2 | --          |  |
| GYS101D5-□A□-□*1           |    |    |    | 8  | 3  | 1.8 | 3 | --          |  |
| GYS201D5-□C□-□             | 30 | -- | 20 | 14 | 5  | 3   | 5 | M5 depth:8  |  |
| GYS401D5-□C□-□             |    |    |    |    |    |     |   |             |  |
| GYS751D5-□C2-□             |    |    |    | 30 | 16 |     |   |             |  |
| GYS102D5-□C2-□             | 40 | 40 | 32 | 24 | 7  | 4   | 8 | M8 depth:16 |  |
| GYS152D5-□C2-□             |    |    |    |    |    |     |   |             |  |
| GYS202D5-□C2-□             |    |    |    |    |    |     |   |             |  |

\*1 The shaft extension of the GYS and GYC motors of 0.1kW or less is not tapped.  
The GYH type is a standard specification motor equipped with a key.

# Configuration Diagram/ Peripheral Equipment

## Configuration diagram



\*1: "power supply connector" (2) and "motor power connector on amplifier side" (3) are shared with the models with the motor output of 0.4 kW or less.

## Peripheral equipment

| Input power          | Rated speed | Motor output [kW] | Applicable servo amplifier type | Power capacity [kVA] | Input current [A] | Power filter  | AC reactor    | Wiring breaker MCCB | Earth leakage breaker ELCB | Electromagnetic contactor MC |              |       |
|----------------------|-------------|-------------------|---------------------------------|----------------------|-------------------|---------------|---------------|---------------------|----------------------------|------------------------------|--------------|-------|
| Single-phase<br>200V | 3000r/min   | 0.05              | RYH201F5-VV2                    | 0.1                  | 0.7               | RNFTC06-20    | ACR2-0.4A     | BW32AAG-2P/3        | EW32AAG-2P/3               | SC-03                        |              |       |
|                      |             | 0.1               |                                 | 1.3                  | ACR2-0.75A        |               | BW32AAG-2P/5  | EW32AAG-2P/5        |                            |                              |              |       |
|                      |             | 0.2               |                                 | 2.4                  | ACR2-1.5A         |               | BW32AAG-2P/10 | EW32AAG-2P/10       |                            |                              |              |       |
|                      |             | 0.4               | 4.7                             | ACR2-2.2A            | BW32AAG-2P/15     |               | EW32AAG-2P/15 |                     |                            |                              |              |       |
|                      |             | 0.75              | 8.6                             | ACR2-1.5A            | BW32AAG-2P/10     |               | EW32AAG-2P/10 |                     |                            |                              |              |       |
|                      | 2000r/min   | 0.5               | RYH751F5-VV2                    | 1.0                  | 5.8               | RNFTC10-20    | ACR2-1.5A     | BW32AAG-2P/10       | EW32AAG-2P/10              | SC-03                        |              |       |
|                      |             | 0.75              | RYH751F5-VV2                    | 1.5                  | 8.6               | RNFTC20-20    | ACR2-2.2A     | BW32AAG-2P/15       | EW32AAG-2P/15              | SC-0                         |              |       |
|                      |             | 1500r/min         | 0.5                             | RYH751F5-VV2         | 1.0               | 5.8           | RNFTC10-20    | ACR2-1.5A           | BW32AAG-2P/10              | EW32AAG-2P/10                | SC-03        |       |
|                      |             | 3-phase<br>200V   | 3000r/min                       | 0.05                 | RYH201F5-VV2      | 0.1           | 0.4           | RNFTC06-20          | ACR2-0.4A                  | BW32AAG-3P/3                 | EW32AAG-3P/3 | SC-03 |
|                      |             |                   |                                 | 0.1                  |                   | 0.7           | ACR2-0.75A    |                     | BW32AAG-3P/5               | EW32AAG-3P/5                 |              |       |
| 0.2                  | 1.4         |                   |                                 | ACR2-1.5A            |                   | BW32AAG-3P/10 | EW32AAG-3P/10 |                     |                            |                              |              |       |
| 0.4                  | 2.7         |                   |                                 | ACR2-2.2A            | BW32AAG-3P/15     | EW32AAG-3P/15 |               |                     |                            |                              |              |       |
| 0.75                 | 5.0         |                   |                                 | ACR2-1.5A            | BW32AAG-3P/10     | EW32AAG-3P/10 |               |                     |                            |                              |              |       |
| 2000r/min            | 1.0         |                   | RYH152F5-VV2                    | 2.0                  | 6.6               | RNFTC10-20    | ACR2-2.2A     | BW32AAG-3P/15       | EW32AAG-3P/15              | SC-4-1                       |              |       |
|                      | 1.5         |                   | RYH152F5-VV2                    | 2.9                  | 9.8               | RNFTC20-20    | ACR2-3.7A     | BW32AAG-3P/30       | EW32AAG-3P/30              |                              |              |       |
|                      | 2.0         |                   | RYH202F5-VV2                    | 3.9                  | 13.0              | RNFTC30-20    | ACR2-5.5A     | BW50AAG-3P/40       | EW50AAG-3P/50              |                              |              |       |
|                      | 3.0         |                   | RYH302F5-VV2                    | 5.9                  | 19.5              | RNFTC50-20    | ACR2-7.5A     | BW50AAG-3P/50       | EW50AAG-3P/50              |                              |              |       |
|                      | 4.0         |                   | RYH402F5-VV2                    | 7.8                  | 26.5              | RNFTC50-20    | ACR2-11A      | BW50AAG-3P/50       | EW50AAG-3P/50              |                              |              |       |
| 1500r/min            | 0.5         | RYH751F5-VV2      | 1.0                             | 3.3                  | RNFTC06-20        | ACR2-0.75A    | BW32AAG-3P/10 | EW32AAG-3P/10       | SC-03                      |                              |              |       |
|                      | 0.75        | RYH751F5-VV2      | 1.5                             | 5.0                  | RNFTC10-20        | ACR2-1.5A     |               |                     |                            |                              |              |       |
|                      | 1.0         | RYH152F5-VV2      | 2.0                             | 6.6                  | RNFTC20-20        | ACR2-2.2A     | BW32AAG-3P/15 | EW32AAG-3P/15       |                            |                              |              |       |
|                      | 1.5         | RYH152F5-VV2      | 2.9                             | 9.8                  |                   | ACR2-3.7A     | BW32AAG-3P/20 | EW32AAG-3P/20       |                            |                              |              |       |
|                      | 2.0         | RYH202F5-VV2      | 3.9                             | 13.0                 |                   | ACR2-5.5A     | BW32AAG-3P/30 | EW32AAG-3P/30       |                            |                              |              |       |
| 1500r/min            | 0.5         | RYH751F5-VV2      | 1.0                             | 3.3                  | RNFTC06-20        | ACR2-0.75A    | BW32AAG-3P/10 | BW32AAG-3P/10       | SC-03                      |                              |              |       |
|                      | 0.85        | RYH152F5-VV2      | 1.7                             | 5.6                  | RNFTC10-20        | ACR2-1.5A     | BW32AAG-3P/10 | BW32AAG-3P/10       | SC-03                      |                              |              |       |
|                      | 1.3         | RYH202F5-VV2      | 2.6                             | 8.5                  | RNFTC20-20        | ACR2-2.2A     | BW32AAG-3P/15 | EW32AAG-3P/15       | SC-0                       |                              |              |       |

## Options

## Basic option \* Prepare the optional items below when using the ALPHA5 Smart series.

| Motor series      | Rated speed | Rated output                          | Brake | 1. Sequence I/O cable<br>(between host and<br>amplifier) | 2. Power supply<br>connector | B. DC circuit<br>connector<br>(on amplifier side) | 3. Motor power<br>connector<br>(on amplifier side)                                 | 4. Motor power cable<br>(between amplifier<br>and motor)                           | 5. Encoder cable<br>(between amplifier<br>and motor)                               | 6. Brake power cable                                                               |
|-------------------|-------------|---------------------------------------|-------|----------------------------------------------------------|------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| GYB motor         | 3000r/min   | 0.2kW,<br>0.4kW                       | W/o   | WSC-D26P02 *4<br>WSC-D26P02-F *3<br>WSC-D26P03           | WSK-S06P-F                   | WSK-R04P-F                                        | *1                                                                                 | WSC-M04P02-E (2m)<br>WSC-M04P05-E (5m)<br>WSC-M04P10-E (10m)<br>WSC-M04P20-E (20m) | WSC-P06P02-E (2m)<br>WSC-P06P05-E (5m)<br>WSC-P06P10-E (10m)<br>WSC-P06P20-E (20m) | -                                                                                  |
|                   |             |                                       | W/    |                                                          |                              |                                                   |                                                                                    |                                                                                    |                                                                                    | WSC-M02P02-E (2m)<br>WSC-M02P05-E (5m)<br>WSC-M02P10-E (10m)<br>WSC-M02P20-E (20m) |
|                   |             | 0.75kW                                | W/o   |                                                          | WSK-S03P-F                   | *2                                                | WSK-M03P-F                                                                         |                                                                                    |                                                                                    | -                                                                                  |
|                   |             |                                       | W/    |                                                          |                              |                                                   |                                                                                    |                                                                                    |                                                                                    | WSC-M02P02-E (2m)<br>WSC-M02P05-E (5m)<br>WSC-M02P10-E (10m)<br>WSC-M02P20-E (20m) |
| GYH motor         | 2000r/min   | 1.0kW<br>to 4.0W<br>5.5kW<br>to 7.0kW | W/o   |                                                          | -                            | -                                                 | -                                                                                  | Prepared by customer                                                               | WSC-P06P05-W<br>WSC-P06P10-W<br>WSC-P06P20-W                                       | -                                                                                  |
|                   |             |                                       | W/    |                                                          | -                            |                                                   |                                                                                    |                                                                                    |                                                                                    |                                                                                    |
|                   |             |                                       | W/o   |                                                          | -                            |                                                   |                                                                                    |                                                                                    |                                                                                    |                                                                                    |
| GYG motor         | 2000r/min   | 0.5kW<br>to 2.0W                      | W/o   |                                                          | WSK-S03P-F                   | *2                                                | WSK-M03P-F                                                                         | Prepared by customer                                                               | WSC-P06P05-C (5m)<br>WSC-P06P10-C (10m)<br>WSC-P06P20-C (20m)                      | -                                                                                  |
| GYG motor         | 1500r/min   | 0.5kW<br>to 1.3kW                     | W/o   |                                                          |                              |                                                   |                                                                                    |                                                                                    | Prepared by customer                                                               |                                                                                    |
| GYS motor         | 3000r/min   | 0.05kW<br>to 0.4kW                    | W/o   | WSK-S06P-F                                               | WSK-R04P-F                   | *1                                                | WSC-M04P02-E (2m)<br>WSC-M04P05-E (5m)<br>WSC-M04P10-E (10m)<br>WSC-M04P20-E (20m) | WSC-P06P02-E (2m)<br>WSC-P06P05-E (5m)<br>WSC-P06P10-E (10m)<br>WSC-P06P20-E (20m) | -                                                                                  |                                                                                    |
|                   |             |                                       | W/    |                                                          |                              |                                                   |                                                                                    |                                                                                    | WSC-M02P02-E (2m)<br>WSC-M02P05-E (5m)<br>WSC-M02P10-E (10m)<br>WSC-M02P20-E (20m) |                                                                                    |
|                   |             | 0.75kW                                | W/o   | WSK-S03P-F                                               | *2                           | WSK-M03P-F                                        |                                                                                    |                                                                                    | -                                                                                  |                                                                                    |
|                   |             |                                       | W/    |                                                          |                              |                                                   |                                                                                    |                                                                                    | WSC-M02P02-E (2m)<br>WSC-M02P05-E (5m)<br>WSC-M02P10-E (10m)<br>WSC-M02P20-E (20m) |                                                                                    |
|                   |             | 1.0kW<br>to 3.0kW                     | W/o   | -                                                        | -                            | -                                                 |                                                                                    |                                                                                    | Prepared by customer                                                               |                                                                                    |
|                   |             |                                       | W/    | -                                                        |                              |                                                   |                                                                                    |                                                                                    |                                                                                    |                                                                                    |
| 4.0kW<br>to 5.0kW | W/o         | -                                     | -     | -                                                        | Prepared by customer         |                                                   |                                                                                    |                                                                                    |                                                                                    |                                                                                    |
|                   | W/          | -                                     |       |                                                          |                              |                                                   |                                                                                    |                                                                                    |                                                                                    |                                                                                    |

\*1: The connector is shared by the motor power (on the amplifier side) and the power supply.

\*2: The connector is not necessary as it is included in the package of servo amplifier.

\*3: When connecting the open collector, Please use the sequence input/output cable for open collector (DC24V).

\*4: When connecting the open collector, Please use the sequence input/output cable for open collector (Outside DC24V).

## Options

## Connector kit options

\* If the cables are fabricated by the customer, please use the connectors below.

| Motor series | Rated speed | Rated output | Brake | A. Sequence I/O connector | 2. Power supply connector | B. DC circuit connector (on amplifier side) | 3. Motor power connector (on amplifier side) | C. Motor power connector (on motor side) | Encoder connector    |                  | F. Brake connector |             |             |             |            |             |
|--------------|-------------|--------------|-------|---------------------------|---------------------------|---------------------------------------------|----------------------------------------------|------------------------------------------|----------------------|------------------|--------------------|-------------|-------------|-------------|------------|-------------|
|              |             |              |       |                           |                           |                                             |                                              |                                          | D. on amplifier side | E. on motor side |                    |             |             |             |            |             |
| GYB motor    | 3000r/min   | 0.2kW,       | W/o   | WSK-D26P                  | WSK-S06P-F                | WSK-R04P-F                                  | *1                                           | WSK-M04P-E                               | WSK-P06P-M           | WSK-P09P-D       | -                  |             |             |             |            |             |
|              |             | 0.4kW        | W/    |                           |                           |                                             |                                              |                                          |                      |                  | WSK-M02P-E         |             |             |             |            |             |
|              |             | 0.75kW       | W/o   |                           |                           |                                             |                                              |                                          |                      |                  | -                  |             |             |             |            |             |
| GYH motor    | 2000r/min   | 1.0kW        | W/o   |                           | WSK-S03P-F                | *2                                          | WSK-M03P-F                                   | See table below.                         |                      | See table below. | See table below.   | WSK-M02P-E  |             |             |            |             |
|              |             | to 4.0kW     | W/    |                           | -                         | -                                           | -                                            |                                          |                      |                  |                    |             |             |             |            |             |
|              |             | 5.5kW        | W/o   |                           | -                         | -                                           | -                                            |                                          |                      |                  |                    |             |             |             |            |             |
| GYG motor    | 2000r/min   | 0.5kW        | W/o   |                           | WSK-S03P-F                | *2                                          | WSK-M03P-F                                   | WSK-M04P-CA                              |                      | WSK-M06P-CA      | WSK-P06P-C         | -           |             |             |            |             |
|              |             | to 2.0kW     | W/    |                           |                           |                                             |                                              |                                          |                      |                  |                    | WSK-M04P-CA | WSK-M06P-CA |             |            |             |
| GYG motor    | 1500r/min   | 0.5kW        | W/o   |                           | WSK-S03P-F                | *2                                          | WSK-M03P-F                                   | WSK-M04P-CA                              |                      | WSK-M06P-CA      | WSK-P06P-C         | -           |             |             |            |             |
|              |             | to 1.3kW     | W/    |                           |                           |                                             |                                              |                                          |                      |                  |                    | WSK-M04P-CB | WSK-M06P-CB |             |            |             |
| GYS motor    | 3000r/min   | 0.05kW       | W/o   |                           | WSK-S06P-F                | WSK-R04P-F                                  | *1                                           | WSK-M04P-E                               |                      | WSK-P09P-D       | WSK-P06P-C         | -           |             |             |            |             |
|              |             | to 0.4kW     | W/    |                           |                           |                                             |                                              |                                          |                      |                  |                    | WSK-M02P-E  |             |             |            |             |
|              |             | 0.75kW       | W/o   | -                         |                           |                                             |                                              |                                          |                      |                  |                    |             |             |             |            |             |
|              |             |              | W/    | WSK-M02P-E                |                           |                                             |                                              |                                          |                      |                  |                    |             |             |             |            |             |
|              |             | 1.0kW        | W/o   | WSK-S03P-F                |                           |                                             |                                              |                                          | *2                   |                  |                    | WSK-M03P-F  | WSK-M04P-CA | WSK-M06P-CA | WSK-P06P-C | -           |
|              |             | to 2.0kW     | W/    |                           |                           |                                             |                                              |                                          |                      |                  |                    |             |             |             |            | WSK-M04P-CB |
|              | 3.0kW       | W/o          | -     | -                         | -                         | -                                           | -                                            | -                                        |                      |                  |                    |             |             |             |            |             |
|              | to 5.0kW    | W/           | -     | -                         | -                         | -                                           | -                                            | -                                        |                      |                  |                    |             |             |             |            |             |

\*1: The connector is shared by the motor power (on the amplifier side) and the power supply.

\*2: The connector is not necessary as it is included in the package of servo amplifier.

\*3: When connecting the open collector, Please use the sequence input/output cable for open collector (DC24V).

\*4: When connecting the open collector, Please use the sequence input/output cable for open collector (Outside DC24V).

## Recommended connectors for GYH motor

| Motor series | Rated speed | Rated output | Brake | Selectable connector installed on motor (for reference)  | Motor power connector |             | F. Brake connector |             | Encoder connector (on motor side) |             |
|--------------|-------------|--------------|-------|----------------------------------------------------------|-----------------------|-------------|--------------------|-------------|-----------------------------------|-------------|
|              |             |              |       |                                                          | Connector             | Cable clamp | Connector          | Cable clamp | Connector                         | Cable clamp |
| GYH motor    | 2000r/min   | 1.0kW        | W/o   | MS3102A20-4P                                             | MS3108A20-4S          | MS3057-12A  | -                  | -           | MS31008A20-18S                    | MS3057-12A  |
|              |             | to 3.0kW     | W/    | MS3102A20-15P                                            | MS3108A20-15S *1      |             | -                  | -           |                                   |             |
|              |             |              | W/o   | MS3102A32-17P                                            | MS3108A32-17S         | MS3057-20A  | -                  | -           |                                   |             |
|              |             | 4.0kW        | W/    | Power MS3102A32-17P<br>Brake power supply MS3102A10SL-3P |                       |             | MS3106A10SL-3S     | MS3057-4A   |                                   |             |

\*1: The GYH type is a standard specification motor equipped with a key.

## External regenerative resistor options

| Amplifier frame | Built-in   | External braking resistor type |              | External braking resistor type |
|-----------------|------------|--------------------------------|--------------|--------------------------------|
| RYH201F5-VV2    | -          | WSR-401                        | 17W / 68 Ω   | 39 to 180                      |
| RYH401F5-VV2    | -          |                                |              | 39 to 90                       |
| RYH751F5-VV2    | 20W / 40 Ω | WSR-152                        | 50W / 15 Ω   | 13 to 47                       |
| RYH152F5-VV2    | 20W / 15 Ω |                                |              | 8.2 to 27                      |
| RYH202F5-VV2    | 45W / 12 Ω | DB11-2                         | 260W / 10 Ω  | 8.2 to 20                      |
| RYH402F5-VV2    | 60W / 16 Ω | DB22-2                         | 300W / 5.8 Ω | 3.9 to 6.8                     |
| RYH502F5-VV3    |            |                                |              |                                |

## ABS backup battery

| Amplifier | Optional battery type |                    |
|-----------|-----------------------|--------------------|
|           | W/ battery case       | Individual battery |
| All       | WSB-SC                | WSB-S              |

## Other option

| Specifications                      | Type                        |
|-------------------------------------|-----------------------------|
| For PC loader connection            | NW0H-CNV                    |
| RS-232C - RS-485 conversion adaptor | WSP-PCL                     |
| Cable                               | 2m (connector at both ends) |
| Servo operator *1                   | WSP-51                      |

\*1: Use a commercially-available USB cable (USB-A : USB-B, or USB-A : mini-B) when connecting the servo operator to PC.

Use a commercially-available LAN cable when connecting the servo operation to the servo amplifier.

☐ Servo Amplifier

| Specifications |                                                                                   |                                                                  |                               |                     |                                  | Type         | Stock Type |
|----------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------|---------------------|----------------------------------|--------------|------------|
| Model          | Control mode                                                                      | Command interface                                                | Input voltage                 | Applicable motor    | Applicable motor output          |              |            |
| VV type        | Position, speed and torque control<br>(With built-in linear positioning function) | General-purpose interface (pulse or analog voltage) (Modbus-RTU) | Single or 3-phase 200 to 240V | GYB, GYH, GYS motor | 0.2kW, 0.1kW, 0.05kW             | RYH201F5-VV2 | ☉          |
|                |                                                                                   |                                                                  |                               |                     | 0.4kW                            | RYH401F5-VV2 | ☉          |
|                |                                                                                   |                                                                  | 3-phase 200 to 240V           |                     | 0.75kW, 0.5kW, 1.0kW(GYH)        | RYH751F5-VV2 | ☉          |
|                |                                                                                   |                                                                  |                               |                     | 1.5kW, 1.0kW, 0.85kW, 2.0kW(GYH) | RYH152F5-VV2 | ☉          |
|                |                                                                                   |                                                                  |                               |                     | 2.0kW, 1.3kW, 3.0kW(GYH)         | RYH202D5-VV2 | ☉          |
|                |                                                                                   |                                                                  |                               |                     | 3.0kW(GYS), 4.0kW(GYH)           | RYH302F5-VV2 | ☉          |
|                |                                                                                   |                                                                  |                               |                     | 4.0kW(GYS), 5.5kW(GYH)           | RYH402F5-VV2 | ☉          |
|                |                                                                                   |                                                                  |                               |                     | 5.0kW(GYS), 7.0kW(GYH)           | RYH502F5-VV2 | ☉          |

☐ Servo Motor

| Specifications                |         |             |                                     |           |       |              | Type           | Stock Type     |   |
|-------------------------------|---------|-------------|-------------------------------------|-----------|-------|--------------|----------------|----------------|---|
| Model                         | Voltage | Rated speed | Oil seal/shaft                      | Encoder   | Brake | Rated output |                |                |   |
| GYB motor<br>(middle inertia) | 200V    | 3000r/min   | with oil seal / with key, tapped    | 20bit INC | W/o   | 0.2kW        | GYB201D5-RG2   | ☉              |   |
|                               |         |             |                                     |           |       | 0.4kW        | GYB401D5-RG2   | ☉              |   |
|                               |         |             |                                     |           |       | 0.75kW       | GYB751D5-RG2   | ☉              |   |
|                               |         |             |                                     |           | W/    | 0.2kW        | GYB201D5-RG2-B | ☉              |   |
|                               |         |             |                                     |           |       | 0.4kW        | GYB401D5-RG2-B | ☉              |   |
|                               |         |             |                                     |           |       | 0.75kW       | GYB751D5-RG2-B | ☉              |   |
|                               |         |             |                                     | 18bit ABS | W/o   | 0.2kW        | GYB201D5-HG2   | △              |   |
|                               |         |             |                                     |           |       | 0.4kW        | GYB401D5-HG2   | △              |   |
|                               |         |             |                                     |           |       | 0.75kW       | GYB751D5-HG2   | △              |   |
|                               |         |             |                                     |           | W/    | 0.2kW        | GYB201D5-HG2-B | △              |   |
|                               |         |             |                                     |           |       | 0.4kW        | GYB401D5-HG2-B | △              |   |
|                               |         |             |                                     |           |       | 0.75kW       | GYB751D5-HG2-B | △              |   |
|                               |         |             | without oil seal / with key, tapped | 20bit INC | W/o   | 0.2kW        | GYB201D5-RC2   | ☉              |   |
|                               |         |             |                                     |           |       | 0.4kW        | GYB401D5-RC2   | ☉              |   |
|                               |         |             |                                     |           |       | 0.75kW       | GYB751D5-RC2   | ☉              |   |
|                               |         |             |                                     |           | W/    | 0.2kW        | GYB201D5-RC2-B | ☉              |   |
|                               |         |             |                                     |           |       | 0.4kW        | GYB401D5-RC2-B | ☉              |   |
|                               |         |             |                                     |           |       | 0.75kW       | GYB751D5-RC2-B | ☉              |   |
|                               |         |             |                                     | 18bit ABS | W/o   | 0.2kW        | GYB201D5-HC2   | △              |   |
|                               |         |             |                                     |           |       | 0.4kW        | GYB401D5-HC2   | △              |   |
|                               |         |             |                                     |           |       | 0.75kW       | GYB751D5-HC2   | △              |   |
|                               |         |             |                                     |           | W/    | 0.2kW        | GYB201D5-HC2-B | △              |   |
|                               |         |             |                                     |           |       | 0.4kW        | GYB401D5-HC2-B | △              |   |
|                               |         |             |                                     |           |       | 0.75kW       | GYB751D5-HC2-B | △              |   |
| GYH motor<br>(middle inertia) | 200V    | 2000r/min   | without oil seal / with key, tapped | 20bit INC | W/o   | 1.0kW        | GYH102C6-TC2   | ☉              |   |
|                               |         |             |                                     |           |       | 1.5kW        | GYH152C6-TC2   | ☉              |   |
|                               |         |             |                                     |           |       | 2.0kW        | GYH202C6-TC2   | ☉              |   |
|                               |         |             |                                     |           |       | 3.0kW        | GYH302C6-TC2   | ☉              |   |
|                               |         |             |                                     |           |       | 4.0kW        | GYH402C6-TC2   | ☉              |   |
|                               |         |             |                                     |           |       | 5.5kW        | GYH552C6-TC2   | ☉              |   |
|                               |         |             |                                     |           |       | 7.0kW        | GYH702C6-TC2   | ☉              |   |
|                               |         |             |                                     |           |       | W/           | 1.0kW          | GYH102C6-TC2-B | ☉ |
|                               |         |             |                                     |           |       |              | 1.5kW          | GYH152C6-TC2-B | ☉ |
|                               |         |             |                                     |           | 2.0kW |              | GYH202C6-TC2-B | ☉              |   |
|                               |         |             |                                     |           | 3.0kW |              | GYH302C6-TC2-B | ☉              |   |
|                               |         |             |                                     |           | 4.0kW |              | GYH402C6-TC2-B | ☉              |   |
|                               |         |             |                                     |           | 5.5kW |              | GYH552C6-TC2-B | ☉              |   |
|                               |         |             |                                     |           | 7.0kW |              | GYH702C6-TC2-B | ☉              |   |

Note: Please contact our sales, if the models outside the above are needed.

☉: Standard △: Order-made

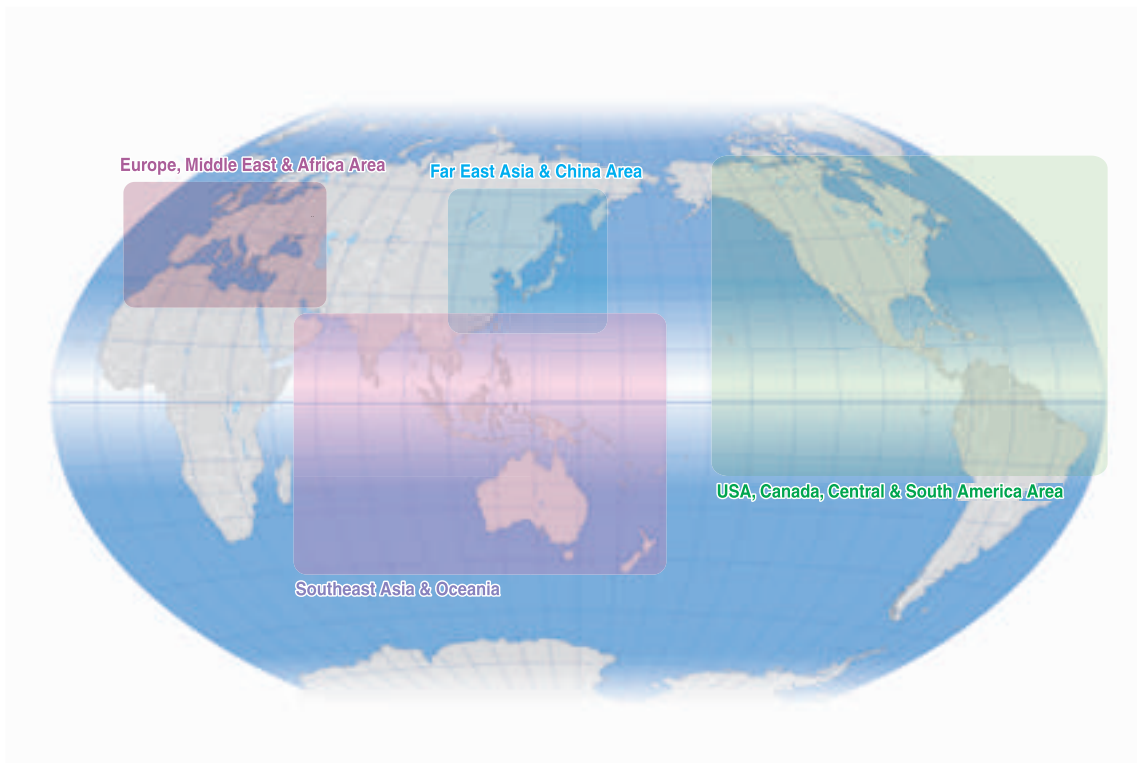
# Model List

## Servo Motor

| Specifications                   |                |             |                                                                                            |           |                |                |                 |            |
|----------------------------------|----------------|-------------|--------------------------------------------------------------------------------------------|-----------|----------------|----------------|-----------------|------------|
| Model                            | Voltage        | Rated speed | Oil seal/shaft                                                                             | Encoder   | Brake          | Rated output   | Type            | Stock Type |
| GYG motor<br>(middle inertia)    | 200V           | 2000r/min   | with oil seal /<br>with key, tapped                                                        | 20bit INC | W/o            | 0.5kW          | GYG501C5-RG2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.75kW         | GYG751C5-RG2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 1.0kW          | GYG102C5-RG2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 1.5kW          | GYG152C5-RG2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 2.0kW          | GYG202C5-RG2    | ◎          |
|                                  |                |             |                                                                                            |           | W/             | 0.5kW          | GYG501C5-RG2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.75kW         | GYG751C5-RG2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 1.0kW          | GYG102C5-RG2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 1.5kW          | GYG152C5-RG2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 2.0kW          | GYG202C5-RG2-B  | ◎          |
|                                  |                |             |                                                                                            | 18bit ABS | W/o            | 0.5kW          | GYG501C5-HG2    | △          |
|                                  |                |             |                                                                                            |           |                | 0.75kW         | GYG751C5-HG2    | △          |
|                                  |                |             |                                                                                            |           |                | 1.0kW          | GYG102C5-HG2    | △          |
|                                  |                |             |                                                                                            |           |                | 1.5kW          | GYG152C5-HG2    | △          |
|                                  |                |             |                                                                                            |           |                | 2.0kW          | GYG202C5-HG2    | △          |
|                                  |                |             |                                                                                            |           | W/             | 0.5kW          | GYG501C5-HG2-B  | △          |
|                                  |                |             |                                                                                            |           |                | 0.75kW         | GYG751C5-HG2-B  | △          |
|                                  |                |             |                                                                                            |           |                | 1.0kW          | GYG102C5-HG2-B  | △          |
|                                  |                |             |                                                                                            |           |                | 1.5kW          | GYG152C5-HG2-B  | △          |
|                                  |                |             |                                                                                            |           |                | 2.0kW          | GYG202C5-HG2-B  | △          |
| GYS motor<br>(ultra-low inertia) | 200V           | 3000r/min   | without oil seal /<br>with key, tapped<br>(* GYS motor of 0.1kW or<br>less is not tapped.) | 20bit INC | W/o            | 0.05kW         | GYS500D5-RA2*   | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.1kW          | GYS101D5-RA2*   | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.2kW          | GYS201D5-RC2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.4kW          | GYS401D5-RC2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.75kW         | GYS751D5-RC2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 1.0kW          | GYS102D5-RC2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 1.5kW          | GYS152D5-RC2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 2.0kW          | GYS202D5-RC2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 3.0kW          | GYS302D5-RC2    | ◎          |
|                                  |                |             |                                                                                            |           |                | 4.0kW          | GYS402D5-RC2    | ◎          |
|                                  |                |             |                                                                                            |           | 5.0kW          | GYS502D5-RC2   | ◎               |            |
|                                  |                |             |                                                                                            |           | W/             | 0.05kW         | GYS500D5-RA2-B* | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.1kW          | GYS101D5-RA2-B* | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.2kW          | GYS201D5-RC2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.4kW          | GYS401D5-RC2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 0.75kW         | GYS751D5-RC2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 1.0kW          | GYS102D5-RC2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 1.5kW          | GYS152D5-RC2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 2.0kW          | GYS202D5-RC2-B  | ◎          |
|                                  |                |             |                                                                                            |           |                | 3.0kW          | GYS302D5-RC2-B  | ◎          |
|                                  |                |             |                                                                                            | 4.0kW     |                | GYS402D5-RC2-B | ◎               |            |
|                                  |                |             |                                                                                            | 5.0kW     | GYS502D5-RC2-B | ◎              |                 |            |
|                                  |                |             |                                                                                            | 18bit ABS | W/o            | 0.05kW         | GYS500D5-HA2*   | △          |
|                                  |                |             |                                                                                            |           |                | 0.1kW          | GYS101D5-HA2*   | △          |
|                                  |                |             |                                                                                            |           |                | 0.2kW          | GYS201D5-HC2    | △          |
|                                  |                |             |                                                                                            |           |                | 0.4kW          | GYS401D5-HC2    | △          |
|                                  |                |             |                                                                                            |           |                | 0.75kW         | GYS751D5-HC2    | △          |
|                                  |                |             |                                                                                            |           |                | 1.0kW          | GYS102D5-HC2    | △          |
|                                  |                |             |                                                                                            |           |                | 1.5kW          | GYS152D5-HC2    | △          |
|                                  |                |             |                                                                                            |           |                | 2.0kW          | GYS202D5-HC2    | △          |
|                                  |                |             |                                                                                            |           |                | 3.0kW          | GYS302D5-HC2    | △          |
|                                  |                |             |                                                                                            |           |                | 4.0kW          | GYS402D5-HC2    | △          |
|                                  |                |             |                                                                                            |           | 5.0kW          | GYS502D5-HC2   | △               |            |
|                                  |                |             |                                                                                            |           | W/             | 0.05kW         | GYS500D5-HA2-B* | △          |
|                                  |                |             |                                                                                            |           |                | 0.1kW          | GYS101D5-HA2-B* | △          |
|                                  |                |             |                                                                                            |           |                | 0.2kW          | GYS201D5-HC2-B  | △          |
|                                  |                |             |                                                                                            |           |                | 0.4kW          | GYS401D5-HC2-B  | △          |
|                                  |                |             |                                                                                            |           |                | 0.75kW         | GYS751D5-HC2-B  | △          |
|                                  |                |             |                                                                                            |           |                | 1.0kW          | GYS102D5-HC2-B  | △          |
|                                  |                |             |                                                                                            |           |                | 1.5kW          | GYS152D5-HC2-B  | △          |
| 2.0kW                            | GYS202D5-HC2-B | △           |                                                                                            |           |                |                |                 |            |
| 3.0kW                            | GYS302D5-HC2-B | △           |                                                                                            |           |                |                |                 |            |
| 4.0kW                            | GYS402D5-HC2-B | △           |                                                                                            |           |                |                |                 |            |
| 5.0kW                            | GYS502D5-HC2-B | △           |                                                                                            |           |                |                |                 |            |

Note: Please contact our sales, if the models outside the above are needed.

◎: Standard △: Order-made



**Fuji FA Service Centers**

● **Far East Asia**

Overseas Service Center  
Gate City Ohsaki, East Tower  
11-2,Osaki 1-Chome,Shinagawa-ku  
Tokyo,141-0032,Japan  
Tel: +81-3-5435-7059  
Fax: +81-3-5435-7447

■ **Korea**

• CANA ELECTRIC CO.,LTD.  
501 Ewha Bldg., 8-21, Yangjae-Dong,  
Seocho-Gu, Seoul, 137-887, Korea  
Tel:+82-2-3462-0670  
Fax:+82-2-3462-0678

■ **Taiwan**

• ELTA ELECTRICAL CO.,LTD.  
4F, No.32, Sec.3, Cheng-Teh Road, Taipei, Taiwan  
Tel:+886-2-2597-6458  
Fax:+886-2-2595-4571  
• FULL KEY SYSTEM CO., LTD.  
12F, No.111-8, Hsing-Teh Road, San-Chung City, Taipei, Taiwan  
Tel:+886-2-2995-2008  
Fax:+886-2-2995-2028

● **Europe,Middle East & Africa Area**

EU Service Center  
Goethering 58,63067 Offenbach/Main Germany  
Tel: +49-69-66-90-29-0  
Fax: +49-69-66-90-29-58

● **China Area**

FUJI ELECTRIC (CHINA) CO.,LTD.  
Floor 29, International Corporate City,  
No 3000 North Zhongshan Road  
Shanghai China (P.C.200063)  
Tel: +86-21-5496-1177  
Fax: +86-21-6228-0350

● **Southeast Asia & Oceania**

Southeast Asia & Oceania Service Center  
171 Chin Swee Road, #12-01 San Centre,  
Singapore 169877  
Tel: +65-6533-0014  
Fax: +65-6533-0021

● **USA,Canada,Cental & South America Area**

USA Service Center  
47520 Westinghouse Drive  
Fremont,CA 94539,USA  
Tel: +1-510-440-1060  
Fax: +1-510-440-1063

Please access the URL below for further details:  
[http://www.fujielectric.co.jp/products/provide\\_data/drive/network/world/world-top.html](http://www.fujielectric.co.jp/products/provide_data/drive/network/world/world-top.html)

## ■ Please take the following items into consideration when placing your order.

When requesting an estimate and placing your orders for the products included in these materials, please be aware that any items such as specifications which are not specifically mentioned in the contract, catalog, specifications or other materials will be as mentioned below. In addition, the products included in these materials are limited in the use they are put to and the place where they can be used, etc., and may require periodic inspection. Please confirm these points with your sales representative or directly with this company. Furthermore, regarding purchased products and delivered products, we request that you take adequate consideration of the necessity of rapid receiving inspections and of product management and maintenance even before receiving your products.

### 1. Free of Charge Warranty Period and Warranty Range

#### 1-1 Free of charge warranty period

- (1) The product warranty period is "1 year from the date of purchase" or 24 months from the manufacturing date imprinted on the name plate, whichever date is earlier.
- (2) However, in cases where the use environment, conditions of use, use frequency and times used, etc., have an effect on product life, this warranty period may not apply.
- (3) Furthermore, the warranty period for parts restored by Fuji Electric's Service Department is "6 months from the date that repairs are completed."

#### 1-2 Warranty range

- (1) In the event that breakdown occurs during the product's warranty period which is the responsibility of Fuji Electric, Fuji Electric will replace or repair the part of the product that has broken down free of charge at the place where the product was purchased or where it was delivered. However, if the following cases are applicable, the terms of this warranty may not apply.
  - 1) The breakdown was caused by inappropriate conditions, environment, handling or use methods, etc. which are not specified in the catalog, operation manual, specifications or other relevant documents.
  - 2) The breakdown was caused by the product other than the purchased or delivered Fuji's product.
  - 3) The breakdown was caused by the product other than Fuji's product, such as the customer's equipment or software design, etc.
  - 4) Concerning the Fuji's programmable products, the breakdown was caused by a program other than a program supplied by this company, or the results from using such a program.
  - 5) The breakdown was caused by modifications or repairs affected by a party other than Fuji Electric.
  - 6) The breakdown was caused by improper maintenance or replacement using consumables, etc. specified in the operation manual or catalog, etc.
  - 7) The breakdown was caused by a chemical or technical problem that was not foreseen when making practical application of the product at the time it was purchased or delivered.
  - 8) The product was not used in the manner the product was originally intended to be used.
  - 9) The breakdown was caused by a reason which is not this company's responsibility, such as lightning or other disaster.
- (2) Furthermore, the warranty specified herein shall be limited to the purchased or delivered product alone.
- (3) The upper limit for the warranty range shall be as specified in item (1) above and any damages (damage to or loss of machinery or equipment, or lost profits from the same, etc.) consequent to or resulting from breakdown of the purchased or delivered product shall be excluded from coverage by this warranty.

#### 1-3. Trouble diagnosis

As a rule, the customer is requested to carry out a preliminary trouble diagnosis. However, at the customer's request, this company or its service network can perform the trouble diagnosis on a chargeable basis. In this case, the customer is asked to assume the burden for charges levied in accordance with this company's fee schedule.

### 2. Exclusion of Liability for Loss of Opportunity, etc.

Regardless of whether a breakdown occurs during or after the free of charge warranty period, this company shall not be liable for any loss of opportunity, loss of profits, or damages arising from special circumstances, secondary damages, accident compensation to another company, or damages to products other than this company's products, whether foreseen or not by this company, which this company is not be responsible for causing.

### 3. Repair Period after Production Stop, Spare Parts Supply Period (Holding Period)

Concerning models (products) which have gone out of production, this company will perform repairs for a period of 7 years after production stop, counting from the month and year when the production stop occurs. In addition, we will continue to supply the spare parts required for repairs for a period of 7 years, counting from the month and year when the production stop occurs. However, if it is estimated that the life cycle of certain electronic and other parts is short and it will be difficult to procure or produce those parts, there may be cases where it is difficult to provide repairs or supply spare parts even within this 7-year period. For details, please confirm at our company's business office or our service office.

### 4. Transfer Rights

In the case of standard products which do not include settings or adjustments in an application program, the products shall be transported to and transferred to the customer and this company shall not be responsible for local adjustments or trial operation.

### 5. Service Contents

The cost of purchased and delivered products does not include the cost of dispatching engineers or service costs. Depending on the request, these can be discussed separately.

### 6. Applicable Scope of Service

Please inquiry the supplier or Fuji Electric China for details of above.

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## SAFETY PRECAUTIONS

1. This catalog is intended for use in selecting required servo systems. Before actually using these products, carefully read their instruction manuals and understand their correct usage.
2. Products described in this catalog are neither designed nor manufactured for combined use with a system or equipment that will affect human lives.  
If you are considering using these products for special purposes, such as atomic energy control, aerospace, medical application, or traffic control, please consult our sales office.
3. If you use our product with equipment that is expected to cause serious injury or damage to your property in case of failure, be sure to take appropriate safety measures for the equipment.

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## Fuji Electric Co., Ltd.

Gate City Ohsaki, East Tower, 11-2,  
Osaki 1-chome, Shinagawa-ku,  
Tokyo 141-0032, Japan  
Phone: +81-3-5435-7057 Fax: +81-3-5435-7420  
URL: <http://www.fujielectric.com/>