



FUJI AC SERVO SYSTEM

FALDIC

SIMPLE & SMART

FALDIC-β
CATALOG
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The functions and features you're looking for, polished up.

FALDIC β

SIMPLE & SMART

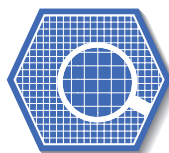


The FALDIC-β Series, designed for high performance and high precision, achieves vastly suppressed mechanical vibration through the use of Fuji's original vibration suppressing control function and notch filter, and realizes positioning settling times of less than 1 ms, etc. All the functions are housed in a compact body, and installation can be done in different ways to enable flexibility in different applications. Through the polished presentation of the functions and performance you are looking for, multiple needs can be met at a high level. This product is ideal particularly for machines in which high tact and high speed positioning are required.

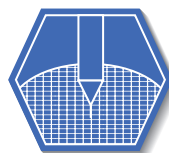
FALDIC-β CONCEPT

- Suppresses mechanical vibrations to the maximum extent.
- Designed for high performance and high precision.
- Innovative compact size.
- Simple operation and short setup time.
- The standard configuration conforms to international standards. (UL/cUL, CE Marks)

TARGET



Semiconductor manufacturing, inspection equipment



Electronic parts fabrication equipment



Unloading robots



Wire harness fabricator

Ideal for machines for which high tact and high speed positioning are required.

Performance

FALDIC-β

- 50W to 750W (Rated speed: 3000 r/min)
- Slim, cubic motors
- 16-bit INC encoder
- Exclusive pulse train input
- Simple operation
- Personal computer loader with new functions (Option)



FALDIC-α













- 50W to 5kW (Rated speed: 3000 r/min)
- Slim, cubic motors
- 16-bit ABS/INC encoder
- Pulse train/Analog input, Di/Do, SX bus, T-link, RS-485, multi-purpose interface provided.
- Built-in positioning controller (L, R type)
- Personal computer loader (Option)



(Catalog No. MEH392)

Function

Examples of Use

 <p>Semiconductor manufacturing, inspection equipment</p>	 <p>Packing machines</p>	 <p>Food processing</p>
 <p>Electronic parts fabrication equipment</p>	 <p>Printing machines</p>	 <p>Wood processing</p>
 <p>Unloading robots</p>	 <p>Conveyance</p>	 <p>Injection molding</p>
 <p>Wire harness fabricator</p>	 <p>Fibers</p>	 <p>Metal cutting machine tools</p>

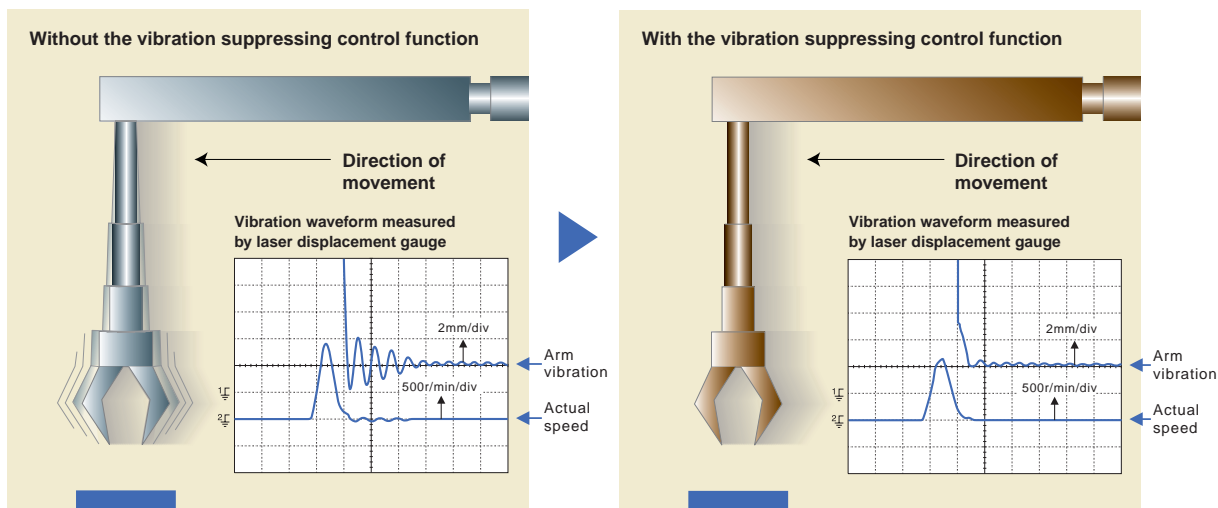


Suppresses mechanical vibrations to the maximum extent.

- Equipped with a “Vibration Suppressing Control Function” which is an effective countermeasure for suppressing vibration of the tips of robot arms, etc.

Fuji's original vibration control function (Patent pending)

In high tact operation of mechanisms with low rigidity, such as the tips of robot arms, suppression of arm tip vibration is a major factor in shortening tact time. In the FALDIC-β series, Fuji's original “Vibration Suppressing Control Function” is standard equipment. It reduces vibration in machines with low rigidity and realizes high machine tact.



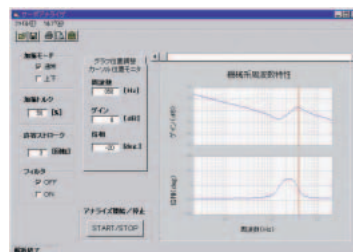
- Equipped with a notch filter and servo analysis function.

Notch Filter

This function is for the purpose of reducing machine resonance. By setting the data on the resonance point, which differs in each machine, as a parameter in the servo amplifier, the machine resonance occurring in that point can be reduced.

Servo Analysis Function (Option)

In order to utilize the “Vibration Suppressing Control Function” and “Notch Filter,” etc. effectively, it is necessary to analyze the “resonance frequencies” that are inherent in each machine. If the “Servo Analysis Function” offered in the optional personal computer loader is used, it can analyze the data for the machine system simply, eliminating the needs for complicated calculations and adjustments which are dependent on intuition.



Designed for high performance and high precision.

- Command following servo (positional deviation \approx zero).

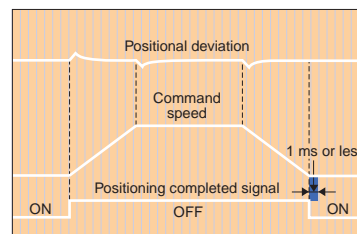
Positioning settling time is 1 ms or less.

Through the newly developed feed forward control which compensates for servo delay, operation even during acceleration and deceleration can be done with positional deviation almost zero. A positioning completed signal can be output virtually simultaneously with the end of the command pulse (within 1 ms).

- 16-bit High Resolution Encoder

A 65536 pulse/revolution serial encoder (exclusive INC) is standard equipment.

It can also be used for machines where high performance and highly accurate positioning is required.



Features 3.



Servo amplifiers which are the smallest in the industry, and can be installed side by side without clearance.

■ Innovative compact body

200V type, 200W: 35 (W) x 130 (H) x 130 (D)

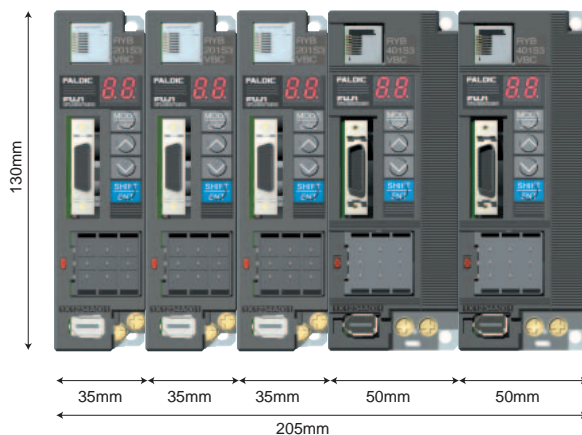
■ Side by side installation supports miniaturization of the control panel.

These units can be installed side by side horizontally, and through standardization of the height and depth dimensions, even if multiple units are used, they can be housed in an extremely compact cabinet, enabling miniaturization of control panels.

Capacity (W)	W (mm)	H (mm)	D (mm)
50	35	130	130
100	35	130	130
200	35	130	130
400	50	130	130
750	70	130	130

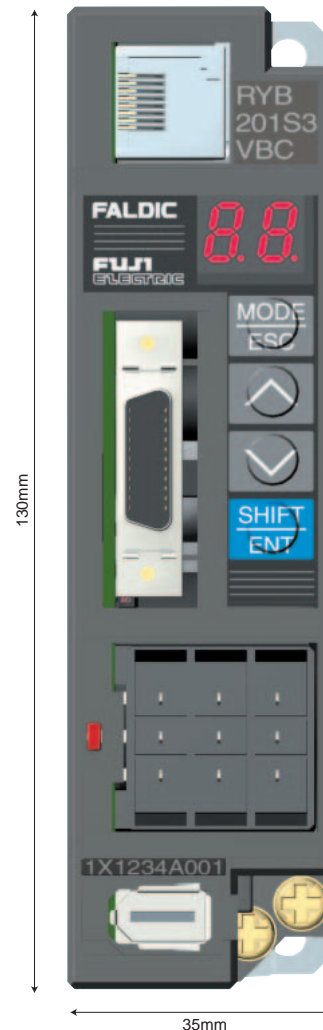
■ Panel space is reduced by side-by-side installation.

Example: 200W x 3 axes + 400 W x 2 axes



* The operating environment differs if the units are mounted side by side.

200V type, 200W actual size



Features 4.



Simple operation and short setup time

■ Uses a new type auto tuning function. ■ Setup parameters are designed to enhance operability.

The previous auto tuning function has been further refined so that adjustments of even "heavy perpetual loads," which are considered to be difficult in ordinary tuning, can be done easily.

By setting only 7 different parameters in the basic settings, operation with the industry's top level performance can be accomplished. In addition, by using the "personal computer loader" (option) for setting each type of system, setup can be accomplished in a short time.

Features 5.



The standard configuration conforms to international standards. (UL/cUL, CE Marks)

The standard specifications of the FALDIC-β Series support the "UL/cUL" and "CE Mark," so it can be used not only within Japan but anywhere overseas. This makes it a global servo with leading-edge performance, dimensions and operability that can be utilized anywhere.

* Application filed for acquisition of UL/cUL, CE marking.



Explanation of Model Codes

● Servo amplifier

R Y B 2 0 1 S 3 - V B C 6

Code	Amplifier type
RYB	FALDIC-β standard

Code	Motor output
500	50×10 ³ = 50W
201	20×10 ³ =200W

Code	Series
S	Standard

Code	Input voltage
Omitted	3-phase 200V
6	Single-phase 100V

Code	Encoder, others
C	16-bit, exclusive for INC, standard

Code	Host interface
B	DI/DO (for pulse train only)

Code	Major functions
V	Pulse train/speed control

● Servomotor

G Y S 2 0 1 D C 1 - C 6 B - B

Code	Motor type
GYS	Slim
GYC	Cubic

Code	Motor output
500	50×10 ³ = 50W
201	20×10 ³ =200W

Code	Rated speed
D	3000r/min

Code	Installation method
C	By securing flange

Code	Brake
Omitted	Not provided
B	Provided

Code	Oil seal, shaft
A	No oil seal, straight shaft with a key
B	No oil seal, straight shaft without a key

Code	Voltage
Omitted	200V
6	100V
8	Common to 100V and 200V

Code	Encoder
C	16-bit, exclusive for INC

● Gear head

G Y N 2 0 1 S A G - G 0 9

Code	Gear head type
GYN	Standard

Code	Motor output
500	50×10 ³ = 50W
201	20×10 ³ =200W

Code	Motor type
S	Slim
C	Cubic

Code	Gear ratio
G09	1/9
G25	1/25

Code	Installation method
G	By securing flange

Code	Order of development
G	

Specifications for Servomotor 200V Series

Specifications [Servomotor]

GYS Motor

Servomotor (Slim Type)

Standard Specifications

Motor type GYS□□□□□□-□□□	500DC1(*2) -C8B	101DC1 -C6B	201DC1 -C6B	500DC1(*2) -C8B	101DC1 -CB	201DC1 -CA	401DC1 -CA	751DC1 -CA
Series	Single-phase 100V series			3-phase 200V series				
Rated output [W]	50	100	200	50	100	200	400	750
Rated torque [N·m]	0.159	0.318	0.637	0.159	0.318	0.637	1.27	2.39
Rated speed [r/min]	3000							
Max. speed [r/min]	5000							
Max. torque [N·m]	0.478	0.955	1.91	0.478	0.955	1.91	3.82	7.17
Moment of inertia [kg·m ²]	0.0192×10 ⁻⁴	0.0371×10 ⁻⁴	0.135×10 ⁻⁴	0.0192×10 ⁻⁴	0.0371×10 ⁻⁴	0.135×10 ⁻⁴	0.246×10 ⁻⁴	0.853×10 ⁻⁴
Rated current [A]	0.85	1.5	2.7	0.85	0.85	1.5	2.7	4.8
Max. current [A]	2.55	4.5	8.1	2.55	2.55	4.5	8.1	14.4
Winding insulation class	B							
Operation duty type	Continuous							
Degree of enclosure protection	Totally enclosed, self cooled (IP55) (excluding the shaft sealing and connectors)							
Terminals (motor)	With 0.3 m flexible leads and connectors							
Terminals (encoder)	With 0.3 m flexible leads and connectors							
Overheat protection	Not provided (Servo amplifier detects temperature.)							
Mounting method	By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)							
Shaft extension (*1)	Straight shaft without a key						Straight shaft with a key	
Paint color	Munsell N1.5							
Encoder	16-bit serial encoder							
Vibration level	V5 or under							
Installation place, altitude	For indoor use, 1000 [m] or below							
Ambient temperature, humidity	-10 to +40 [°C], 90 [%] RH max. (without condensation)							
Vibration resistance	49 [m/s ²] [5 G]							
Mass [kg]	0.45	0.55	1.2	0.45	0.55	1.2	1.8	3.4

*1) The standard motors of 50W, 100W, and 200W (100V series) has a shaft with no key. When using any of these motors in combination with a gear head, specify a motor having a shaft key.
 *2) The same 50W motor is used for both single phase 100V and 3-phase 200V applications.

Motor with a Brake

Motor type GYS□□□□□□-□□□-□	500DC1(*2) -C8B-B	101DC1 -C6B-B	201DC1 -C6B-B	500DC1(*2) -C8B-B	101DC1 -CB-B	201DC1 -CA-B	401DC1 -CA-B	751DC1 -CA-B
Series	Single-phase 100V series			3-phase 200V series				
Rated output [W]	50	100	200	50	100	200	400	750
Rated torque [N·m]	0.159	0.318	0.637	0.159	0.318	0.637	1.27	2.39
Static friction torque [N·m]	0.3	0.3	1.27	0.3	0.3	1.27	1.27	2.45
Rated DC voltage	DC24 [W] ±10%							
Attraction time [ms]	35	35	40	35	35	40	40	60
Release time [ms]	10	10	20	10	10	20	20	25
Braking power (20°C) [W]	6.1	6.1	7.3	6.1	6.1	7.3	7.3	8.5
Mass [kg]	0.62	0.72	1.7	0.62	0.72	1.7	2.3	4.2

*1) The standard motors of 50W, 100W, and 200W (100V series) have a shaft with no key. When using any of these motors in combination with a gear head, specify a motor having a shaft key.
 *2) The same 50W motor is used for both single phase 100V and 3-phase 200V applications.
 *3) The brake is used to hold the rotor.

GYS Motor Gear Head

Gear Head for Slim Type Servomotor

Gear Head (Gear Ratio 1/9)

Gear head type GYN□□□□□□-□□□□	500SAG -G09	101SAG -G09	201SAG -G09	500SAG -G09	101SAG -G09	201SAG -G09	401SAG -G09	751SAG -G09	
Applicable motor	Series	Single-phase 100V series			3-phase 200V series				
	Capacity	50 [W]	100 [W]	200 [W]	50 [W]	100 [W]	200 [W]	400 [W]	750 [W]
Actual speed reduction ratio	1/9								
Rated speed [r/min]	333.3								
Max. speed [r/min]	555.5								
Rated torque [N·m]	1.23	2.45	4.9	1.23	2.45	4.9	9.8	18.1	
Breakdown (max.) torque [N·m]	3.68	7.36	14.7	3.68	7.36	14.7	29.4	54.3	
Direction of motor rotation (*4)	CCW								
Backlash [min]	Max. 40			Max. 30		Max. 40			Max. 30
Lubrication	Long-life grease (Sumiplex MP No.2)								
Mass [kg]	0.7	0.7	2.1	0.7	0.7	2.1	2.1	3.8	

*1) The standard motors of 50W, 100W, and 200W (100V series) have a shaft with no key. When using any of these motors in combination with a gear head, specify a motor having a shaft key.
 *2) The same 50W motor is used for both single phase 100V and 3-phase 200V applications.
 *4) When the motor shaft rotates forward, the gear output shaft rotates in CCW (counter-clockwise) direction.

Gear Head (Gear Ratio 1/25)

Gear head type GYN□□□□□□-□□□□	500SAG -G25	101SAG -G25	201SAG -G25	500SAG -G25	101SAG -G25	201SAG -G25	401SAG -G25	751SAG -G25	
Applicable motor	Series	Single-phase 100V series			3-phase 200V series				
	Capacity	50 [W]	100 [W]	200 [W]	50 [W]	100 [W]	200 [W]	400 [W]	750 [W]
Actual speed reduction ratio	1/25								
Rated speed [r/min]	120								
Max. speed [r/min]	200								
Rated torque [N·m]	3.19	6.38	12.7	3.19	6.38	12.7	25.5	48	
Breakdown (max.) torque [N·m]	9.56	19.1	38.2	9.56	19.1	38.2	76.4	144	
Direction of motor rotation (*4)	CCW								
Backlash [min]	Max. 40			Max. 30		Max. 40			Max. 30
Lubrication	Long-life grease (Sumiplex MP No.2)								
Mass [kg]	0.7	0.7	2.1	0.7	0.7	2.1	2.1	3.8	

*1) The standard motors of 50W, 100W, and 200W (100V series) have a shaft with no key. When using any of these motors in combination with a gear head, specify a motor having a shaft key.
 *2) The same 50W motor is used for both single phase 100V and 3-phase 200V applications.
 *4) When the motor shaft rotates forward, the gear output shaft rotates in CCW (counter-clockwise) direction.

GYC Motor

Servomotor (Cubic Type)

Standard Specifications

Motor type GYC□□□□□□-□□□□	101DC1-CA	201DC1-CA	401DC1-CA	751DC1-CA
Series	3-phase 200V series			
Rated output [W]	100	200	400	750
Rated torque [N·m]	0.318	0.637	1.27	2.39
Rated speed [r/min]	3000			
Max. speed [r/min]	5000			
Max. torque [N·m]	0.955	1.91	3.82	7.17
Moment of inertia [kg·m ²]	0.0577×10 ⁻⁴	0.213×10 ⁻⁴	0.408×10 ⁻⁴	1.21×10 ⁻⁴
Rated current [A]	1.0	1.5	2.6	4.8
Max. current [A]	3.0	4.5	7.8	14.4
Winding insulation class	B			
Operation duty type	Continuous			
Degree of enclosure protection	Totally enclosed, self cooled (IP55) (excluding the shaft sealing and connectors)			
Terminals (motor)	With 0.3 m flexible leads and connectors			
Terminals (encoder)	With 0.3 m flexible leads and connectors			
Overheat protection	Not provided (Servo amplifier detects temperature.)			
Mounting method	By securing motor flange IMB5 (L51), IMV1 (L52), IMV3 (L53)			
Shaft extension	Straight shaft with a key			
Paint color	Munsell N1.5			
Encoder	16-bit serial encoder			
Vibration level	V5 or under			
Installation place, altitude	For indoor use, 1000 [m] or below			
Ambient temperature, humidity	-10 to +40 [°C], 90 [%] RH max. (without condensation)			
Vibration resistance	49 [m/s ²] [5 G]			
Mass [kg]	0.75	1.3	1.9	3.5

Motor with a Brake

Motor type GYC□□□□□□-□□□□-□	101DC1-CA-B	201DC1-CA-B	401DC1-CA-B	751DC1-CA-B
Series	3-phase 200V series			
Rated output [W]	100	200	400	750
Rated torque [N·m]	0.318	0.637	1.27	2.39
Static friction torque [N·m]	0.318	1.27	1.27	2.39
Rated DC voltage	DC24 [V] ±10%			
Attraction time [ms]	60	80	80	50
Release time [ms]	40	40	40	80
Brake input (20°C) [W]	6.5	9.0	9.0	8.5
Mass (weight) [kg]	1.0	1.9	2.6	4.3

*1) The brake is used to hold the rotor.

GYC Motor Gear Head

Gear Head for Cubic Type Servomotor

Gear Head (Gear Ratio 1/9)

Type GYN□□□□□□-□□□□	101CAG-G09	201CAG-G09	401CAG-G09	751CAG-G09
Applicable motor	Series	3-phase 200V series		
	Capacity	100 [W]	200 [W]	400 [W]
Actual speed reduction ratio	1/9			
Rated speed [r/min]	333.3			
Max. speed [r/min]	555.5			
Rated torque [N·m]	2.45	4.9	9.8	18.1
Breakdown (max.) torque [N·m]	7.35	14.7	29.4	54.4
Direction of motor rotation (*1)	CCW			
Backlash [min]	Max. 40	Max. 30		
Lubrication	Long-life grease (Sumiplex MP No.2)			
Mass [kg]	0.72	2.1	2.1	3.8

*1) When the motor shaft rotates forward, the gear output shaft rotates in CCW (counter-clockwise) direction.

Gear Head (Gear Ratio 1/25)

Type GYN□□□□□□-□□□□	101CAG-G25	201CAG-G25	401CAG-G25	751CAG-G25
Applicable motor	Series	3-phase 200V series		
	Capacity	100 [W]	200 [W]	400 [W]
Actual speed reduction ratio	1/25			
Rated speed [r/min]	120			
Max. speed [r/min]	200			
Rated torque [N·m]	6.37	12.7	25.5	48
Breakdown (max.) torque [N·m]	19.1	38.2	76.4	144
Direction of motor rotation (*1)	CCW			
Backlash [min]	Max. 40	Max. 30		
Lubrication	Long-life grease (Sumiplex MP No.2)			
Mass [kg]	0.72	2.1	2.1	3.8

*1) When the motor shaft rotates forward, the gear output shaft rotates in CCW (counter-clockwise) direction.

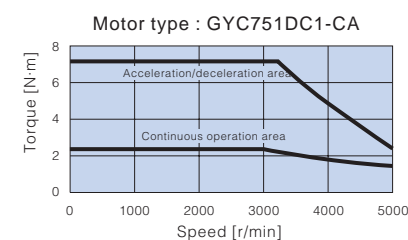
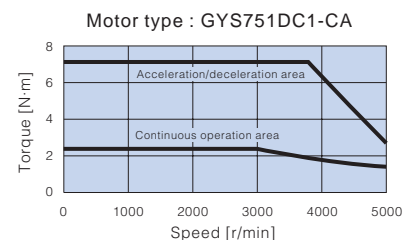
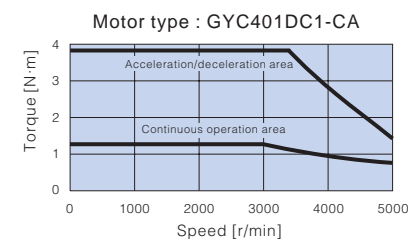
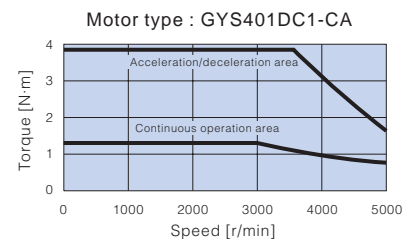
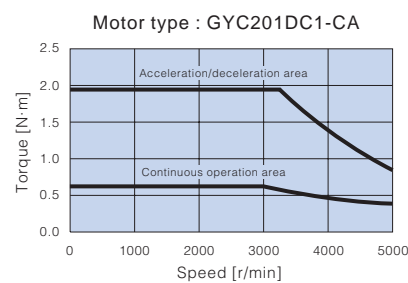
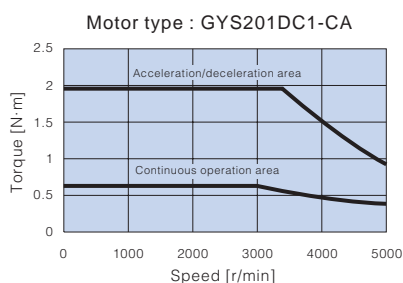
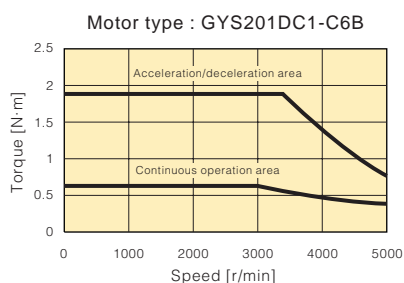
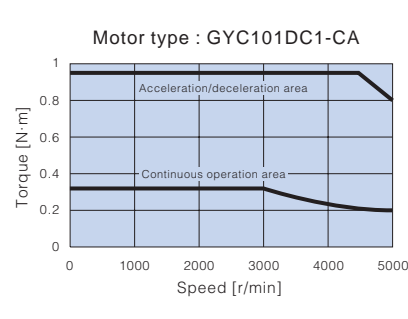
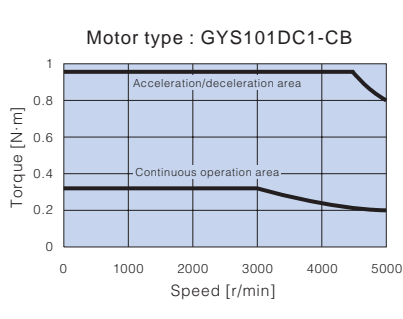
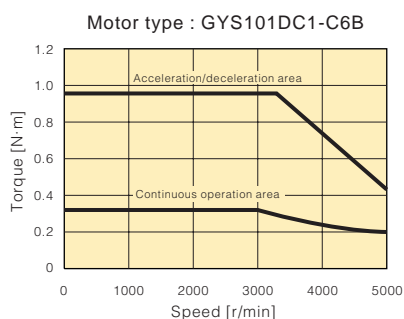
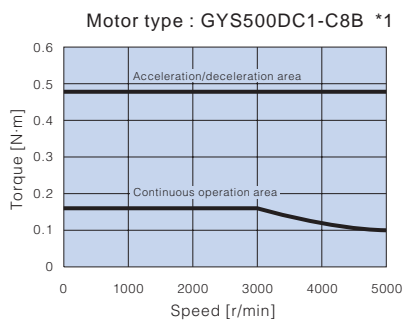
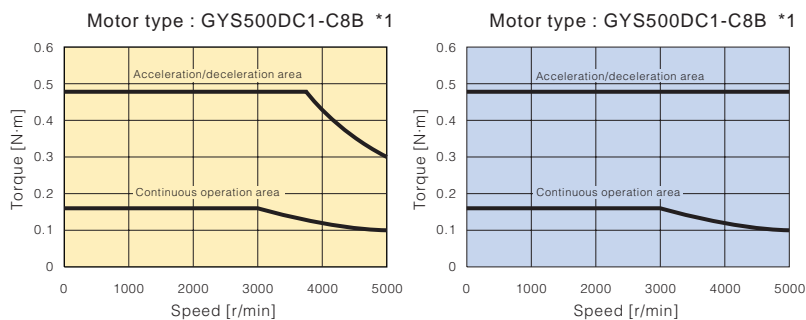
Specifications for Servomotor

Specifications [Servomotor]

Slim type	
100V series	200V series

Cubic type
200V series

50W
100W
200W
400W
750W



*1) GYS500DC1-C8B is used for both 100V and 200V series.

Basic Specifications

Amplifier type RY□□□□□□□□□□	500S3 -VBC6	101S3 -VBC6	201S3 -VBC6	500S3 -VBC	101S3 -VBC	201S3 -VBC	401S3 -VBC	751S3 -VBC
Series	Single-phase 100V series			3-phase 200V series				
Applicable motor output [W]	50	100	200	50	100	200	400	750
Input	Phase	Single phase input			3-phase input (Single phase input is possible if motor output is 400 W or less.)			
	Voltage	AC 100 to 115 [V] -15 % + 10 %			AC 200 to 230 [V] -15 % + 10 %			
	Frequency	50/60 [Hz]			50/60 [Hz]			
Output	Control system	Sinusoidal PWM current control (full digital)						
	Overload capability	3 [s] / 300 %						
	Braking	Dynamic braking to DC intermediate circuit with regenerative resistor (op) externally installed						
Encoder	16-bit serial encoder for incremental position detection (resolution/turn:16 bits = 65536)							
Functions	Position control	Pulse train input						
	Max. pulse frequency	Input: 1 [MHz] (differential), 200 [kHz] (open collector), output: 500 [kHz] (differential)						
	Position control resolution	2 ¹⁶ (= 65536)/revolution						
	Frequency response	600 Hz (at JL =JM)						
	Max. speed	5000r/min						
Major new functions	Vibration suppressing control, notch filter, command follow-up control, new auto-tuning, servo analysis function (PC loader option)							
Protection (alarm)	Overcurrent (01, 02), overspeed (03), overvoltage (04), encoder trouble (05), control power trouble (06, 07), memory error (08), combination error (09), resistor overheat (10), encoder communication error (11), control signal error (12), motor overload (13), undervoltage (14), regenerative resistor overheat (15), excessive deviation (16), amplifier overheat (17), encoder overheat (18), initial error (19)							
Working conditions	Installation place	For indoors use at max. altitude of 1000 m. The installation place shall be free from dust, corrosive gas, or direct sunlight. To meet the European standard: Pollution degree = 2, Over voltage category = II						
	Temp., humidity	-10 to +55 [°C], 10 to 90 [%] RH (without condensation)						
	Vibration/shock resistance	4.9 m/s ² (0.5 G) / 19.6 m/s ² (2G)						
Others	The amplifier conforms to UL508c (UL/cUL), and application filed to obtain CE marking (based on Low-voltage Directive EN50178).							
Mass [kg]	0.6		0.7	0.6		0.7		1.0

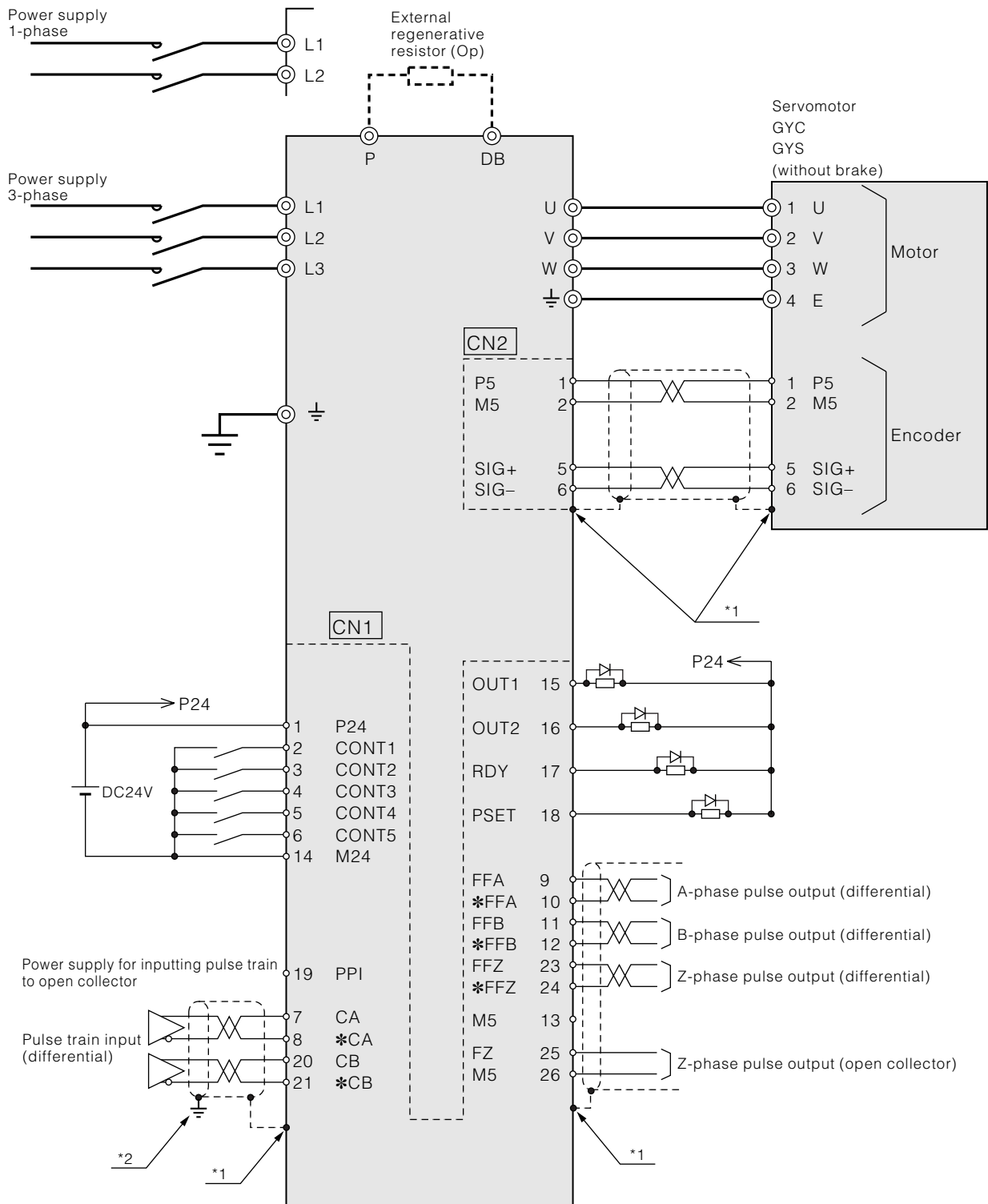
*Install an AC reactor if the connected power source capacity is 500kVA or over.

*Ask us for the working conditions of the amplifiers installed side by side.

Interface Specifications

Terminal	Code	Specifications
Pulse train input	CA, *CA CB, *CB	Pulse train form Select with parameters from command pulse/code, forward/reverse rotation pulse, and two 90° phase-different signals.
	PPI	Pull-up power source input: 12 to 24V DC (open collector)
Frequency dividing output	FFA, *FFA FFB, *FFB	Differential output, two 90° phase-different signals output Setting output pulses: n = 16 to 16384 [pulses/rev]
	FFZ, *FFZ	Differential output [1 pulse/rev]
	FZ, M5	Open collector output [1 pulse/rev]
Power input for sequence signals	P24 M24	+24 V DC for sequence signals is input from outside. 300-mA power is required as external power source.
Sequence input signal	Cont1 to Cont5	A terminal is ON when connected with M24, and OFF when disconnected. +24 V DC, 10 mA (one-point) Terminals can be assigned to each function by parameter setting.
Sequence output signal	RDY PSET OUT1, OUT2	ON while being connected with M24 terminal DC 30 V/50 mA (max.) OUT1 and OUT2 to which control output signals are assigned

Connection Diagram (Reference)



*1: Connect the shielded lines of CN1 and CN2 to the connector shell. The connector shell is connected with FG (earth).

*2: Ground both ends of each shielded line. [Connect the amplifier side to the connector shell and the pulse generator side to FG (earth)]

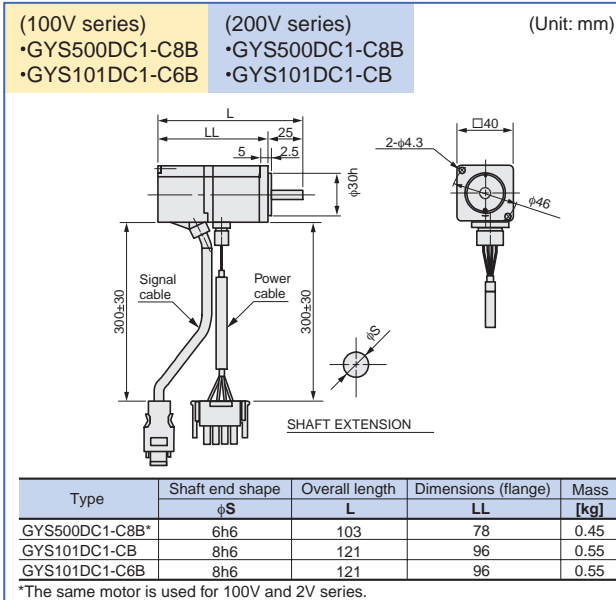


The above diagram is given as a reference for model selection.
When actually using the selected servo system, make wiring connections according to the connection diagram and instructions described in the user's manual.

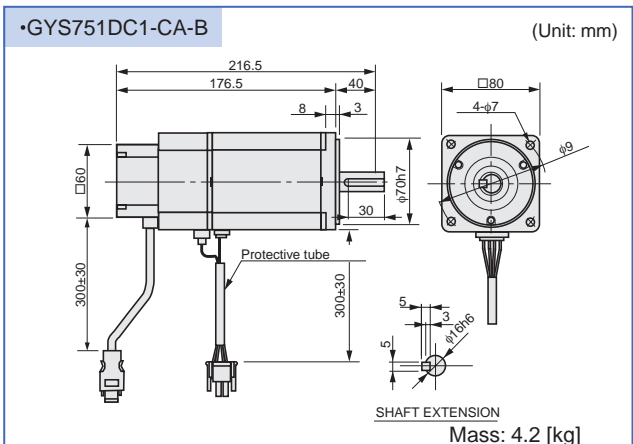
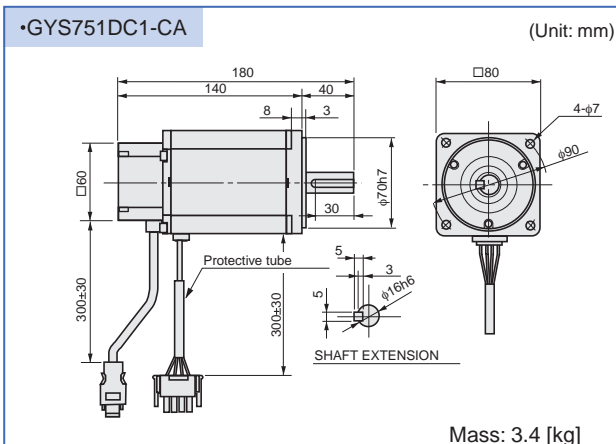
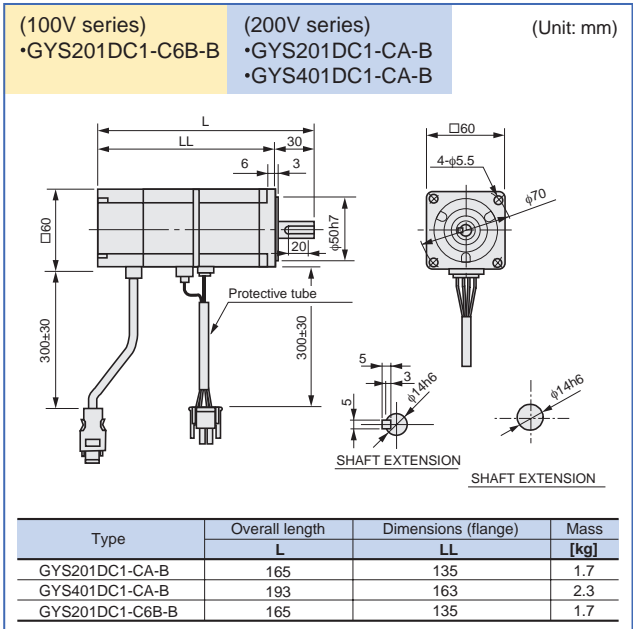
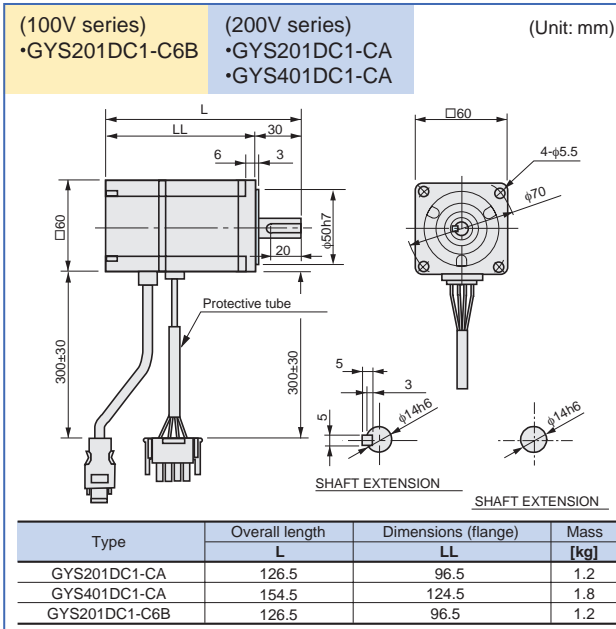
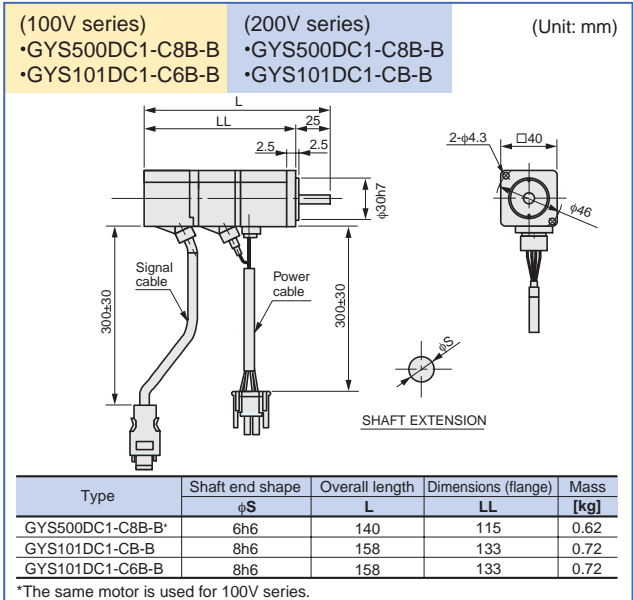
External Dimensions

Slim Type Servomotor

Series: GYS series motor of standard type



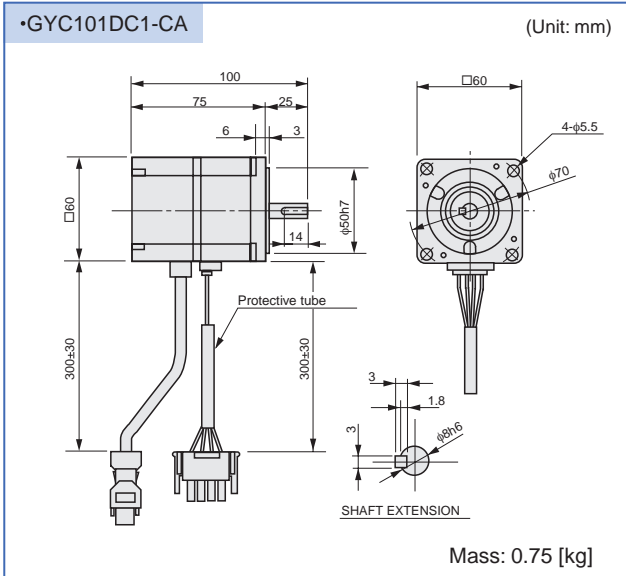
Series: GYS series motor with a brake



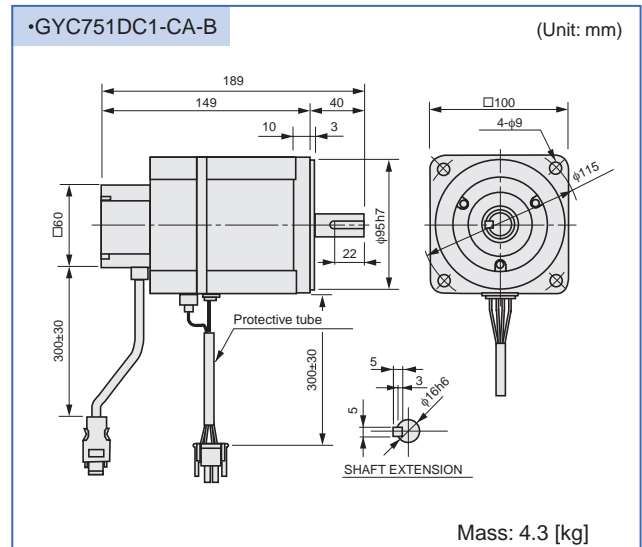
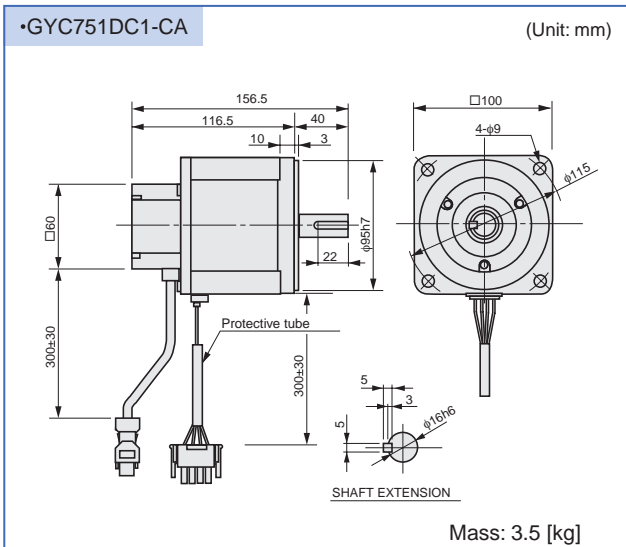
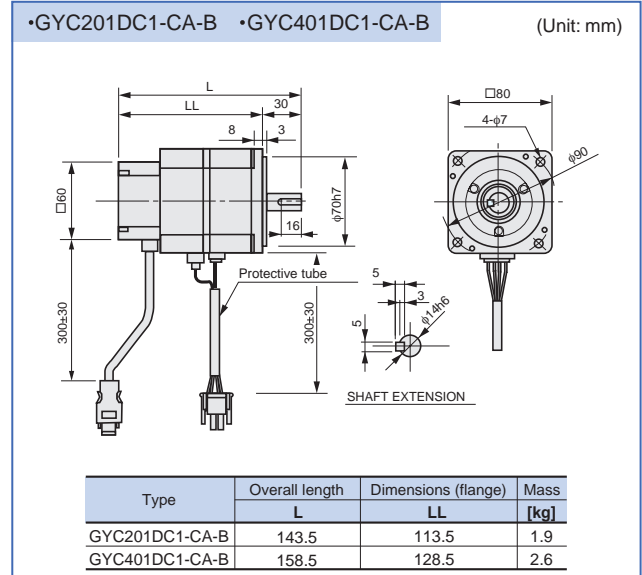
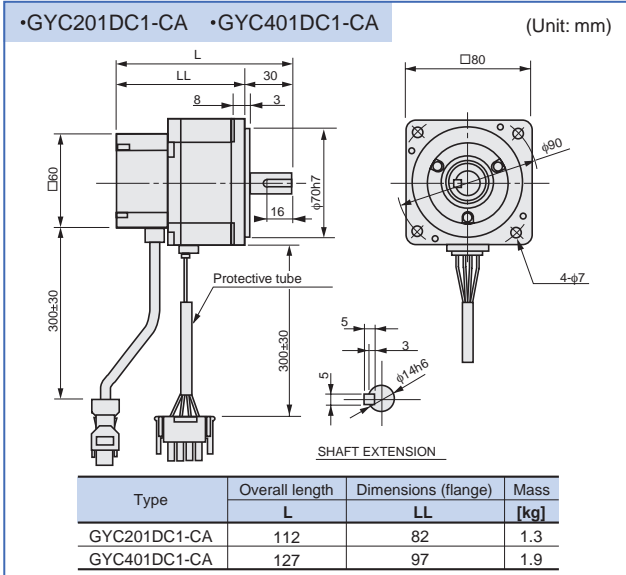
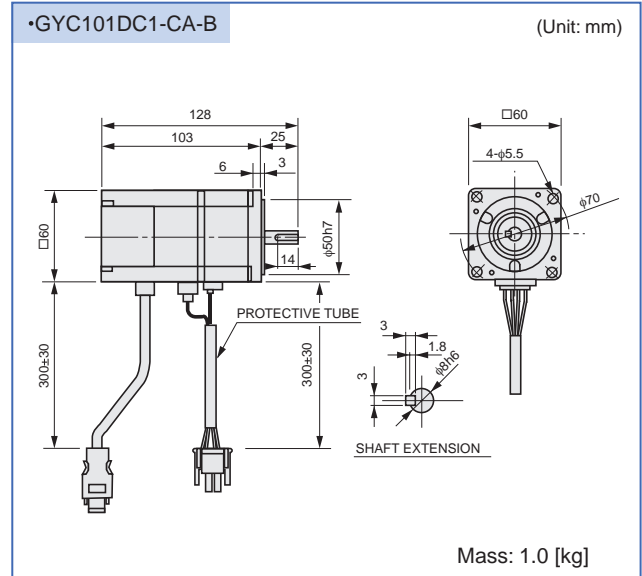
External Dimensions

Cubic Type Servomotor

■Series: GYC series motor of standard type



■Series: GYC series motor with a brake

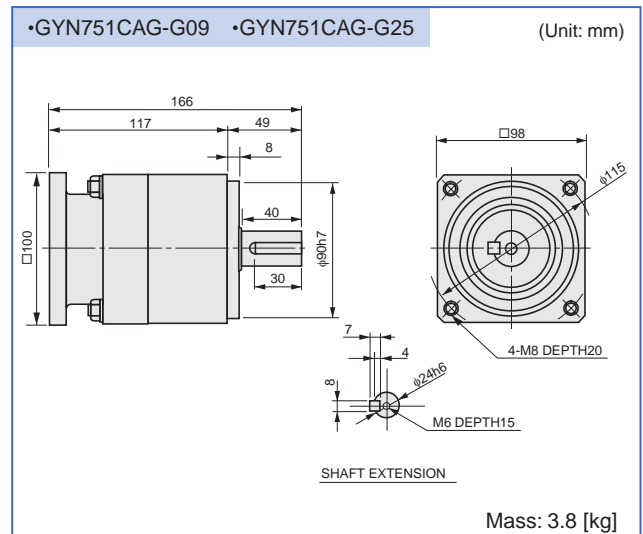
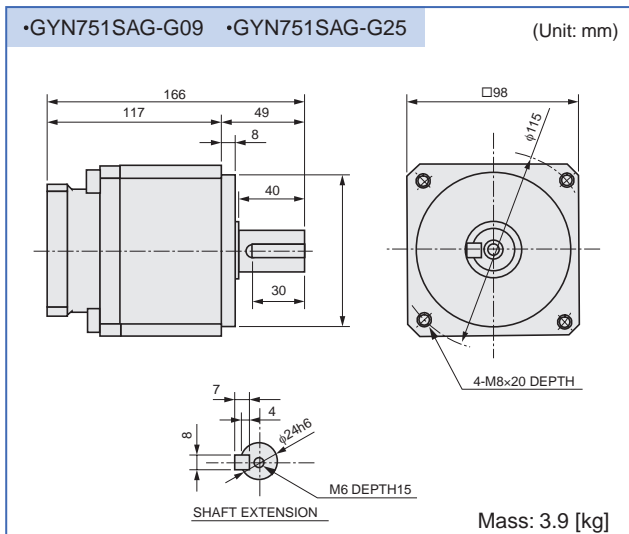
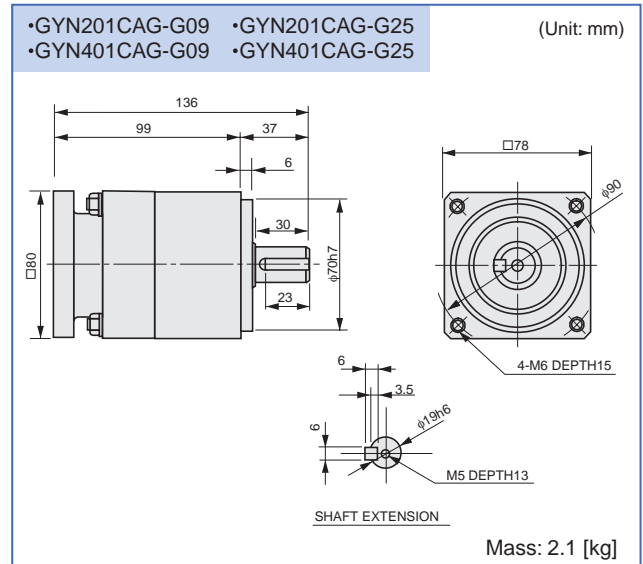
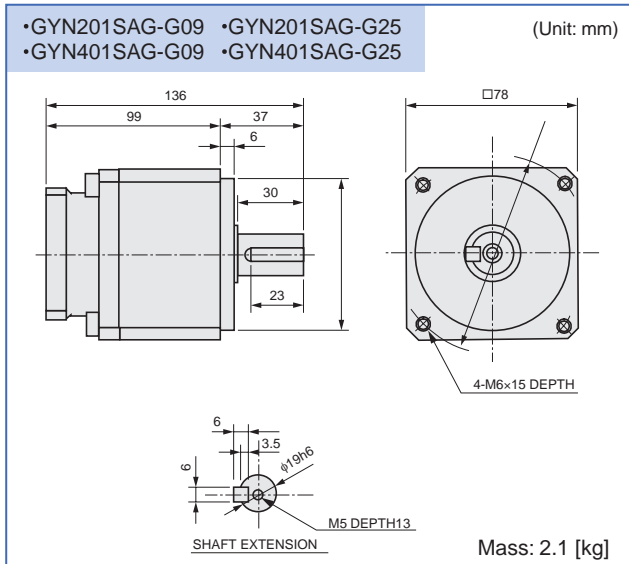
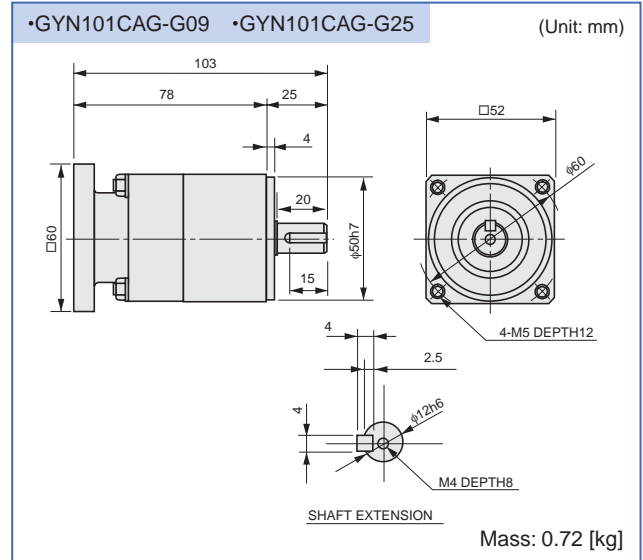
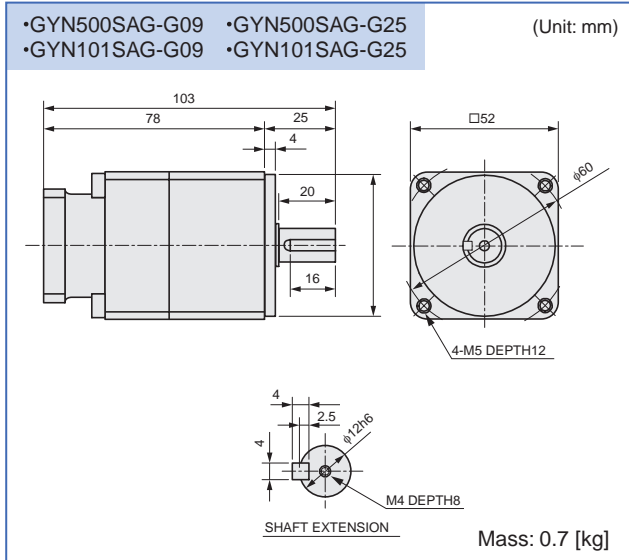


External Dimensions

Gear Head

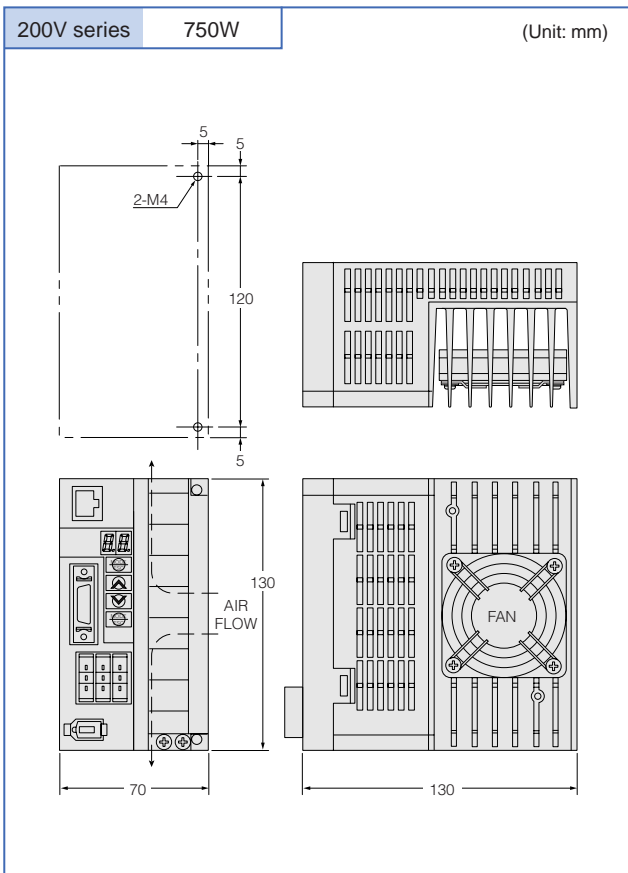
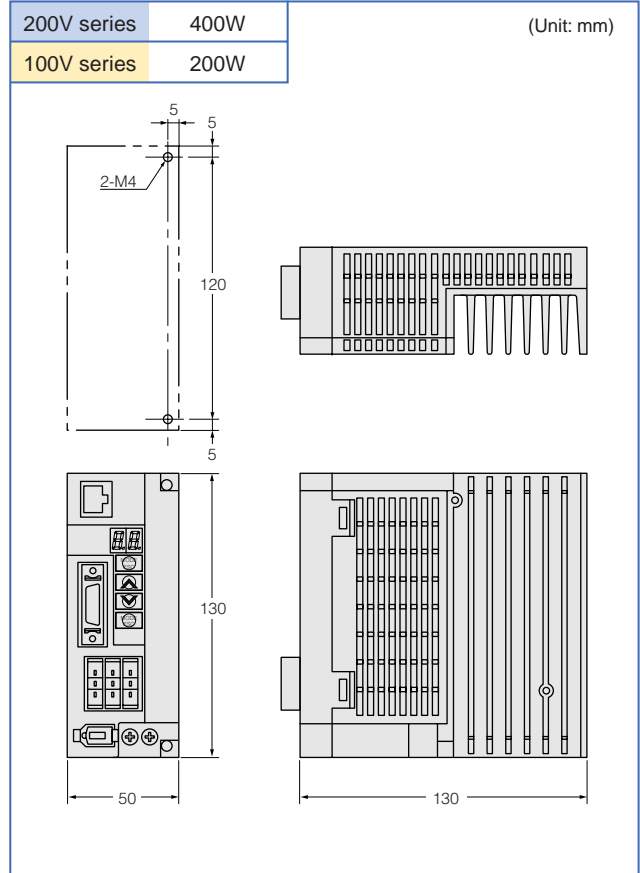
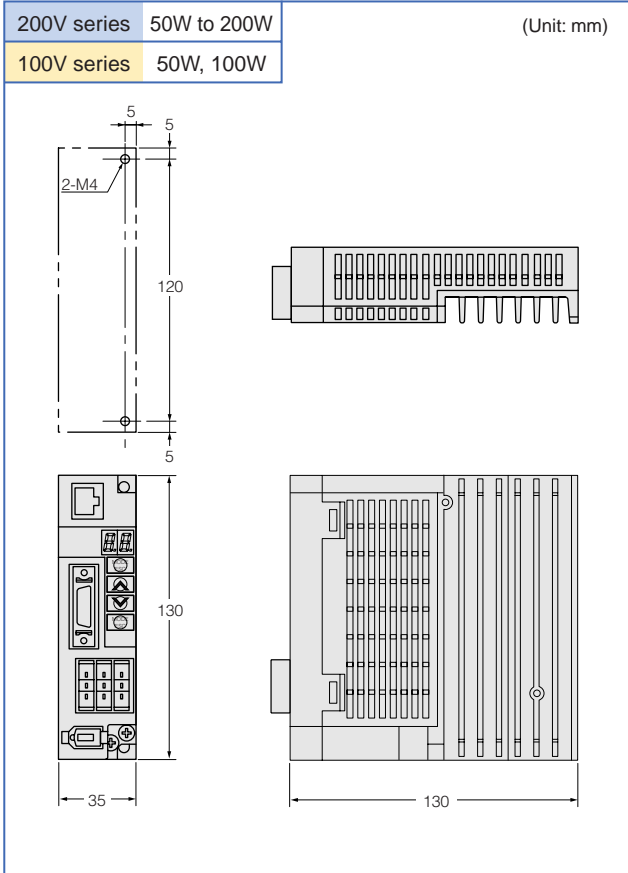
■ Series: Gear head for GYS series motor

■ Series: Gear head for GYC series motor



External Dimensions

Servo Amplifier



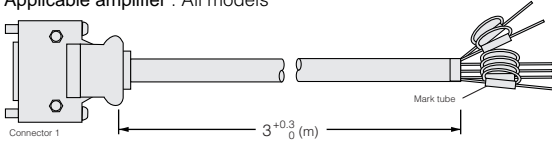
External Dimensions

Options

Series : Cable for input/output of control signals

Type : WSC-D26P03

Applicable amplifier : All models



Connector 1

Plug	10126-3000VE
Shell	10326-52AG-008

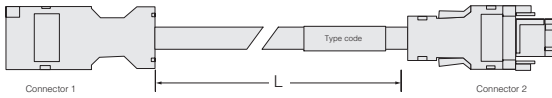
Maker: Sumitomo 3M

Connector 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Mark tube	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Wire color	Orange	Gray	White	Yellow	Pink	Orange	Gray	White	Yellow	Pink	Orange	Gray	White	Yellow	Pink	Orange	Gray	White	Yellow	Pink	Orange	Gray	White	Yellow	Pink	Orange
Mark	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1	Red 1	Black 1

Series : Cable for servo motor encoder

Type : WSC-P06P05 to WSC-P06P20

Applicable amplifier : All models



Type	L (m)
WSC-P06P05	5 ^{+0.5} ₀
WSC-P06P10	10 ⁺¹ ₀
WSC-P06P20	20 ⁺² ₀

Connector 1

Socket housing	53988-0611
Socket shell body cover	58302-0600
Socket mold cover	53989-0605
Socket mold cover	53990-0605
Cable clamp	58303-0000
Clamp screw	59832-0009

Maker: Molex Japan

Connector 1	1	2	3	4	5	6
Wire color	Red	Black	Orange	Brown/Orange/White	Red	Light blue
Wire color	White	Black	Yellow	Brown/Orange/White	Red	Light blue
Wire color	White	Black	Yellow	Brown/Orange/White	Red	Light blue
Wire color	White	Black	Yellow	Brown/Orange/White	Red	Light blue

Connector 2

Plug housing	51145-0601
Crimp terminal	50639-8091
Plug shell body cover	58098-0600
Plug shell body	58099-0600
Plug mold cover (A)	54017-0615
Plug mold cover (B)	54018-0605
Cable clamp	58303-0000
Clamp screw	59832-0009

Maker: Molex Japan

20m

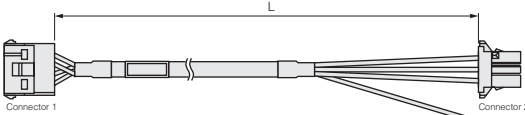
Plug housing	54180-0611
Plug shell body cover	58299-0600
Plug shell body	58300-0600
Plug mold cover (A)	54181-0615
Plug mold cover (B)	54182-0605
Cable clamp	58303-0000
Clamp screw	59832-0009

Maker: Molex Japan

Series : Power cable for motor wiring

Type : WSC-M04P05-B to WSC-M04P20-B

Applicable amplifier : Motor without a brake



Terminal connected to earth terminal of servo amplifier V1.25-4 from JST Mfg. or its equivalent

Connector 1

Housing	350780-1
Contact	350570-3

Maker: AMP Japan

Connector 1	1	2	3	4
Mark	U	V	W	E
Wire color	Red	White	Black	Green/Yellow

Connector 2	1	2	3	Round terminal
Mark	U	V	W	E
Wire color	Red	White	Black	Green/Yellow

Connector 2

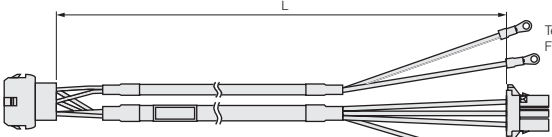
Housing	2-178128-3
Contact	1-175218-5

Maker: AMP Japan

Series : Power cable for motor wiring

Type : WSC-M06P05-B to WSC-M06P20-B

Applicable amplifier : Motor with a brake



Terminal connected to the brake control power FV1.25-MS3 from JST Mfg. or its equivalent

Terminal connected to earth terminal of servo amplifier V1.25-4 from JST Mfg. or its equivalent

Connector 1

Housing	350781-1
Contact	350570-3

Maker: AMP Japan

Connector 1	1	2	3	4	5	6
Mark	U	V	W	E	F	
Wire color	Red	White	Black	Green/Yellow	Red	Black

Connector 2	1	2	3	Round terminal
Mark	U	V	W	E
Wire color	Red	White	Black	Green/Yellow

Connector 2

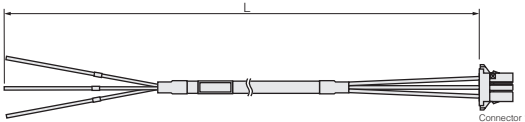
Housing	2-178128-3
Contact	1-175218-5

Maker: AMP Japan

Series : Power cable for power supply wiring

Type : WSC-S03P03-B

Applicable amplifier : All models



Connector 1

Housing	1-178128-3
Contact	1-175218-5

Maker: AMP Japan

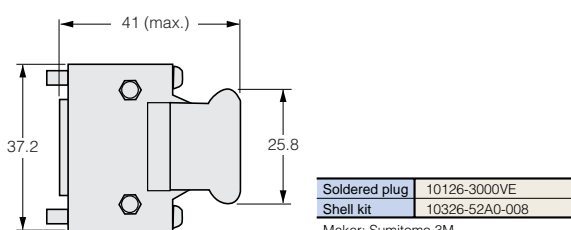
Connector 1	1	2	3
Mark	L1	L2	L3
Wire color	Red	White	Black

Maker: AMP Japan

Series : Connector kit for sequential input/output

Type : WSK-D26P

Applicable amplifier : All models



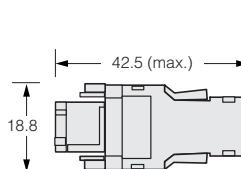
Soldered plug	10126-3000VE
Shell kit	10326-52A0-008

Maker: Sumitomo 3M

Series : Connector kit for encoder wiring (amplifier side)

Type : WSK-P06P-M

Applicable amplifier : All models



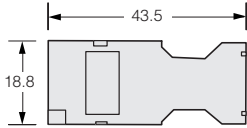
Plug housing	54180-0611
Plug shell body cover	58299-0600
Plug shell body	58300-0600
Plug mold cover (A)	54181-0615
Plug mold cover (B)	54182-0605
Cable clamp	58303-0000
Clamp screw	59832-0009

Maker: Molex Japan

External Dimensions

Options

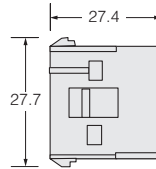
Series : Connector kit for encoder wiring (motor side)
 Type : WSK-P06P-F
 Applicable range : All models



Socket housing	53988-0611
Socket shell body cover	58302-0600
Socket mold cover (A)	53989-0605
Socket mold cover (B)	53990-0605
Cable clamp	58303-0000
Clamp screw	53982-0009

Maker: Molex Japan

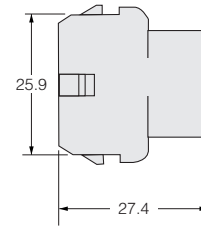
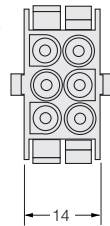
Series : Connector kit for power cables of motor wiring (motor side)
 Type : WSK-M04P (for a motor without a brake)
 Applicable range : All models



Cap	350780-1
Socket	350570-1 or 350689-3

Maker: AMP Japan

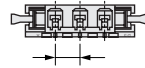
Series : Connector kit for power cables of motor wiring (motor side)
 Type : WSK-M06P (for a motor with a brake)
 Applicable range : All models



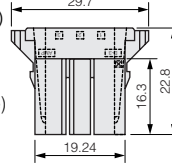
Cap housing	350781-1
Socket	350570-1

Maker: AMP Japan

Series : Connector kit for power cables of motor wiring (amplifier side)
 Type : WSK-M03P-B
 Applicable range : All models



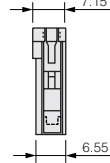
Series : Connector kit for power supply wiring (amplifier side)
 Type : WSK-S03P-B
 Applicable range : All models



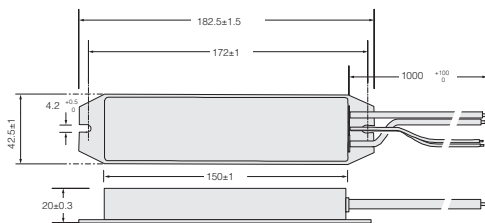
Connector kit for power cables of motor wiring	Housing	2-178128-3
WSK-M03P-B	Contact	1-175218-5
Connector kit for power supply wiring	Housing	1-178128-3
WSK-S03P-B	Contact	1-175218-5
Connector kit for external regenerative resistance	Housing	1-178128-3
WSK-R03P-B	Contact	1-175218-5
	Keying plug	175855-1

Maker: AMP Japan

Series : Connector kit for external regenerative resistance (amplifier side)
 Type : WSK-R03P-B
 Applicable range : All models



Series : External regenerative resistance
 Type : WSR-401
 Applicable range : Max. 400 W

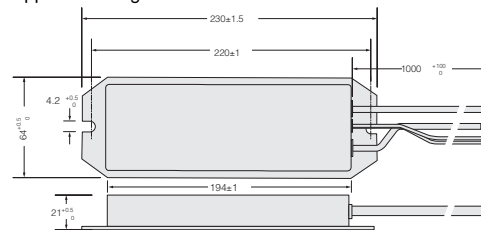


Installation plate thickness: 1.2 mm

Item	Specifications	
Type	WSR-401	
Resistor	Resistance	68 [Ω]
	Allowable power	30 W (continuous)
	Working temperature	Open at 135±5 [°C]
Thermistor	Withstand voltage	2.5 kV AC for 1 min
	Contact capacity	DC30 [V] 3 [A]

*WSK-R03P-B is need for WSR-401.

Series : External regenerative resistance
 Type : WSR-751
 Applicable range : Max. 750W



Installation plate thickness: 1.5 mm

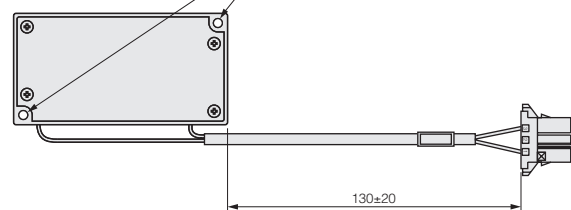
Item	Specifications	
Type	WSR-751	
Resistor	Resistance	15 [Ω]
	Allowable power	70 W (continuous)
	Working temperature	Open at 135±5 [°C]
Thermistor	Withstand voltage	2.5 kV AC for 1 min
	Contact capacity	DC30 [V] 3 [A]

*WSK-R03P-B is need for WSR-751.

Series : External regenerative resistance
 Type : WSR-401-T, WSR-751-T
 Applicable range : WSR-401-T: Max. 400 W, WSR-751-T: 750W

Item	Specifications	Specifications
Type	WSR-401-T	WSR-751-T
Resistor	Resistance	68 [Ω]
	Allowable power	12 W (continuous)
	Resistance	33 [Ω]
	Allowable power	12 W (continuous)

The regenerative resistor can be installed to the right side of the servo amplifier with these two screw holes.



Setup

Keypad Panel

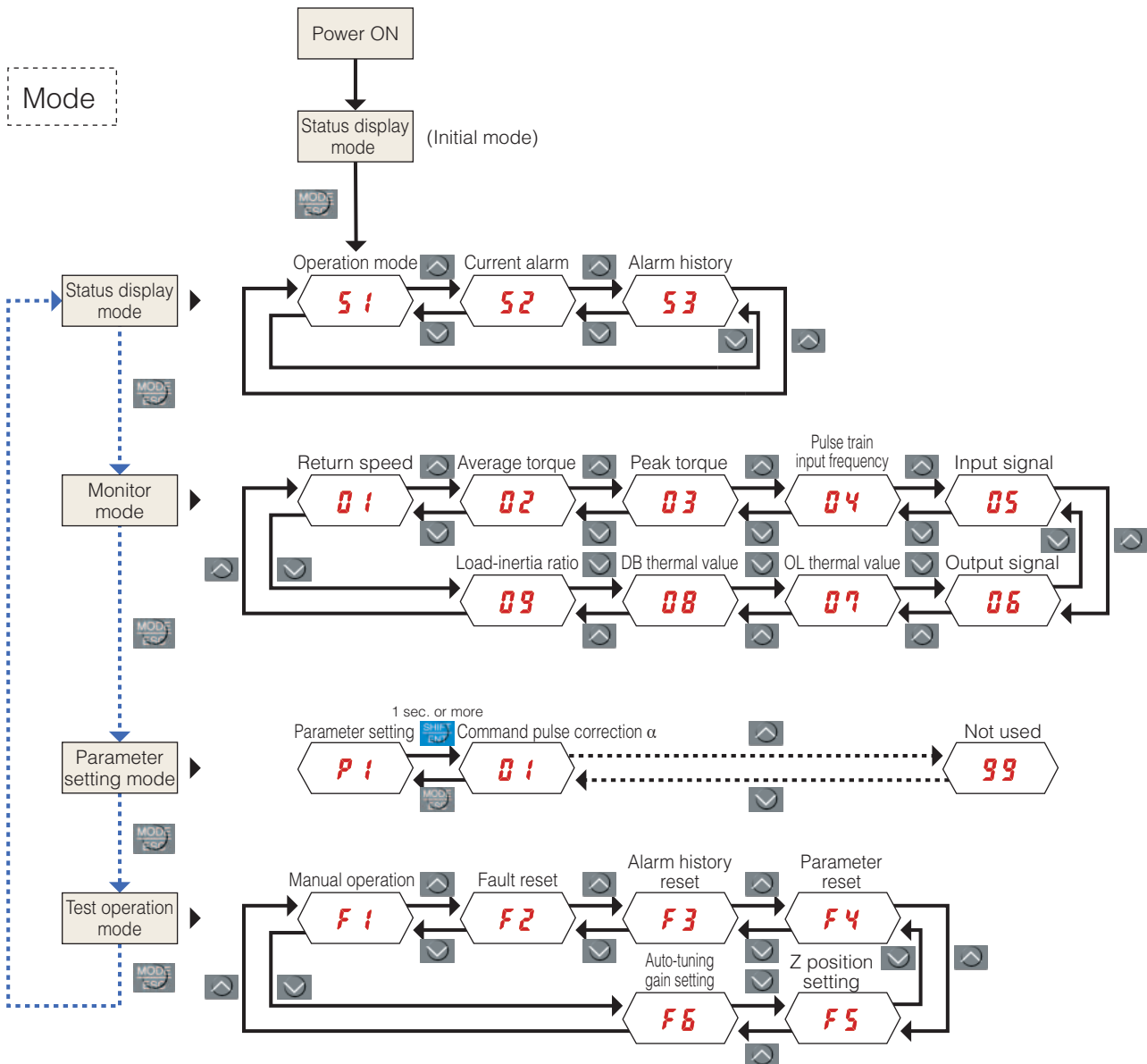


The servo amplifier is provided with a keypad panel. The keypad panel allows you to display amplifier status and to make various settings.

- Two-digit 7-segment display
 - Indicates operation conditions, motor speed, and parameters.
- Mode change key
 - Changes the mode (MODE).
 - Cancels the mode (ESC).
- Sub-mode selection key (UP).
 - Increases the value (+1).
- Sub-mode selection key (DOWN).
 - Decreases the value (-1).
- Shift/Enter key
 - Shifts the data setting digit to the right (SHIFT+MODE).
 - Determines the mode or the value (ENT).

7- segment display

7-Segment Display



Parameter List

Basic parameters

No.	Name
01	Command pulse correction α
02	Command pulse correction β
03	Pulse train input form
04	Rotation direction change
05	Tuning mode
06	Load-inertia ratio
07	Auto-tuning gain
08, 09	Not used

System parameters

No.	Name
10	CONT1 signal assignment
11	CONT2 signal assignment
12	CONT3 signal assignment
13	CONT4 signal assignment
14	CONT5 signal assignment
15	OUT1 signal assignment
16	OUT2 signal assignment
17	Output pulse count
18	Z-phase offset
19	Deviation zero width
20	Deviation over width
21	Speed zero width
22	Positioning end judgment time
23	Maximum current
24	Alarm detection at undervoltage
25	Computing electronic thermal relay for regenerative resistor
26	Dynamic brake active/inactive in OT detection
27	Parameter rewriting inhibit
28	Keypad panel initial display
29	Speed setting (for test operation)
30	Acceleration-deceleration time (for test operation)
31 to 39	Not used

Control system parameters

No.	Name
40	Position regulator gain 1
41	Speed response 1
42	Speed regulator integration time 1
43	Non-linear (S-curve) filter coefficient
44	Feed forward gain
45	Feed forward filter time constant
46	Torque filter time constant
47	Speed setting filter
48	Gain changeover factor
49	Gain changeover level
50	Gain changeover time constant
51	Position regulator gain 2
52	Speed response 2
53	Speed regulator integration time 2
54	Position gain added in settled state
55	Limit value added in settled state
56	Selection of command follow-up control
57	Notch filter 1 frequency
58	Notch filter 1 damping rate
59	Notch filter 2 frequency
60	Notch filter 2 damping rate
61	Anti-resonant frequency 0
62	Anti-resonant frequency 1
63	Anti-resonant frequency 2
64	Anti-resonant frequency 3
65 to 79	Not used

Parameters for maker's adjustment

No.	Name
80	Reserved for maker 1
81	Reserved for maker 2
82	Reserved for maker 3
83	Reserved for maker 4
84 to 99	Not used

Do not change these parameters.

Function (Input signal) number assigned to system para.0 to 10

- 0 : Not assigned
- 1 : RUN
- 2 : RST
- 3 : +OT
- 4 : -OT
- 5 : Emergency stop
- 6 : P-action
- 7 : Deviation clear
- 8 : External regenerative resistor overheat
- 9 : Anti-resonant frequency 0
- 10 : Anti-resonant frequency 1

Function (Output signal) assigned to system para.0 to 5

- 0 : Not assigned
- 1 : Alarm detection (contact "a")
- 2 : Alarm detection (contact "b")
- 3 : Dynamic braking
- 4 : OT detection
- 5 : Emergency stop detection

Type List

Servo Motor

Motor type	Specifications			Type
	Voltage	Model	Rated output	
GYS series servomotor (slim type)	100V/200V	Standard motor	0.05 kW	GYS500DC1-C8B
			0.1 kW	GYS101DC1-CB
	200V	Standard motor	0.2 kW	GYS201DC1-CA
			0.4 kW	GYS401DC1-CA
			0.75 kW	GYS751DC1-CA
			0.05 kW	GYS500DC1-C8B-B
	200V	Motor with a brake	0.1 kW	GYS101DC1-CB-B
			0.2 kW	GYS201DC1-CA-B
			0.4 kW	GYS401DC1-CA-B
			0.75 kW	GYS751DC1-CA-B
	100V	Standard motor	0.1 kW	GYS101DC1-C6B
			0.2 kW	GYS201DC1-C6B
Motor with a brake		0.1 kW	GYS101DC1-C6B-B	
		0.2 kW	GYS201DC1-C6B-B	
GYC series servomotor (cubic type)	200V	Standard motor	0.1 kW	GYC101DC1-CA
			0.2 kW	GYC201DC1-CA
			0.4 kW	GYC401DC1-CA
			0.75 kW	GYC751DC1-CA
		Motor with a brake	0.1 kW	GYC101DC1-CA-B
			0.2 kW	GYC201DC1-CA-B
			0.4 kW	GYC401DC1-CA-B
			0.75 kW	GYC751DC1-CA-B

: Available in stock

Gear Head

Applied motor	Gear ratio	Applied motor capacity	Type
GYS series servomotor (slim type)	1/9	0.05 kW	GYN500SAG-G09
		0.1 kW	GYN101SAG-G09
		0.2 kW	GYN201SAG-G09
		0.4 kW	GYN401SAG-G09
		0.75 kW	GYN751SAG-G09
	1/25	0.05 kW	GYN500SAG-G25
		0.1 kW	GYN101SAG-G25
		0.2 kW	GYN201SAG-G25
		0.4 kW	GYN401SAG-G25
		0.75 kW	GYN751SAG-G25
GYC series servomotor (cubic type)	1/9	0.1 kW	GYN101CAG-G09
		0.2 kW	GYN201CAG-G09
		0.4 kW	GYN401CAG-G09
		0.75 kW	GYN751CAG-G09
	1/25	0.1 kW	GYN101CAG-G25
		0.2 kW	GYN201CAG-G25
		0.4 kW	GYN401CAG-G25
		0.4 kW	GYN401CAG-G25
		0.4 kW	GYN401CAG-G25
		0.75 kW	GYN751CAG-G25

: Available in stock

Type List

Servo Amplifier

Input voltage	Applied motor capacity	Type
3-phase 200V	0.05 kW	RYB500S3-VBC
	0.1 kW	RYB101S3-VBC
	0.2 kW	RYB201S3-VBC
	0.4 kW	RYB401S3-VBC
	0.75 kW	RYB751S3-VBC
Single-phase 100V	0.05 kW	RYB500S3-VBC6
	0.1 kW	RYB101S3-VBC6
	0.2 kW	RYB201S3-VBC6

: Available in stock, : Sub standard

Options

Part Name			Type
Sequential input/output cable	Common to all models (with 26 pin connector)	3 m (one-end connector)	WSC-D26P03
Encoder cable	Common to all models	5 m (both-end connector)	WSC-P06P05
		10 m (both-end connector)	WSC-P06P10
		20 m (both-end connector)	WSC-P06P20
Power cable for motor wiring	Motor without a brake	5 m (both-end connector)	WSC-M04P05-B
		10 m (both-end connector)	WSC-M04P10-B
		20 m (both-end connector)	WSC-M04P20-B
	Motor with a brake	5 m (both-end connector)	WSC-M06P05-B
		10 m (both-end connector)	WSC-M06P10-B
		20 m (both-end connector)	WSC-M06P20-B
Power cable for power supply unit	Between power input and amplifier (common to all models)	3 m (one-end connector)	WSC-S03P03-B
Connector kit for sequential input/output	26 pin connector	-	WSK-D26P
Connector kit for encoder wiring	Amplifier (common to all models)	-	WSK-P06P-M
	Motor (common to all models)	-	WSK-P06P-F
Power cable connector kit for motor wiring	Amplifier (common to all models)	-	WSK-M03P-B
	Motor (without motor, 4 pin)	-	WSK-M04P
	Motor (with motor, 6 pin)	-	WSK-M06P
Power cable connector kit for power supply unit	Amplifier (common to all models)	-	WSK-S03P-B
Power cable connector kit for external regenerative resistor	Amplifier (common to all models)	-	WSK-R03P-B
External regenerative resistor	Max. 0.4 kW *1	-	WSR-401
	0.75 kW *1	-	WSR-751
	Max. 0.4 kW (slim type)	-	WSR-401-T
	0.75 kW (slim type)	-	WSR-751-T
Personal computer loader (CD)	Common to all β models	-	WSL-PC-B
Converter for PC loader	Common to all β models	-	WST-232C
Cable for PC loader	Common to all β models	-	WSC-PCL

: Available in stock

*1) When using the resistor WSR-401 or WSR-751, order the power cable connector kit for external regenerative resistor type WSK-R03P-B.

Peripherals

Power cable size

Unit : mm²

Input power	Servo amplifier type	Capacity [kW]	Power source/motor cable	Brake cable
100V series 200V series	RYP500S3-□□□□	0.05	0.75	0.75
	RYP101S3-□□□□	0.1		
	RYP201S3-□□□□	0.2		
200V series	RYP401S3-□□□□	0.4		
	RYP751S3-□□□□	0.75		

Circuit breaker

Input power	Servo amplifier type	Capacity [kW]	MCCB
100V series 200V series	RYP500S3-□□□□	0.05	SA33B/3
	RYP101S3-□□□□	0.1	
	RYP201S3-□□□□	0.2	
200V series	RYP401S3-□□□□	0.4	SA33B/10
	RYP751S3-□□□□	0.75	SA53B/15

Earth-leakage circuit breaker

Input power	Servo amplifier type	Capacity [kW]	ELCB
100V series 200V series	RYP500S3-□□□□	0.05	EG33B/3
	RYP101S3-□□□□	0.1	
	RYP201S3-□□□□	0.2	
200V series	RYP401S3-□□□□	0.4	EG33B/10
	RYP751S3-□□□□	0.75	EG53B/15

Electromagnetic contactor

Input power	Servo amplifier type	Capacity [kW]	MC
100V series 200V series	RYP500S3-□□□□	0.05	SC-5-1(19A)
	RYP101S3-□□□□	0.1	
	RYP201S3-□□□□	0.2	
200V series	RYP401S3-□□□□	0.4	
	RYP751S3-□□□□	0.75	

Power filter

Input power	Servo amplifier type	Capacity [kW]	FHF
100V series 200V series	RYP500S3-□□□□	0.05	FHF-TA/5/250
	RYP101S3-□□□□	0.1	
	RYP201S3-□□□□	0.2	
200V series	RYP401S3-□□□□	0.4	FHF-TA/10/250
	RYP751S3-□□□□	0.75	FHF-TA/20/250

AC reactor

Input power	Servo amplifier type	Capacity [kW]	Applied AC reactor type
200V series	3-phase	RYP500S3-□□□□	ACR2-0.4A
		RYP101S3-□□□□	
		RYP201S3-□□□□	
	Single-phase	RYP401S3-□□□□	ACR2-0.75A
		RYP751S3-□□□□	ACR2-1.5A
		RYP500S3-□□□□	ACR2-0.4A
		RYP101S3-□□□□	
Single-phase 100V series	RYP201S3-□□□□	ACR2-0.75A	
	RYP401S3-□□□□	ACR2-1.5A	
	RYP500S3-□□□□6	ACR2-0.4A	
	RYP101S3-□□□□6	0.1	ACR2-0.75A
	RYP201S3-□□□□6	0.2	

External regenerative resistance

Input power	Servo amplifier type	Capacity [kW]	External regenerative resistance	External regenerative resistance (thin type)
3-phase 200V series	RYP500S3-□□□□	0.05	WSR-401	WSR-401-T
	RYP101S3-□□□□	0.1		
	RYP201S3-□□□□	0.2		
	RYP401S3-□□□□	0.4	WSR-751	WSR-751-T
	RYP751S3-□□□□	0.75		

Appendix

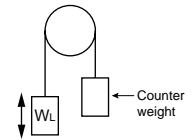
■ Quick reference for selecting a required model

	Estimate No.		Delivery period	
1	Intended use, Machine name			
2	Number of machines (or number of axes to be controlled)			
3	Horizontal		Vertical	
3	Horizontal		Vertical	
3	Horizontal		Rotary	
4	Max.	<input type="text"/>	m/min	Min.
4		<input type="text"/>	m/min	
5	<input type="text"/>	N·m	} Check that your entered value matches the unit.	
6	<input type="text"/>	kg·m ²		

7 If the above item 5 and 6 are unknown, fill out the following items ① to ⑤.

① Total mass of movable parts (including a workpiece etc.) (WL)

kg Counter weight (for vertical travel) kg

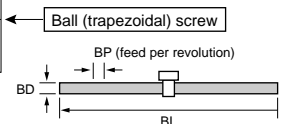


② Table guideway (Check any of the following.)

Sliding Rolling Floatation with air pressure

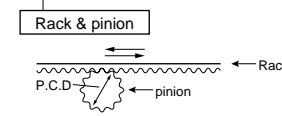
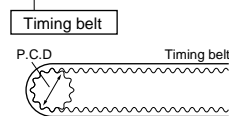
③ Screw specifications (Check any of the following.)

<input type="checkbox"/>	Ball screw	Feed screw diameter (BD)	Screw pitch (BD)	Length (BL)	Mass (BG)
<input type="checkbox"/>	Trapezoidal screw	mm	mm	mm	kg



Neither a ball screw nor a trapezoidal screw:

Timing belt PCDφ mm Rack & pinion PCDφ mm



④ Reduction ratio (GL) (or speed increasing ratio)

(Write the total gear ratios when multi-step gear is used.)

⑤ Max. load thrust

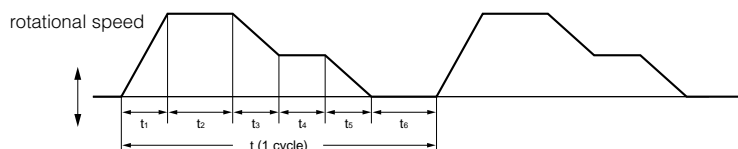
N Friction coefficient Mechanical efficiency % × 1/100

8 Positioning control

Max. feed rate of the ball screw, rack, or belt (VH) m/min

Positioning accuracy (SA) mm

9 The heaviest operation pattern (Fill out the time, velocity, and rotational speed for the each interval. When your operation pattern is different from the below, show it by a diagram.)





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, use in aerospace, medical application, or traffic control, you are requested to consult our sales office.
3. If you use our product with anticipation that a trouble of our product may induce serious injury or damage to your property, be sure to take safety measures for protecting human body and equipment.

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