Section-1, Technology Promotion Department,
Motion Control Division,
YASKAWA ELECTRIC CORPORATION

Sigma-5 to Sigma-7 Transition Guide

For replacement of

Motor: **Σ-V (SGMJV, SGMAV, SGMSV, SGMPS, SGMGV)**

SERVOPACK: **Σ-V (SGDV)**

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1. Precautions concerning use

Precaution concerning use is required during the replacement of Σ-V series with Σ-7 series.
The details are given in the table below.

Verification items	Precautions	
	Usage status in Σ-V	Usage method in Σ-7
Using SGDV SERVOPACK	Using SGDV-□□□A0□□ (AC200V input, analog voltage /pulse string command, rotational/ linear)	Replaceable with SGD7S-□□□A00A (analog voltage/pulse string command type). In Σ-7 series, model is common in both rotational and linear types.
	Using SGDV-□□□A1□□ (AC200V input , MECHATROLINK-II communication command, rotational/ linear)	Replaceable with SGD7S-□□□A10A (MECHATROLINK-II communication command type). In Σ-7 series, model is common in both rotational and linear types.
	Using SGDV-□□□A2□□ (AC200V input , MECHATROLINK-III communication command, rotational/ linear)	Replaceable with SGD7S-□□□A20A (MECHATROLINK-III communication command type). In Σ-7 series, model is common in both rotational and linear types.
	Using SGDV□□□A□1□□□□□□□□□□ 1 or SGDV-OFA01A (full close module)	Can be replaced by a combination of SGD7S and SGDV-OFA01A. Cannot be replaced by SGD7W.
	Using SGDV□□□A□□□□□□□□□□1 □ or SGDV-OSA01A (safety module)	Can be replaced by a combination of SGD7S and SGDV- OSA01A. Cannot be replaced by SGD7W.
	Using SGDV□□□AE□□□□□□□□○□ □ (○=1, 5, 6) or SGDV-OCA0△A (△=3, 4, 5) (INDEXER module, or DeviceNet module)	This is not replaceable. There is a plan to expand the models of command option mounting−type in SGD7S and support combination with SGDV-OCA0△A. The time frame has yet to be determined. In addition, this product cannot be replaced with SGD7W.
	Using SGDV-□□□F□□□ (AC100V input)	There is no model in SGD7□ that supports AC100V input. A compatible model is planned at a future date to be determined.
	Using SGDV-□□□D□□□ (AC400V input)	There is no model in SGD7□ that supports AC100V input. A compatible model is planned at a future date to be determined.
	Using SGDV-□□□A2□□0□□EX001 (Σ-V-EX001, M-III high-speed communication)	Replaceable with SGD7S-□□□A20A (MECHATROLINK-III communication command type)
	Using SGDV-□□□A□□□0□□EX002 (Σ-V-EX002, deviation-less specification)	There is currently no deviation-less function in SGD7 □. Compatibility with this function is planned in Σ-7-EX/FT at a future date.
	Using SGDV-□□□A□□□0□□FT001 (Σ-V-FT001, improved vibration suppression function level)	This is not replaceable. In the case of using only the notch filter function, it is replaceable with SGD7S.
	Using SGDV-□□□A□□□0□□FT003 (Σ-V-FT003, pressure feedback control function)	There is no pressure feedback control function in SGD7□.Compatibility with this function is planned in Σ-7-EX/FT at a future date.
	Using SGDV-□□□A2□□0□□FT006 (Σ-V-FT006, fixed point passage output function)	There is no fixed-point passage output function in SGD7□.Compatibility with this function is planned in Σ-7-EX/FT at a future date.
	Using SGDV-□□□A01□0□□FT008 (Σ-V-FT008, absolute value system application compatible)	There is no absolute value system function in SGD7 □.Compatibility with this function is planned in Σ-7-EX/FT at a future date.
	Using safety signal input (CN8) in SGDV	Replaceable with SGD7S. Also, there is no safety signal input in SGD7W. Although there is a plan to make it compatible in hardware option type, the connector will be the downside type.
	Using online vibration monitor function	There is no online vibration monitor function in SGD7 □. Please measure the actual vibration by SigmaWin+ trace function.

Verification items	Precautions	
	Usage status in Σ-V	Usage method in Σ-7
Using in SGM□V-type servo motor	Using SGMJV-type servo motor	The recommended replacement motor is SGM7J. Its motor characteristics are different from the SGMJV. For more details, please check the catalogue and characteristics table. You can choose whether to use the cable for

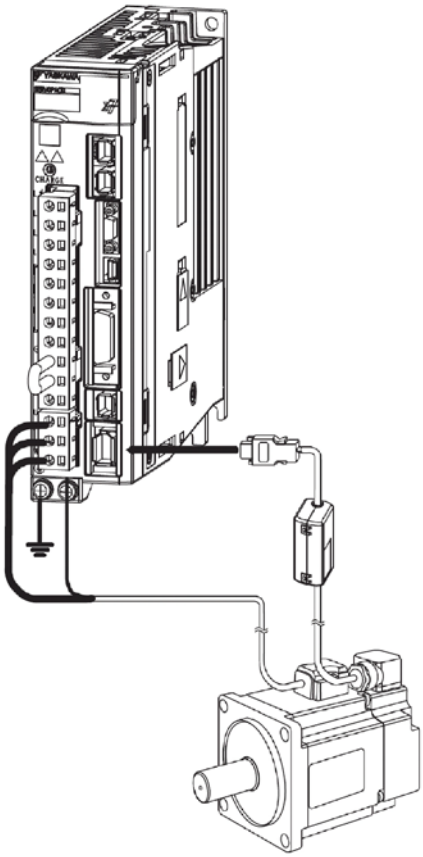
		SGM7J or use the SGMJV cable without any modification. In the case of using the cable for SGM7J, the direction of lead and height of connector are different from Σ-V series. For more details, please see the catalogue and outline drawing. In the case of using the SGMJV cable without any modification, protective structure will be IP65 and encoder cable will be anti-load side type.
	Using SGMAV-type servo motor	The recommended replacement motor is SGM7J. Its motor characteristics are different from the SGMJV. For more details, please check the catalogue and characteristics table. You can choose whether to use the cable for SGM7A or use the SGMAV cable without any modification. In the case of using the cable for SGM7A, the direction of lead and height of connector are different from Σ-V series. For more details, please see the catalogue and outline drawing. In the case of using the SGMAV cable without any modification, protective structure will be IP65 and encoder cable will be anti-load side type.
	Using SGMGV-type servo motor	The recommended replacement motor is SGM7G. Its motor characteristics are different from the SGMGV. For more details, please check the catalogue and characteristics table. Also, the standard shaft diameter of SGM7G-03/09/13 is different from that of the SGMGV-03/09/13. For details, please see the outline drawing. If a shaft diamerter similar to that of SGMGV is desired, please discuss separately.
	Using SGMSV-type servo motor	The recommended replacement motor is SGM7A. Its motor characteristics are different from the SGMSV. For more details, please check the catalogue and characteristics table. Please note that the external appearance of SGM7A-10 is different from the SGMSV-10. Also note that the receptable position on the motor side is different from the SGM7A-30 (without brake). For more details, please refer to the catalogue and outline drawing.
Using SGM□S-type servo motor	Using SGMPS-type servo motor	The recommended replacement motor is SGM7P. Please note that the motor encoder resolution is different from the SGMPS.
Motor replacement (All models)	Using motor with DC90V holding brake.	There is no motor with DC90V holding brake in SGM7□. Please try substituting with a motor that has a DC24V holding brake.

The improvements in function and performance when Σ-V is replaced with Σ-7 are as given below.

- Improvement in usage environmental conditions- Usage temperature : -5°C to +60°C (rated value of decrease is +55°C or more), elevation: 2000m or below (1000m or more is the rated value)
- Improvement in motor waterproofing protective structure IP67 (When cable for Σ-7 is used)
- Improvement of motor encoder resolution to 24 bit
- Improvement in speed frequency response to 3.1kHz
- Addition of various functions: Enhancement of vibration suppression function, ripple compensation function, friction model compensation function, force stop function, etc.
- Monitor, warning detection addition: Life prediction monitor, power consumption monitor, FAN warning detection, etc.

1-1. Check sheet for replacement of Σ-V with Σ-7

Category	Item	Check points	チェック
Motor	Body	<Verification of body mounting position> ・ Please verify the dimensions for mounting of motor and machine while using: Seal case diameter, mounting hole pitch, mounting hole diameter, shaft diameter, shaft shape (straight, key, center tap, taper), etc.	
		<Verification of special specifications> ・ Please verify that the motor being used is not a customer-specific model. If the model is customer specific, please check the specifications in the delivery specification document.	
	Cable	<Verification of cable lead direction> ・ The lead direction changes from the Σ-V cables to the Σ-7 cable. Therefore, please ensure that it does not interfere with the slicing or machine. If Σ-V cable is used without any modification, please note that the lead direction of encoder cables changes in SGM7J, SGM7A 1kW and lower models.	
SERVOPACK (body)	Body	<Verification of body mounting position> ・ Please verify the dimensions (W/H/D) and mounting hole position of the SERVOPACK while using.	
		<Verification of special specifications> ・ Please check the delivery specification and verify that the NP and shape of the SERVOPACK being used is not customer specific, and also that it is not fabricated (special process etc.)	
		<Verification of safety signal input> ・ Please verify that the SERVOPACK being used is utilizing safety signal input. There is no safety input in SGD7W. There is a plan to provide the safety input as an option but the connector will be the downside type.	
	Option	<Verification of specifications of the optional module> ・ Please verify that the SERVOPACK being used is utilizing the optional module. Command option cannot be replaced. Also, the optional module is not available in SGD7W.	
	Main circuit	<Single-phase power input> ・ To use with single-phase power input, please connect the main circuit power cable to L1 and L2. ・ To use with single-phase power input, please change the parameter “function selection switch E”. (Pn00E.2=1)	
		<DC power input> ・ It is required to add a circuit to prevent in-rush between the DC power and SERVOPACK by using a protective fuse and other devices. To implement this, please approach our sales department. ・ DC power input can be used by changing the parameter “function selection switch 1”. (Pn00E.0=1) ・ Note: Please connect the main circuit DC power after changing the parameter.	
SERVOPACK (software)	Software	<Verification of presence/absence of dedicated software> ・ Please verify that the software of the SERVOPACK being used is a standard software, as determined by the version number. If it is not clear if the software is a standard version or not, please check the version number with a Yaskawa representative. ・ You can verify if the software version is auxiliary function Fn012 of digital operator or built-in panel operator, by using the product information reading function of PC software SigmaWin+ for support.	
	Constant	<Verification of user constant> ・ Please verify the user constant of the SERVOPACK being used. It is necessary to set the electronic gear ratio, due to the fact that the encoder resolution of Σ-7 motor has been improved from Σ-V. Please use the parameter conversion function for converting Σ-V user constant to Σ-7 user constant, available in SigmaWin+.	
Others	Peripheral equipment	<Verification of noise filter> The recommended noise filters for Σ-V and Σ-7 are different. For details, please see the catalogue.	



1-2. Concept of replacement

The methods for replacing the Σ-V series servo motor/SERVOPACK are as follows.

●Option 1●
Replace all the servo motor /SERVOPACK / motor and encoder cables to Σ-7 series.

●Option 2●
Replace only the servo motor /SERVOPACK and use the existing cables.
This option imposes certain restrictions:

- The protective structure for waterproofing is IP65 for SGM7J and SGM7A (1kW or below).
- The lead direction of encoder cable in SGM7J and SGM7A (1kW or below) is anti-load.

1-3. Replacement list

Replacement of SGMJV with SGM7J (rotational, 200V)

Model currently in use <Σ-V series >		Replacement model <Σ-7 series >		Replacement method		Precautions
SERVOPACK	Servo motor	SERVOPACK	Servo motor	Pattern 1	Pattern 2	
SGDV-R70A	SGMJV-A5A	SGD7S-R70A SGD7W-1R6A	SGM7J-A5A	○	○	In case of pattern 2, the waterproofing protection is IP65 while the lead direction of the encoder cable is anti-load.
SGDV-R90A	SGMJV-01A	SGD7S-R90A SGD7W-1R6A	SGM7J-01C	○	○	
SGDV-1R6A	SGMJV-C2A SGMJV-02A	SGD7S-1R6A SGD7W-1R6A	SGM7J-C2A SGM7J-02A	○	○	
SGDV-2R8A	SGMJV-04A	SGD7S-2R8A SGD7W-2R8A	SGM7J-04A	○	○	
SGDV-5R5A	SGMJV-06A SGMJV-08A	SGD7S-5R5A SGD7W-5R5A	SGM7J-06A SGM7J-08A	○	○	

Replacement of SGMAV and SGMSV with SGM7A (Rotational, 200V)

Model currently in use <Σ-V series >		Replacement model <Σ-7 series >		Replacement method		Precautions
SERVOPACK	Servo motor	SERVOPACK	Servo motor	Pattern 1	Pattern 2	
SGDV-R70A	SGMAV-A5A	SGD7S-R70A SGD7W-1R6A	SGM7A-A5A	○	○	In case of pattern 2, the waterproofing protection is IP65 while the lead direction of the encoder cable is anti-load.
SGDV-R90A	SGMAV-01A	SGD7S-R90A SGD7W-1R6A	SGM7A-01C	○	○	
SGDV-1R6A	SGMAV-C2A SGMAV-02A	SGD7S-1R6A SGD7W-1R6A	SGM7A-C2A SGM7A-02A	○	○	
SGDV-2R8A	SGMAV-04A	SGD7S-2R8A SGD7W-2R8A	SGM7A-04A	○	○	
SGDV-5R5A	SGMAV-06A SGMAV-08A	SGD7S-5R5A SGD7W-5R5A	SGM7A-06A SGM7A-08A	○	○	
SGDV-120A	SGMAV-10A	SGD7S-120A	SGM7A-10A	○	○	
SGDS-120A	SGMSV-10A SGMSV-15A	SGD7S-120A	SGM7A-10A SGM7A-15A	○ ○	× ○	Note: The recommended model for replacement of SGMSV-10A is SGM7A-10A, but the external appearance is different. For details, please refer to the catalogue.
SGDV-180A	SGMSV-20A	SGD7S-180A	SGM7A-20A	○	○	
SGDV-200A	SGMSV-25A SGMSV-30A	SGD7S-200A	SGM7A-30A	○	○	

Replacement of SGMPS with SGM7P (rotational, 200V)

Model currently in use <Σ-V series >		Replacement model <Σ-7 series >		Replacement method		Precautions
SERVOPACK	servo motor	SERVOPACK	servo motor	Pattern 1	Pattern 2	
SGDV-R90A	SGMPS-01A	SGD7S-R90A SGD7W-1R6A	SGM7P-01A	○	○	The cables of SGMPS and SGM7P will be the same (same model).
SGDV-2R8A	SGMPS-02A SGMPS-04A	SGD7S-1R6A SGD7S-2R8A SGD7W-1R6A SGD7W-2R8A	SGM7P-02A SGM7P-04A	○	○	
SGDV-5R5A	SGMPS-08A	SGD7S-5R5A SGD7W-5R5A	SGM7P-08A	○	○	
SGDV-120A	SGMPS-15A	SGD7S-120A	SGM7P-15A	○	○	

Replacement of SGMGV with SGM7G (Rotational, 200V)

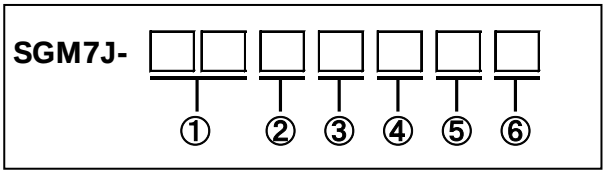
Model currently in use <Σ-V series >		Replacement model <Σ-7 series >		Replacement method		Precautions
SERVOPACK	servo motor	SERVOPACK	servo motor	Pattern 1	Pattern 2	
SGDV-3R8A	SGMGV-03A SGMGV-05A	SGD7S-3R8A SFD7W-5R5A	SGM7G-03A SGM7G-05A	○	○	
SGDV-7R6A	SGMGV-09A	SGD7S-7R6A SGD7W-7R6A	SGM7G-09A	○	○	
SGDV-120A	SGMGV-13A	SGD7S-120A	SGM7G-13A	○	○	
SGDV-180A	SGMGV-20A	SGD7S-180A	SGM7G-20A	○	○	

2. Motor

2-1. Models comparison table

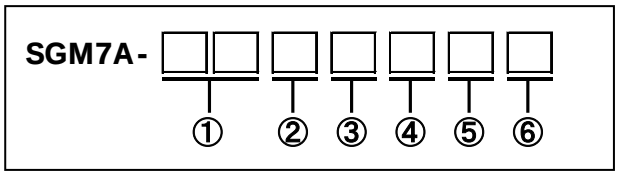
(1) Without speed reducer

Comparison table of SGMJV and SGM7J (Without speed reducer)



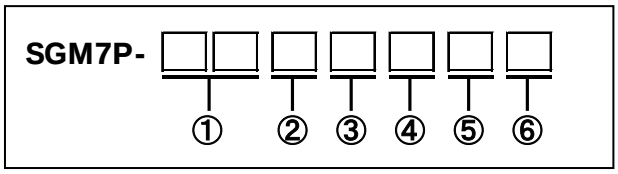
Series/model name / Motor specification (by type)		Σ-V	**Σ-7**	Supplement
		SGMJV-	**SGM7J-**	
Capacity ①	50W	A5	**A5**	
	100W	01	**01**	
	150W	C2	**C2**	
	200W	02	**02**	
	400W	04	**04**	
	600W	06	**06**	
	750W	08	**08**	
Power specification ②	AC200V	A	**A**	
Serial encoder ③	13bit incremental	A	**—**	
	20bit absolute value	3	**—**	
	20bit incremental	D	**—**	
	24bit absolute value	—	**7**	
	24bit incremental	—	**F**	
Design revision order ④	Standard	A	**A**	
Shaft end specification ⑤	Straight , without key	2	**2**	
	Straight , with key and tap	6	**6**	
	With 2-face flat seat	B	**B**	
Option ⑥	Without option	1	**1**	If there is no option, set as “1”. Do not leave blank.
	With holding brake (DC24V)	C	**C**	
	With oil seal and holding brake (DC24V)	E	**E**	
	With oil seal	S	**S**	

Comparison table of SGMAV/SGMSV and SGM7A (Without speed reducer)



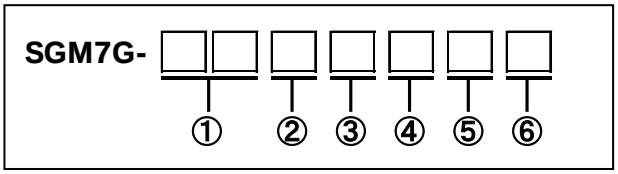
Motor specification (by type) \ Series/model name		Σ-V		Σ-7	Supplement
		SGMAV-	SGMSV-	SGM7A-	
Capacity ①	50W	A5	—	**A5**	
	100W	01	—	**01**	
	150W	C2	—	**C2**	
	200W	02	—	**02**	
	400W	04	—	**04**	
	600W	06	—	**06**	
	750W	08	—	**08**	
	1.0kW	10	10	**10**	
	1.5kW	—	15	**15**	
	2.0kW	—	20	**20**	
	2.5kW	—	25	**25**	
	3.0kW	—	30	**30**	
Power specification ②	AC200V	A		**A**	
Serial encoder ③	20bit absolute value	3		**—**	
	20bit incremental	D		**—**	
	24bit absolute value	—		**7**	
	24bit incremental	—		**F**	
Design revision order ④	Standard	A		**A**	
Shaft end specification ⑤	Straight , without key	2		**2**	
	Straight , with key and tap	6		**6**	
	With 2-face flat seat	B	—	**B※**	※Not available in 1.5kW or higher models
Option ⑥	Without option	1		**1**	If there is no option, set as “1”. Do not leave blank.
	With holding brake (DC24V)	C		**C**	
	With oil seal and holding brake (DC24V)	E		**E**	
	With oil seal	S		**S**	

Comparison table of SGMPS and SGM7P (Without speed reducer)



Series/model name / Motor specification (by type)		Σ-V	**Σ-7**	Supplement
		SGMPS-	**SGM7P-**	
Capacity ①	100W	01	**01**	
	200W	02	**02**	
	400W	04	**04**	
	750W	08	**08**	
	1.5kW	15	**15**	
Power specification ②	AC200V	A	**A**	
Serial encoder ③	17bit absolute value	2	**—**	
	17bit incremental	C	**—**	
	24bit absolute value	—	**7**	
	24bit incremental	—	**F**	
Design revision order ④	IP55	A	**A**	
	IP67	E	**E**	
Shaft end specification ⑤	Straight, without key	2	**2**	
	Straight, with key and tap	6	**6**	
Option ⑥	Without option	1	**1**	If there is no option, set as “1”. Do not leave blank.
	With 24V brake	C	**C**	
	With oil seal and holding brake (DC24V)	E	**E**	
	With oil seal	S	**S**	

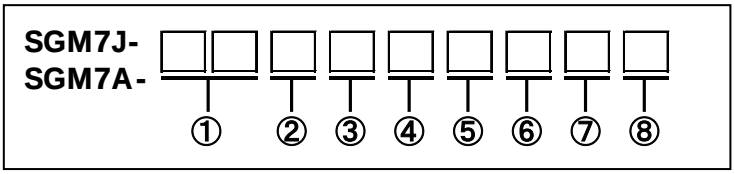
Comparison table of SGMGV and SGM7G (Without speed reducer)



Series/model name / Motor specification (by type)		Σ-V	**Σ-7**	Supplement
		SGMGV-	**SGM7G-**	
Capacity ①	300W	03	**03**	
	450W	05	**05**	
	850W	09	**09**	
	1.3kW	13	**13**	
	1.8kW	20	**20**	
Power specification ②	AC200V	A	**A**	
Serial encoder ③	20bit serial absolute value	3	**—**	
	20bit incremental	D	**—**	
	24bit absolute value	—	**7**	
	24bit incremental	—	**F**	
Design revision order ④	Standard	A	**A**	
Shaft end specification ⑤	Straight , without key	2	**2**	
	Straight , with key and tap	6	**6**	
Option ⑥	Without option	1	**1**	If there is no option, set as “1”. Do not leave blank.
	With holding brake (DC24V)	C	**C**	
	With oil seal and holding brake (DC24V)	E	**E**	
	With oil seal	S	**S**	

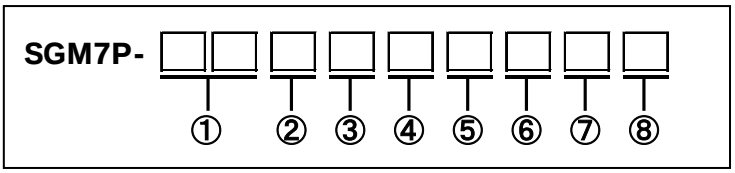
（2）With speed reducer

Comparison table of SGMJV/SGMAV and SGM7J/SGM7A (With speed reducer)



Series/model name / Motor specification (by type)		Σ-V		Σ-7		Supplement
		SGMJV-	SGMAV-	**SGM7J-**	**SGM7A-**	
Capacity ①	50W	A5	A5	**A5**	**A5**	
	100W	01	01	**01**	**01**	
	150W	C2	C2	**C2**	**C2**	
	200W	02	02	**02**	**02**	
	400W	04	04	**04**	**04**	
	600W	06	06	**06**	**06**	
	750W	08	08	**08**	**08**	
	1.0kW	—	10	**—**	**10**	
Power specification ②	AC200V	A		**A**		
Serial encoder ③	13bit incremental	A	—	**—**		
	20bit absolute value	3		**—**		
	20bit incremental	D		**—**		
	24bit absolute value	—		**7**		
	24bit incremental	—		**F**		
Design revision order ④	Standard	A		**A**		
Speed reducer specification ⑤	Precision speed reducer HDS planetary	H		**H**		
Speed reduction ratio ⑥	1/11	B		**B**		50W is not supported
	1/21	C		**C**		
	1/5	1		**1**		
	1/9	2		**2**		Only 50W is supported
	1/33	7		**7**		
Shaft end specification ⑦	Flange output	0		**0**		
	Straight , without key	2		**2**		
	Straight , with key , with tap	6		**6**		
Option ⑧	Without option	1		**1**		If there is no option, set as “1”. Do not leave blank.
	With holding brake (DC24V)	C		**C**		

Comparison table of SGMPS and SGM7P (With speed reducer)



Series/model name / Motor specification (by type)		Σ-V	**Σ-7**	Supplement
		SGMPS-	**SGM7P-**	
Capacity ①	100W	01	**01**	
	200W	02	**02**	
	400W	04	**04**	
	750W	08	**08**	
	1.5kW	15	**15**	
Power specification ②	AC200V	A	**A**	
Serial encoder ③	17bit absolute value	2	**—**	
	17bit incremental	C	**—**	
	24bit absolute value	—	**7**	
	24bit incremental	—	**F**	
Design revision order ④	IP55	A	**A**	
	IP67	E	**E**	
Speed reducer specification ⑤	Precision speed reducer HDS planetary	H	**H**	
Speed reduction ratio ⑥	1/11	B	**B**	
	1/21	C	**C**	
	1/5	1	**1**	
	1/33	7	**7**	
Shaft end specification ⑤	Flange output	0	**0**	
	Straight, without key	2	**2**	
	Straight, with key and tap	6	**6**	
Option ⑥	Without option	1	**1**	If there is no option, set as “1”. Do not leave blank.
	With holding brake (DC24V)	C	**C**	

2-2. Characteristics

(1) Without speed reducer

Comparison of SGMJV and SGM7J

Motor capacity	Model Σ-V: SGMJV- Σ-7: SGM7J-	Motor characteristics					
		Rated torque (N・m)		Maximum momentary torque (N・m)		Moment of inertia of rotor (×10-4 kg・m2)	
		Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
50W	A5A	0.159		0.557		0.0414 (0.0561)	**0.0395 (0.0475)**
100W	01A	0.318		1.11		0.0665 (0.0812)	**0.0659 (0.0739)**
150W	C2A	0.477		1.67		0.0883 (0.103)	**0.0915 (0.0995)**
200W	02A	0.637		2.23		0.259 (0.323)	**0.263 (0.333)**
400W	04A	1.27		4.46		0.442 (0.506)	**0.486 (0.556)**
600W	06A	1.91		6.69		0.667 (0.744)	**0.8 (0.87)**
750W	08A	2.39		8.36		1.57 (1.74)	**1.59 (1.77)**

The numerical value within parenthesis pertains to a servo motor with a holding brake.

Comparison of SGMAV and SGM7A

Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-	Motor characteristics					
		Rated torque (N・m)		Maximum momentary torque (N・m)		Moment of inertia of rotor (×10-4 kg・m2)	
		Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
50W	A5A	0.159		0.477	**0.557**	0.0242 (0.0389)	**0.0217 (0.0297)**
100W	01A	0.318		0.955	**1.11**	0.038 (0.0527)	**0.0337 (0.0417)**
150W	C2A	0.477		1.43	**1.67**	0.0531 (0.0678)	**0.0458 (0.0538)**
200W	02A	0.637		1.91	**2.23**	0.116 (0.18)	**0.139 (0.209)**
400W	04A	1.27		3.82	**4.46**	0.19 (0.254)	**0.216 (0.286)**
600W	06A	1.75	**1.91**	5.25	**6.69**	0.326 (0.403)	**0.315 (0.385)**
750W	08A	2.39		7.16	**8.36**	0.769 (0.94)	**0.775 (0.955)**
1.0kW	10A	3.18		9.55	**11.1**	1.2 (1.41)	**0.971 (1.15)**

The numerical value within parenthesis pertains to a servo motor with a holding brake.

Comparison of SGMSV and SGM7A

Motor capacity	Model Σ-V: SGMSV- Σ-7: SGM7A-	Motor characteristics					
		Rated torque (N・m)		Maximum momentary torque (N・m)		Moment of inertia of rotor (×10-4 kg・m2)	
		Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
1.0kW	10A	3.18		9.54	**11.1**	1.74 (1.99)	**0.971 (1.15)**
1.5kW	15A	4.9		14.7		2 (2.25)	
2.0kW	20A	6.36		19.1		2.47 (2.72)	
2.5kW	25A	7.96		23.9		3.19 (3.44)	
3.0kW	30A	9.8		29.4		7 (9.2)	

The numerical value within parenthesis pertains to a servo motor with a holding brake.

Comparison of SGMPS and SGM7P (there are no parts that differ from Σ-V)

Motor capacity	Model Σ-V: SGMPS- Σ-7: SGM7P-	Motor characteristics					
		Rated torque (N・m)		Maximum momentary torque (N・m)		Moment of inertia of rotor (×10-4 kg・m2)	
		Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
100W	01A	0.318		0.955		0.0592 (0.0892)	
200W	02A	0.637		1.91		0.263 (0.415)	
400W	04A	1.27		3.82		0.409 (0.561)	
750W	08A	2.39		7.16		2.1 (2.98)	
1.5kW	15A	4.77		14.3		4.02 (4.9)	

The numerical value within parenthesis pertains to a servo motor with a holding brake.

Comparison of SGMGV and SGM7G

Motor capacity	Model Σ-V: SGMGV- Σ-7: SGM7G-	Motor characteristics					
		Rated torque (N・m)		Maximum momentary torque (N・m)		Moment of inertia of rotor (×10-4 kg・m2)	
		Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
300W	03A	1.96		5.88		2.48 (2.73)	
450W	05A	2.86		8.92		3.33 (3.58)	
850W	09A	5.39		13.8	**14.2**	13.9 (16)	
1.3kW	13A	8.34		23.3		19.9 (22)	
1.8kW	20A	11.5		28.7		26 (28.1)	

The numerical value within parenthesis pertains to a servo motor with a holding brake.

(2) With speed reducer

Comparison of SGMJV and SGM7J

Motor capacity	Motor model Σ-V: SGMJV- Σ-7: SGM7J-	Speed reduction ratio	Speed reducer output				Moment of inertia ($\times 10^{-4}$ kg·m^2)			
			Rated torque /efficiency * [N·m/%]		Maximum momentary torque [N·m]		Motor *+speed reducer			
							In case of shaft output		In case of flange output	
			Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
50W	A5A	1/5	0.433/64[*2]		2.37		0.0474	**0.0455**	0.0464	**0.0445**
		1/9	1.12/78		3.78[*3]		0.0444	**0.0425**	0.0444	**0.0425**
		1/21	2.84/85		10.6		0.0454	**0.0435**	0.0454	**0.0435**
		1/33	3.68/70		15.8		0.0864	**0.0845**	0.0864	**0.0845**
100W	01A	1/5	1.06/78[*2]		4.96		0.0725	**0.0719**	0.0715	**0.0709**
		1/11	2.52/72		10.7		0.127	**0.126**	0.126	**0.125**
		1/21	5.35/80		20.8		0.117	**0.116**	0.117	**0.116**
		1/33	7.35/70		32.7		0.132	**0.131**	0.131	**0.13**
150W	C2A	1/5	1.68/83[*2]		7.8		0.093	**0.0975**	0.092	**0.0965**
		1/11	3.53/79[*2]		16.9		0.148	**0.152**	0.147	**0.151**
		1/21	6.30/70[*2]		31		0.198	**0.202**	0.196	**0.2**
		1/33	11.2/79[*2]		49.7		0.153	**0.157**	0.152	**0.156**
200W	02A	1/5	2.39/75		9.8		0.466	**0.47**	0.46	**0.464**
		1/11	5.74/82		22.1		0.452	**0.456**	0.451	**0.455**
		1/21	10.2/76		42.1		0.749	**0.753**	0.747	**0.751**
		1/33	17.0/81		67.6		0.709	**0.713**	0.708	**0.712**
400W	04A	1/5	5.35/84	**2.39/75**	20.1		0.649	**0.693**	0.643	**0.687**
		1/11	11.5/82	**5.74/82**	45.1		1.01	**1.06**	1	**1.05**
		1/21	23.0/86	**10.2/76**	87		0.932	**0.976**	0.93	**0.974**
		1/33	34.0/81	**17.0/81**	135		1.06	**1.11**	1.05	**1.1**
600W	06A	1/5	7.54/79		30.5		1.367	**1.5**	1.327	**1.46**
		1/11	18.1/86		68.6		1.237	**1.37**	1.227	**1.36**
		1/21	32.1/80		129		1.507	**1.64**	1.487	**1.62**
		1/33	53.6/85		206		1.287	**1.42**	1.277	**1.41**
750W	08A	1/5	10.0/84		38.4		2.27	**2.29**	2.23	**2.25**
		1/11	23.1/88		86.4		2.17	**2.19**	2.16	**2.18**
		1/21	42.1/84		163		4.57	**4.59**	4.55	**4.57**
		1/33	69.3/88		259		4.37	**4.39**	4.36	**4.37**

* Moment of inertia of motor +speed reducer is the value when no holding brake is used.

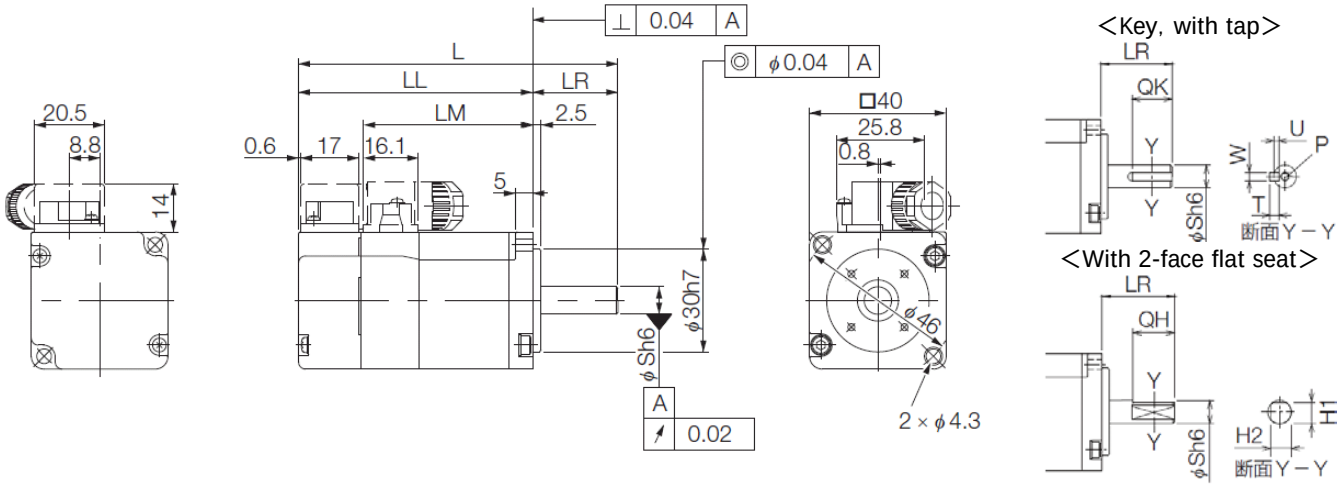
Motor capacity	Motor model Σ-V: SGMAV- Σ-7: SGM7A-	Speed reduction ratio	Speed reducer output				Moment of inertia ($\times 10^{-4}$ kg·m^2)			
			Rated torque /efficiency * [N·m/%]		Maximum momentary torque [N·m]		Motor *+speed reducer			
							In case of shaft output		In case of flange output	
			Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
50W	A5A	1/5	0.433/64[*2]		1.98	**2.37**	0.0302	**0.0277**	0.0292	**0.0267**
		1/9	1.12/78		3.8	**3.78**[*3]	0.0272	**0.0247**	0.0272	**0.0247**
		1/21	2.84/85		9	**10.6**	0.0282	**0.0257**	0.0282	**0.0257**
		1/33	3.68/70		13.4	**15.8**	0.0692	**0.0667**	0.0692	**0.0667**
100W	01A	1/5	1.06/78[*2]		4.2	**4.96**	0.043	**0.0397**	0.042	**0.0387**
		1/11	2.52/72		9	**10.7**	0.098	**0.0937**	0.097	**0.0927**
		1/21	5.35/80		17.8	**20.8**	0.088	**0.0837**	0.088	**0.0837**
		1/33	7.35/70		27.4	**32.7**	0.103	**0.0987**	0.102	**0.0977**
150W	C2A	1/5	1.68/83[*2]		6.45	**7.8**	0.0581	**0.0518**	0.0571	**0.0508**
		1/11	3.53/79[*2]		13.9	**16.9**	0.1131	**0.106**	0.1121	**0.105**
		1/21	6.3/70[*2]		26.2	**31**	0.1631	**0.156**	0.1611	**0.154**
		1/33	11.2/79[*2]		42.5	**49.7**	0.1181	**0.111**	0.1171	**0.11**
200W	02A	1/5	2.39/75		8.31	**9.8**	0.323	**0.346**	0.317	**0.34**
		1/11	5.74/82		18.7	**22.1**	0.309	**0.332**	0.308	**0.331**
		1/21	10.2/76		35.7	**42.1**	0.606	**0.629**	0.604	**0.627**
		1/33	17.0/81		57.4	**67.6**	0.566	**0.589**	0.565	**0.588**
400W	04A	1/5	5.35/84		17.2	**20.1**	0.397	**0.423**	0.391	**0.417**
		1/11	11.5/82		38.2	**45.1**	0.76	**0.786**	0.75	**0.776**
		1/21	23.0/86		74.6	**87**	0.68	**0.706**	0.678	**0.704**
		1/33	34.0/81		115	**135**	0.81	**0.836**	0.8	**0.826**
600W	06A	1/5	6.9/79	**7.54/79**	23.6	**30.5**	1.026	**1.02**	0.986	**0.975**
		1/11	16.6/86	**18.1/86**	53.7	**68.6**	0.896	**0.885**	0.886	**0.875**
		1/21	29.4/80	**32.1/80**	100	**129**	1.166	**1.16**	1.146	**1.14**
		1/33	49.1/85	**53.6/85**	159	**206**	0.946	**0.935**	0.936	**0.925**
750W	08A	1/5	10.0/84		32.9	**38.4**	1.469	**1.48**	1.429	**1.44**
		1/11	23.1/88		73.3	**86.4**	1.369	**1.38**	1.359	**1.37**
		1/21	42.1/84		138	**163**	3.77	**3.78**	3.75	**3.76**
		1/33	69.3/88		220	**259**	3.57	**3.58**	3.56	**3.57**
1.0kW	10A	1/5	13.7/86		44.4	**52.5**	1.9	**1.67**	1.86	**1.63**
		1/11	29.1/83		96.6	**111**	4.6	**4.37**	4.54	**4.31**
		1/21	58.2/87		186	**215**	4.2	**3.97**	4.18	**3.95**
		1/33	94.5/90		296	**296**[*3]	4	**3.77**	3.99	**3.76**

* Moment of inertia of motor +speed reducer is the value when no holding brake is used.

2-3. Mounting dimensions

(1) Without speed reducer (Standard)

Hatching is shown for the parts whose dimensions are different from Σ-V.

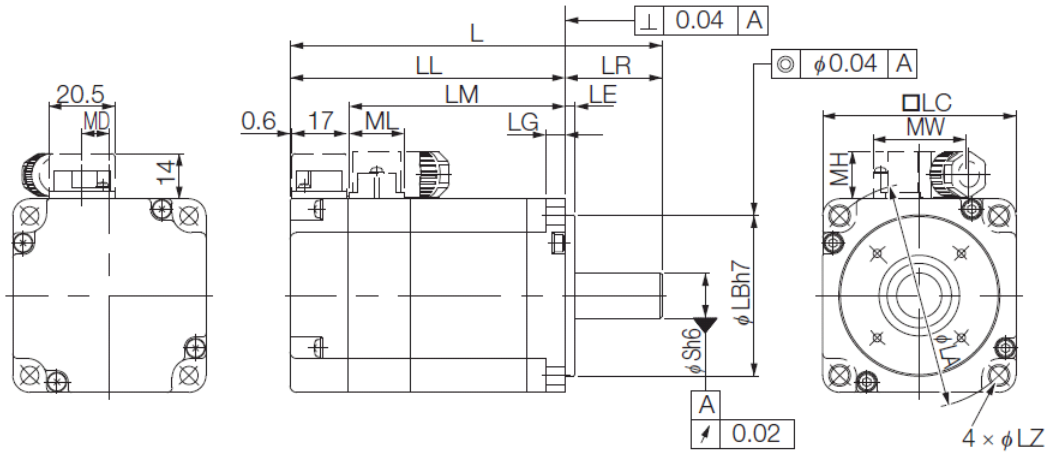


Unit: mm

Motor capacity	Model Σ-V: SGMJV- Σ-7: SGM7J-		L	LL	LM	LR	S	Dimensions when there is key and tap					Dimensions when there is a 2-face flat seat		
								QK	U	W	T	Tap × depth P	QH	H1	H2
50W	A5A	Σ-V	94 (139)	69 (114)	37	25	8	14	1.8	3	3	M3 × 6L	15	7.5	7.5
		Σ-7	**81.5 (122)**	**56.5 (97)**	**37.9**										
100W	01A	Σ-V	107.5 (152.5)	82.5 (127.5)	50.5	25	8	14	1.8	3	3	M3 × 6L	15	7.5	7.5
		Σ-7	**93.5 (134)**	**68.5 (109)**	**49.9**										
150W	C2A	Σ-V	119.5 (164.5)	94.5 (139.5)	62.5	25	8	14	1.8	3	3	M3 × 6L	15	7.5	7.5
		Σ-7	**105.5 (153.5)**	**80.5 (128.5)**	**61.9**										

Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-		L	LL	LM	LR	S	Dimensions when there is key and tap					Dimensions when there is a 2-face flat seat		
								QK	U	W	T	Tap × depth P	QH	H1	H2
50W	A5A	Σ-V	95.5 (140.5)	70.5 (115.5)	38.5	25	8	14	1.8	3	3	M3 × 6L	15	7.5	7.5
		Σ-7	**81.5 (122)**	**56.5 (97)**	**37.9**										
100W	01A	Σ-V	107.5 (152.5)	82.5 (127.5)	50.5	25	8	14	1.8	3	3	M3 × 6L	15	7.5	7.5
		Σ-7	**93.5 (134)**	**68.5 (109)**	**49.9**										
150W	C2A	Σ-V	119.5 (164.5)	94.5 (139.5)	62.5	25	8	14	1.8	3	3	M3 × 6L	15	7.5	7.5
		Σ-7	**105.5 (153.5)**	**80.5 (128.5)**	**61.9**										

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.



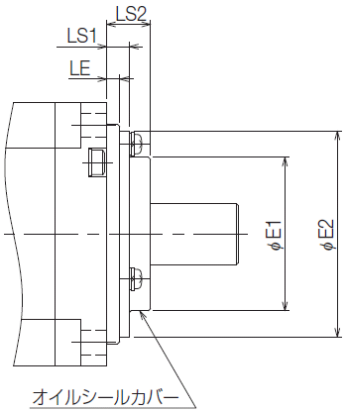
Unit: mm

Motor capacity	Model Σ-V: SGMJV- Σ-7: SGM7J-		L	LL	LM	Flange dimensions LR	LE	LG	LC	LA	LB	LZ	S	MD	MW	MH	ML
200W	02A	Σ-V	110 (150)	80 (120)	51	30	3	6	60	70	50	5.5	14	8.3	21	13	21
		Σ-7	**99.5 (140)**	**69.5 (110)**	**51.2**									**8.5**	**28.7**	**17.1**	**17.1**
400W	04A	Σ-V	128.5 (168.5)	98.5 (138.5)	69.5	30	3	6	60	70	50	5.5	14	8.3	21	13	21
		Σ-7	**115.5 (156)**	**85.5 (126)**	**67.2**									**8.5**	**28.7**	**17.1**	**17.1**
600W	06A	Σ-V	154.5 (200.5)	124.5 (170.5)	95.5	30	3	6	60	70	50	5.5	14	8.3	21	13	21
		Σ-7	**137.5 (191.5)**	**107.5 (161.5)**	**89.2**									**8.5**	**28.7**	**17.1**	**17.1**
750W	08A	Σ-V	155 (200)	115 (160)	85	40	3	8	80	90	70	7	19	13.8	27	15	21
		Σ-7	**137 (184)**	**97 (144)**	**78.5**									**8.5**	**38**	**19.3**	**19.3**

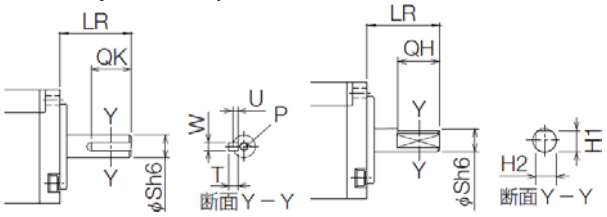
Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-		L	LL	LM	Flange dimensions LR	LE	LG	LC	LA	LB	LZ	S	MD	MW	MH	ML
200W	02A	Σ-V	110 (150)	80 (120)	51	30	3	6	60	70	50	5.5	14	8.5	21	13	21
		Σ-7	**99.5 (140)**	**69.5 (110)**	**51.2**										**28.7**	**14.7**	**17.1**
400W	04A	Σ-V	128.5 (168.5)	98.5 (138.5)	69.5	30	3	6	60	70	50	5.5	14	8.5	21	13	21
		Σ-7	**115.5 (156)**	**85.5 (126)**	**67.2**										**28.7**	**14.7**	**17.1**
600W	06A	Σ-V	154.5 (200.5)	124.5 (170.5)	95.5	30	3	6	60	70	50	5.5	14	8.5	21	13	21
		Σ-7	**137.5 (191.5)**	**107.5 (161.5)**	**89.2**										**28.7**	**14.7**	**17.1**
750W	08A	Σ-V	155 (200)	115 (160)	85	40	3	8	80	90	70	7	19	13.8	27	15	21
		Σ-7	**137 (184)**	**97 (144)**	**78.5**									**8.5**	**38**	**14.7**	**19.3**
1.0kW	10A	Σ-V	185 (235)	145 (195)	115	40	3	8	80	90	70	7	19	13.8	27	15	21
		Σ-7	**162 (209)**	**122 (169)**	**103.5**									**8.5**	**38**	**14.7**	**19.3**

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.

＜With oil seal＞



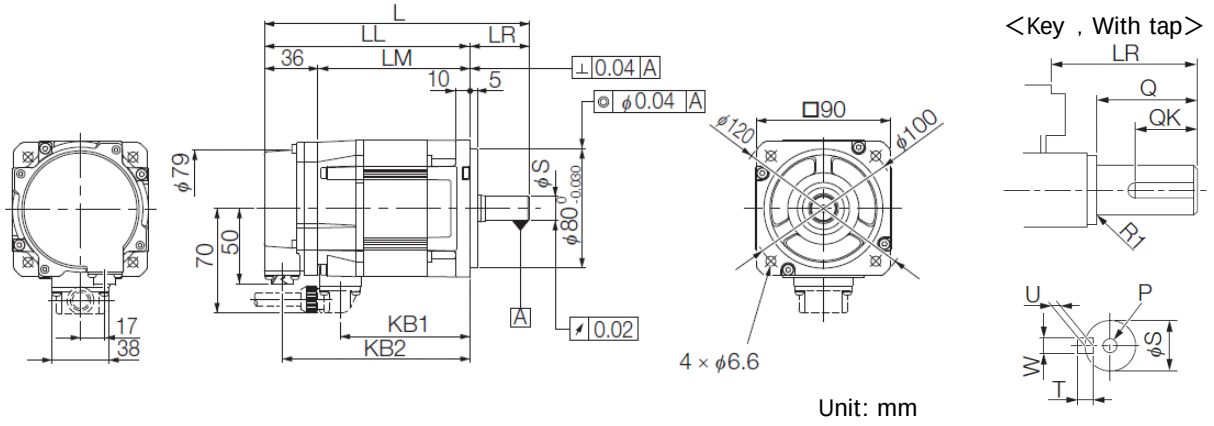
＜Key ，With tap＞ ＜With 2-face flat seat＞



Unit: mm

Motor capacity	Model Σ-V: SGMJV- Σ-7: SGM7J-		Key dimensions QK	U	W	T	Tap × depth P	Dimensions when there is a 2-face flat seat QH	H1	H2	Dimensions when there is an oil seal E1	E2	LS1	LS2
200W	02A	Σ-V	14	3	5	5	M5 × 8L	15	13	13	36	47	6.7	10
		Σ-7									**35**		**5.2**	
400W	04A	Σ-V	14	3	5	5	M5 × 8L	15	13	13	36	47	6.7	10
		Σ-7									**35**		**5.2**	
600W	06A	Σ-V	14	3	5	5	M5 × 8L	15	13	13	36	47	6.7	10
		Σ-7									**35**		**5.2**	
750W	08A	Σ-V	22	3.5	6	6	M6 × 10L	22	18	18	49	66	5.5	11
		Σ-7									**47**	**61**		

Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-		Dimensions when there is a key and tap QK	U	W	T	Tap × depth P	Dimensions when there is a 2-face flat seat QH	H1	H2	Dimensions when there is an oil seal E1	E2	LS1	LS2
200W	02A	Σ-V	14	3	5	5	M5 × 8L	14	13	13	36	48	4	10
		Σ-7						**15**			**35**	**47**	**5.2**	
400W	04A	Σ-V	14	3	5	5	M5 × 8L	14	13	13	36	48	4	10
		Σ-7						**15**			**35**	**47**	**5.2**	
600W	06A	Σ-V	14	3	5	5	M5 × 8L	14	13	13	36	48	4	10
		Σ-7						**15**			**35**	**47**	**5.2**	
750W	08A	Σ-V	22	3.5	6	6	M6 × 10L	22	18	18	49	66	6	11
		Σ-7									**47**	**61**	**5.5**	
1.0kW	10A	Σ-V	22	3.5	6	6	M6 × 10L	22	18	18	49	66	6	11
		Σ-7									**47**	**61**	**5.5**	

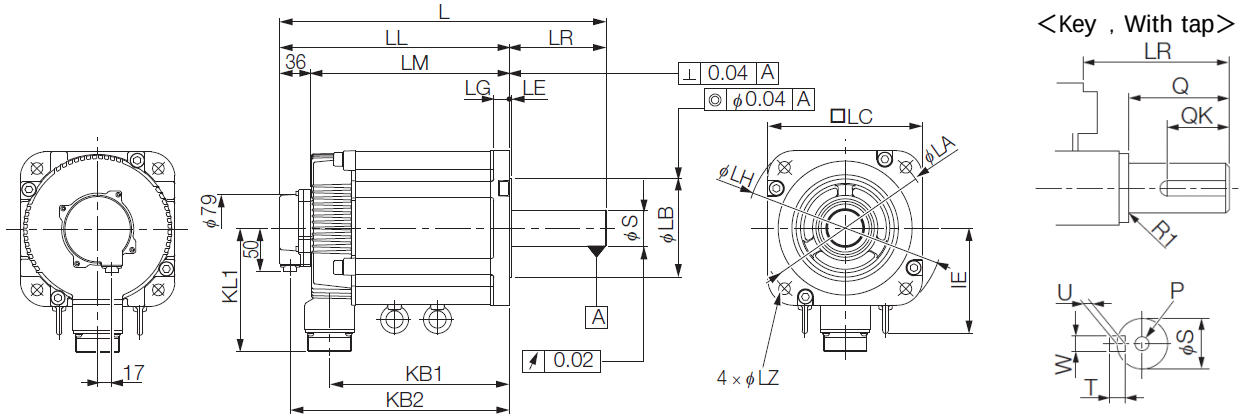


Unit: mm

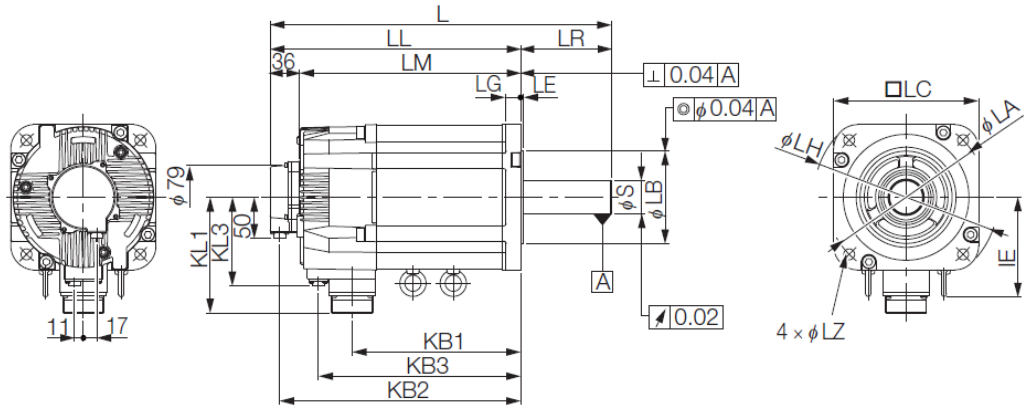
Motor capacity	Model Σ-V: SGMGV- Σ-7: SGM7G-		L	LL	LM	LR	KB1	KB2	S	Dimensions when there is a key and tap					
										Q	QK	U	W	T	Tap × depth P
300W	03A	Σ-V	163 (196)	126 (159)	90 (123)	37	75	114 (147)	14	25	15	3	5	5	M4 × 10L
		Σ-7	**166 (199)**			**40**			**16**	**30**	**20**				**M5 × 12L**
450W	05A	Σ-V	179 (212)	139 (172)	103 (136)	40	88	127 (160)	16	30	20	3	5	5	M5 × 12L
		Σ-7													

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.

Without holding brake



With holding brake



Unit: mm

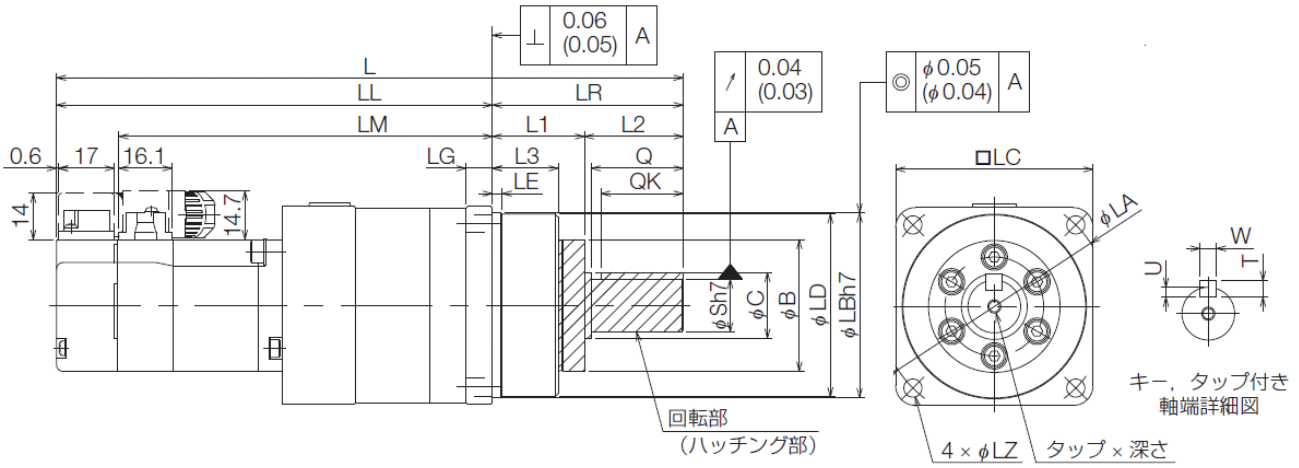
Motor capacity	Model Σ-V: SGMGV- Σ-7: SGM7G-		L	LL	LM	LR	KB1	KB2	KB3	KL1	KL3
850W	09A	Σ-V	195 (231)	137 (173)	101 (137)	58	83	125 (161)	— (115)	104	— (80)
		Σ-7									
1.3kW	13A	Σ-V	211 (247)	153 (189)	117 (153)	58	99	141 (177)	— (131)	104	— (80)
		Σ-7									
1.8kW	20A	Σ-V	229 (265)	171 (207)	135 (171)	58	117	159 (195)	— (149)	104	— (80)
		Σ-7									

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.

Motor capacity	Model Σ-V: SGMGV- Σ-7: SGM7G-		Flange surface dimensions							S	Dimensions when there is a key and tap					
			LA	LB	LC	LE	LG	LH	LZ		Q	QK	U	W	T	Tap × depth P
850W	09A	Σ-V	145	110	130	6	12	165	9	19	40	25	3	5	5	M5 × 12L
		Σ-7								**24**			**4**	**8**	**7**	
1.3kW	13A	Σ-V	145	110	130	6	12	165	9	22	40	25	3.5	6	6	M5 × 12L
		Σ-7								**24**			**4**	**8**	**7**	
1.8kW	20A	Σ-V	145	110	130	6	12	165	9	24	40	25	4	8	7	M5 × 12L
		Σ-7														

（2）With speed reducer

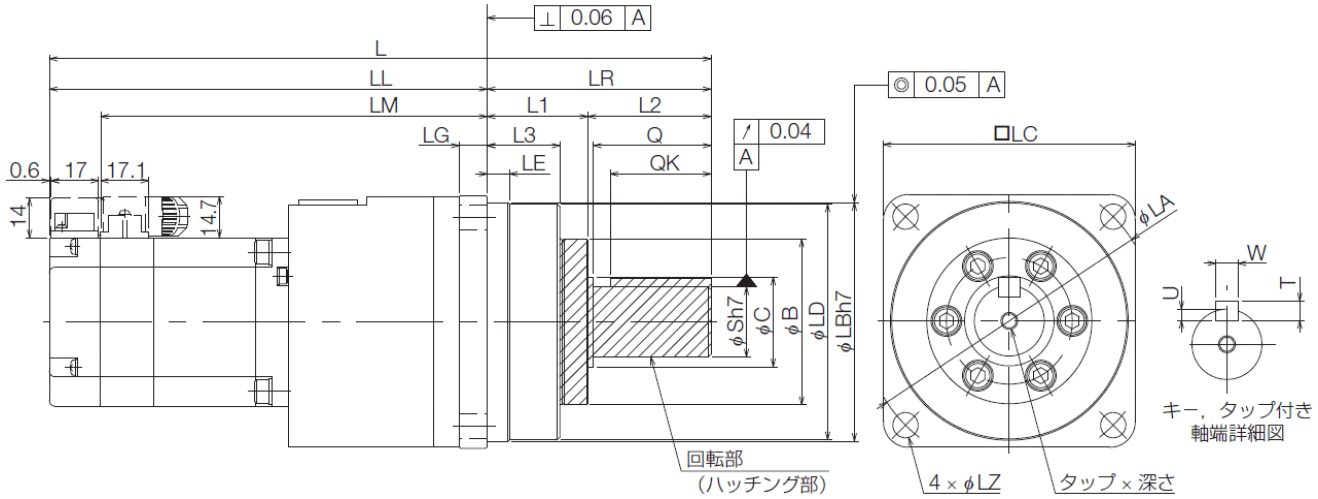
Parts whose dimensions are different from Σ-V are highlighted in the chart below.



Unit: mm

Motor capacity	Motor model Σ-V: SGMJV- Σ-7: SGM7J-	Speed reduction ratio	L		LL		LM	
			Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
50W	A5A	1/5	150.5 (195.5)	**138 (178.5)**	108.5 (153.5)	**96 (136.5)**	76.5	**77.4**
		1/9	150.5 (195.5)	**138 (178.5)**	108.5 (153.5)	**96 (136.5)**	76.5	**77.4**
		1/21	159.5 (204.5)	**147 (187.5)**	117.5 (162.5)	**105 (145.5)**	85.5	**86.4**
		1/33	191 (236)	**178.5 (219)**	133 (178)	**120.5 (161)**	101	**101.9**
100W	01A	1/5	164 (209)	**150 (190.5)**	122 (167)	**108 (148.5)**	90	**89.4**
		1/11	204.5 (249.5)	**190.5 (231)**	146.5 (191.5)	**132.5 (173)**	114.5	**113.9**
		1/21	204.5 (249.5)	**190.5 (231)**	146.5 (191.5)	**132.5 (173)**	114.5	**113.9**
		1/33	229 (274)	**215 (255.5)**	149 (194)	**135 (175.5)**	117	**116.4**
150W	C2A	1/5	176 (221)	**162 (210)**	134 (179)	**120 (168)**	102	**101.4**
		1/11	216.5 (261.5)	**202.5 (250.5)**	158.5 (203.5)	**144.5 (192.5)**	126.5	**125.9**
		1/21	241 (286)	**227 (275)**	161 (206)	**147 (195)**	129	**128.4**
		1/33	241 (286)	**227 (275)**	161 (206)	**147 (195)**	129	**128.4**

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.

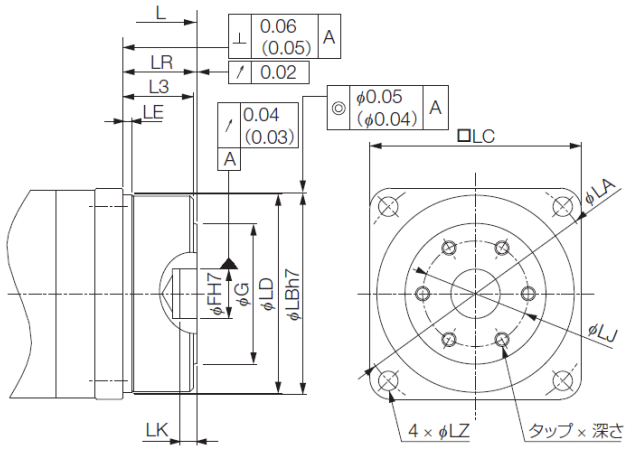


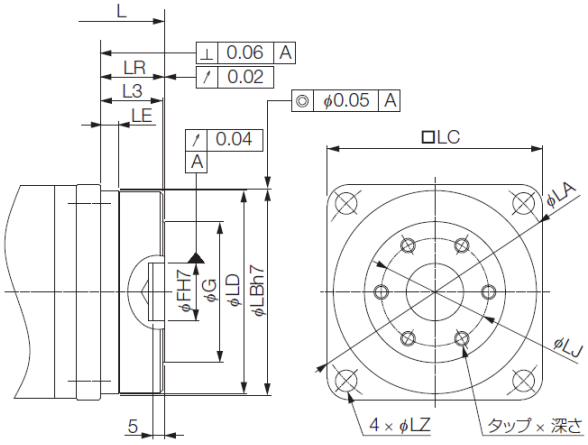
Unit: mm

Motor capacity	Motor model Σ-V: SGMJV- Σ-7: SGM7J-	Speed reduction ratio	L		LL		LM	
			Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
200W	02A	1/5	202 (242)	**191 (232)**	144 (184)	**133.5 (174)**	115	**115.2**
		1/11	202 (242)	**191 (232)**	144 (184)	**133.5 (174)**	115	**115.2**
		1/21	231 (271)	**220.5 (261)**	151 (191)	**140.5 (181)**	122	**122.2**
		1/33	231 (271)	**220.5 (261)**	151 (191)	**140.5 (181)**	122	**122.2**
400W	04A	1/5	220.5 (260.5)	**207.5 (248)**	162.5 (202.5)	**149.5 (190)**	133.5	**131.2**
		1/11	249.5 (289.5)	**236.5 (277)**	169.5 (209.5)	**156.5 (197)**	140.5	**138.2**
		1/21	249.5 (289.5)	**236.5 (277)**	169.5 (209.5)	**156.5 (197)**	140.5	**138.2**
		1/33	335.5 (375.5)	**322.5 (363)**	202.5 (242.5)	**189.5 (230)**	173.5	**171.2**
600W	06A	1/5	275.5 (321.5)	**258.5 (312.5)**	195.5 (241.5)	**178.5 (232.5)**	166.5	**160.2**
		1/11	275.5 (321.5)	**258.5 (312.5)**	195.5 (241.5)	**178.5 (232.5)**	166.5	**160.2**
		1/21	361.5 (407.5)	**344.5 (398.5)**	228.5 (274.5)	**211.5 (265.5)**	199.5	**193.2**
		1/33	361.5 (407.5)	**344.5 (398.5)**	228.5 (274.5)	**211.5 (265.5)**	199.5	**193.2**
750W	08A	1/5	273 (318)	**255 (302)**	193 (238)	**175 (222)**	163	**156.5**
		1/11	273 (318)	**255 (302)**	193 (238)	**175 (222)**	163	**156.5**
		1/21	352 (397)	**334 (381)**	219 (264)	**201 (248)**	189	**182.5**
		1/33	352 (397)	**334 (381)**	219 (264)	**201 (248)**	189	**182.5**

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.

Details of flange output



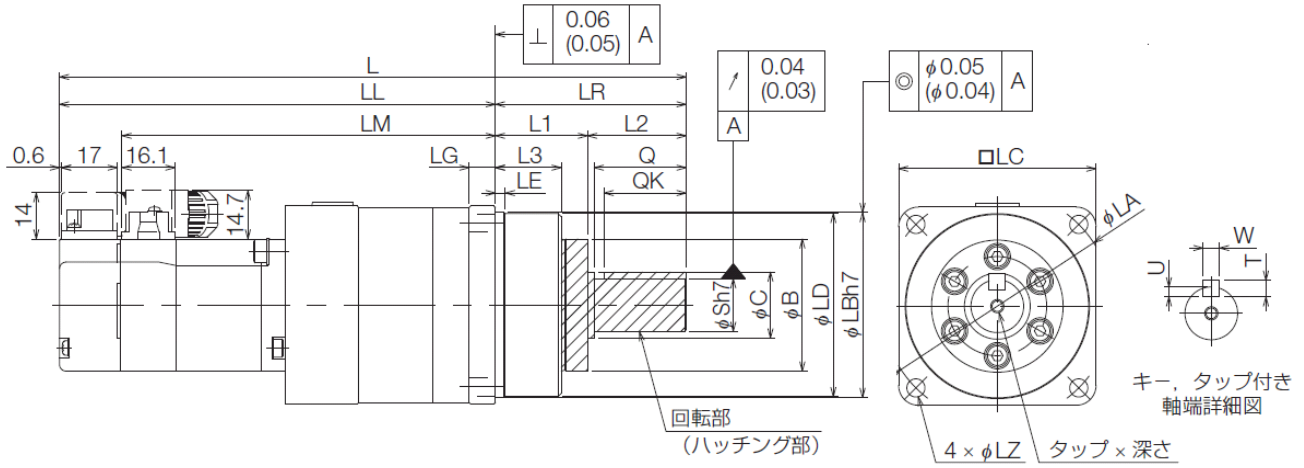


Unit: mm

Motor capacity	Motor model Σ-V: SGMJV- Σ-7: SGM7J-	Speed reduction ratio	L	
			Σ-V	**Σ-7**
50W	A5A	1/5	123.5 (168.5)	**111 (151.5)**
		1/9	123.5 (168.5)	**111 (151.5)**
		1/21	132.5 (177.5)	**120 (160.5)**
		1/33	154 (199)	**141.5 (182)**
100W	01A	1/5	137 (182)	**123 (163.5)**
		1/11	167.5 (212.5)	**153.5 (194)**
		1/21	167.5 (212.5)	**153.5 (194)**
		1/33	176 (221)	**162 (202.5)**
150W	C2A	1/5	149 (194)	**135 (183)**
		1/11	179.5 (224.5)	**165.5 (213.5)**
		1/21	188 (233)	**174 (222)**
		1/33	188 (233)	**174 (222)**

Motor capacity	Motor model Σ-V: SGMJV- Σ-7: SGM7J-	Speed reduction ratio	L	
			Σ-V	**Σ-7**
200W	02A	1/5	165 (205)	**154.5 (195)**
		1/11	165 (205)	**154.5 (195)**
		1/21	178 (218)	**167.5 (208)**
		1/33	178 (218)	**167.5 (208)**
400W	04A	1/5	183.5 (223.5)	**170.5 (211)**
		1/11	196.5 (236.5)	**183.5 (224)**
		1/21	196.5 (236.5)	**183.5 (224)**
		1/33	237.5 (277.5)	**224.5 (265)**
600W	06A	1/5	222.5 (268.5)	**205.5 (259.5)**
		1/11	222.5 (268.5)	**205.5 (259.5)**
		1/21	263.5 (309.5)	**246.5 (300.5)**
		1/33	263.5 (309.5)	**246.5 (300.5)**
750W	08A	1/5	220 (265)	**202 (249)**
		1/11	220 (265)	**202 (249)**
		1/21	254 (299)	**236 (283)**
		1/33	254 (299)	**236 (283)**

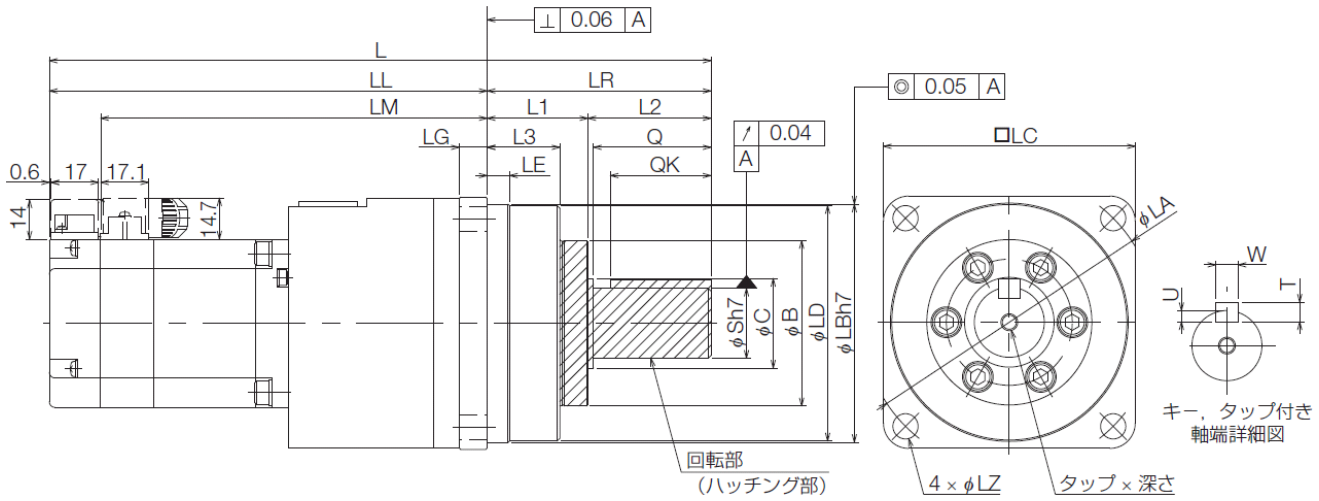
〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.



Unit: mm

Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-	Speed reduction ratio	L		LL		LM		Q		C		S	
			Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
50W	A5A	1/5	152 (197)	**138 (178.5)**	110 (155)	**96 (136.5)**	78	**77.4**	—		—		10	
		1/9	152 (197)	**138 (178.5)**	110 (155)	**96 (136.5)**	78	**77.4**	—		—		10	
		1/21	161 (206)	**147 (187.5)**	119 (164)	**105 (145.5)**	87	**86.4**	—		—		10	
		1/33	192.5 (237.5)	**178.5 (219)**	134.5 (179.5)	**120.5 (161)**	102.5	**101.9**	28		20		16	
100W	01A	1/5	164 (209)	**150 (190.5)**	122 (167)	**108 (148.5)**	90	**89.4**	—		—		10	
		1/11	204.5 (249.5)	**190.5 (231)**	146.5 (191.5)	**132.5 (173)**	114.5	**113.9**	28		20		16	
		1/21	204.5 (249.5)	**190.5 (231)**	146.5 (191.5)	**132.5 (173)**	114.5	**113.9**	28		20		16	
		1/33	229 (274)	**215 (255.5)**	149 (194)	**135 (175.5)**	117	**116.4**	42		32		25	
150W	C2A	1/5	176 (221)	**162 (210)**	134 (179)	**120 (168)**	102	**101.4**	—		—		10	
		1/11	216.5 (261.5)	**202.5 (250.5)**	158.5 (203.5)	**144.5 (192.5)**	126.5	**125.9**	28		20		16	
		1/21	241 (286)	**227 (275)**	161 (206)	**147 (195)**	129	**128.4**	28	**42**	20	**32**	16	**25**
		1/33	241 (286)	**227 (275)**	161 (206)	**147 (195)**	129	**128.4**	42		32		25	

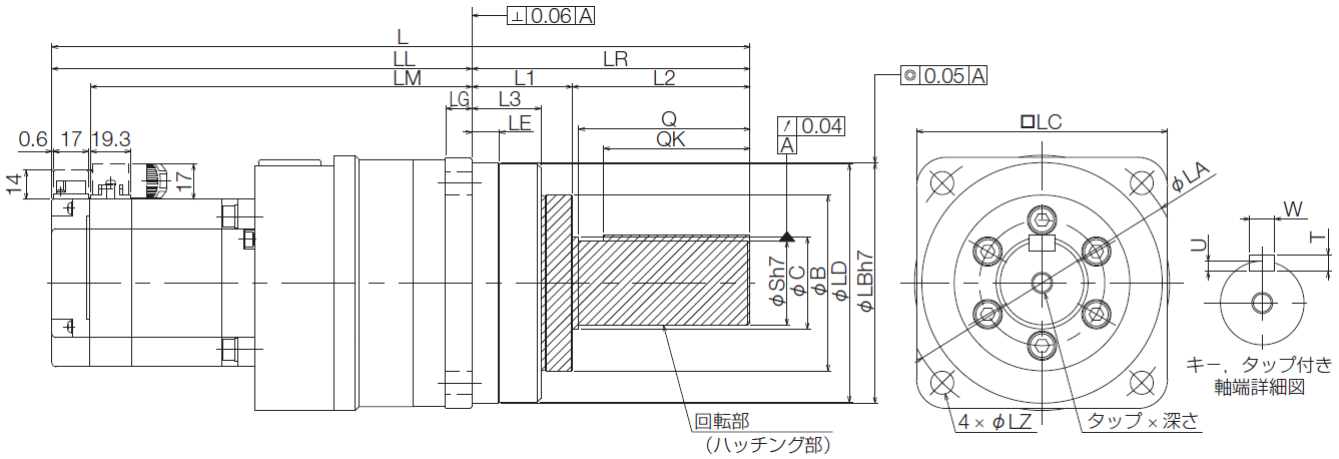
〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.



Unit: mm

Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-	Speed reduction ratio	L		LL		LM	
			Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
200W	02A	1/5	202 (242)	**191.5 (232)**	144 (184)	**133.5 (174)**	115	**115.2**
		1/11	202 (242)	**191.5 (232)**	144 (184)	**133.5 (174)**	115	**115.2**
		1/21	231 (271)	**220.5 (261)**	151 (191)	**140.5 (181)**	122	**122.2**
		1/33	231 (271)	**220.5 (261)**	151 (191)	**140.5 (181)**	122	**122.2**
400W	04A	1/5	220.5 (260.5)	**207.5 (248)**	162.5 (202.5)	**149.5 (190)**	133.5	**131.2**
		1/11	249.5 (289.5)	**236.5 (277)**	169.5 (209.5)	**156.5 (197)**	140.5	**138.2**
		1/21	249.5 (289.5)	**236.5 (277)**	169.5 (209.5)	**156.5 (197)**	140.5	**138.2**
		1/33	335.5 (375.5)	**322.5 (363)**	202.5 (242.5)	**189.5 (230)**	173.5	**171.2**
600W	06A	1/5	275.5 (321.5)	**258.5 (312.5)**	195.5 (241.5)	**178.5 (232.5)**	166.5	**160.2**
		1/11	275.5 (321.5)	**258.5 (312.5)**	195.5 (241.5)	**178.5 (232.5)**	166.5	**160.2**
		1/21	361.5 (407.5)	**344.5 (398.5)**	228.5 (274.5)	**211.5 (265.5)**	199.5	**193.2**
		1/33	361.5 (407.5)	**344.5 (398.5)**	228.5 (274.5)	**211.5 (265.5)**	199.5	**193.2**

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.

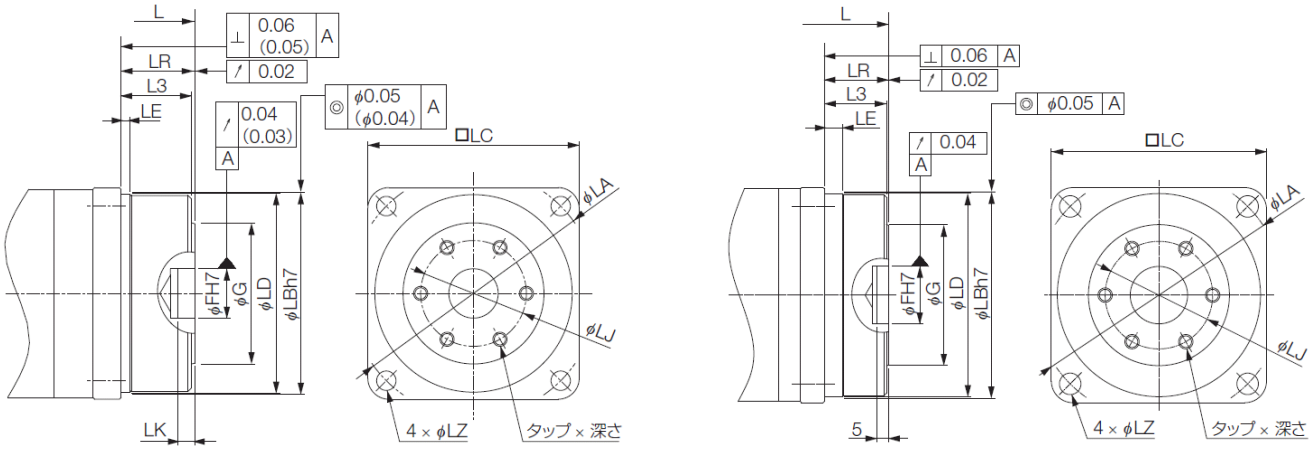


Unit: mm

Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-	Speed reduction ratio	L		LL		LM	
			Σ-V	**Σ-7**	Σ-V	**Σ-7**	Σ-V	**Σ-7**
750W	08A	1/5	273 (318)	**255 (302)**	193 (238)	**175 (222)**	163	**156.5**
		1/11	273 (318)	**255 (302)**	193 (238)	**175 (222)**	163	**156.5**
		1/21	352 (397)	**334 (381)**	219 (264)	**201 (248)**	189	**182.5**
		1/33	352 (397)	**334 (381)**	219 (264)	**201 (248)**	189	**182.5**
1.0kW	10A	1/5	303 (353)	**280 (327)**	223 (273)	**200 (247)**	193	**181.5**
		1/11	382 (432)	**359 (406)**	249 (299)	**226 (273)**	219	**207.5**
		1/21	382 (432)	**359 (406)**	249 (299)	**226 (273)**	219	**207.5**
		1/33	382 (432)	**359 (406)**	249 (299)	**226 (273)**	219	**207.5**

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.

Flange output details



Unit: mm

Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-	Speed reduction ratio	L	
			Σ-V	**Σ-7**
50W	A5A	1/5	125 (170)	**111 (151.5)**
		1/9	125 (170)	**111 (151.5)**
		1/21	134 (179)	**120 (160.5)**
		1/33	155.5 (200.5)	**141.5 (182)**
100W	01A	1/5	137 (182)	**123 (163.5)**
		1/11	167.5 (212.5)	**153.5 (194)**
		1/21	167.5 (212.5)	**153.5 (194)**
		1/33	176 (221)	**162 (202.5)**
150W	C2A	1/5	149 (194)	**135 (183)**
		1/11	179.5 (224.5)	**165.5 (213.5)**
		1/21	188 (233)	**174 (222)**
		1/33	188 (233)	**174 (222)**

Motor capacity	Model Σ-V: SGMAV- Σ-7: SGM7A-	Speed reduction ratio	L	
			Σ-V	**Σ-7**
200W	02A	1/5	165 (205)	**154.5 (195)**
		1/11	165 (205)	**154.5 (195)**
		1/21	178 (218)	**167.5 (208)**
		1/33	178 (218)	**167.5 (208)**
400W	04A	1/5	183.5 (223.5)	**170.5 (211)**
		1/11	196.5 (236.5)	**183.5 (224)**
		1/21	196.5 (236.5)	**183.5 (224)**
		1/33	237.5 (277.5)	**224.5 (265)**
600W	06A	1/5	222.5 (268.5)	**205.5 (259.5)**
		1/11	222.5 (268.5)	**205.5 (259.5)**
		1/21	263.5 (309.5)	**246.5 (300.5)**
		1/33	263.5 (309.5)	**246.5 (300.5)**
750W	08A	1/5	220 (265)	**202 (249)**
		1/11	220 (265)	**202 (249)**
		1/21	254 (299)	**236 (283)**
		1/33	254 (299)	**236 (283)**
1.0kW	10A	1/5	250 (300)	**227 (274)**
		1/11	284 (334)	**261 (308)**
		1/21	284 (334)	**261 (308)**
		1/33	284 (334)	**261 (308)**

〈Note〉 The value within parenthesis pertains to a servo motor with a holding brake.

3. SERVOPACK

3-1. Model comparison table

1-3. Please see the replacement list.

3-2. Terminal correspondence table

Main circuit terminal inputs layout

Function	Terminal code			
	Σ-V	**Σ-7S**	**Σ-7W**	
	50W to 3.0kW	**50W to 3.0kW**	**200W to 400W**	**750W to 1.0kW**
Main circuit power input terminal	L1 L2 L3	**L1** **L2** **L3**	**L1** **L2** **L3**	**L1** **L2** **L3**
Servo motor connection terminal	U V W	**U** **V** **W**	**UA** **VA** **WA** **UB** **VB** **WB**	**UA** **VA** **WA** **UB** **VB** **WB**
Control power input terminal	L1C L2C	**L1C** **L2C**	**L1C** **L2C**	**L1C** **L2C**
External regenerative resistance connection terminal	B1/ (+) B2 B3	**B1/ (+)** **B2** **B3**	**B1/ (+)** **B2** **B3**	**B1/ (+)** **B2** **B3**
Connection terminal for DC reactor for suppressing power supply harmonics	(-) 1 (-) 2	**(-) 1** **(-) 2**	**(-) 1** **(-) 2**	**(-) 1** **(-) 2**
Main circuit positive side terminal	B1/ (+)	**B1/ (+)**	**B1/ (+)**	**B1/ (+)**
Main circuit negative side terminal	(-) 2	**(-) 2 or (-)**	**(-) 2 or (-)**	**(-) 2 or (-)**

In the case of using main circuit power in single-phase, input in L1 and L2 terminals.

Control circuit terminal

[Σ-7S analog voltage/pulse train command type; single shaft type]

Function	Terminal code	Terminal number Σ-V 50pin	Terminal number **Σ-7S 50pin**
Speed command	V-REF	5	**5**
Torque command	T-REF	9	**9**
Command pulse input	PULS	7	**7**
	/PULS	8	**8**
Command signal input	SIGN	11	**11**
	/SIGN	12	**12**
Clear input	CLR	15	**15**
	/CLR	14	**14**
Power for open corrector command	PL1	3	**3**
	PL2	13	**13**
	PL3	18	**18**
Signal ground	SG	1, 2, 6, 10	**1, 2, 6, 10**
Absolute value data request(SEN)	SEN	4	**4**
Servo ON*	/S-ON	40	**40**
P-operation command *	/P-CON	41	**41**
Forward drive inhibition *	P-OT	42	**42**
Reverse drive inhibition *	N-OT	43	**43**
Alarm reset *	/ALM-RST	44	**44**
Forward external torque limit *	/P-CL	45	**45**
Reverse external torque limit *	/N-CL	46	**46**
Sequence signal control power input	+24VIN	47	**47**
Encoder divided pulse output A-phase	PAO	33	**33**
	/PAO	34	**34**
Encoder divided pulse output B phase	PBO	35	**35**
	/PBO	36	**36**
Encoder divided pulse output C phase	PCO	19	**19**
	/PCO	20	**20**
S phase signal output	PSO	—	**48**
	/PSO	—	**49**
Battery (+)	BAT(+)	21	**21**
Battery (-)	BAT(-)	22	**22**
Speed match detection*	/V-CMP+ (./COIN+)	25	**25**
	/V-CMP- (./COIN-)	26	**26**
Rotation detection output *	/TGON+	27	**27**
	/TGON-	28	**28**
Servo ready output *	/S-RDY+	29	**29**
	/S-RDY-	30	**30**
Brake signal output *	/BK+	—	**—**
	/BK-	—	**—**
Servo alarm output	ALM+	31	**31**
	ALM-	32	**32**
Alarm code output	ALO1	37	**37**
	ALO2	38	**38**
	ALO3	39	**39**
Overheating protection input for linear motor	TH	—	**50**
Frame ground	FG	Shell	**Shell**

[Σ-7S MECHATROLINK-Ⅱ communication command type; single shaft type]

Function	Terminal code	Terminal number Σ-V 26pin	Terminal number **Σ-7S 26pin**
Signal ground	SG	16	**16**
Forward drive inhibition *	P-OT	7	**7**
Reverse drive inhibition *	N-OT	8	**8**
Origin return speed reduction switch input *	/DEC	9	**9**
External latch signal 1*	/EXT1	10	**10**
External latch signal 2*	/EXT2	11	**11**
External latch signal 3*	/EXT3	12	**12**
General input *	/SI0	13	**13**
Sequence signal control power input	+24VIN	6	**6**
Encoder divided pulse output A phase	PAO	17	**17**
	/PAO	18	**18**
Encoder divided pulse output B phase	PBO	19	**19**
	/PBO	20	**20**
Encoder divided pulse output C phase	PCO	21	**21**
	/PCO	22	**22**
Battery (+)	BAT(+)	14	**14**
Battery (-)	BAT(-)	15	**15**
Brake signal output *	/BK+	1	**1**
	/BK-	2	**2**
Position determination completion output *	/COIN+	—	**—**
	/COIN-	—	**—**
Servo ready output *	/S-RDY+	—	**—**
	/S-RDY-	—	**—**
General output *	/SO2+	23	**23**
	/SO2-	24	**24**
	/SO3+	25	**25**
	/SO3-	26	**26**
Servo alarm output	ALM+	3	**3**
	ALM-	4	**4**
Alarm code output	ALO1	—	**—**
	ALO2	—	**—**
	ALO3	—	**—**
Overheating protection input for linear motor	TH	—	**5**
Frame ground	FG	Shell	**Shell**

*: Sequence input-output is set at the time of shipping. Allocation can be changed through user parameter settings.

[Σ-7S MECHATROLINK-Ⅲ communication command type; single shaft type]

Function	Terminal code	Terminal number Σ-V 26pin	Terminal number **Σ-7S 26pin**
Signal ground	SG	16	**16**
Forward drive inhibition *	P-OT	7	**7**
Reverse drive inhibition *	N-OT	8	**8**
Origin return speed reduction switch input *	/DEC	9	**9**
External latch signal 1*	/EXT1	10	**10**
External latch signal 2*	/EXT2	11	**11**
External latch signal 3*	/EXT3	12	**12**
General input *	/SI0	13	**13**
Sequence signal control power input	+24VIN	6	**6**
Encoder divided pulse output A phase	PAO	17	**17**
	/PAO	18	**18**
Encoder divided pulse output B phase	PBO	19	**19**
	/PBO	20	**20**
Encoder divided pulse output C phase	PCO	21	**21**
	/PCO	22	**22**
Battery (+)	BAT(+)	14	**14**
Battery (-)	BAT(-)	15	**15**
Brake signal output	/BK+	1	**1**
	/BK-	2	**2**
General output *	/SO2+	23	**23**
	/SO2-	24	**24**
	/SO3+	25	**25**
	/SO3-	26	**26**
Servo alarm output	ALM+	3	**3**
	ALM-	4	**4**
Overheating protection input for linear motor	TH	—	**5**
Frame ground	FG	Shell	**Shell**

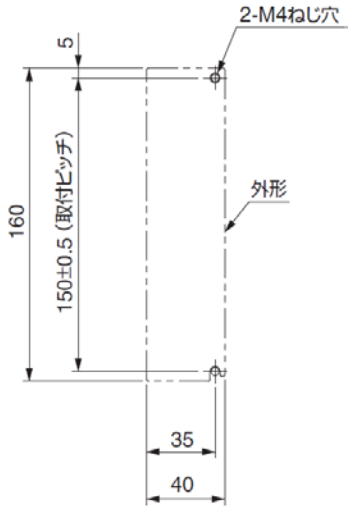
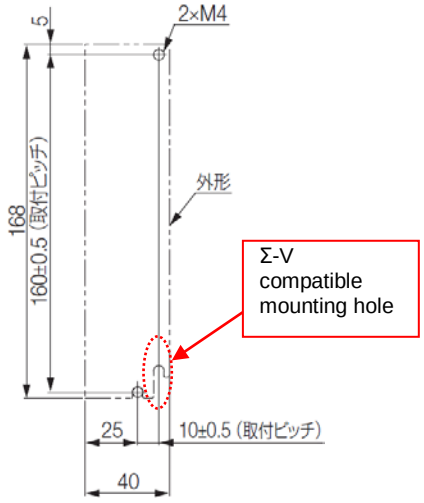
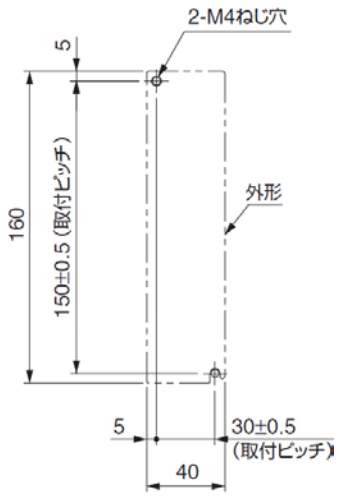
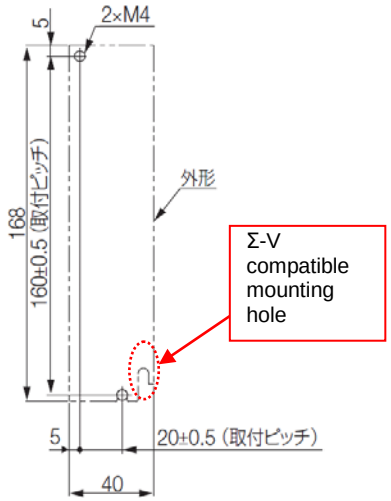
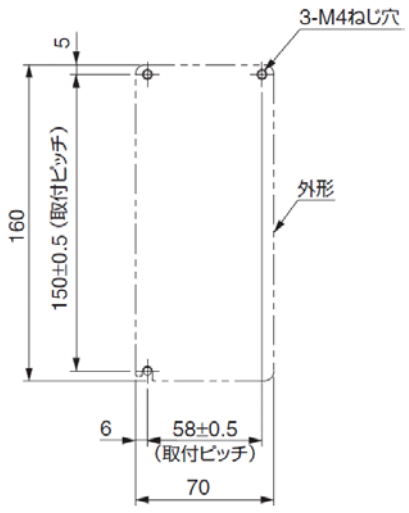
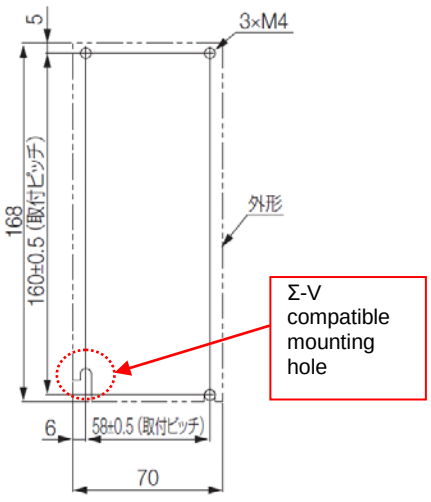
[Σ-7W MECHATROLINK-Ⅲ communication command type; 2-shaft type]

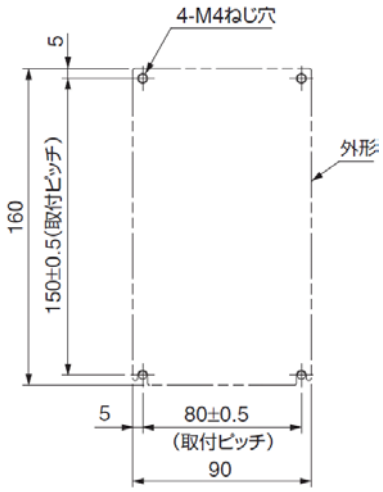
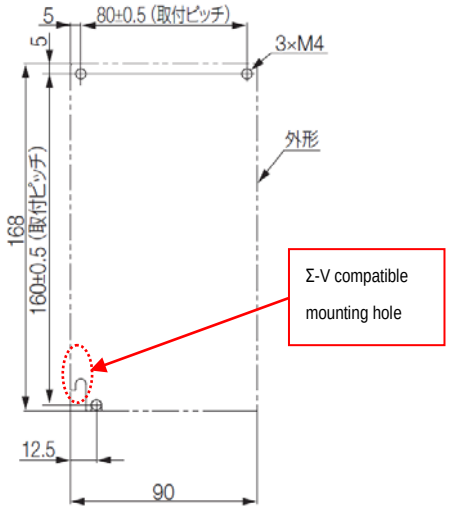
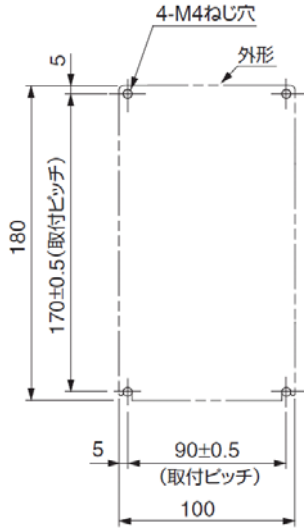
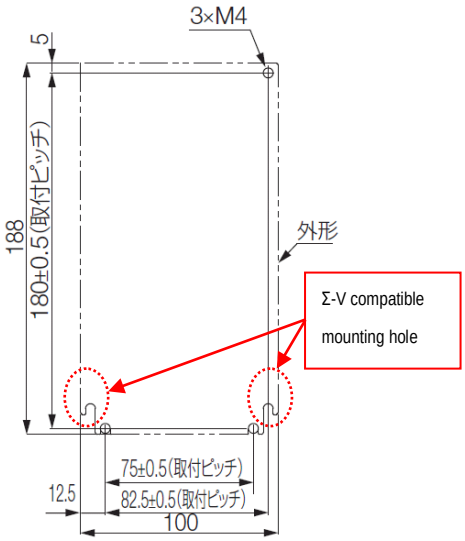
Function	Terminal code	Terminal number **Σ-7W 36pin**
Signal ground	SG	**15,16**
Forward drive inhibition (For shaft-A)*	P-OTA	**3**
Reverse drive inhibition (For shaft-A)*	N-OTA	**4**
Forward drive inhibition (For shaft-B)*	P-OTB	**9**
Reverse drive inhibition (For shaft-B)*	N-OTB	**10**
Origin return speed reduction switch input (For shaft-A)*	/DECA	**5**
Origin return speed reduction switch input (For shaft-B)*	/DECB	**11**
External latch signal 1(For shaft-A)*	/EXTA1	**6**
External latch signal 2(For shaft-A)*	/EXTA2	**7**
External latch signal 3(For shaft-A)*	/EXTA3	**8**
External latch signal 1(For shaft-B)*	/EXTB1	**12**
External latch signal 2(For shaft-B)*	/EXTB2	**13**
External latch signal 3(For shaft-B)*	/EXTB3	**14**
Sequence signal control power input	+24VIN	**1**
Battery (+)(For shaft-A)	BATA(+)	**17**
Battery (-)(For shaft-A)	BATA(-)	**18**
Battery (+)(For shaft-B)	BATB(+)	**35**
Battery (-)(For shaft-B)	BATB(-)	**36**
General output *	/SO1+	**23**
	/SO1-	**24**
	/SO2+	**25**
	/SO2-	**26**
	/SO3+	**27**
	/SO3-	**28**
	/SO4+	**29**
	/SO4-	**30**
	/SO5+	**31**
	/SO53-	**32**
Servo alarm output (For shaft-A)	ALMA+	**19**
	ALMA-	**20**
Servo alarm output (For shaft-B)	ALMB+	**21**
	ALMB-	**22**
Overheating protection input for linear motor (For shaft-A)	THA	**33**
Overheating protection input for linear motor (For shaft-B)	THB	**34**
Frame ground	FG	**Shell**

*: Sequence input-output is set at the time of shipping. Allocation can be changed by user parameter setting.

3-3. Mounting dimensions

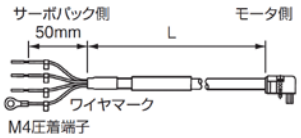
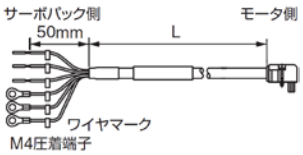
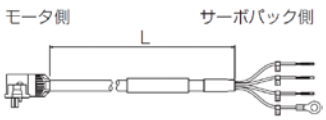
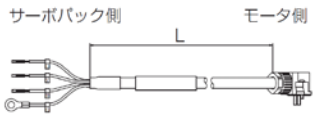
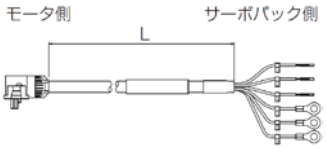
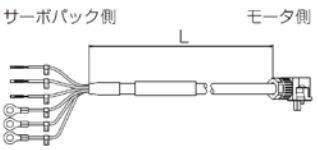
Unit: mm

Σ-V	Σ-7S
3-phase AC200V, 50W to 200W SGDV-R70A/R90A/1R6A 	3-phase AC200V, 50W to 200W SGD7S-R70A/R90A/1R6A 
3-phase AC200V, 400W SGDV-2R8A 	3-phase AC200V, 400W SGD7S-2R8A 
3-phase AC200V, 500W to 1.0kW SGDV-3R8A/5R5A/7R6A 	3-phase AC200V, 500W to 1.0kW SGD7S-3R8A/5R5A/7R6A 

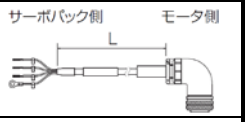
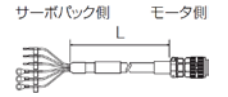
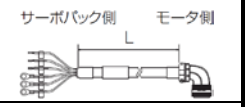
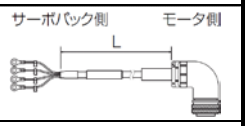
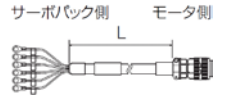
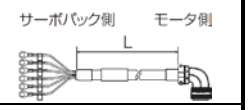
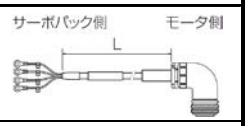
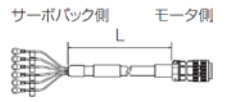
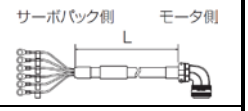
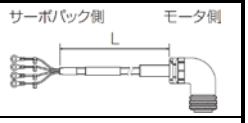
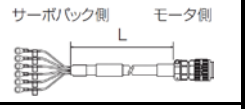
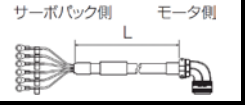
Σ-V	**Σ-7S**
3-phase AC200V, 1.5kW SGDV-120A  	3-phase AC200V, 1.5kW SGD7S-120A 
3-phase AC200V, 2.0/3.0kW SGDV-180A/200A  	3-phase AC200V, 2.0/3.0kW SGD7S-180A/200A 

4. Cable and peripheral equipment

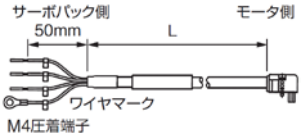
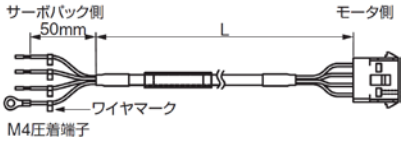
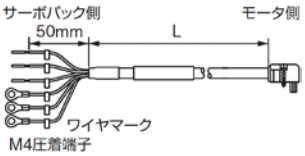
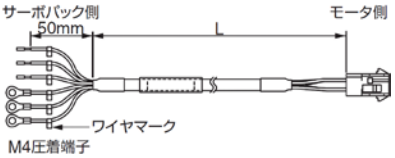
(1) Motor cable

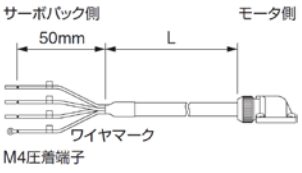
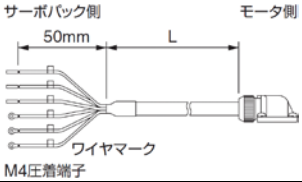
Motor capacity	Holding brake	Σ-V SGMJV-type , SGMAV-type Standard type	Σ-V SGMJV-type , SGMAV-type Bending type	Σ-7 Cable lead direction	Σ-7 SGM7J-type , SGM7A-type Standard type	Σ-7 SGM7J-type , SGM7A-type Bending type
50W to 150W	Not available	JZSP-CSM01-☐-E	JZSP-CSM21-☐-E	load side	JZSP-C7M10F-☐-E	JZSP-C7M12F-☐-E
				anti-load side	JZSP-C7M10G-☐-E	JZSP-C7M12G-☐-E
	Available	JZSP-CSM11-☐-E	JZSP-CSM31-☐-E	load side	JZSP-C7M13F-☐-E	JZSP-C7M14F-☐-E
				anti-load side	JZSP-C7M13G-☐-E	JZSP-C7M14G-☐-E
200W to 600W	Not available	JZSP-CSM02-☐-E	JZSP-CSM22-☐-E	load side	JZSP-C7M20F-☐-E	JZSP-C7M22F-☐-E
				anti-load side	JZSP-C7M20G-☐-E	JZSP-C7M22G-☐-E
	Available	JZSP-CSM12-☐-E	JZSP-CSM32-☐-E	load side	JZSP-C7M23F-☐-E	JZSP-C7M24F-☐-E
				anti-load side	JZSP-C7M23G-☐-E	JZSP-C7M24G-☐-E
750W to 1.0kW	Not available	JZSP-CSM03-☐-E	JZSP-CSM23-☐-E	load side	JZSP-C7M30F-☐-E	JZSP-C7M32F-☐-E
				anti-load side	JZSP-C7M30G-☐-E	JZSP-C7M32G-☐-E
	Available	JZSP-CSM13-☐-E	JZSP-CSM33-☐-E	load side	JZSP-C7M33F-☐-E	JZSP-C7M34F-☐-E
				anti-load side	JZSP-C7M33G-☐-E	JZSP-C7M34G-☐-E
Main specifications		[For use when there is no holding brake]  [For use when there is a holding brake] 		[For use when there is no holding brake] ・Load side cable lead direction ・Anti-load side cable lead direction   [For use when there is a holding brake] ・Load side cable lead direction ・Anti-load side cable lead direction  	

※☐･･･ Cable length (03: 3m/05: 5m/10: 10m/15: 15m/20: 20m/30: 30m/40: 40m/50: 50m)

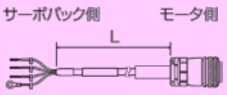
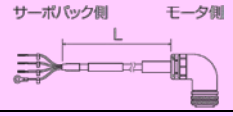
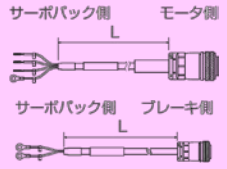
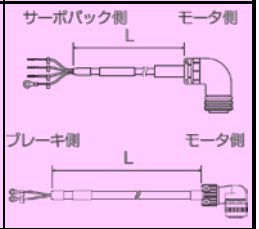
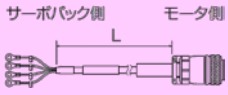
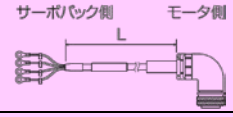
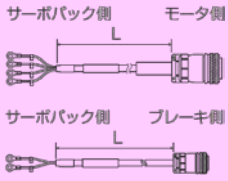
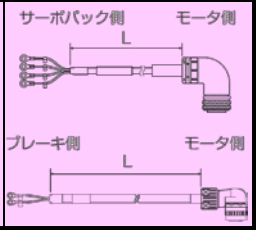
Motor capacity	Holding brake	Σ-V	Σ-7			
		SGMSV-type	Connector specification	SGM7A-type		
				Standard type	Bending type	Main specifications
1.5kW	Not available	No standard product (made by customers)	Straight	JZSP-UVA101-□-E	JZSP-UVA121-□-E	
			L-type	JZSP-UVA102-□-E	JZSP-UVA122-□-E	
	Available		Straight	JZSP-UVA151-□-E	JZSP-UVA161-□-E	
			L-type	JZSP-UVA152-□-E	JZSP-UVA162-□-E	
2.0kW	Not available		Straight	JZSP-UVA301-□-E	JZSP-UVA321-□-E	
			L-type	JZSP-UVA302-□-E	JZSP-UVA322-□-E	
	Available		Straight	JZSP-UVA351-□-E	JZSP-UVA361-□-E	
			L-type	JZSP-UVA352-□-E	JZSP-UVA362-□-E	
2.5kW	Not available		Straight	JZSP-UVA501-□-E	JZSP-UVA521-□-E	
			L-type	JZSP-UVA502-□-E	JZSP-UVA522-□-E	
	Available		Straight	JZSP-UVA551-□-E	JZSP-UVA561-□-E	
			L-type	JZSP-UVA552-□-E	JZSP-UVA562-□-E	
3.0kW	Not available		Straight	JZSP-UVA601-□-E	JZSP-UVA621-□-E	
			L-type	JZSP-UVA602-□-E	JZSP-UVA622-□-E	
	Available		Straight	JZSP-UVA651-□-E	JZSP-UVA661-□-E	
			L-type	JZSP-UVA652-□-E	JZSP-UVA662-□-E	

※□･･･ Cable length (03: 3m/05: 5m/10: 10m/15: 15m/20: 20m)

Motor capacity	Holding brake	Σ-V SGMPS-type Standard type	Σ-V SGMPS-type Bending type	**Σ-7 SGM7P-type Standard type**	**Σ-7 SGM7P-type Bending type**
100W	Not available	JZSP-CSM01-☐-E	JZSP-CSM21-☐-E	**JZSP-CSM01-☐-E**	**JZSP-CSM21-☐-E**
	Available	JZSP-CSM11-☐-E	JZSP-CSM31-☐-E	**JZSP-CSM11-☐-E**	**JZSP-CSM31-☐-E**
200W 400W	Not available	JZSP-CSM02-☐-E	JZSP-CSM22-☐-E	**JZSP-CSM02-☐-E**	**JZSP-CSM22-☐-E**
	Available	JZSP-CSM12-☐-E	JZSP-CSM32-☐-E	**JZSP-CSM12-☐-E**	**JZSP-CSM32-☐-E**
750W	Not available	JZSP-CMM00-☐-E	JZSP-CMM01-☐-E	**JZSP-CMM00-☐-E**	**JZSP-CMM01-☐-E**
	Available	JZSP-CMM10-☐-E	JZSP-CMM11-☐-E	**JZSP-CMM10-☐-E**	**JZSP-CMM11-☐-E**
1.5kW	Not available	JZSP-CMM20-☐-E	—	**JZSP-CMM20-☐-E**	—
	Available	JZSP-CMM30-☐-E	—	**JZSP-CMM30-☐-E**	—
Main specifications		[For use when there is no holding brake] ・100W to 400W JZSP-CSM01/-CSM21/-CSM02/-CSM22  ・750W, 1.5Kw JZSP-CMM00/-CMM01/-CMM20  [For use when there is a holding brake] ・100W to 400W JZSP-CSM11/-CSM31/-CSM12/-CSM32  ・750W, 1.5Kw JZSP-CMM10/-CMM11/-CMM30  			

Motor capacity	Holding brake	Σ-V SGMGV-type Standard (Bending) type	**Σ-7 SGM7G-type Standard (Bending) type**	Remarks
300W 450W	Not available	JZSP-CVM21-☐-E	**JZSP-CVM21-☐-E**	Bending type is standard
	Available	JZSP-CVM41-☐-E	**JZSP-CVM41-☐-E**	
Main specifications		[For use when there is no holding brake] [For use when there is a holding brake]   		

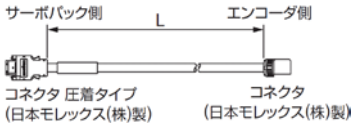
※☐･･･ Cable length (03: 3m/05: 5m/10: 10m/15: 15m/20: 20m/30: 30m/40: 40m/50: 50m)

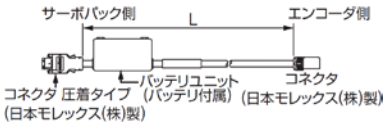
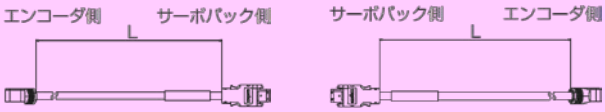
Motor capacity	Holding brake	Σ-V	Σ-7			
		SGMGV-type	Connector specification	SGM7G-type		
				Standard type	Bending type	Main specifications
850W 1.3kW	Not available	No standard product (Made by customers)	Straight	JZSP-UVA101-□-E	JZSP-UVA121-□-E	
			L-type	JZSP-UVA102-□-E	JZSP-UVA122-□-E	
	Available		Straight ※1	JZSP-UVA131-□-E	JZSP-UVA141-□-E	
			L-type ※1	JZSP-UVA132-□-E	JZSP-UVA142-□-E	
1.8kW	Not available		Straight	JZSP-UVA301-□-E	JZSP-UVA321-□-E	
			L-type	JZSP-UVA302-□-E	JZSP-UVA322-□-E	
	Available		Straight ※1	JZSP-UVA331-□-E	JZSP-UVA341-□-E	
			L-type ※1	JZSP-UVA332-□-E	JZSP-UVA342-□-E	

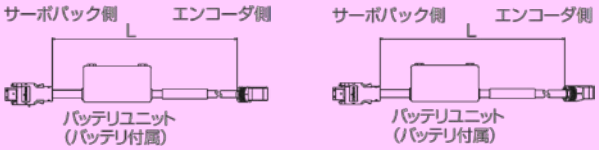
※ □･･･ Cable length (03: 3m/05: 5m/10: 10m/15: 15m/20: 20m)
※1 Cable: 2 sets

（2）Encoder cable

Encoder cable (20m or below)

<table>
<tr><th rowspan="3">Motor capacity</th><th rowspan="3">Name</th><th colspan="2">Σ-V</th><th colspan="3">Σ-7</th></tr>
<tr><th colspan="2">SGMJV-type , SGMAV-type</th><th rowspan="2">Cable lead direction</th><th colspan="2">SGM7J-type , SGM7A-type</th></tr>
<tr><th>Standard type</th><th>Bending type</th><th>Standard type</th><th>Bending type</th></tr>
<tr><td rowspan="4">50W to 1.0kW</td><td rowspan="2">For incremental encoder</td><td rowspan="2">JZSP-CSP01-☐-E</td><td rowspan="2">JZSP-CSP21-☐-E</td><td>load side</td><td>JZSP-C7PI0D-☐-E</td><td>JZSP-C7PI2D-☐-E</td></tr>
<tr><td>anti-load side</td><td>JZSP-C7PI0E-☐-E</td><td>JZSP-C7PI2E-☐-E</td></tr>
<tr><td rowspan="2">For absolute value encoder</td><td rowspan="2">JZSP-CSP05-☐-E</td><td rowspan="2">JZSP-CSP25-☐-E</td><td>load side</td><td>JZSP-C7PA0D-☐-E</td><td>JZSP-C7PA2D-☐-E</td></tr>
<tr><td>anti-load side</td><td>JZSP-C7PA0E-☐-E</td><td>JZSP-C7PA2E-☐-E</td></tr>
<tr><td>Main specifications</td><td colspan="2">[For incremental encoder]
 

[For absolute value encoder]
 
</td><td colspan="3">[For incremental encoder]
・Load side cable lead direction ・Anti-load side cable lead direction
 

[For absolute value encoder]
・Load side cable lead direction ・Anti-load side cable lead direction
 
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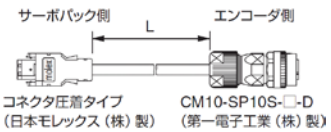
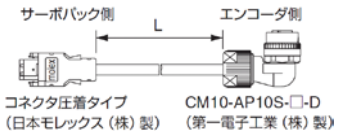
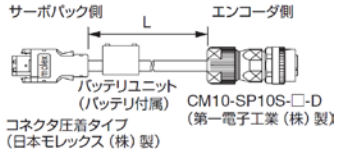
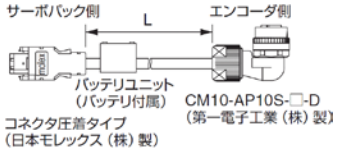
※ ☐･･･ Cable length (03: 3m/05: 5m/10: 10m/15: 15m/20: 20m)

<table>
<tr><th rowspan="3">Motor capacity</th><th rowspan="3">Name</th><th rowspan="3">Connector specification</th><th colspan="2">Σ-V</th><th colspan="2">Σ-7</th></tr>
<tr><th colspan="2">SGMSV-type</th><th colspan="2">SGM7A-type</th></tr>
<tr><th>Standard type</th><th>Bending type</th><th>Standard type</th><th>Bending type</th></tr>
<tr><td rowspan="4">1.5kW to 3.0kW</td><td rowspan="2">For incremental encoder</td><td>Straight</td><td>JZSP-CVP01-☐-E</td><td>JZSP-CVP11-☐-E</td><td>JZSP-CVP01-☐-E</td><td>JZSP-CVP11-☐-E</td></tr>
<tr><td>L-type</td><td>JZSP-CVP02-☐-E</td><td>JZSP-CVP12-☐-E</td><td>JZSP-CVP02-☐-E</td><td>JZSP-CVP12-☐-E</td></tr>
<tr><td rowspan="2">For absolute value encoder</td><td>Straight</td><td>JZSP-CVP06-☐-E</td><td>JZSP-CVP26-☐-E</td><td>JZSP-CVP06-☐-E</td><td>JZSP-CVP26-☐-E</td></tr>
<tr><td>L-type</td><td>JZSP-CVP07-☐-E</td><td>JZSP-CVP27-☐-E</td><td>JZSP-CVP07-☐-E</td><td>JZSP-CVP27-☐-E</td></tr>
<tr><td>Main specifications</td><td colspan="5">[For incremental encoder]
・ Straight plug
 

・L-type plug
 

[For absolute value encoder]
・ Straight plug
 

・L-type plug
 
</td></tr>
</table>

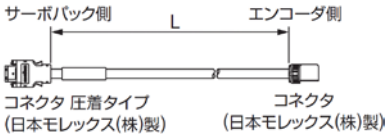
※ ☐･･･ Cable length (03: 3m/05: 5m/10: 10m/15: 15m/20: 20m)

Motor capacity	Name	Σ-V		**Σ-7**	
		SGMPS-type		**SGM7P-type**	
		Standard type	Bending type	**Standard type**	**Bending type**
100W to 400W	For incremental encoder	JZSP-CSP01-□-E	JZSP-CSP21-□-E	**JZSP-CSP01-□-E**	**JZSP-CSP21-□-E**
	For absolute value encoder	JZSP-CSP05-□-E	JZSP-CSP25-□-E	**JZSP-CSP05-□-E**	**JZSP-CSP25-□-E**
750W 1.5kW	For incremental encoder	JZSP-CMP00-□-E	JZSP-CMP10-□-E	**JZSP-CMP00-□-E**	**JZSP-CMP10-□-E**
	For absolute value encoder	JZSP-CSP19-□-E	JZSP-CSP29-□-E	**JZSP-CSP19-□-E**	**JZSP-CSP29-□-E**

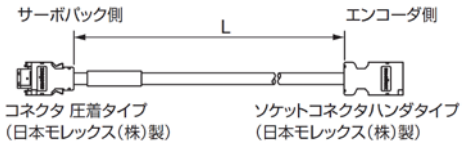
Main specifications

[For incremental encoder]

・100W to 400W :
JZSP-CSP01/-CSP21

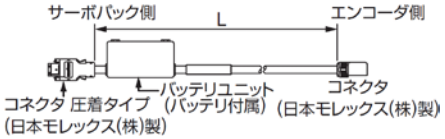


・750W, 1.5Kw
JZSP-CMP00/-CMP10

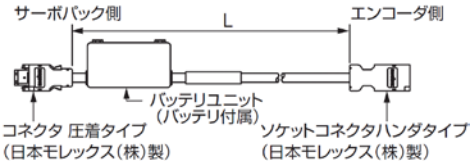


[For absolute value encoder]

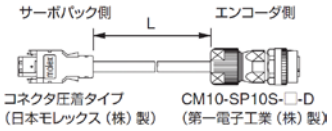
・100W to 400W
JZSP-CSP05/-CSP25

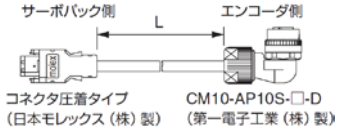


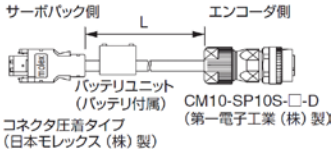
・750W, 1.5Kw
JZSP-CSP19/-CSP29

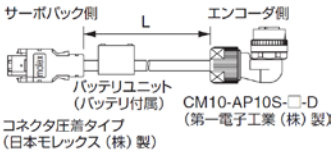


※ □･･･ Cable length (03: 3m/05: 5m/10: 10m/15: 15m/20: 20m)

<table>
<tr><th rowspan="3">Motor capacity</th><th rowspan="3">Name</th><th rowspan="3">Connector specification</th><th colspan="2">Σ-V</th><th colspan="2">Σ-7</th></tr>
<tr><th colspan="2">SGMGV-type</th><th colspan="2">SGM7G-type</th></tr>
<tr><th>Standard type</th><th>Bending type</th><th>Standard type</th><th>Bending type</th></tr>
<tr><td rowspan="4">300W to 1.8kW</td><td rowspan="2">For incremental encoder</td><td>Straight</td><td>JZSP-CVP01-☐-E</td><td>JZSP-CVP11-☐-E</td><td>JZSP-CVP01-☐-E</td><td>JZSP-CVP11-☐-E</td></tr>
<tr><td>L-type</td><td>JZSP-CVP02-☐-E</td><td>JZSP-CVP12-☐-E</td><td>JZSP-CVP02-☐-E</td><td>JZSP-CVP12-☐-E</td></tr>
<tr><td rowspan="2">For absolute value encoder</td><td>Straight</td><td>JZSP-CVP06-☐-E</td><td>JZSP-CVP26-☐-E</td><td>JZSP-CVP06-☐-E</td><td>JZSP-CVP26-☐-E</td></tr>
<tr><td>L-type</td><td>JZSP-CVP07-☐-E</td><td>JZSP-CVP27-☐-E</td><td>JZSP-CVP07-☐-E</td><td>JZSP-CVP27-☐-E</td></tr>
<tr><td colspan="3">Main specifications</td><td colspan="4">[For incremental encoder]
・ Straight plug
 

・L-type plug
 

[For absolute value encoder]
・ Straight plug
 

・L-type plug
 
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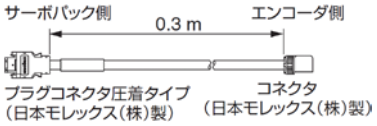
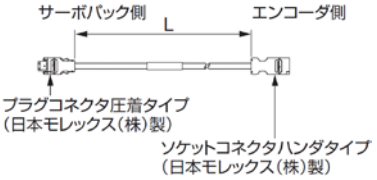
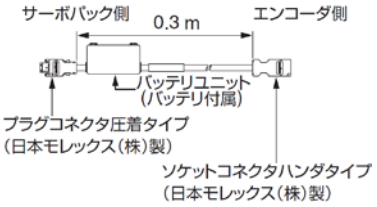
※☐･･･ Cable length (03: 3m/05: 5m/10: 10m/15: 15m/20: 20m)

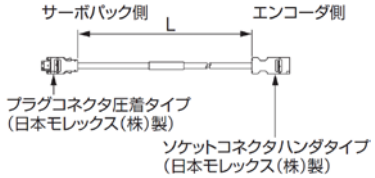
Encoder cable (30m to 50m)

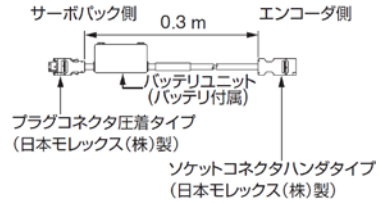
<table>
<tr><th rowspan="2">Motor capacity</th><th rowspan="2">Name</th><th rowspan="2">Length</th><th>Σ-V</th><th colspan="2">Σ-7</th></tr>
<tr><th>SGMJV-type , SGMAV-type</th><th>cable lead direction</th><th>SGM7J-type , SGM7A-type</th></tr>
<tr><td rowspan="5">50W to 1.0kW</td><td rowspan="2">① Encoder cable (used for both incremental and absolute values)</td><td rowspan="2">0.3m</td><td rowspan="2">JZSP-CSP11-E</td><td>load side</td><td>JZSP-C7PRCD-E</td></tr>
<tr><td>anti-load side</td><td>JZSP-C7PRCE-E</td></tr>
<tr><td rowspan="3">②Cable with connector at both terminals (used for both incremental and absolute values)</td><td>30m</td><td>JZSP-UCMP00-30-E</td><td rowspan="3">—</td><td>JZSP-UCMP00-30-E</td></tr>
<tr><td>40m</td><td>JZSP-UCMP00-40-E</td><td>JZSP-UCMP00-40-E</td></tr>
<tr><td>50m</td><td>JZSP-UCMP00-50-E</td><td>JZSP-UCMP00-50-E</td></tr>
<tr><td>③ Cable with battery unit (required only when absolute value is used)</td><td>0.3m</td><td>JZSP-CSP12-E</td><td>—</td><td>JZSP-CSP12-E</td></tr>
<tr><td colspan="3">Main specifications</td><td>① Encoder cable
 

② Cable with connector at both terminals
 

③ Cable with battery unit
 
</td><td colspan="2">① Encoder cable
・Load side cable lead direction

・Anti-load side cable lead direction

② Cable with connector at both terminals
 

③ Cable with battery unit
 
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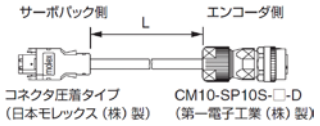
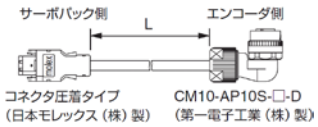
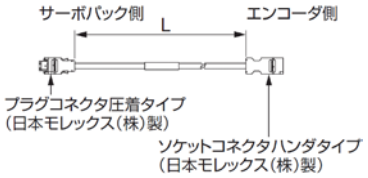
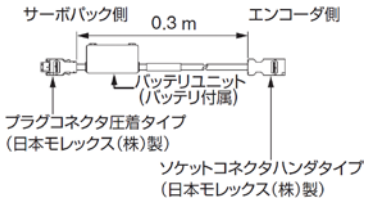
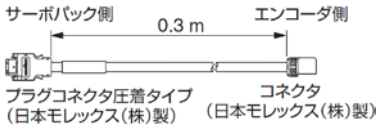
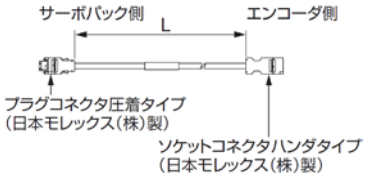
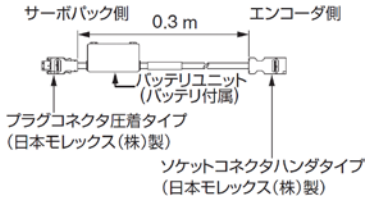
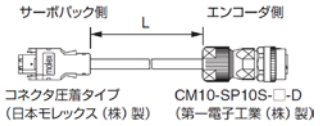
<table>
<tr><th rowspan="2">Motor capacity</th><th rowspan="2">Name</th><th rowspan="2">Length</th><th rowspan="2">Connector specification</th><th>Σ-V</th><th>Σ-7</th></tr>
<tr><th>SGMSV-type</th><th>SGM7A-type</th></tr>
<tr><td rowspan="4">1.5W to 3.0kW</td><td rowspan="2">① Encoder cable (used for both incremental and absolute values)</td><td rowspan="2">0.3m</td><td>Straight</td><td>JZSP-CVP01-□-E</td><td>JZSP-CVP01-□-E</td></tr>
<tr><td>L-type</td><td>JZSP-CVP02-□-E</td><td>JZSP-CVP02-□-E</td></tr>
<tr><td rowspan="3">② Cable with connector at both terminals (used for both incremental and absolute values)</td><td>30m</td><td rowspan="3">—</td><td>JZSP-UCMP00-30-E</td><td>JZSP-UCMP00-30-E</td></tr>
<tr><td>40m</td><td>JZSP-UCMP00-40-E</td><td>JZSP-UCMP00-40-E</td></tr>
<tr><td>50m</td><td>JZSP-UCMP00-50-E</td><td>JZSP-UCMP00-50-E</td></tr>
<tr><td>③ Cable with battery unit (required only when absolute value is used)</td><td>0.3m</td><td>—</td><td>JZSP-CSP12-E</td><td>JZSP-CSP12-E</td></tr>
<tr><td colspan="3">Main specifications</td><td colspan="3">① Encoder cable
・ Straight plug
 

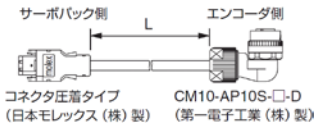
・L-type plug
 

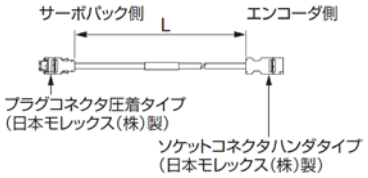
② Cable with connector at both terminals
 

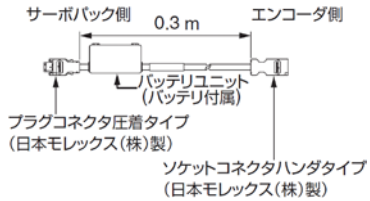
③ Cable with battery unit
 
</td></tr>
</table>

Motor capacity	Name	Length	Σ-V	**Σ-7**
			SGMPS-type	**SGM7P-type**
100W to 1.5kW	① Encoder cable (used for both incremental and absolute values)	0.3m	JZSP-CSP11-E	**JZSP-CSP11-E**
	② Cable with connector at both terminals (used for both incremental and absolute values)	30m	JZSP-UCMP00-30-E	**JZSP-UCMP00-30-E**
		40m	JZSP-UCMP00-40-E	**JZSP-UCMP00-40-E**
		50m	JZSP-UCMP00-50-E	**JZSP-UCMP00-50-E**
	③ Cable with battery unit (required only when absolute value is used)	0.3m	JZSP-CSP12-E	**JZSP-CSP12-E**
Main specifications			① Encoder cable  ② Cable with connector at both terminals  ③ Cable with battery unit 		

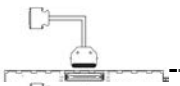
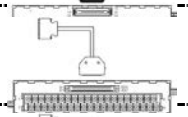
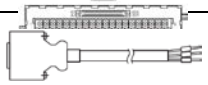
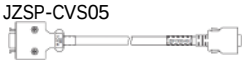
<table>
<tr><th rowspan="2">Motor capacity</th><th rowspan="2">Name</th><th rowspan="2">Length</th><th rowspan="2">Connector specification</th><th>Σ-V</th><th>Σ-7</th></tr>
<tr><th>SGMGV-type</th><th>SGM7G-type</th></tr>
<tr><td rowspan="4">300W to 1.8kW</td><td rowspan="2">① Encoder cable (used for both incremental and absolute values)</td><td rowspan="2">0.3m</td><td>Straight</td><td>JZSP-CVP01-□-E</td><td>JZSP-CVP01-□-E</td></tr>
<tr><td>L-type</td><td>JZSP-CVP02-□-E</td><td>JZSP-CVP02-□-E</td></tr>
<tr><td rowspan="3">② Cable with connector at both terminals (used for both incremental and absolute values)</td><td>30m</td><td rowspan="3">—</td><td>JZSP-UCMP00-30-E</td><td>JZSP-UCMP00-30-E</td></tr>
<tr><td>40m</td><td>JZSP-UCMP00-40-E</td><td>JZSP-UCMP00-40-E</td></tr>
<tr><td>50m</td><td>JZSP-UCMP00-50-E</td><td>JZSP-UCMP00-50-E</td></tr>
<tr><td>③ Cable with battery unit (required only when absolute value is used)</td><td>0.3m</td><td>—</td><td>JZSP-CSP12-E</td><td>JZSP-CSP12-E</td></tr>
<tr><td colspan="4">Main specifications</td><td colspan="2">① Encoder cable
・ Straight plug
 

・L-type plug
 

② Cable with connector at both terminals
 

③ Cable with battery unit
 
</td></tr>
</table>

（3）Cable for SERVOPACK command input, accessories

Name		Interface specification	Length	Model Σ-V	Model **Σ-7 (Single shaft type : Σ-7S 2-shaft type : Σ-7W)**	Main specifications
Input-output signal cable						
	Connector kit (for CN1)	Analog voltage/pulse string command type; Single shaft type MECHATROLINK-II communication command type; Single shaft type MECHATROLINK-III communication command type; Single shaft type	—	JZSP-CSI9-1-E JZSP-CSI9-2-E		ハンダ付けタイプ
		MECHATROLINK-III communication command type; 2-shaft type	—	—	**JZSP-CSI9-3-E**	
	Connector terminal conversion unit	Analog voltage/pulse string command type; Single shaft type	0.5m	JUSP-TA50PG-E		
			1m	JUSP-TA50PG-1-E		
			2m	JUSP-TA50PG-2-E		
		MECHATROLINK-II communication command type; Single shaft type MECHATROLINK-III communication command type; Single shaft type	0.5m	JUSP-TA26P-E		
			1m	JUSP-TA26P-1-E		
			2m	JUSP-TA26P-2-E		
		MECHATROLINK-III communication command type; 2-shaft type	0.5m	—	**JUSP-TA36P-E**	
			1m		**JUSP-TA36P-1-E**	
			2m		**JUSP-TA36P-2-E**	
	Single side lead	Analog voltage/pulse string command type; Single shaft type	1m	JZSP-CSI01-1-E		
			2m	JZSP-CSI01-2-E		
			3m	JZSP-CSI01-3-E		
		MECHATROLINK-II communication command type; Single shaft type MECHATROLINK-III communication command type; Single shaft type	1m	JZSP-CSI02-1-E		
			2m	JZSP-CSI02-2-E		
			3m	JZSP-CSI02-3-E		
		MECHATROLINK-III communication command type; 2-shaft type	1m	—	**JZSP-CSI03-1-E**	
			2m		**JZSP-CSI03-2-E**	
			3m		**JZSP-CSI03-3-E**	
Digital operator		Analog voltage/pulse string command type; Single shaft type MECHATROLINK-II communication command type; Single shaft type MECHATROLINK-III communication command type; Single shaft type	—	JUSP-OP05A-1-E		
		MECHATROLINK-III communication command type; 2-shaft type		—		
Digital operator conversion cable		Analog voltage/pulse string command type; Single shaft type MECHATROLINK-II communication command type; Single shaft type MECHATROLINK-III communication command type; Single shaft type	0.3m	JZSP-CVS05-A3-E		JZSP-CVS05  JZSP-CVS07
		MECHATROLINK-III communication command type; 2-shaft type		—	JZSP-CVS05-A3-E **JZSP-CVS07-A3-E**	
Analog monitor cable		Analog voltage/ pulse string command type; Single shaft type MECHATROLINK-II communication command type; Single shaft type MECHATROLINK-III communication command type; Single shaft type	1m	JZSP-CA01-E		
		MECHATROLINK-III communication command type; 2-shaft type		—		
PC connection cable		Analog voltage/ pulse string command type; Single shaft type MECHATROLINK-II communication command type; Single shaft type MECHATROLINK-III communication command type; Single shaft type	2.5m	JZSP-CVS06-02-E		
		MECHATROLINK-III communication command type; 2-shaft type		—		
Safety connection cable		Analog voltage/ pulse string command type; Single shaft type MECHATROLINK-II communication command type; Single shaft type MECHATROLINK-III communication command type; Single shaft type	1m 3m	JZSP-CVH03-01-E JZSP-CVH03-03-E		
		MECHATROLINK-III communication command type; 2-shaft type		—		

SERVOPACK Interface specification / Cable name			Model		Main specifications	Remarks □□･･･ cable length
			Σ-V	**Σ-7 (Single shaft type : Σ-7S 2-shaft type : Σ-7W)**		
MECHATROLINK-II communication cable						
	MECHATROLINK-II communication command type; Single shaft type	With connector at both terminals	JEPMC-W6002-□□-E		[JEPMC-W6002] 	A5 : 0.5m 01 : 1m 03 : 3m 05 : 5m 10 : 10m 20 : 20m 30 : 30m 40 : 40m 50 : 50m
		With connector at both terminals and ferrite core	JEPMC-W6003-□□-E		[JEPMC-W6003] 	
		Terminator	JEPMC-W6022-E			–
MECHATROLINK-III communication cable						
	MECHATROLINK-III communication command type Single shaft type , 2-shaft type	With connector at both terminals	JEPMC-W6012-□□-E		[JEPMC-W6012] 	[JEPMC-W6012] A2 : 0.2m A5 : 0.5m 01 : 1m 03 : 3m 04 : 4m 05 : 5m 10 : 10m 20 : 20m 30 : 30m 50 : 50m
		With connector at both terminals and core	JEPMC-W6013-□□-E		[JEPMC-W6013] 	[JEPMC-W6013] 10 : 10m 20 : 20m 30 : 30m 40 : 40m
		Single side lead	JEPMC-W6014-□□-E		[JEPMC-W6014] 	[JEPMC-W6014] A5 : 0.5m 01 : 1m 03 : 3m 05 : 5m 10 : 10m 30 : 30m 50 : 50m

(4) Peripheral equipment

Battery

Name	Model	
	Σ-V	**Σ-7**
Battery	JZSP-BA01 (equivalent to ER6V C3N)	
Battery unit	JUSP-BA01-E	

Brake power

Name	Input voltage	Model	
		Σ-V	**Σ-7**
Brake power (DC24V)		Set up by customer	

Noise filter

Input voltage	Servo capacity /current indication	Model	
		Σ-V	**Σ-7S**
AC single-phase 200V	50W/R70	FN2070-6/07	HF2010A-UPF
	100W/R90		
	200W/1R6		
	400W/2R8	FN2070-10/07	
	750W/5R5	FN2070-16/07	HF2020A-UPF
	1.5kW/120	FN350-30/33	HF2030A-UPF
AC 3-phase 200V	50W/R70	FN258L-7/07	HF3010C-SZC
	100W/R90		
	200W/1R6		
	400W/2R8		
	500W/3R8		
	750W/5R5	FN258L-16/07	HF3020C-SZC
	1.0kW/7R6		
	1.5kW/120	HF3020C-UQC	
	2.0kW/180		
	3.0kW/200	HF3030C-UQC	

Surge absorber

Input voltage	Servo capacity /current indication	Model	
		Σ-V	**Σ-7**
AC single-phase 200V	50W/R70	LT-C12G801WS	
	100W/R90		
	200W/1R6		
	400W/2R8		
	750W/5R5		
AC 3-phase 200V	50W/R70	LT-C32G801WS	
	100W/R90		
	200W/1R6		
	400W/2R8		
	500W/3R8		
	750W/5R5		
	1.0kW/7R6		
	1.5kW/120		
	2.0kW/180		
	3.0kW/200		

DC reactor

Input voltage	Servo capacity /current indication	Model	
		Σ-V	**Σ-7**
AC 3-phase 200V	50W/R70	X5061	
	100W/R90		
	200W/1R6		
	400W/2R8		
	500W/3R8		
	750W/5R5		
	1.0kW/7R6		
	1.5kW/120	X5060	
	2.0kW/180		
	3.0kW/200	X5059	

Magnetic contactor

Input voltage	Servo capacity /current indication	Model	
		Σ-V	**Σ-7**
AC200V	50W/R70	SC-03	
	100W/R90		
	200W/1R6		
	400W/2R8		
	500W/3R8		
	750W/5R5	SC-4-1	
	1.0kW/7R6		
	1.5kW/120		
	2.0kW/180	SC-5-1	
	3.0kW/200		

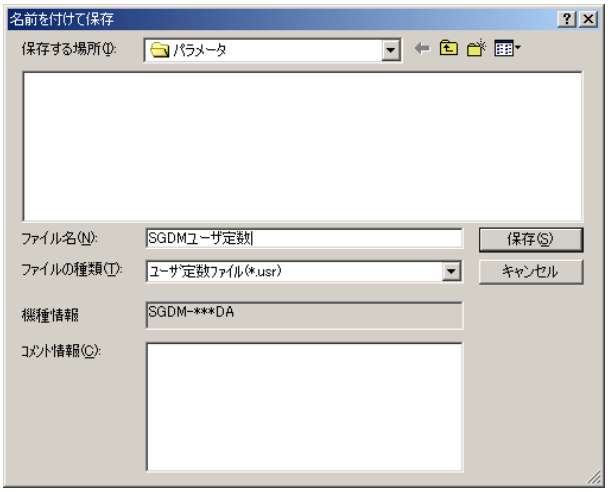
CN8 jumper connector

Name	Model	
	Σ-V	**Σ-7**
CN8 jumper connector	JZSP-CVH05-E	

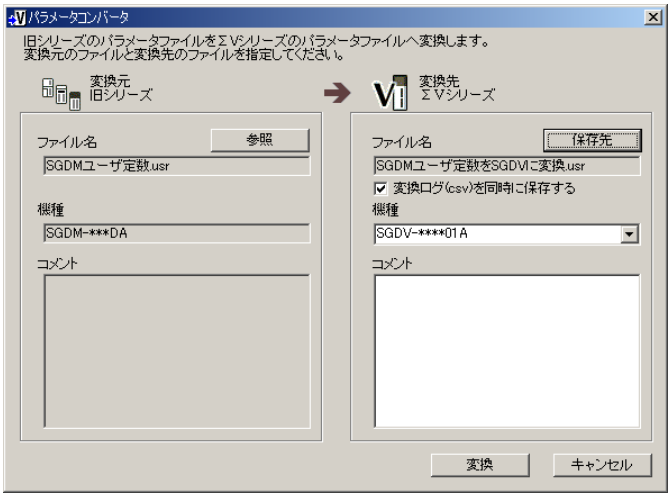
5. Parameter convertor

The user constant of the Σ-V series SERVOPACK can be automatically converted to the parameters of the Σ-7 SERVOPACK by using the parameter convertor, available in the Sigma-7 component of the engineering tool SigmaWin+ Ver.5.70, and later versions. The procedure is described below.

① Open the SigmaV component of SigmaWin+ and verify and save the user constant of Σ-V SERVOPACK. If you have already taken the user constant file from the SERVOPACK, please use it.



② Open the Sigma7 component and run the parameter convertor.



③ Specify the previously saved user constant file of Σ-V SERVOPACK in the names of file to be converted.
④ Specify the location for saving the converted file.

(Continued on next page)

⑤ Upon clicking the conversion button, the conversion process will start. The points to be noted are highlighted.
[Example of parameter convertor screen]

⑥ To write the conversion result in the SERVOPACK, connect online with the target SERVOPACK and press the “write on servo” button in the parameter edit screen.

Precautions concerning use of the parameter convertor:

- The resolution of the encoder will change when used in position control mode. Therefore, change the upper order command or change the setting of the electronic gear.
- There is no function for converting the parameter from SGDV 2 shaft to SGD7W. Convert the parameters of each shaft once to SGD7S parameter, and import the parameter to SGD7W.

Revision history

Revision number	Date	Description of changes
First version	7th January, 2014	First version

Please make contact at the following address for any query related to these replacement instructions.

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