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YASKAWA



Linear Sigma Series
Product Catalog

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Advantages of Applying Linear Servo Systems



Improved Machine Performance

A linear motor is directly coupled to the load. This allows for high positioning accuracies and super-wide operational speed ranges compared to other conventional drive mechanisms. An unlimited linear travel envelope can be obtained by coupling the stationary magnetic ways as needed.

Simplified Machine Design and Construction

Since the moving member of the motor is rigid and directly fixed to the load, the linear motion mechanism's stiffness is greatly improved. Multiple units can be operated independently over a single axis of the magnetic way, creating a very compact drive system.

Ease of Operation and High Reliability

Linear motors are quiet, even at high speeds, because the only contacting mechanisms in the linear motor system are the linear motion guide bearings. This increases system reliability while greatly reducing maintenance requirements.

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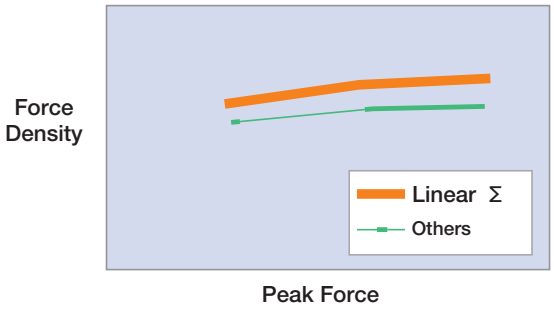
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Performance

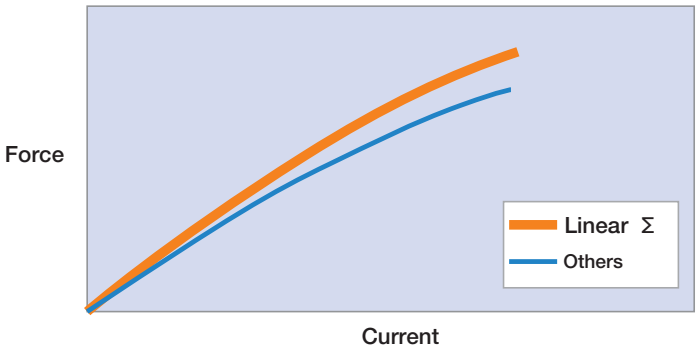
Force Density

Yaskawa Linear Sigma Servomotors are designed for high force density in compact packages. This is made possible by the extensive use of high-energy rare earth magnets. Combined with the cutting edge materials are Yaskawa's motor optimization expertise and high density winding technology from the company's world famous Sigma and Sigma II rotary servomotor products.



Force Linearity

Linear Sigma Servomotors exhibit exceptional Force Linearity, even near the peak force regions. This is a result of advanced magnetic circuitry and optimum winding geometry, as well as the d-q axis current control method within the powerful Sigma II Digital Servo Amplifier.



Velocity Ripple

Linear Sigma Servomotor performance levels are further enhanced by the combined use with Sigma II Digital Servo Amplifiers. The closed loop linear servo system generates extremely smooth linear motion with minimum velocity ripple.

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Speed

Linear Sigma Servomotors can reach speeds as high as 5 meters (196 inches) per second. Since they do not suffer from the usual limitations of conventional mechanical drive systems, the operational speed ranges are not constrained by factors such as travel length.

Acceleration

Linear Sigma Servomotors can accelerate well beyond the capability of other mechanical linear translation systems. They can achieve an astonishing 20Gs of maximum acceleration.

Settling Time

Linear Sigma Servomotors combined with Sigma II Servo Amplifiers can shorten system settling time after motion. The excellent dynamic stiffness of the motors and one of the fastest servo amplifiers in the industry can immediately improve your machine's motion cycle specifications.

Magnetic Attraction Forces

Linear Sigma GW Servomotors are coreless and there is no attraction force between the motor members. They also feature zero-cogging. Linear Sigma FW and TW Servomotors are iron-core type. Depending on the size of the motor, there are small to large attraction forces between the moving and stationary parts of the motor. These attraction forces can benefit some systems by providing preload forces to the linear motion guides, increasing the system rigidity. Inversely, the attraction forces may negatively affect the mechanical design freedom since the forces acting on the relative members of the motors must be properly supported by increased bearing load capacities. Iron-core TW Servomotors overcome this limitation with a patented design structure in which the attraction forces are negated by the motor's unique layout. These motors offer high force density and long linear bearing life in a compact package.

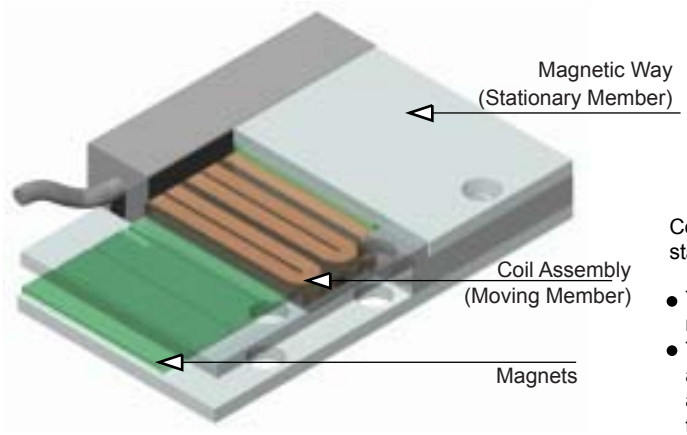
High Efficiency

Linear Sigma Servomotors are extremely energy efficient. Due to their optimized magnetic circuitry and high density windings inherited from Yaskawa's legendary Sigma Servomotors, the effects of the motors' heat being transferred to other areas of your machine are minimized.

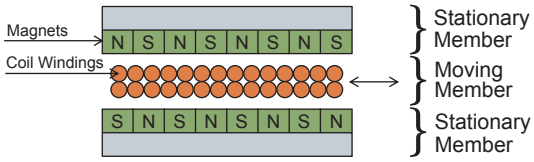
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Construction & Features

Coreless GW



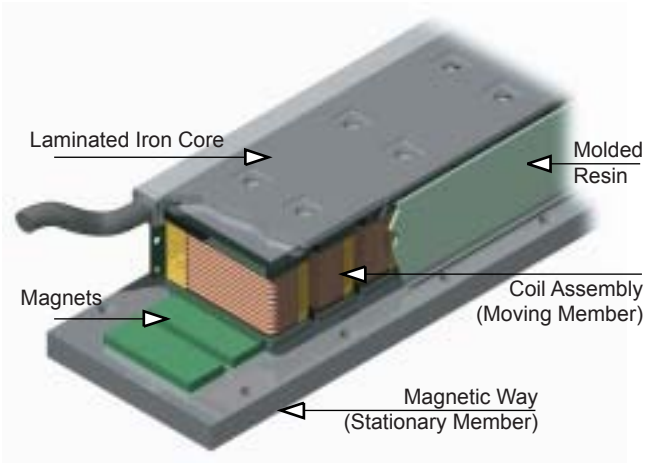
Construction



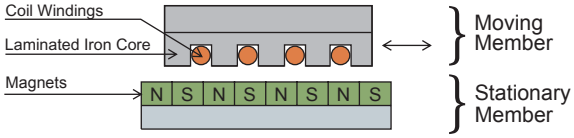
Coreless GW linear motors are composed of "Coil Assemblies" and stationary "Magnetic Ways".

- The coil assembly has no iron content and is made of accurately molded resin motor windings.
- The stationary magnetic way is made of two nickelized steel plates with accurately placed rare-earth magnets on each side. The steel plates are joined at one end to form a "U-Channel" that provides a space for the coil assemblies.

Iron-Core FW



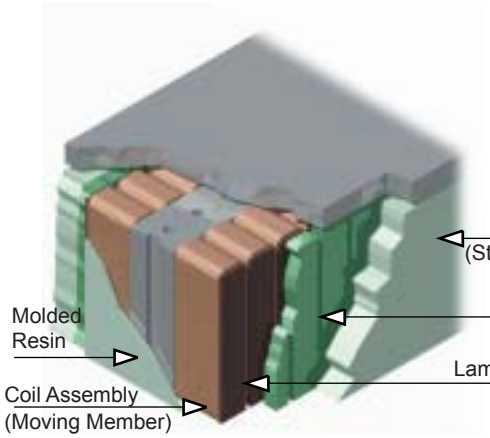
Construction



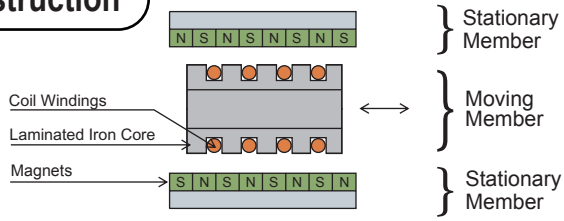
Iron-core FW linear motors are composed of "Coil Assemblies" with laminated iron-core and single-sided stationary "Magnetic Ways".

- The coil assembly of the FW linear motor is composed of a laminated iron-core and pre-wound coil bobbins inserted into the slots located on the laminated iron core. The entire coil unit, after the precision assembly process, is permanently encapsulated in a thermally conductive resin body to give structural rigidity.
- The magnetic way of the FW is made of a row of rare-earth magnets accurately placed on one side of the nickelized steel carrier plate. Stainless steel magnet covers protect the magnets on the FW magnetic ways.

Iron-Core TW



Construction



Iron-core TW linear motors are composed of "Coil Assemblies" with laminated iron-core and a pair of stationary "Magnetic Ways" that are placed on each side of the moving coils.

- The coil assembly of the TW linear motor is composed of a laminated iron-core and pre-wound coil bobbins inserted into the slots located on the laminated iron-core. The entire coil unit, after the precision assembly process, is permanently encapsulated in a thermally conductive resin body to provide structural rigidity.
- The magnetic way of the TW is made of a row of rare-earth magnets accurately placed on one side of the nickelized steel carrier plate. Two of the magnet carrier plates are used as a pair in a fashion similar to the coreless type motors. Stainless steel magnet covers protect the magnets on the TW magnetic ways.

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Features

- The coreless construction of the GW results in zero-attraction force, zero-cogging and no moment loads on linear motion bearings.
- The lack of attraction force helps to extend the life of linear motion guides, and the operational noise can be kept to a minimum.
- The velocity ripple is minimized due to a zero-cogging feature of the coreless construction.

Features

- The magnetic attraction force between the moving and stationary members can be used effectively to increase the rigidity of the linear guidance system by pre-loading the linear motion bearings.
- The magnetic pre-loading on certain types of compliant linear motion bearings can help increase the system's frequency response, improving its deceleration and settling performance.
- The compact profiles of FW linear motors result in low profile linear positioning systems.

Features

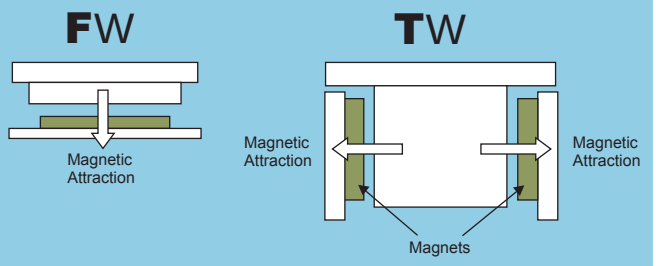
- Yaskawa's unique construction principles of the TW linear motor negates the effects of magnetic attraction force between the relative motor members. This provides for the use of smaller linear bearing systems without major concerns in the linear motion bearing life.
- The linear motion bearing runs quieter due to the lack of attraction force.
- TW linear motors have very little cogging due to their optimized internal magnetic circuit design.

Linear Sigma Application Notes

1 In order to obtain the maximum motor performance and to avoid the relative contacting of the motor components, the air-gap between the coil assembly and the magnetic way must be maintained according to the specified dimensional tolerances.



2 Iron-core motors typically have attraction forces that are 5 to 6 times that of their own peak forces (except for TW Motors). Therefore, it is extremely important to design rigid mechanical structure around these motors in addition to taking extra care in selecting the linear motion bearings with sufficient load capacities. Since linear motors are capable of very high terminal linear velocities, be sure to check for the maximum speed limitations on the linear motion bearings selected for the system.



3 Prevent foreign materials from falling into the air gap of linear motors. Employ general cautions regarding environmental conditions.

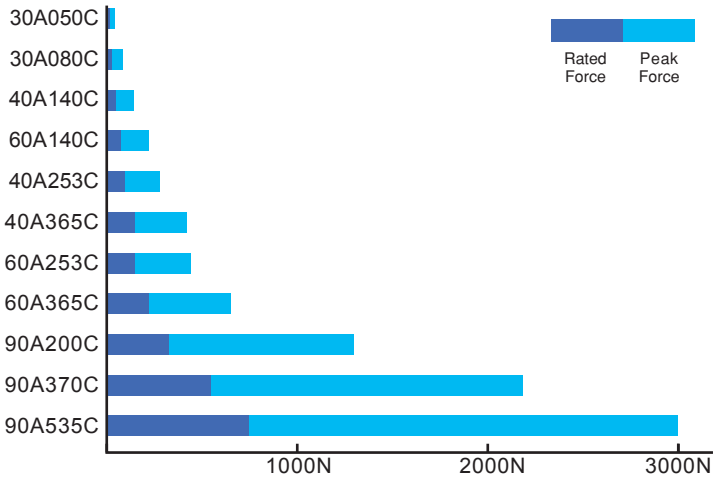
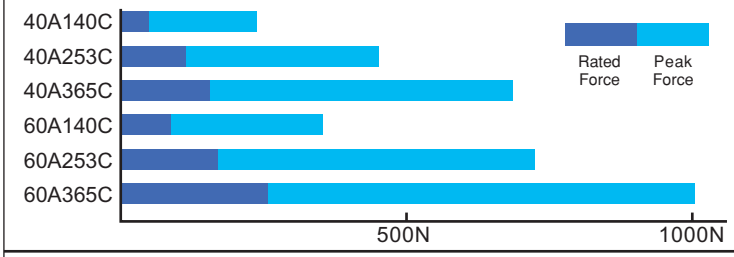
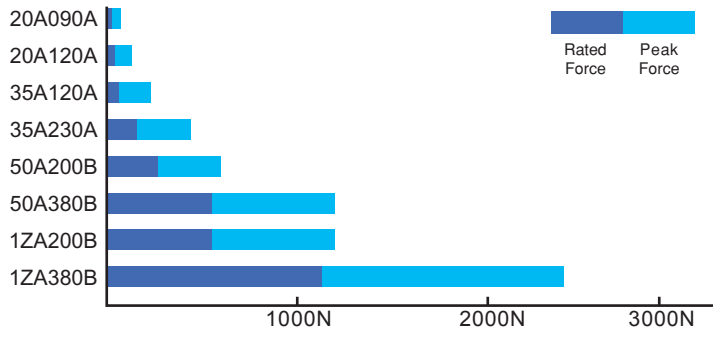
4 When linear motors are intended for use in vertical load orientations, well-designed counterbalancing or mechanical braking mechanisms must be provided in order to prevent the load from free-falling when the motor is no longer energized.

5 The moving motor coil and the linear encoder read head should be placed as close as practically possible in order to obtain the best system accuracy. However, the effects of the heat generated by the motor must be taken into consideration. Excessive heat transfer from the motor coil to the linear encoder read head will cause degradation of reliability as well as malfunction of the feedback system.

6 Linear servomotor coils generate heat. Heat management consideration is critical in linear motor based positioning system design.

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Range of Products

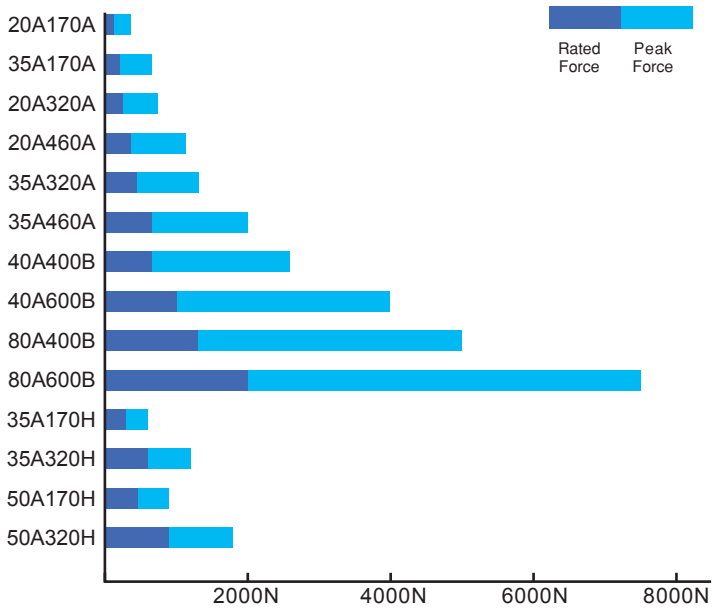
Linear Sigma Servomotors		Sigma II Servo Amplifiers (SERVOPACK) SGDH		
		Single-phase 200VAC	Three-phase 200VAC	Three-phase 400VAC
Coreless GW With Standard-force Magnetic Ways 	30A050C	A5AE		
	30A080C	01AE		
	40A140C	01AE		
	60A140C	02AE		
	40A253C	02AE		
	40A365C	04AE		
	60A253C	04AE		
	60A365C	08AE-S	08AE	
	90A200C	15AE-S	15AE	
	90A370C		20AE	
	90A535C		30AE	
Coreless GW With High-force Magnetic Ways 	40A140C	02AE		
	40A253C	04AE		
	40A365C	08AE-S	05AE	
	60A140C	02AE		
	60A253C	08AE-S	05AE	
	60A365C	15AE-S	10AE	
Iron-core FW **200V / 400V** 	20A090A	02AE		
	20A120A	02AE		
	35□120A	02AE		05DE
	35□230A	08AE-S	05AE	05DE
	50□200B	08AE-S	08AE	10DE
	50□380B	15AE-S	15AE	15DE
	1Z□200B	15AE-S	15AE	15DE
	1Z□380B		30AE	30DE

Note: Single-phase power supply may offer decreased speed ripple characteristics compared to a three-phase system.

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Linear Sigma Servomotors

Iron-Core TW **200V / 400V**



	Sigma II Servo Amplifiers (SERVOPACK)		
	SGDH		
	Single-phase 200VAC	Three-phase 200VAC	Three-phase 400VAC
20A170A	08AE-S	05AE	
35A170A	08AE-S	08AE	
20A320A	15AE-S	10AE	
20A460A	15AE-S	15AE	
35A320A	15AE-S	15AE	
35A460A		20AE	
40□400B		20AE	30DE
40□600B		50AE	50DE
80□400B		50AE	50DE
80□600B		75AE	75DE
35□170H	08AE-S	08AE	10DE
35□320H	15AE-S	15AE	20DE
50□170H	08AE-S	08AE	10DE
50□320H	15AE-S	15AE	20DE

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Model Designation

Linear Servomotor Model Designation

Coil Assembly

SGL G W — 40 A 140 A P

Linear Sigma Series
Linear servomotor

Servomotor Model	
Code	Specifications
G	Coreless
F	F-type iron core
T	T-type iron core

W : Coil assembly

Magnet height

Voltage		
Code	Specifications	Remarks
A	200VAC	—
D	400VAC	Applicable for the following • SGLFW-35D, -50D, -1ZD • SGLTW-40D, -80D SGLTW-35D□□□H, -50D□□□H

Options			
Code	Specifications	Remarks	
P	With hall sensor	—	
C	Forced cooling	—	
H	With hall sensor and forced cooling	Air cooling	SGLGW-40A, -60A, -90A
		liquid cooling	SGLTW-40A, -80A SGLTW-40D, -80D

Design revision order
A,B,C •••

Length of coil assembly

Magnet Track (Magnetic Way)

SGL G M — 40 225 A C

Linear Sigma Series
Linear servomotor

Model	
Code	Specifications
G	Coreless
F	F-type iron core
T	T-type iron core

M : Magnetic way

Magnet width

Length of magnetic way

Design revision order
A,B,C •••

Options		
Code	Specifications	Applicable Model
C	With magnet cover	Only for all Iron-core types • SGLFM • SGLTM
- M	High thrust force	Only for the following coreless types • SGLGM-40, 60
Y	With base and magnet cover	Only for the T-type iron core types • SGLTM-20, -35, -40, -80 Note : The magnetic ways with base for SGLTW-35□□□□H, -50□□□□H are not available.

Servo Amplifier Model Designation

SGDH — 10 A E

Rated Output of Applicable Servomotor (kW)			
Code	Rated Output	Code	Rated Output
A5	0.05	10	1.0
01	0.10	15	1.5
02	0.20	20	2.0
04	0.40	30	3.0
05	0.45	50	5.0
08	0.75	75	7.5

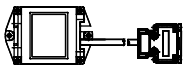
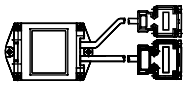
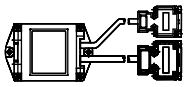
Power Supply Voltage	
Code	Voltage
A	Single/Three-phase, 200V
D	Three-phase, 400V

Model (Fixed)	
Code	Remarks
E	• For force, speed, and position control • Applicable for various application modules

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Serial Converter Unit Model Designation

JZDP – D003 – 001

Serial Converter Unit Model			
Symbol	Appearance	Applicable Linear Scale	Hall Sensor
D003		Made by Heidenhain	None
D005		Made by Renishaw	None
D006		Made by Heidenhain	Yes
D008		Made by Renishaw	Yes

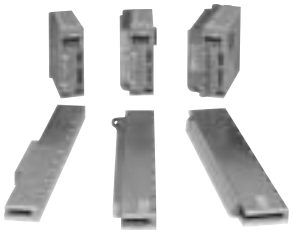
Applicable Linear Servomotor					
Servomotor Model		Symbol	Servomotor Model		Symbol
SGLGW- (Coreless) When a standard-force magnetic way is used.	30A050C	250	SGLTW- (Iron-core)	20A170A	011
	30A080C	251		20A320A	012
	40A140C	252		20A460A	013
	40A253C	253		35A170A	014
	40A365C	254		35A320A	015
	60A140C	258		35A460A	016
	60A253C	259		35A170H	105
	60A365C	260		35A320H	106
	90A200C	264		50A170H	108
	90A370C	265		50A320H	109
	90A535C	266		40A400B	185
SGLGW- + SGLGM- □ -M (Coreless) When a high-force magnetic way is used.	40A140C	255		40A600B	186
	40A253C	256		80A400B	187
	40A365C	257		80A600B	188
	60A140C	261		35D170H	193
	60A253C	262		35D320H	194
	60A365C	263		50D170H	195
SGLFW- (Iron-core)	20A090A	017		50D320H	196
	20A120A	018		40D400B	197
	35A120A	019		40D600B	198
	35A230A	020		80D400B	199
	50A200B	181		80D600B	200
	50A380B	182			
	1ZA200B	183			
	1ZA380B	184			
	35D120A	211			
	35D230A	212			
	50D200B	189			
	50D380B	190			
	1ZD200B	191			
	1ZD380B	192			

Note: When using a 400V linear servomotor with a 200V SERVOPACK, the parameters in the serial converter should be changed. Contact your Yaskawa representative.

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Linear Sigma Servomotor Specifications (200V)

Coreless GW SGLG□-30 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled, air-cooling
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

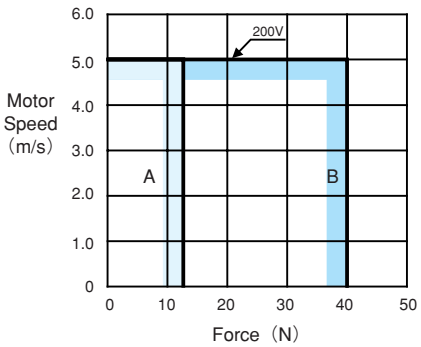
Linear Servomotor Type SGLGW-□		30A	
		050C	080C
Rated Force *	N	12.5	25
Rated Current *	Arms	0.55	0.85
Instantaneous Peak Force *	N	40	80
Instantaneous Peak Current *	Arms	1.62	2.53
Coil Assembly Mass	kg	0.10	0.15
Force Constant	N/Arms	26.4	33.9
BEMF Constant	V/(m/s)	8.8	11.3
Motor Constant	N/√W	3.7	5.6
Electrical Time Constant	ms	0.2	0.4
Mechanical Time Constant	ms	7.30	4.78
Thermal Resistance (with Heat Sink)	K/W	4.89	2.93
Thermal Resistance (without Heat Sink)	K/W	—	—
Magnetic Attraction	N	0	0

Force and Speed Characteristics

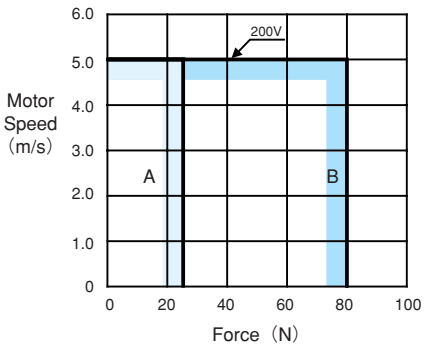
A: Continuous Duty Zone B: Intermittent Duty Zone

With Standard-force Magnetic Ways

SGLGW-30A050C



SGLGW-30A080C



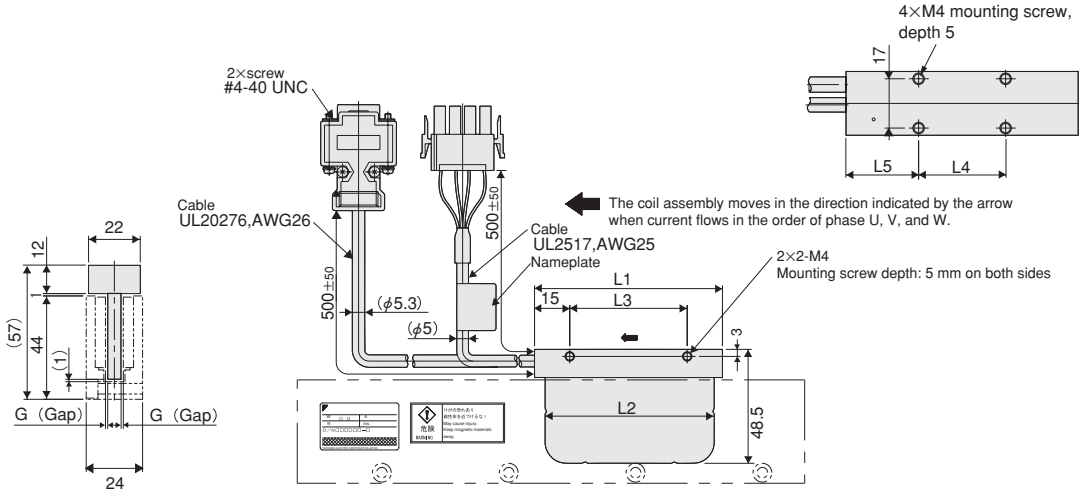
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLGW-□	Heat Sink Size in mm
30A050C 30A080C	200 x 300 x 12

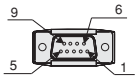
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLGW-30A□□□C□)



Hall Sensor Connector Specifications



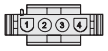
Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type:17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779-1
Pin type: 350924-1 or
770672-1
made by Tyco Electronics AMP K.K.

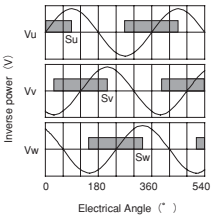
The mating connector

Cap type: 350780-1
Socket type: 350925-1 or
770673-1

Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	FG	Green

Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right.

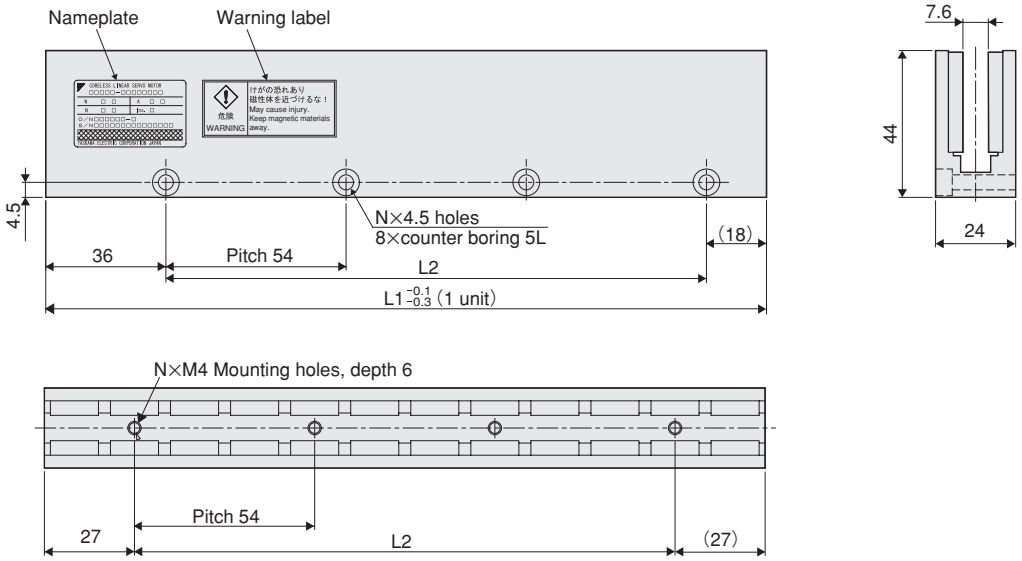


Coil Assembly Model SGLGW-	L1	L2	L3	L4	L5	G (Gap)	Approx. Mass* kg
30A050C□	50	48	30	20	20	0.85	0.14
30A080C□	80	72	50	30	25	0.95	0.19

* The value indicates the mass of coil assembly with a hall sensor unit.

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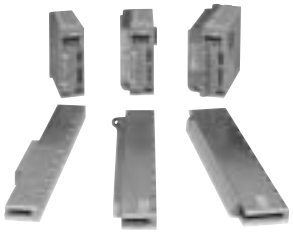
Magnetic Way (SGLGM-30□□□A)



Magnetic Way Model SGLGM-□	L1	L2	N	Approx. Mass kg
30108A	108	54	2	0.6
30216A	216	162	4	1.1
30432A	432	378	8	2.3

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Coreless GW SGLG□-40 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet
Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled, air-cooling
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

With Standard-force Magnetic Ways

Linear Servomotor Type SGLGW-		40A		
		140C	253C	365C
Rated Force *	N	47	93	140
Rated Current *	Arms	0.8	1.6	2.4
Instantaneous Peak Force *	N	140	280	420
Instantaneous Peak Current *	Arms	2.4	4.9	7.3
Coil Assembly Mass	kg	0.34	0.60	0.87
Force Constant	N/Arms	61.5	61.5	61.5
BEMF Constant	V/(m/s)	20.5	20.5	20.5
Motor Constant	N/√W	7.8	11.0	13.5
Electrical Time Constant	ms	0.4	0.4	0.4
Mechanical Time Constant	ms	5.59	4.96	4.77
Thermal Resistance (with Heat Sink)	K/W	1.87	0.98	0.65
Thermal Resistance (without Heat Sink)	K/W	3.39	2.02	1.38
Magnetic Attraction	N	0	0	0

With High-force Magnetic Ways

Linear Servomotor Type SGLGW-		40A		
		140C	253C	365C
Rated Force *	N	57	114	171
Rated Current *	Arms	0.8	1.6	2.4
Instantaneous Peak Force *	N	230	460	690
Instantaneous Peak Current *	Arms	3.2	6.5	9.7
Coil Assembly Mass	kg	0.34	0.60	0.87
Force Constant	N/Arms	76.0	76.0	76.0
BEMF Constant	V/(m/s)	25.3	25.3	25.3
Motor Constant	N/√W	9.6	13.6	16.7
Electrical Time Constant	ms	0.4	0.4	0.4
Mechanical Time Constant	ms	3.69	3.24	3.12
Thermal Resistance (With Heat Sink)	K/W	1.87	0.98	0.65
Thermal Resistance (Without Heat Sink)	K/W	3.39	2.02	1.38
Magnetic Attraction	N	0	0	0

Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

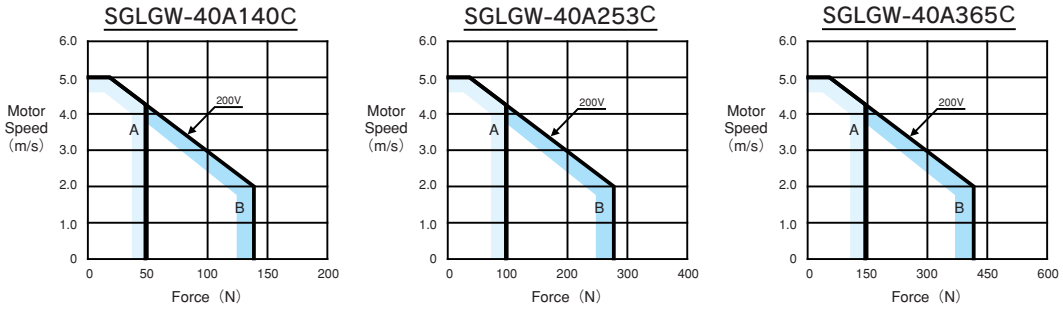
Linear Servomotor Model SGLGW-	Heat Sink Size in mm
40A140C	200 X 300 X 12
40A253C	300 X 400 X 12
40A365C	400 X 500 X 12

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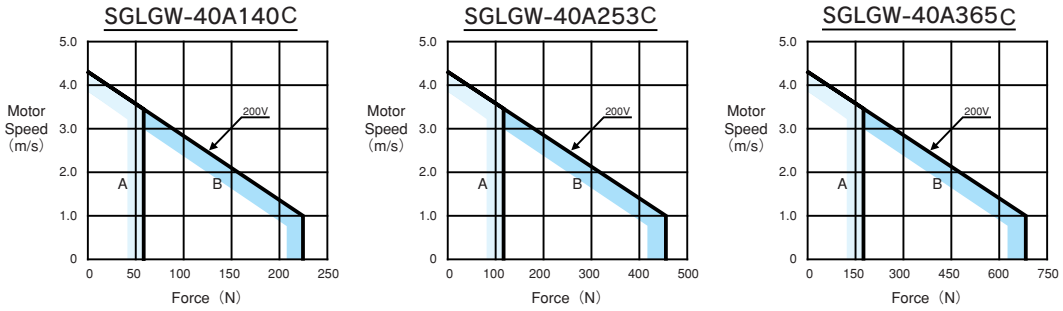
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

With Standard-force Magnetic Ways



With High-force Magnetic Ways

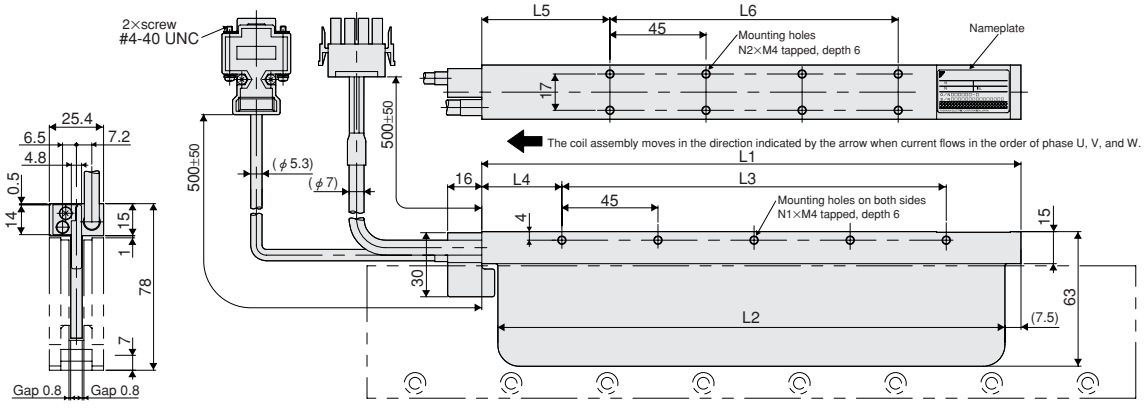


Note: The voltages shown in graphs are for Sigma II SERVOPACK's AC supply input voltage. The actual output motor bus voltage will be higher than indicated.

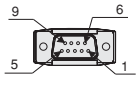
Dimensional Drawings (Units: mm)

1N=0.2276 lb=0.102kgf
1kg=2.232 lb
1mm=0.03937 in

Coil Assembly (SGLGW-40A□□□C□)



Hall Sensor Connector Specifications



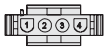
Pin connector type:
17JE-13090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type:17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779-1
Pin type: 350561-3 or
350690-3(No.1 to 3)
350654-1
350669-1(No.4)
made by Tyco Electronics AMP K.K.

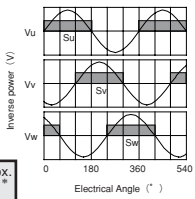
The mating connector

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

Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	FG	Green

Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right.

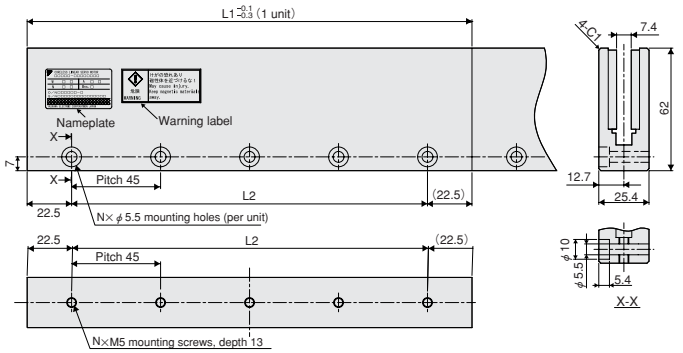


Coil Assembly Model SGLGW-[ ]	L1	L2	L3	L4	L5	L6	N1	N2	Approx. Mass* kg
40A140C□	140	125	90	30	52.5	45	3	4	0.40
40A253C□	252.5	237.5	180	37.5	60	135	5	8	0.66
40A365C□	365	350	315	30	52.5	270	8	14	0.93

* The value indicates the mass of coil assembly with a hall sensor unit.

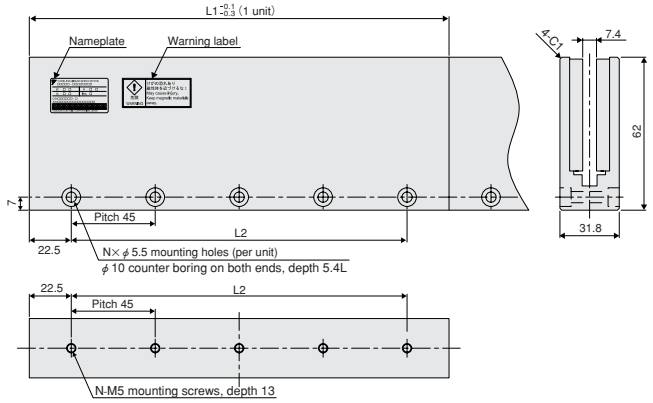
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Standard Force Magnetic Way (SGLGM-40□□□CT)



Standard-force Magnetic Way Model SGLGM-	L1	L2	N	Approx. Mass kg
40090CT	90	45	2	0.8
40225CT	225	180	5	2.0
40360CT	360	315	8	3.1
40405CT	405	360	9	3.5
40450CT	450	405	10	3.9

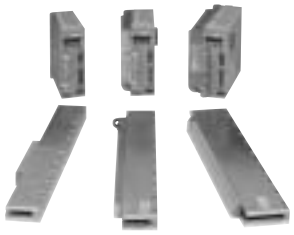
High-Force Magnetic Way (SGLGM-40□□□B-M)



High-force Magnetic Way Model SGLGM-	L1	L2	N	Approx. Mass kg
40090B-M	90	45	2	1.0
40225B-M	225	180	5	2.6
40360B-M	360	315	8	4.1
40405B-M	405	360	9	4.6
40450B-M	450	405	10	5.1

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Coreless GW SGLG□-60 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet
Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled, air-cooling
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

With Standard-force Magnetic Ways

Linear Servomotor Type SGLGW-[ ]		60A		
		140C	253C	365C
Rated Force *	N	70	140	210
Rated Current *	Arms	1.2	2.3	3.5
Instantaneous Peak Force *	N	220	440	660
Instantaneous Peak Current *	Arms	3.5	7.0	10.5
Coil Assembly Mass	kg	0.42	0.76	1.10
Force Constant	N/Arms	66.6	66.6	66.6
BEMF Constant	V/(m/s)	22.2	22.2	22.2
Motor Constant	$N/\sqrt{W}$	11.1	15.7	19.2
Electrical Time Constant	ms	0.5	0.5	0.5
Mechanical Time Constant	ms	3.41	3.08	2.98
Thermal Resistance (with Heat Sink)	K/W	1.62	0.80	0.53
Thermal Resistance (without Heat Sink)	K/W	2.69	1.54	1.20
Magnetic Attraction	N	0	0	0

With High-force Magnetic Ways

Linear Servomotor Type SGLGW-[ ]		60A		
		140C	253C	365C
Rated Force *	N	85	170	255
Rated Current *	Arms	1.2	2.3	3.5
Instantaneous Peak Force *	N	360	720	1080
Instantaneous Peak Current *	Arms	5.0	10.0	14.9
Coil Assembly Mass	kg	0.42	0.76	1.10
Force Constant	N/Arms	77.4	77.4	77.4
BEMF Constant	V/(m/s)	25.8	25.8	25.8
Motor Constant	$N/\sqrt{W}$	12.9	18.2	22.3
Electrical Time Constant	ms	0.5	0.5	0.5
Mechanical Time Constant	ms	2.52	2.29	2.21
Thermal Resistance (With Heat Sink)	K/W	1.62	0.80	0.53
Thermal Resistance (Without Heat Sink)	K/W	2.69	1.54	1.20
Magnetic Attraction	N	0	0	0

Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLGW-[ ]	Heat Sink Size in mm
60A140C	200 X 300 X 12
60A253C	300 X 400 X 12
60A365C	400 X 500 X 12

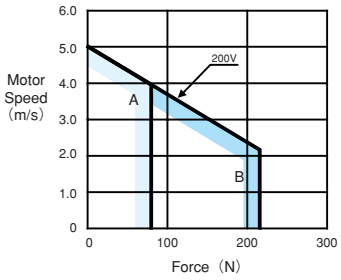
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Force and Speed Characteristics

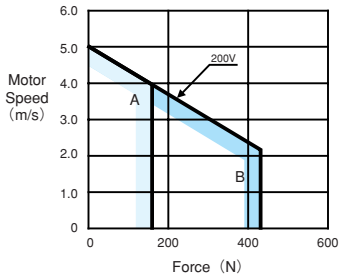
A: Continuous Duty Zone B: Intermittent Duty Zone

With Standard-force Magnetic Ways

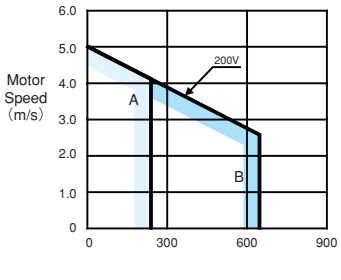
SGLGW-60A140C



SGLGW-60A253C

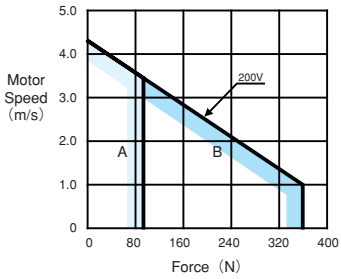


SGLGW-60A365C

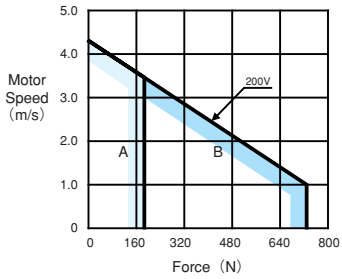


With High-force Magnetic Ways

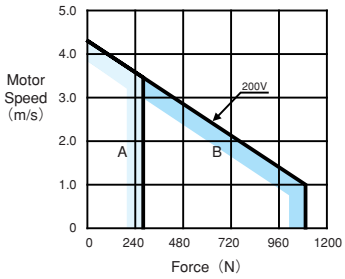
SGLGW-60A140C



SGLGW-60A253C



SGLGW-60A365C

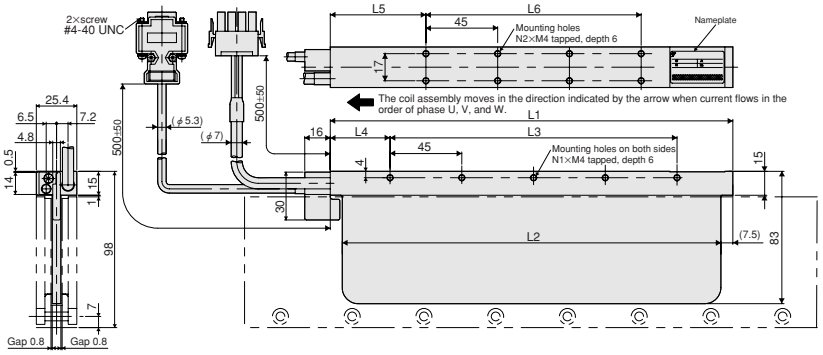


Note: The voltages shown in graphs are for Sigma II SERVOPACK's AC supply input voltage. The actual output motor bus voltage will be higher than indicated.

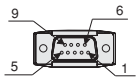
1N=0.2276 lb=0.102kgf
1kg=2.232 lb
1mm=0.03937 in

Dimensional Drawings (Units: mm)

Coil Assembly (SGLGW-60A□□□C□)



Hall Sensor Connector Specifications



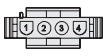
Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type:17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779-1
Pin type: 350561-3 or
350690-3(No.1 to 3)
350654-1
350669-1(No.4)
made by Tyco Electronics AMP K.K.

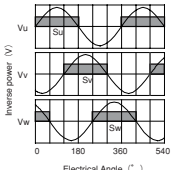
The mating connector type

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

Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	FG	Green

Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right.

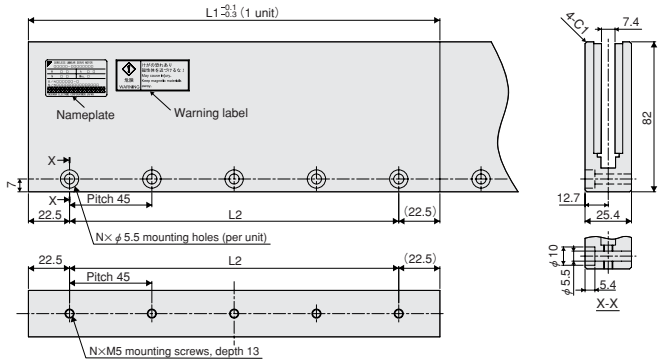


Coil Assembly Model SGLGW-□	L1	L2	L3	L4	L5	L6	N1	N2	Approx. Mass* kg
60A140C□	140	125	90	30	52.5	45	3	4	0.48
60A253C□	252.5	237.5	180	37.5	60	135	5	8	0.82
60A365C□	365	350	315	30	52.5	270	8	14	1.16

* The value indicates the mass of coil assembly with a hall sensor unit.

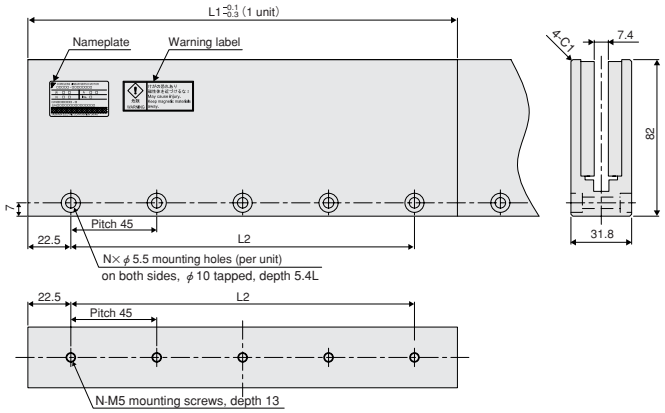
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Standard Force Magnetic Way (SGLGM-60□□□CT)



Standard-force Magnetic Way Model SGLGM-□	L1	L2	N	Approx. Mass kg
60090CT	90	45	2	1.1
60225CT	225	180	5	2.6
60360CT	360	315	8	4.1
60405CT	405	360	9	4.6
60450CT	450	405	10	5.1

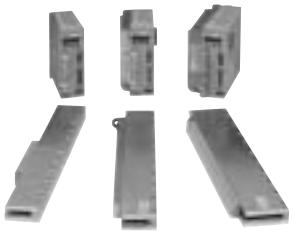
High-Force Magnetic Way (SGLGM-60□□□B-M)



High-force Magnetic Way Model SGLGM-□	L1	L2	N	Approx. Mass kg
60090B-M	90	45	2	1.3
60225B-M	225	180	5	3.3
60360B-M	360	315	8	5.2
60405B-M	405	360	9	5.9
60450B-M	450	405	10	6.6

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Coreless GW SGLG□-90 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled, air-cooling
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

With Standard-force Magnetic Ways

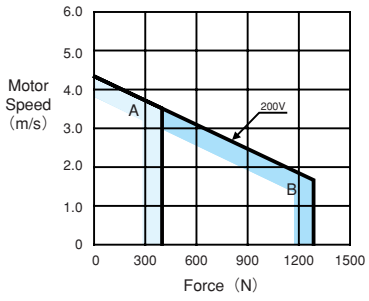
Linear Servomotor Type SGLGW-[ ]		90A		
		200C	370C	535C
Rated Force *	N	325	550	750
Rated Current *	Arms	4.4	7.5	10.2
Instantaneous Peak Force *	N	1300	2200	3000
Instantaneous Peak Current *	Arms	17.6	30.0	40.8
Coil Assembly Mass	kg	2.15	3.6	4.9
Force Constant	N/Arms	78	78	78
BEMF Constant	V/(m/s)	26.0	26.0	26.0
Motor Constant	N/√W	26.0	36.8	45.0
Electrical Time Constant	ms	1.4	1.4	1.4
Mechanical Time Constant	ms	3.18	2.66	2.42
Thermal Resistance (with Heat Sink)	K/W	0.44	0.30	0.25
Thermal Resistance (without Heat Sink)	K/W	—	—	—
Magnetic Attraction	N	0	0	0

Force and Speed Characteristics

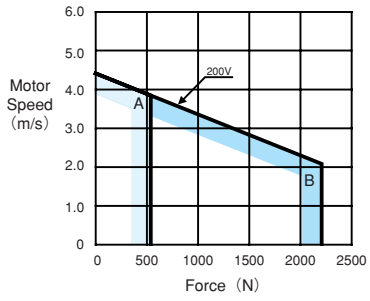
A: Continuous Duty Zone B: Intermittent Duty Zone

With Standard-force Magnetic Ways

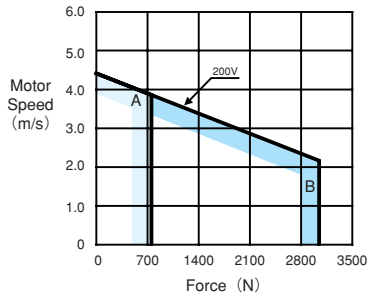
SGLGW-90A200C



SGLGW-90A370C



SGLGW-90A535C



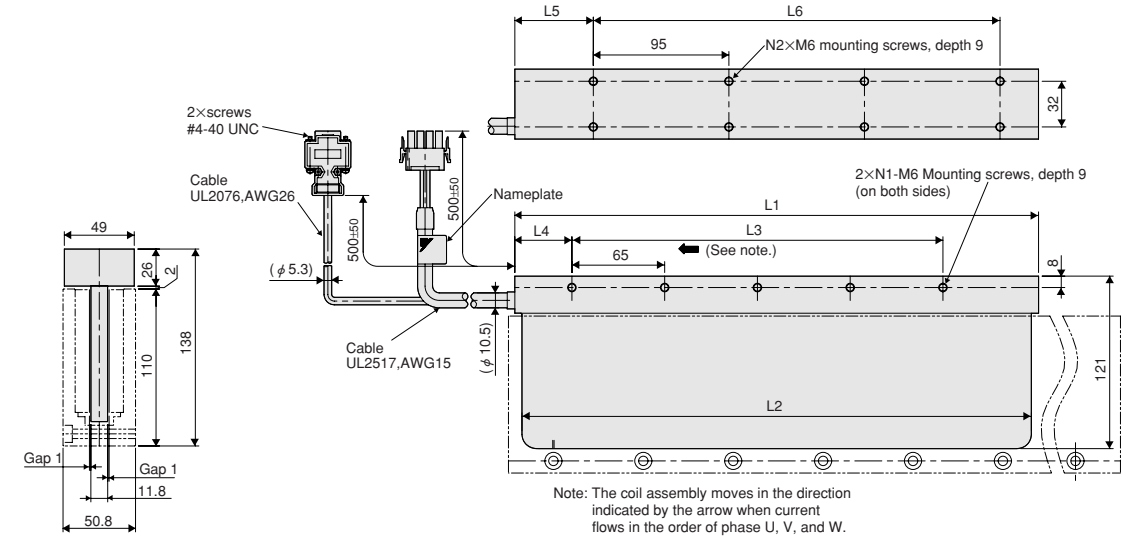
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLGW-[ ]	Heat Sink Size in mm
90A200C	800 X 900 X 12
90A370C	
90A535C	

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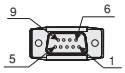
Dimensional Drawings (Units: mm)

Coil Assembly (SGLGW-90A□□□C□)



Note: The coil assembly moves in the direction indicated by the arrow when current flows in the order of phase U, V, and W.

Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type:17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

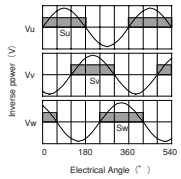
The mating connector

Cap type: 350780-1
Socket type: 350536-3 or
350550-3

Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	FG	Green

Hall Sensor Output Signals

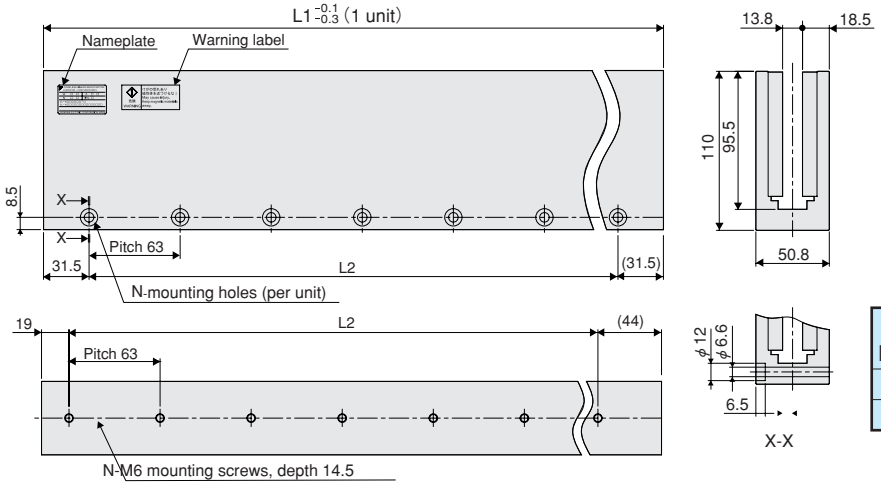
When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure below.



Coil Assembly Model SGLGW-□	L1	L2	L3	L4	L5	L6	N1	N2	Approx. Mass* kg
90A200C□	199	189	130	40	60	95	3	4	2.2
90A370C□	367	357	260	40	55	285	5	8	3.7
90A535C□	535	525	455	40	60	380	8	10	5.0

* The value indicates the mass of coil assembly with a hall sensor unit.

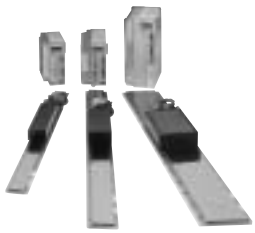
Magnetic Way (SGLGM-90□□□A)



Magnetic Way Model SGLGM-□	L1	L2	N	Approx. Mass kg
90252A	252	189	4	7.3
90504A	504	441	8	14.7

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Iron-Core FW SGLF□-20 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

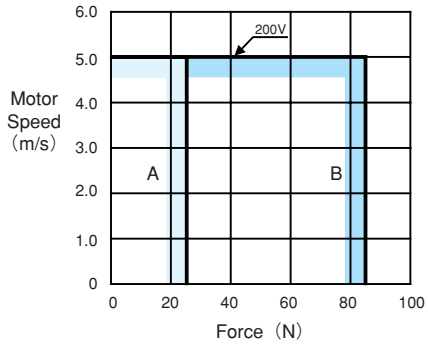
Ratings and Specifications

Linear Servomotor Type SGLFW-□		20A	
		090A	120A
Rated Force *	N	25	40
Rated Current *	Arms	0.7	0.8
Instantaneous Peak Force *	N	86	125
Instantaneous Peak Current *	Arms	3.0	2.9
Coil Assembly Mass	kg	0.7	0.9
Force Constant	N/Arms	36.0	54.0
BEMF Constant	V/(m/s)	12.0	18.0
Motor Constant	N/√W	7.9	9.8
Electrical Time Constant	ms	3.2	3.3
Mechanical Time Constant	ms	11.0	9.3
Thermal Resistance (with Heat Sink)	K/W	4.35	3.19
Thermal Resistance (without Heat Sink)	K/W	7.69	5.02
Magnetic Attraction	N	314	462

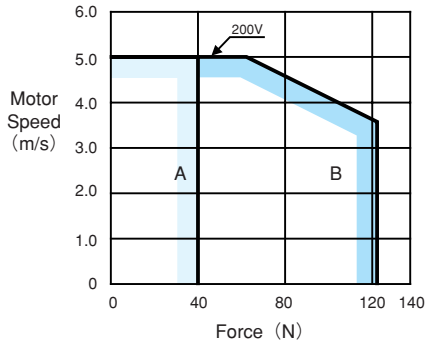
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLFW-20A090A



SGLFW-20A120A



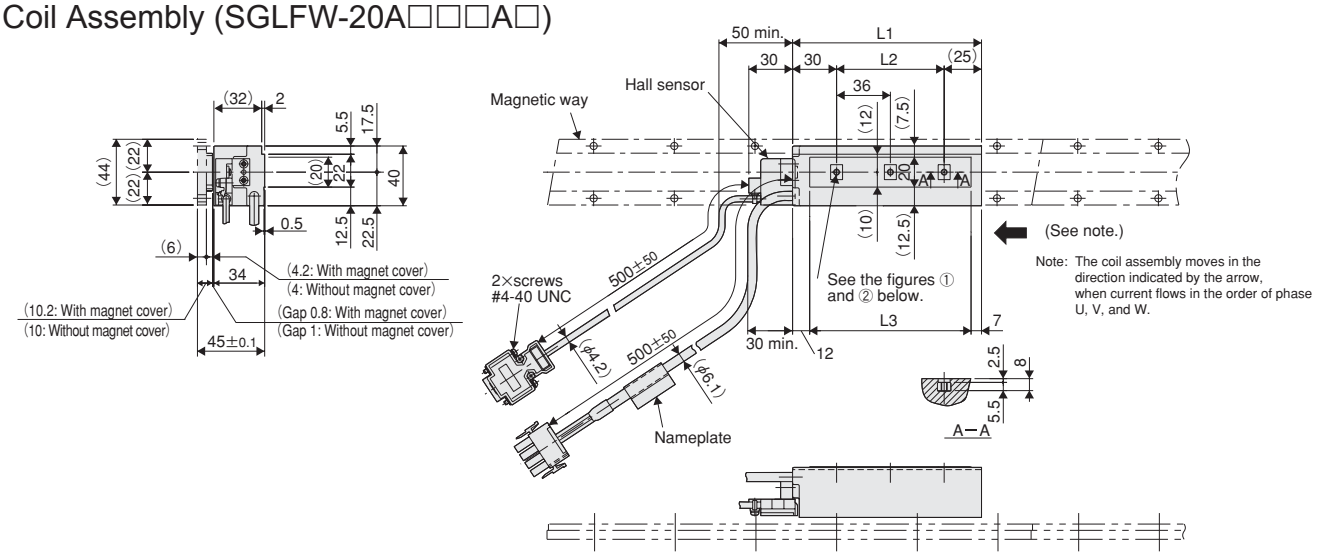
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLFW-□	Heat Sink Size in mm
20A090C 20A120C	125 X 125 X 13

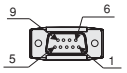
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLFW-20A□□□A□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

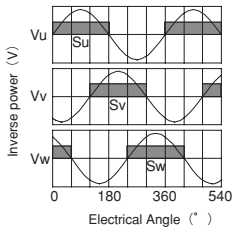
The mating connector

Cap type: 350780-1
Socket type: 350536-3 or
350550-3

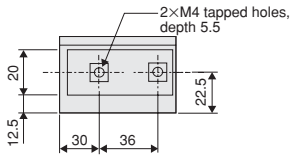
Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Black
4	FG	Green

Hall Sensor Output Signals

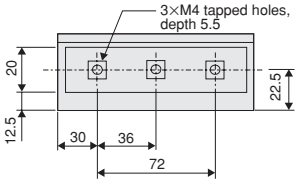
When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure below.



①SGLFW-20A090A□

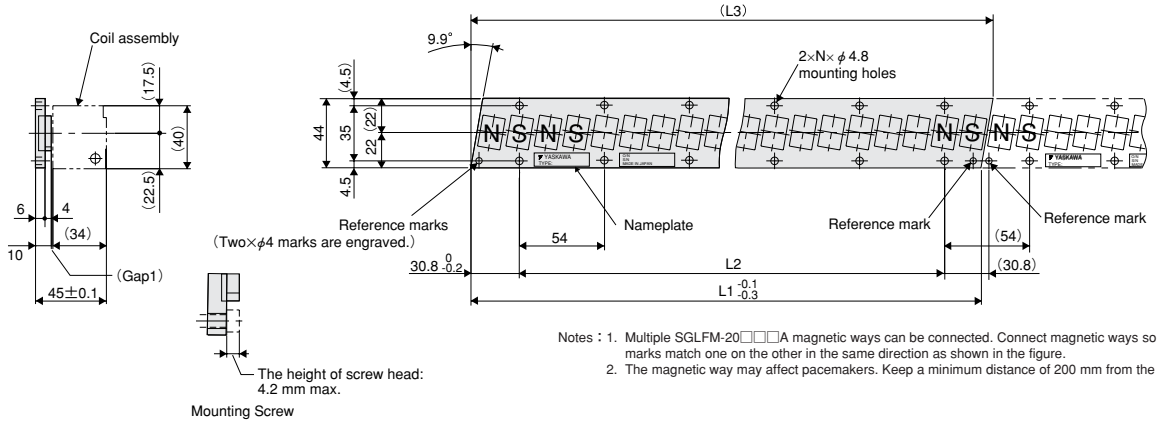


②SGLFW-20A120A□



Coil Assembly Model SGLFW-□	L1	L2	L3	N	Approx. Mass kg
20A090A□	91	36	72	2	0.7
20A120A□	127	72	108	3	0.9

Magnetic Way (SGLFM-20□□□A)

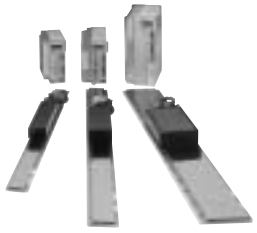


Notes：1. Multiple SGLFM-20□□□A magnetic ways can be connected. Connect magnetic ways so that the reference marks match one on the other in the same direction as shown in the figure.
2. The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.

Magnetic Way Model SGLFM-□	L1 -0.1 -0.3	L2	(L3)	N	Approx. Mass kg
20324A	324	270 (54×5)	(331.6)	6	0.9
20540A	540	486 (54×9)	(547.6)	10	1.4
20756A	756	702 (54×13)	(763.6)	14	2

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Iron-Core FW SGLF□-35 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

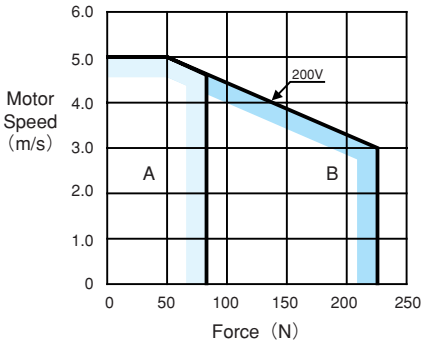
Ratings and Specifications

Linear Servomotor Type SGLFW-□		35A	
		120A	230A
Rated Force *	N	80	160
Rated Current *	Arms	1.4	2.8
Instantaneous Peak Force *	N	220	440
Instantaneous Peak Current *	Arms	4.4	8.8
Coil Assembly Mass	kg	1.3	2.3
Force Constant	N/Arms	62.4	62.4
BEMF Constant	V/(m/s)	20.8	20.8
Motor Constant	N/√W	14.4	20.4
Electrical Time Constant	ms	3.6	3.6
Mechanical Time Constant	ms	6.2	5.5
Thermal Resistance (with Heat Sink)	K/W	1.57	0.96
Thermal Resistance (without Heat Sink)	K/W	4.10	1.94
Magnetic Attraction	N	809	1586

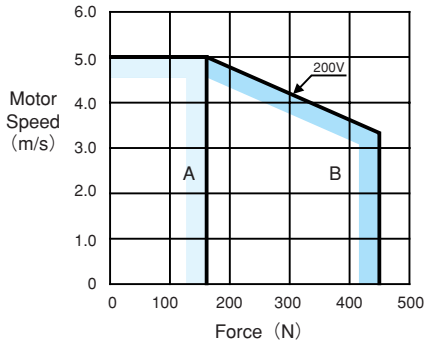
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLFW-35A120A



SGLFW-35A230A



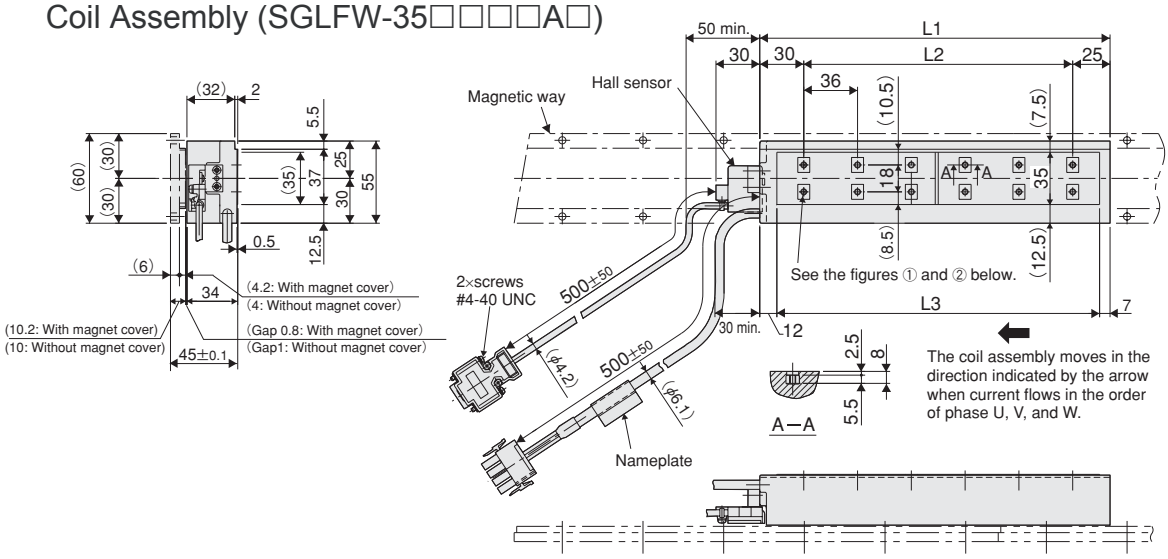
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLFW-□	Heat Sink Size in mm
35A120A 35A230A	254 x 254 x 13

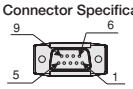
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLFW-35□□□A□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

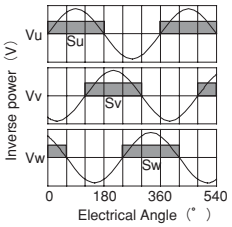
The mating connector

Cap type: 350780-1
Socket type: 350536-3 or
350550-3

Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Black
4	FG	Green

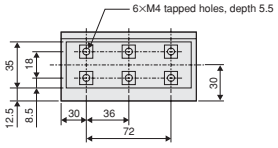
Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure below.

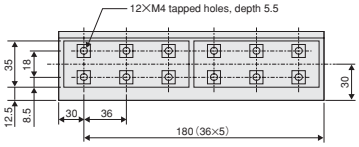


Coil Assembly Model SGLFW-	L1	L2	L3	N	Approx. Mass kg
35□120A□	127	72	108	6	1.3
35□230A□	235	180	216	12	2.3

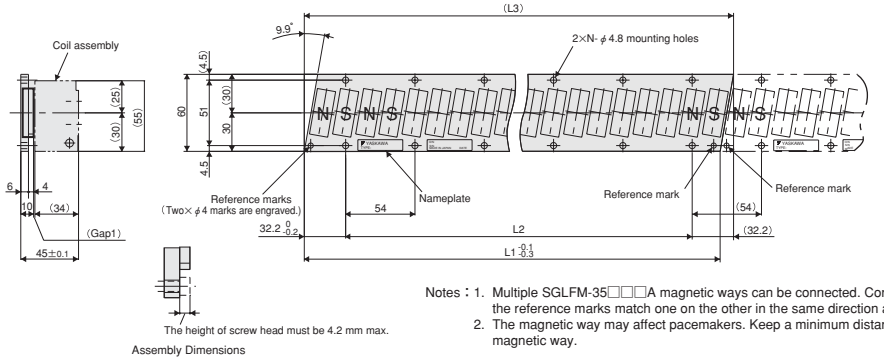
①SGLFW-35□120A□



②SGLFW-35□230A□



Magnetic Way (SGLFM-35□□□A)

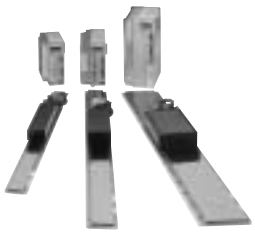


Notes : 1. Multiple SGLFM-35□□□A magnetic ways can be connected. Connect magnetic ways so that the reference marks match one on the other in the same direction as shown in the figure.
2. The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.

Magnetic Way Model SGLFM-	L1 -0.1 -0.3	L2	(L3)	N	Approx. Mass kg
35324A	324	270 (54×5)	(334.4)	6	1.2
35540A	540	486 (54×9)	(550.4)	10	2
35756A	756	702 (54×13)	(766.4)	14	2.9

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Iron-Core FW SGLF□-50 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

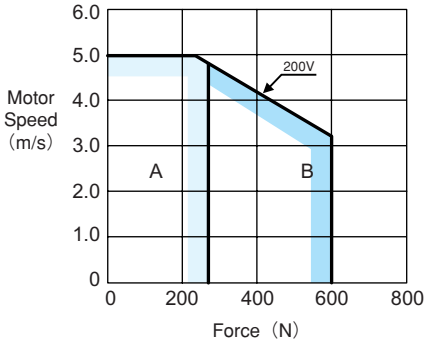
Ratings and Specifications

Linear Servomotor Type SGLFW-[ ]		50A	
		200B	380B
Rated Force *	N	280	560
Rated Current *	Arms	5.0	10.0
Instantaneous Peak Force *	N	600	1200
Instantaneous Peak Current *	Arms	12.4	25.0
Coil Assembly Mass	kg	3.5	6.9
Force Constant	N/Arms	60.2	60.2
BEMF Constant	V/(m/s)	20.1	20.1
Motor Constant	N/√W	34.3	48.5
Electrical Time Constant	ms	15.9	15.8
Mechanical Time Constant	ms	3.0	2.9
Thermal Resistance (with Heat Sink)	K/W	0.82	0.32
Thermal Resistance (without Heat Sink)	K/W	1.48	0.74
Magnetic Attraction	N	1650	3260

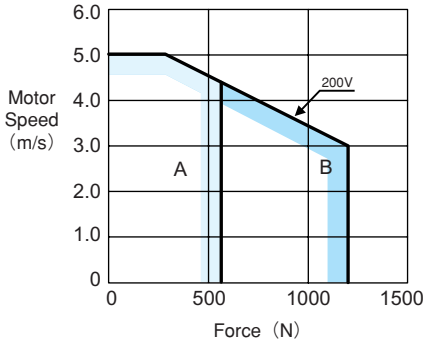
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLFW-50A200B



SGLFW-50A380B



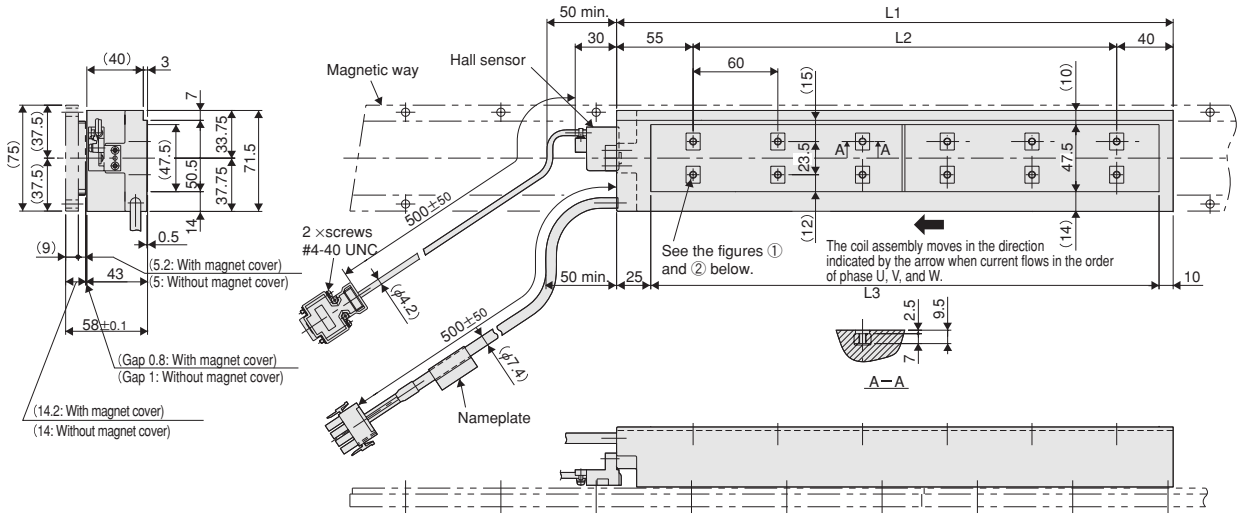
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLFW-[ ]	Heat Sink Size in mm
50A200B	254×254×25
50A380B	400×500×40

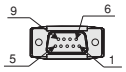
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLFW-50 □□□□B□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

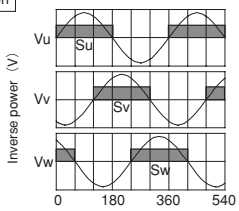
The mating connector

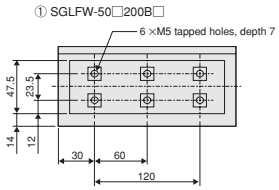
Cap type: 350780-1
Socket type: 350536-3 or
350550-3

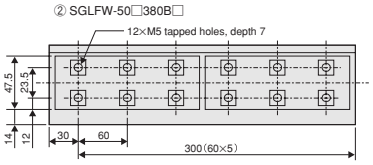
Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Black
4	FG	Green

Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each phase Vu, Vv, Vw becomes as shown in the figure below.

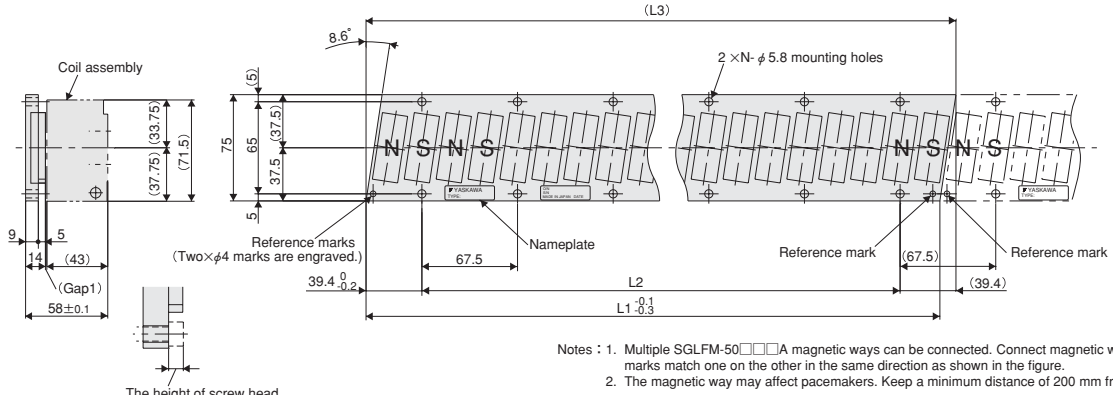






Coil Assembly Model SGLFW- □	L1	L2	L3	N	Approx. Mass kg
50□200B□	215	120	180	6	3.5
50□380B□	395	300	360	12	6.9

Magnetic Way (SGLFM-50□□□A)



The height of screw head must be 5.2 mm max.

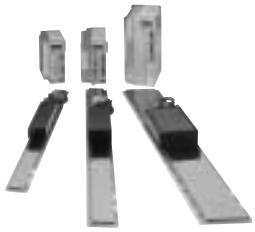
Assembly Dimensions

Notes : 1. Multiple SGLFM-50□□□A magnetic ways can be connected. Connect magnetic ways so that the reference marks match one on the other in the same direction as shown in the figure.
2. The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.

Magnetic Way Model SGLFM- □	L1 -0.1 -0.3	L2	(L3)	N	Approx. Mass kg
50405A	405	337.5 (67.5×5)	(416.3)	6	2.8
50675A	675	607.5 (67.5×9)	(686.3)	10	4.6
50945A	945	877.5 (67.5×13)	(956.3)	14	6.5

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Iron-Core FW SGLF□-1Z (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet
Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

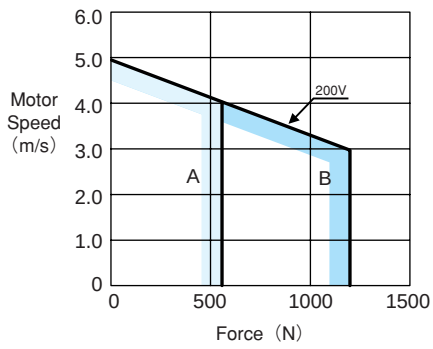
Ratings and Specifications

Linear Servomotor Type SGLFW-□□□		1ZA	
		200B	380B
Rated Force *	N	560	1120
Rated Current *	Arms	8.7	17.5
Instantaneous Peak Force *	N	1200	2400
Instantaneous Peak Current *	Arms	21.6	43.6
Coil Assembly Mass	kg	6.4	11.5
Force Constant	N/Arms	69.0	69.0
BEMF Constant	V/(m/s)	23.0	23.0
Motor Constant	$N/\sqrt{W}$	52.4	74.0
Electrical Time Constant	ms	18.3	18.3
Mechanical Time Constant	ms	2.3	2.1
Thermal Resistance (with Heat Sink)	K/W	0.6	0.28
Thermal Resistance (without Heat Sink)	K/W	0.92	0.55
Magnetic Attraction	N	3300	6520

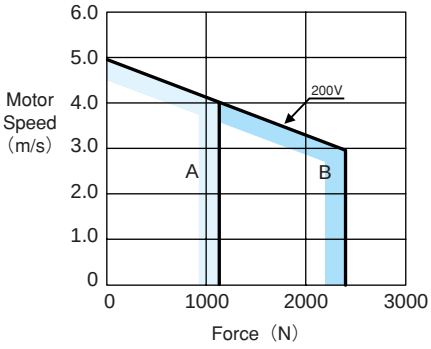
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLFW-1ZA200B



SGLFW-1ZA380B



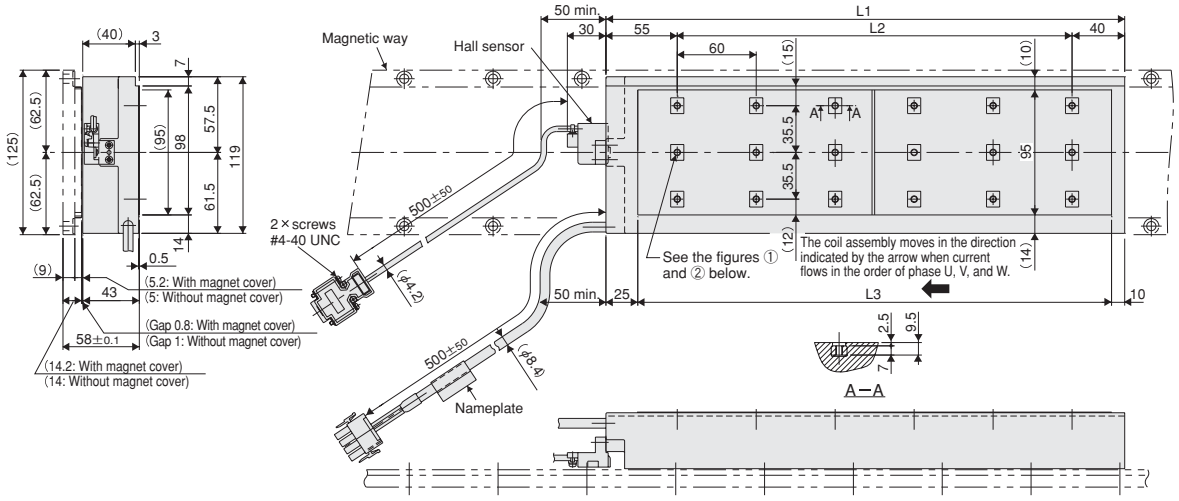
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLFW-□□□	Heat Sink Size in mm
1ZA200B	254×254×25
1ZA380B	400×500×40

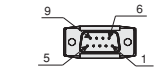
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLFW-1Z□□□□B□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

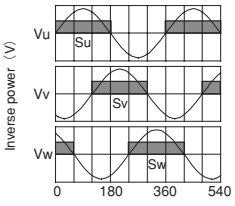
The mating connector

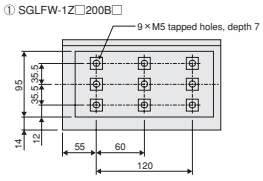
Cap type: 350780-1
Socket type: 350536-3 or
350550-3

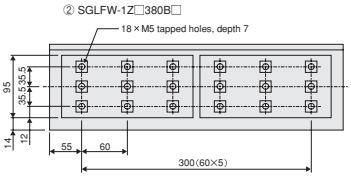
Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	FG	Green

Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure below.

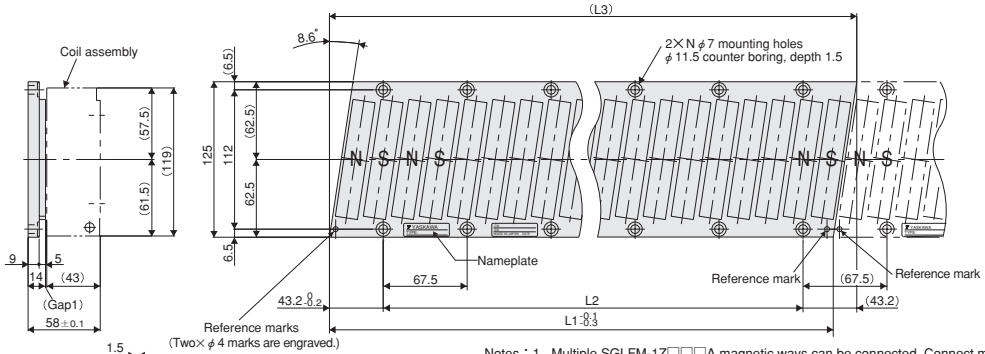






Coil Assembly Model SGLFW-□	L1	L2	L3	N	Approx. Mass kg
1Z□200B□	215	120	180	9	6.4
1Z□380B□	395	300	360	18	11.5

Magnetic Way (SGLFM-1Z□□□A)

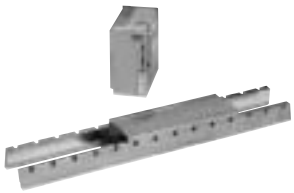


Notes : 1. Multiple SGLFM-1Z□□□A magnetic ways can be connected. Connect magnetic ways so that the reference marks match one on the other in the same direction as shown in the figure.
2. The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.

Magnetic Way Model SGLFM-□	L1 -0.1 -0.3	L2	(L3)	N	Approx. Mass kg
1Z405A	405	337.5 (67.5×5)	(423.9)	6	5
1Z675A	675	607.5 (67.5×9)	(693.9)	10	8.3
1Z945A	945	877.5 (67.5×13)	(963.9)	14	12

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Iron-Core TW SGLT□-20 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet
Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

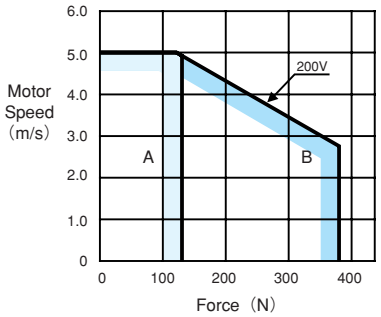
Linear Servomotor Type SGLTW-□□		20A		
		170A	320A	460A
Rated Force *	N	130	250	380
Rated Current *	Arms	2.3	4.4	6.7
Instantaneous Peak Force *	N	380	760	1140
Instantaneous Peak Current *	Arms	7.7	15.4	23.2
Coil Assembly Mass	kg	2.5	4.6	6.7
Force Constant	N/Arms	61.0	61.0	61.0
BEMF Constant	V/(m/s)	20.3	20.3	20.3
Motor Constant	$N/\sqrt{W}$	18.7	26.5	32.3
Electrical Time Constant	ms	5.9	5.9	5.9
Mechanical Time Constant	ms	7.5	6.5	6.4
Thermal Resistance (with Heat Sink)	K/W	1.01	0.49	0.38
Thermal Resistance (without Heat Sink)	K/W	1.82	1.11	0.74
Magnetic Attraction *1	N	0	0	0
Magnetic Attraction *2	N	802	1591	2380

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

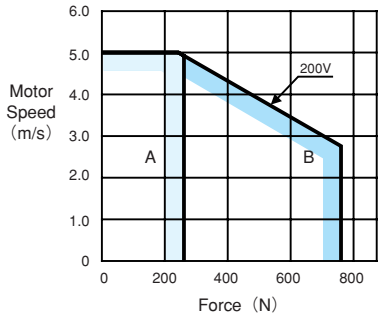
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

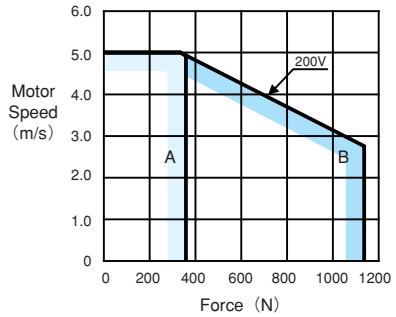
SGLTW-20A170A



SGLTW-20A320A



SGLTW-20A460A



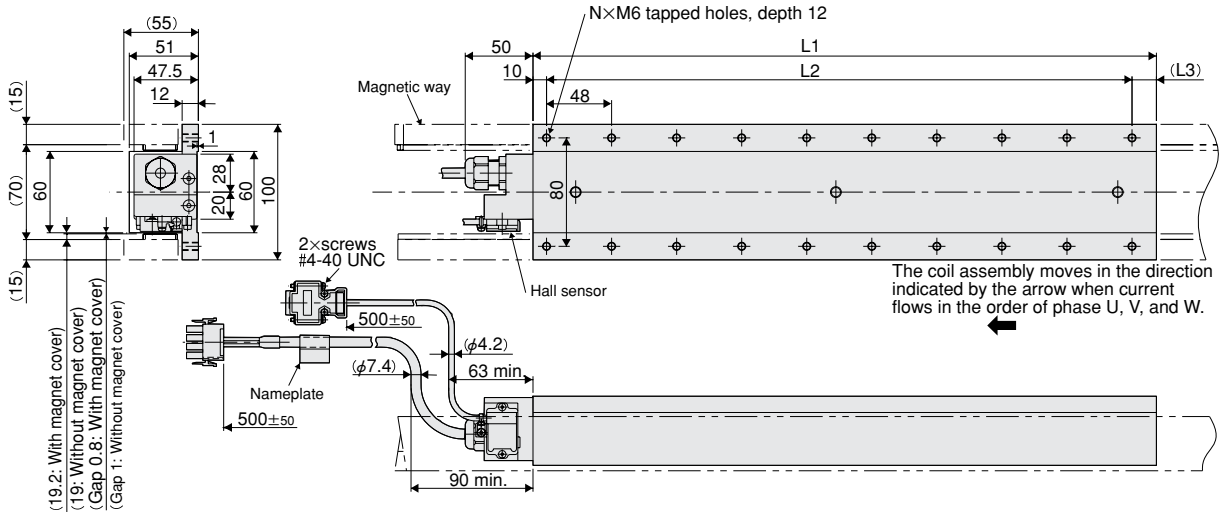
Notes: 1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□	Heat Sink Size in mm
20A170A	254×254×25
20A320A 20A460A	400×500×40

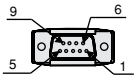
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-20A□□□A□)



Hall Sensor Connector Specifications



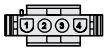
Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5VDC
2	Phase U
3	Phase V
4	Phase W
5	0V
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1(No.4)
made by Tyco Electronics AMP K.K.

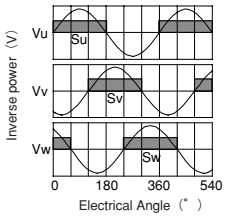
The mating connector

Cap type: 350780-1
Socket type: 350536-3 or
350550-3

Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Black
4	Ground	Green

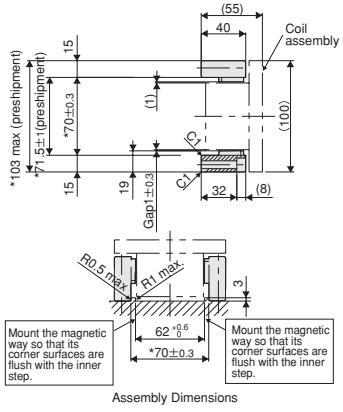
Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motoro phase Vu, Vv, Vw becomes as shown in the figure on the right.

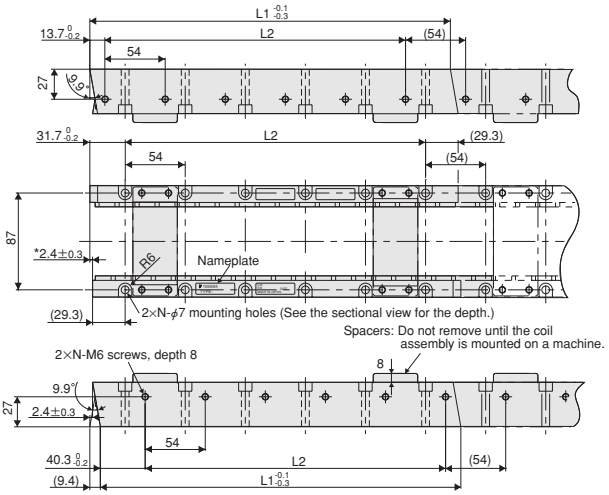


Coil Assembly Model SGLTW-□	L1	L2	L3	N	Approx. Mass kg
20A170A□	170	144 (48×3)	(16)	8	2.5
20A320A□	315	288 (48×6)	(17)	14	4.6
20A460A□	460	432 (48×9)	(18)	20	6.7

Magnetic Way (SGLTM-20□□□A)



Assembly Dimensions

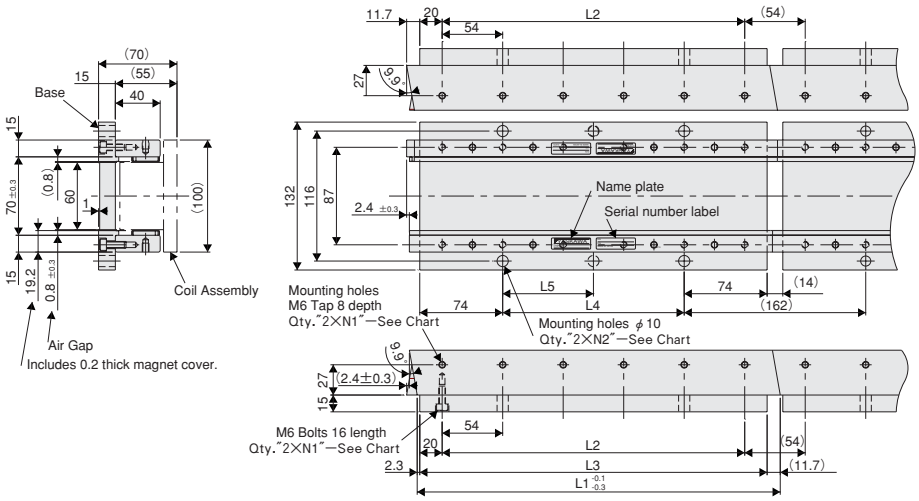


Notes : 1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

Magnetic Way Model SGLTM-□	L1 -0.1 -0.3	L2	N	Approx. Mass kg
20324A	324	270 (54×5)	6	3.4
20540A	540	486 (54×9)	10	5.7
20756A	756	702 (54×13)	14	7.9

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Magnetic Way with Base (SGLTM-20□□□AY)

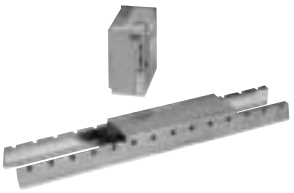


Magnetic Way Model SGLTM-□	L1	L2	L3	L4	L5	N1	N2	Approx. Mass kg
20324AY	324	270	310	162	162	6	2	5.1
20540AY	540	486	526	378	189	10	3	8.5
20756AY	756	702	742	594	198	14	4	12

Notes : 1. Users of pacemakers and similar devices are strongly recommended to maintain minimum distance of 200mm from the magnets.
2. The characteristics of the stators with bases are the same as the ones of the stators without bases (SGLTM-20□□□A).

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Iron-Core TW SGLT□-35 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

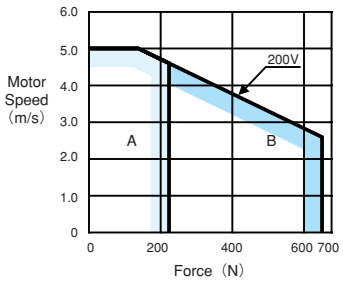
Linear Servomotor Type SGLTW-□□		35A				
		170A	320A	460A	170H	320H
Rated Force *	N	220	440	670	300	600
Rated Current *	Arms	3.5	7	10.7	5.1	10.1
Instantaneous Peak Force *	N	660	1320	2000	600	1200
Instantaneous Peak Current *	Arms	12.1	24.2	36.7	11.9	23.9
Coil Assembly Mass	kg	3.7	6.8	10.0	4.9	8.8
Force Constant	N/Arms	67.5	67.5	67.5	64	64
BEMF Constant	V/(m/s)	22.5	22.5	22.5	21.3	21.3
Motor Constant	N/√W	26.7	37.5	46.4	37.4	52.9
Electrical Time Constant	ms	6.9	6.8	7.0	15.1	15.1
Mechanical Time Constant	ms	5.2	4.8	4.6	3.3	3.3
Thermal Resistance (with Heat Sink)	K/W	0.76	0.44	0.32	0.76	0.4
Thermal Resistance (without Heat Sink)	K/W	1.26	0.95	0.61	1.26	0.83
Magnetic Attraction *1	N	0	0	0	0	0
Magnetic Attraction *2	N	1403	2784	4165	1400	2780

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

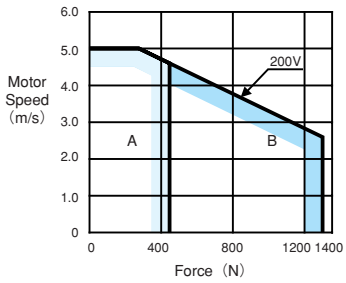
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

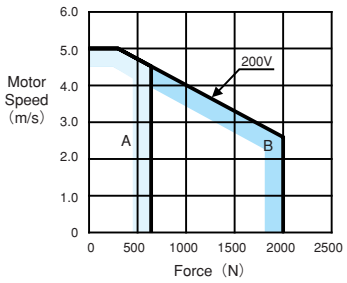
SGLTW-35A170A



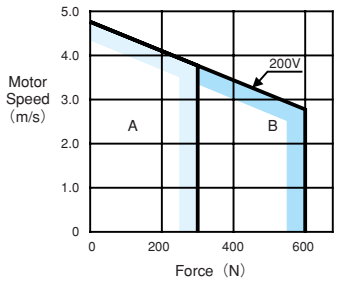
SGLTW-35A320A



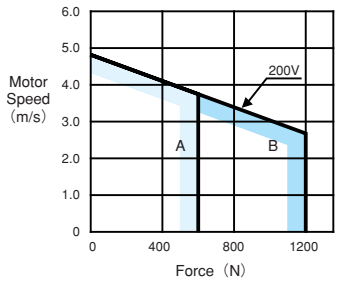
SGLTW-35A460A



SGLTW-35A170H



SGLTW-35A320H



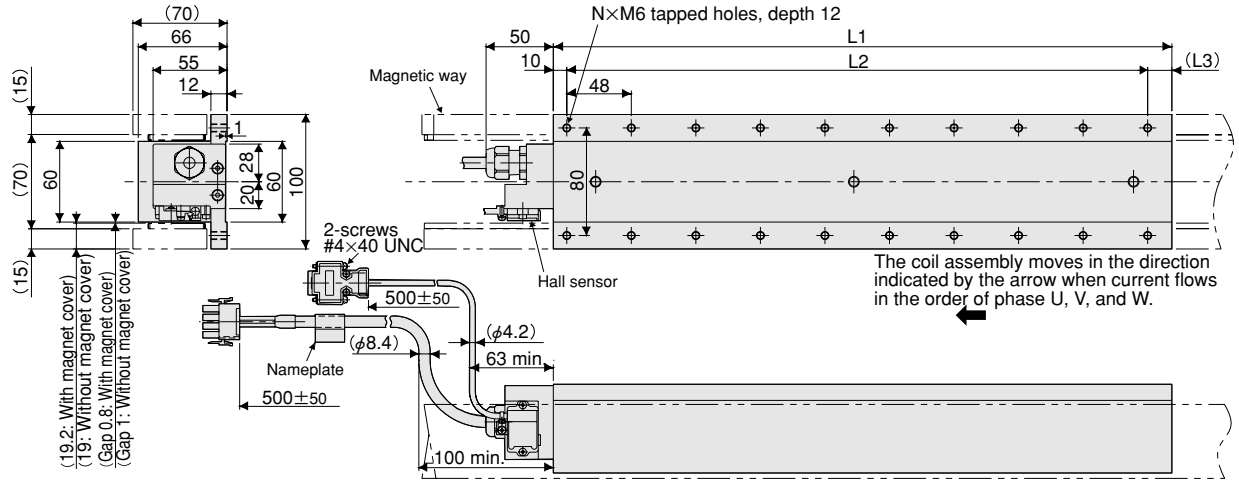
Notes: 1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the table at right is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□	Heat Sink Size in mm
35A170A	254×254×25
35A320A 35A460A 35A170H 35A320H	400×500×40

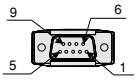
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-35□□□□A□)



Hall Sensor Connector Specifications



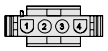
Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5VDC
2	Phase U
3	Phase V
4	Phase W
5	0V
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

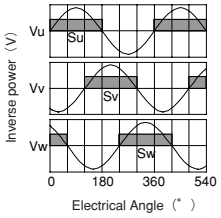
The mating connector

Cap type: 350780-1
Socket type: 350536-3 or
350550-3

Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Black
4	Ground	Green

Hall Sensor Output Signals

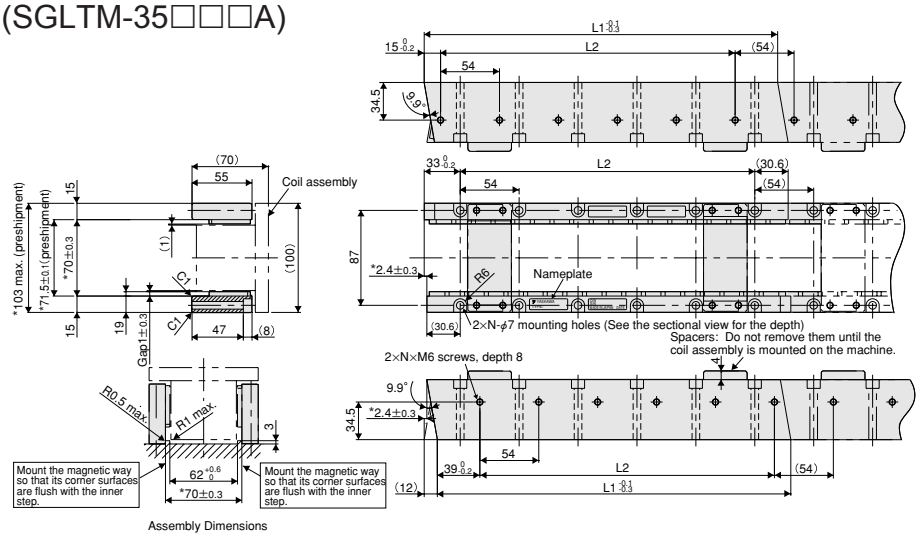
When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right.



Coil Assembly Model SGLTW-□	L1	L2	L3	N	Approx. Mass kg
35□170A□	170	144 (48×3)	(16)	8	3.7
35□320A□	315	288 (48×6)	(17)	14	6.8
35□460A□	460	432 (48×9)	(18)	20	10

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Magnetic Way (SGLTM-35□□□A)

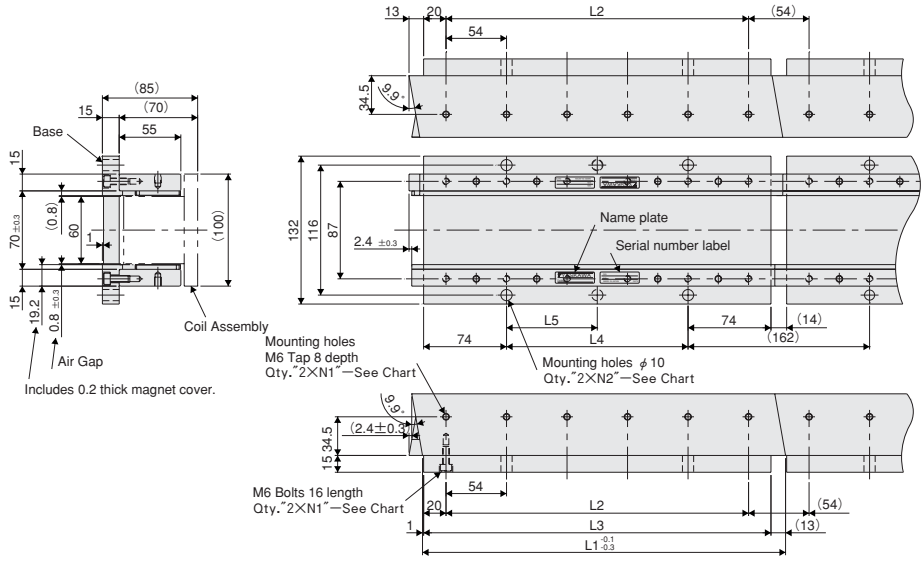


Assembly Dimensions

Notes：1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

Magnetic Way Model SGLTM-	L1 $^{-0.1}_{-0.3}$	L2	N	Approx. Mass kg
35324A	324	270 (54×5)	6	4.8
35540A	540	486 (54×9)	10	8
35756A	756	702 (54×13)	14	11

Magnetic Way with Base (SGLTM-35□□□AY)

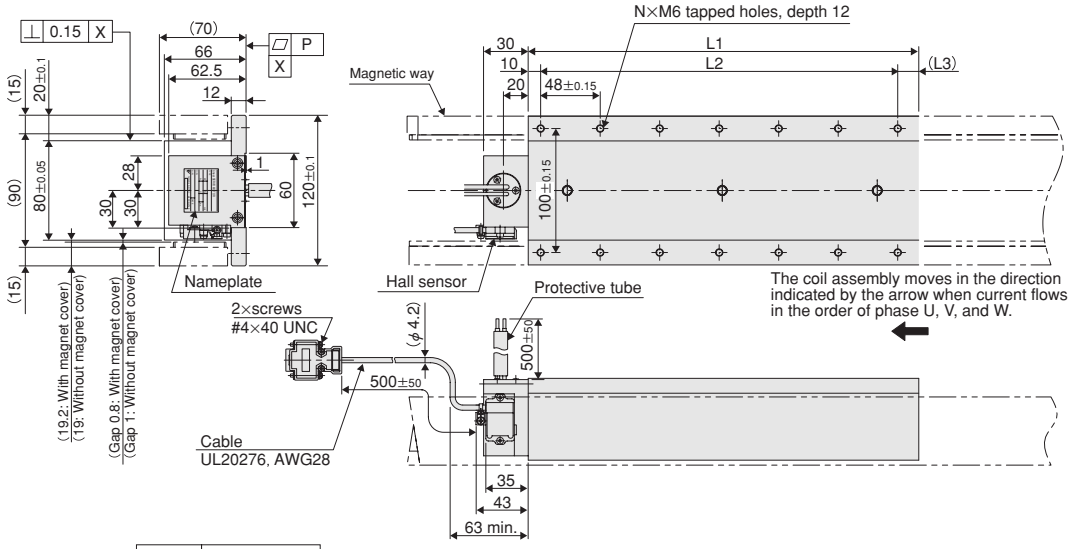


Notes：1. Users of pacemakers and similar devices are strongly recommended to maintain minimum distance of 200mm from the magnets.
2. The characteristics of the stators with bases are the same as the ones of the stators without bases (SGLTM-35□□□A).

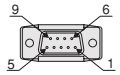
Magnetic Way Model SGLTM-	L1	L2	L3	L4	L5	N1	N2	Approx. Mass kg
35324AY	324	270	310	162	162	6	2	6.4
35540AY	540	486	526	378	189	10	3	11
35756AY	756	702	742	594	198	14	4	15

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Coil Assembly (SGLTW-35□□□□H□)



Wiring specifications of hall sensor cable



Pin connector:
17JE-23090-02(D8C)
made by DDK Ltd.

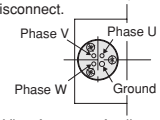
The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5VDC
2	Phase U
3	Phase V
4	Phase W
5	0V
6	Not used
7	Not used
8	Not used
9	Not used

Lead specifications of coil assembly

- If this cable is bent repetitively, the cable will disconnect.

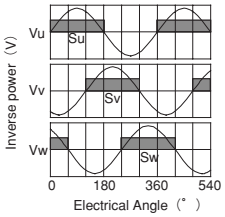


View from top of coil assembly

Name	Color	Code	Wire size
Phase U	Black	U	2mm²
Phase V		V	
Phase W		W	
Ground	Green	-	2mm²

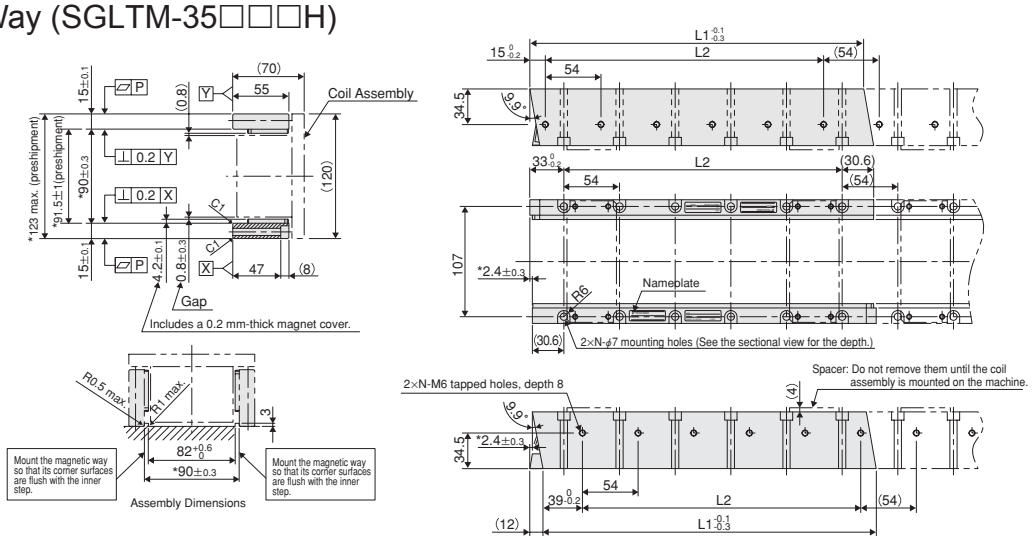
Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right.



Coil Assembly Model SGLTW-	L1	L2	L3	N	Approx. Mass kg
35□170H□	170	144 (48×3)	(16)	8	4.7
35□320H□	315	288 (48×6)	(17)	14	8.8

Magnetic Way (SGLTM-35□□□H)

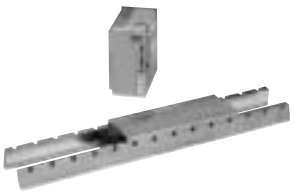


Notes : 1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

Magnetic Way Model SGLTM-	L1 -0.1 -0.3	L2	N	Approx. Mass kg
35324H	324	270 (54×5)	6	4.8
35540H	540	486 (54×9)	10	8
35756H	756	702 (54×13)	14	11

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Iron-Core TW SGLT□-50 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

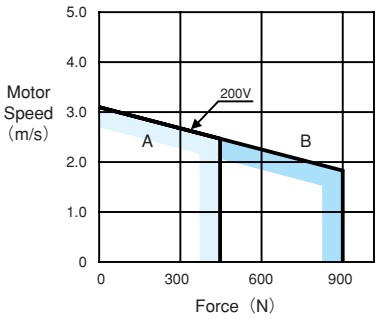
Linear Servomotor Type SGLTW-□□□		50A	
		170H	320H
Rated Force *	N	450	900
Rated Current *	Arms	4.9	9.8
Instantaneous Peak Force *	N	900	1800
Instantaneous Peak Current *	Arms	11.5	22.9
Coil Assembly Mass	kg	6	11
Force Constant	N/Arms	98.5	98.5
BEMF Constant	V/(m/s)	32.8	32.8
Motor Constant	$N/\sqrt{W}$	50.3	71.1
Electrical Time Constant	ms	16.5	16.5
Mechanical Time Constant	ms	2.8	2.8
Thermal Resistance (with Heat Sink)	K/W	0.61	0.3
Thermal Resistance (without Heat Sink)	K/W	0.97	0.8
Magnetic Attraction *1	N	0	0
Magnetic Attraction *2	N	2000	3980

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

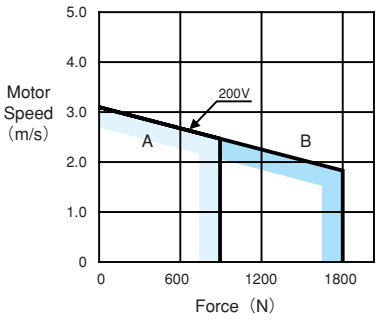
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLTW-50A170H



SGLTW-50A320H



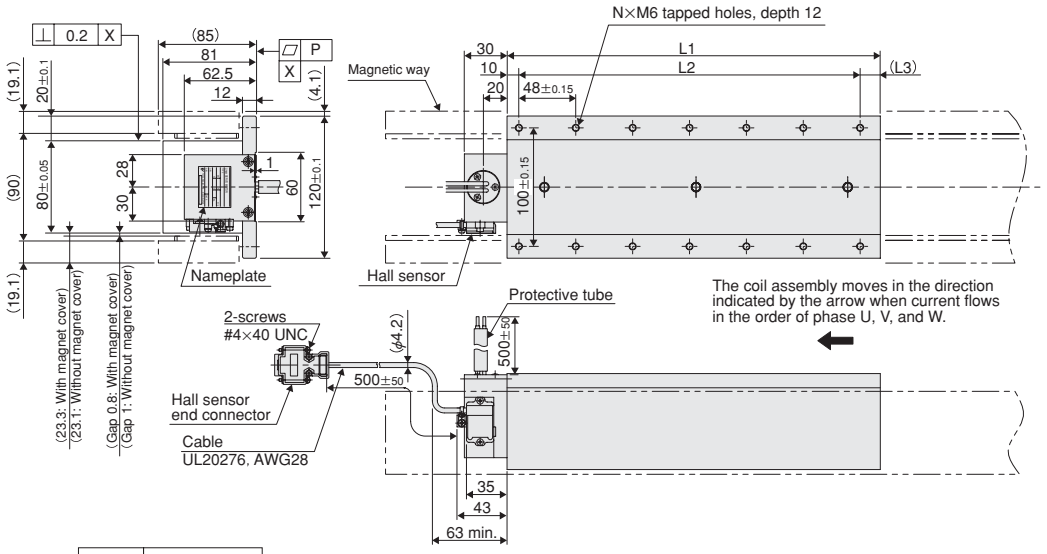
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□□	Heat Sink Size in mm
50A170H	400×500×40
50A320H	609×762×50

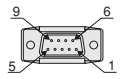
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-50□□□□H□)



Wiring specifications of hall sensor cable



Pin connector:
17JE-23090-02(D8C)
made by DDK Ltd.

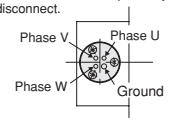
The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5VDC
2	Phase U
3	Phase V
4	Phase W
5	0V
6	Not used
7	Not used
8	Not used
9	Not used

Lead specifications of coil assembly

If this cable is bent repetitively, the cable will disconnect.

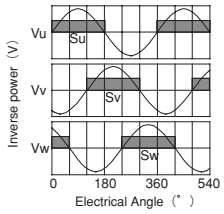


View from top of coil assembly

Name	Color	Code	Wire size
Phase U	Black	U	2mm²
Phase V		V	
Phase W		W	
Ground	Green		2mm²

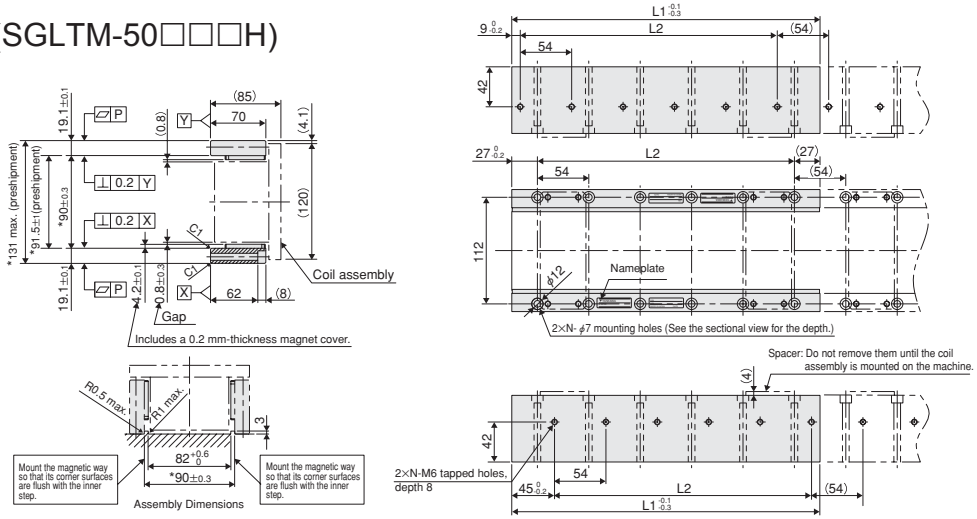
Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right.



Coil Assembly Model SGLTW-□	L1	L2	L3	N	Approx. Mass kg
50□170H□	170	144 (48×3)	(16)	8	6
50□320H□	315	288 (48×6)	(17)	14	11

Magnetic Way (SGLTM-50□□□H)

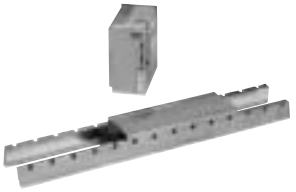


Notes : 1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

Magnetic Way Model SGLTM-□	L1 $^{-0.1}_{-0.3}$	L2	N	Approx. Mass kg
50324H	324	270 (54×5)	6	8
50540H	540	486 (54×9)	10	13
50756H	756	702 (54×13)	14	18

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Iron-Core TW SGLT□-40 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

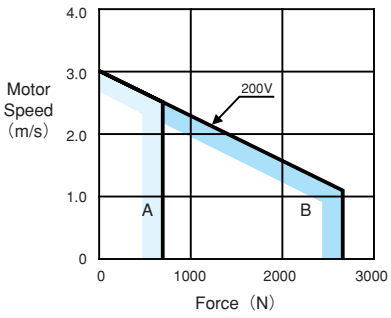
Linear Servomotor Type SGLTW-□□□		40A	
		400B	600B
Rated Force *	N	670	1000
Rated Current *	Arms	7.3	10.9
Instantaneous Peak Force *	N	2600	4000
Instantaneous Peak Current *	Arms	39.4	60.6
Coil Assembly Mass	kg	15	23
Force Constant	N/Arms	99.1	99.1
BEMF Constant	V/(m/s)	33	33
Motor Constant	$N/\sqrt{W}$	61.4	75.2
Electrical Time Constant	ms	15.2	15.2
Mechanical Time Constant	ms	4	4
Thermal Resistance (with Heat Sink)	K/W	0.24	0.2
Thermal Resistance (without Heat Sink)	K/W	0.57	0.4
Magnetic Attraction*1	N	0	0
Magnetic Attraction*2	N	3950	5890

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

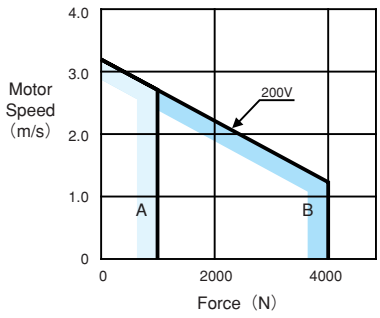
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLTW-40A400B



SGLTW-40A600B



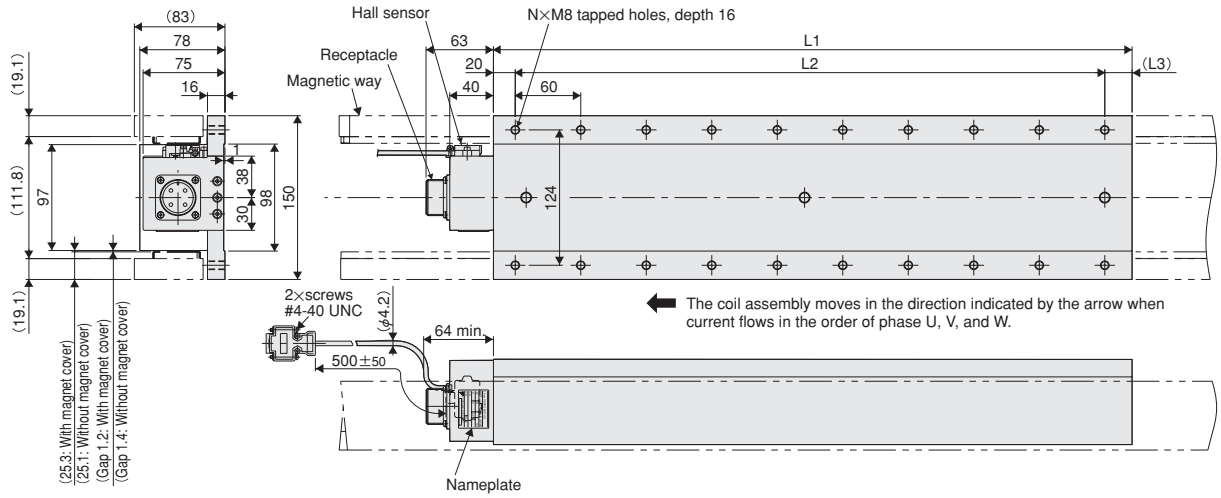
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□□	Heat Sink Size in mm
40A400B 40A600B	609×762×50

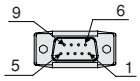
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-40□□□□B□)



Hall Sensor Connector Specifications



Pin connector type: 17JE-23090-02(D8C) made by DDK Ltd.

The mating connector

Socket connector type: 17JE-13090-02(D8C)
Stud type: 17L-002C or 17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Pin No.	Name
A	Phase U
B	Phase V
C	Phase W
D	Ground

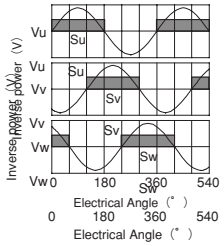
Receptacle type: MS3102A-22-22P made by DDK Ltd.

The mating connector

L-shaped plug type: MS3108B22-22S
Straight plug type: MS3106B22-22S
Cable clamp type: MS3057-12A

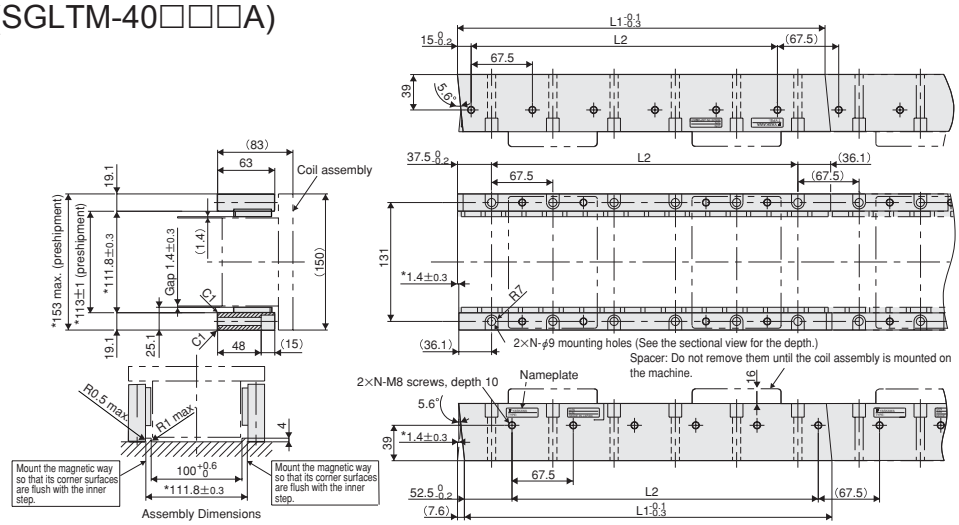
Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw, and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right side.



Coil Assembly Model SGLTW-□	L1	L2	L3	N	Approx. Mass kg
40□400B□	395	360 (60×6)	(15)	14	20
40□600B□	585	540 (60×9)	(25)	20	30

Magnetic Way (SGLTM-40□□□A)

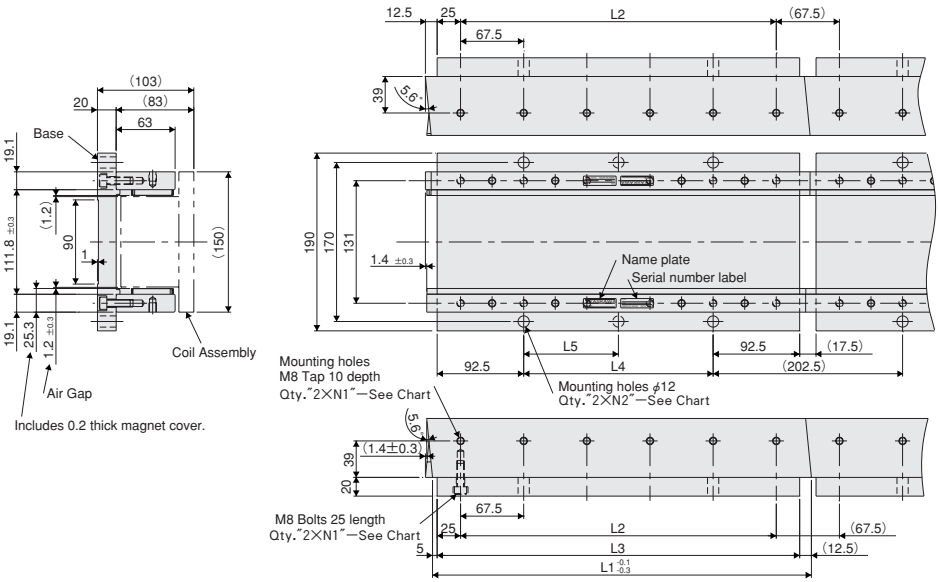


Notes : 1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

Magnetic Way Model SGLTM-□	L1 -0.1 -0.3	L2	N	Approx. Mass kg
40405A	405	337.5 (67.5×5)	6	9
40675A	675	607.5 (67.5×9)	10	15
40945A	945	877.5 (67.5×13)	14	21

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Magnetic Way with Base (SGLTM-40□□□AY)

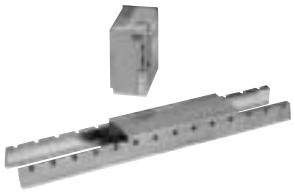


Magnetic Way Model SGLTM-□	L1	L2	L3	L4	L5	N1	N2	Approx. Mass kg
40405AY	405	337.5	387.5	202.5	202.5	6	2	13
40675AY	675	607.5	657.5	472.5	236.25	10	3	21
40945AY	945	877.5	927.5	742.5	247.5	14	4	30

Notes：1. Users of pacemakers and similar devices are strongly recommended to maintain minimum distance of 200mm from the magnets.
2. The characteristics of the stators with bases are the same as the ones of the stators without bases (SGLTM-40□□□A).

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Iron-Core TW SGLT□-80 (200V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet
Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

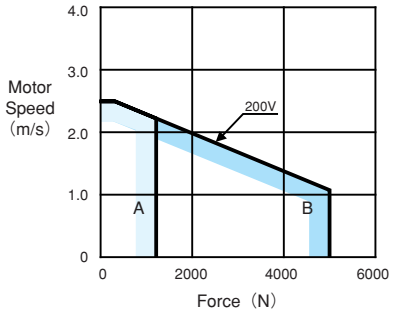
Linear Servomotor Type SGLTW-□□		80A	
		400B	600B
Rated Force *	N	1300	2000
Rated Current *	Arms	11.7	18
Instantaneous Peak Force *	N	5000	7500
Instantaneous Peak Current *	Arms	61	91.4
Coil Assembly Mass	kg	25	36
Force Constant	N/Arms	119.8	119.8
BEMF Constant	V/(m/s)	39.9	39.9
Motor Constant	$N/\sqrt{W}$	89.9	110.2
Electrical Time Constant	ms	17	17
Mechanical Time Constant	ms	3	3
Thermal Resistance (with Heat Sink)	K/W	0.22	0.18
Thermal Resistance (without Heat Sink)	K/W	0.47	0.33
Magnetic Attraction*1	N	0	0
Magnetic Attraction*2	N	7650	11400

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

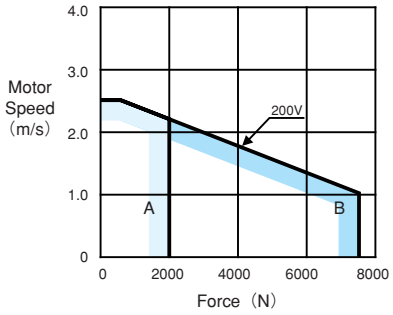
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLTW-80A400B



SGLTW-80A600B



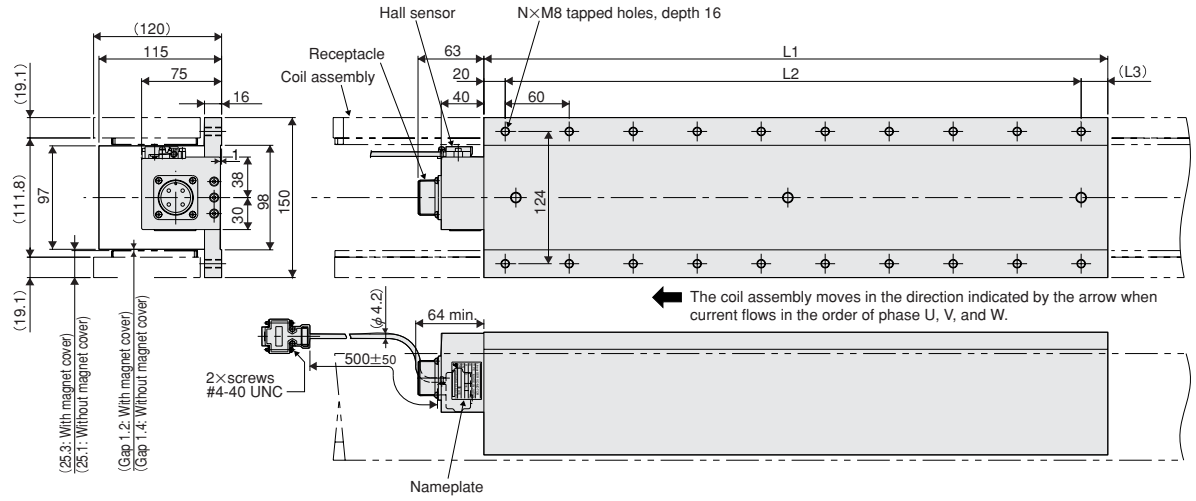
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□	Heat Sink Size in mm
80A400B 80A600B	609×762×50

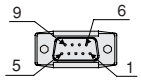
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-80□□□□B□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5VDC
2	Phase U
3	Phase V
4	Phase W
5	0V
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Pin No.	Name
A	Phase U
B	Phase V
C	Phase W
D	Ground

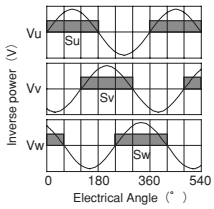
Receptacle type: MS3102A-22-22P
made by DDK Ltd.

The mating connector

L-shaped plug type: MS3108B22-22S
Straight plug type: MS3106B22-22S
Cable clamp type: MS3057-12A

Hall Sensor Output Signals

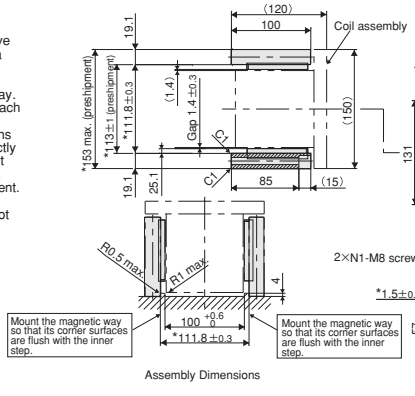
When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv,Vw becomes as shown in the figiure on the right side.

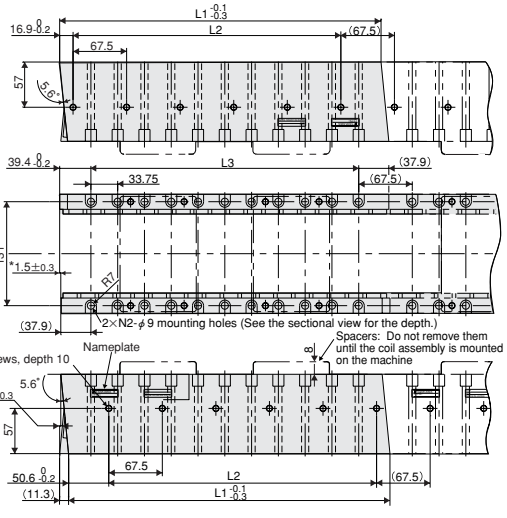


Coil Assembly Model SGLTW-	L1	L2	L3	N	Approx. Mass kg
80□400B□	395	360 (60×6)	(15)	14	30
80□600B□	585	540 (60×9)	(25)	20	43

Magnetic Way (SGLTM-80□□□A)

Notes：1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

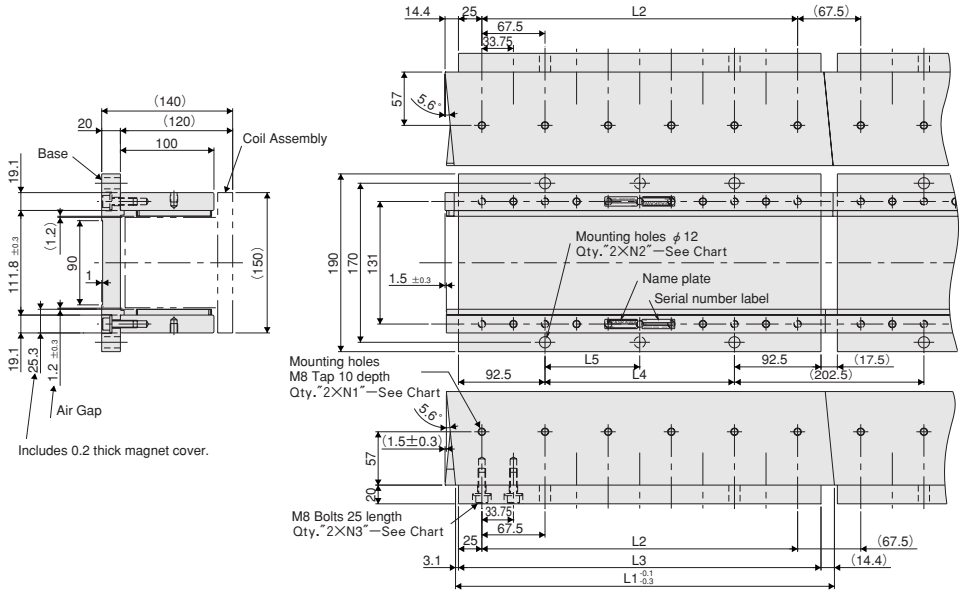




Magnetic Way Model SGLTM-	L1 -0.1 -0.3	L2	L3	N1	N2	Approx. Mass kg
80405A	405	337.5 (67.5×5)	337.5 (33.75×10)	6	11	14
80675A	675	607.5 (67.5×9)	607.5 (33.75×18)	10	19	24
80945A	945	877.5 (67.5×13)	887.5 (33.75×26)	14	27	34

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Magnetic Way with Base (SGLTM-80□□□AY)



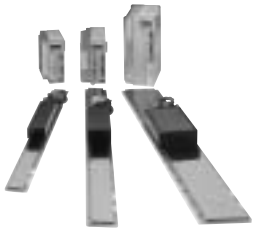
Magnetic Way Model SGLTM-□	L1	L2	L3	L4	L5	N1	N2	N3	Approx. Mass kg
80405AY	405	337.5	387.5	202.5	202.5	6	2	11	18
80675AY	675	607.5	657.5	472.5	236.25	10	3	19	31
80945AY	945	877.5	927.5	742.5	247.5	14	4	27	43

Notes：1. Users of pacemakers and similar devices are strongly recommended to maintain minimum distance of 200mm from the magnets.
2. The characteristics of the stators with bases are the same as the ones of the stators without bases (SGLTM-80□□□A).

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Linear Sigma Servomotor Specifications (400V)

Iron-Core FW SGLF□-35 (400V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

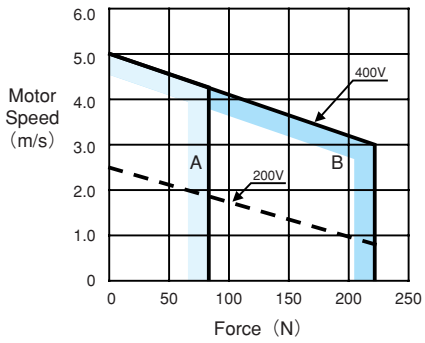
Ratings and Specifications

Linear Servomotor Type SGLFW-[ ]		35D	
		120A	230A
Rated Force *	N	80	160
Rated Current *	Arms	0.7	1.4
Instantaneous Peak Force *	N	220	440
Instantaneous Peak Current *	Arms	2.3	4.6
Coil Assembly Mass	kg	1.3	2.3
Force Constant	N/Arms	120.2	120.2
BEMF Constant	V/(m/s)	40.1	40.1
Motor Constant	N/√W	13.8	19.5
Electrical Time Constant	ms	3.5	3.5
Mechanical Time Constant	ms	5.5	5.5
Thermal Resistance (with Heat Sink)	K/W	1.57	0.96
Thermal Resistance (without Heat Sink)	K/W	4.1	1.94
Magnetic Attraction	N	810	1590

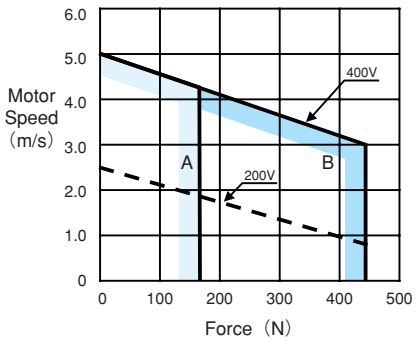
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLFW-35D120A



SGLFW-35D230A



Note: The dotted line indicates characteristics when the linear servomotor for 400VAC is used with an input power supply for 200VAC. In this case, the serial converter should be changed. Contact your Yaskawa representative.

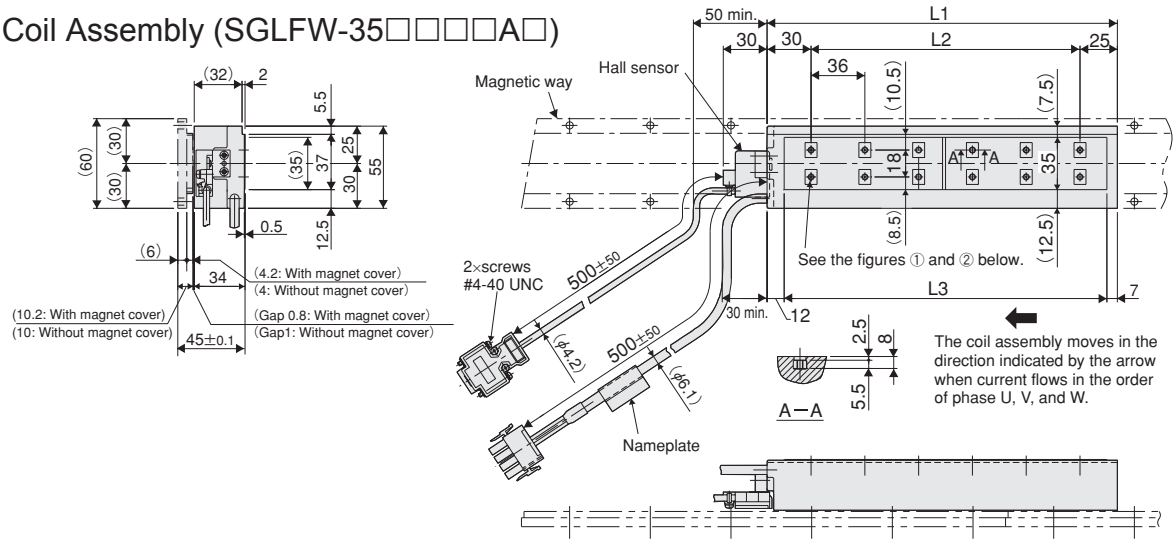
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLFW-[ ]	Heat Sink Size in mm
35D120A 35D230A	254×254×25

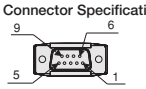
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLFW-35□□□□A□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

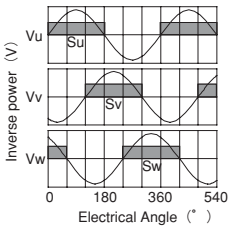
The mating connector

Cap type: 350780-1
Socket type: 350536-3 or
350550-3

Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Black
4	FG	Green

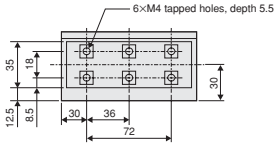
Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure below.

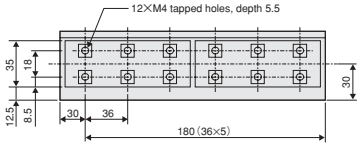


Coil Assembly Model SGLFW-	L1	L2	L3	N	Approx. Mass kg
35□120A□	127	72	108	6	1.3
35□230A□	235	180	216	12	2.3

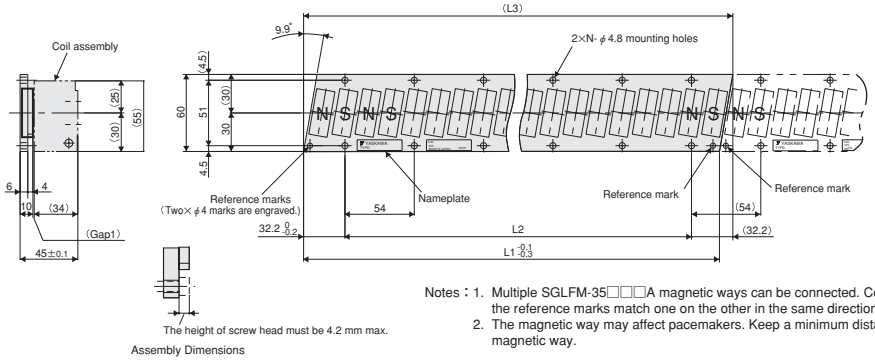
①SGLFW-35□120A□



②SGLFW-35□230A□



Magnetic Way (SGLFM-35□□□A)

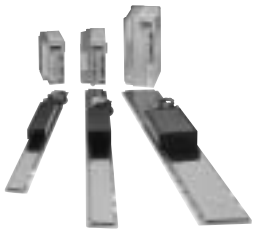


Notes : 1. Multiple SGLFM-35□□□A magnetic ways can be connected. Connect magnetic ways so that the reference marks match one on the other in the same direction as shown in the figure.
2. The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.

Magnetic Way Model SGLFM-	L1 -0.1 -0.3	L2	(L3)	N	Approx. Mass kg
35324A	324	270 (54×5)	(334.4)	6	1.2
35540A	540	486 (54×9)	(550.4)	10	2
35756A	756	702 (54×13)	(766.4)	14	2.9

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Iron-Core FW SGLF□-50 (400V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

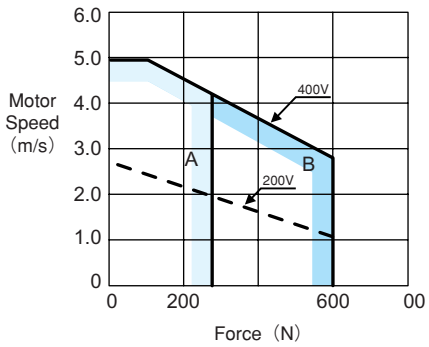
Ratings and Specifications

Linear Servomotor Type SGLFW-□□□		50D	
		200B	380B
Rated Force *	N	280	560
Rated Current *	Arms	2.3	4.5
Instantaneous Peak Force *	N	600	1200
Instantaneous Peak Current *	Arms	5.6	11.0
Coil Assembly Mass	kg	3.5	6.9
Force Constant	N/Arms	134.7	134.7
BEMF Constant	V/(m/s)	44.9	44.9
Motor Constant	N/√W	33.4	47.2
Electrical Time Constant	ms	15.0	15.0
Mechanical Time Constant	ms	3.2	3.2
Thermal Resistance (with Heat Sink)	K/W	0.82	0.32
Thermal Resistance (without Heat Sink)	K/W	1.48	0.74
Magnetic Attraction	N	1650	3260

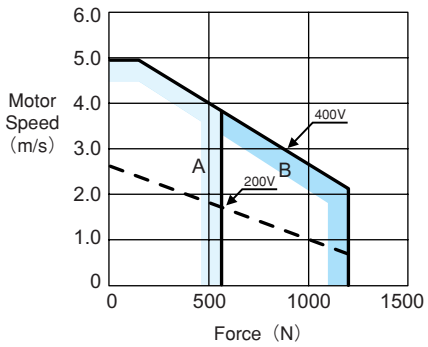
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLFW-50D200B



SGLFW-50D380B



Note: The dotted line indicates characteristics when the linear servomotor for 400VAC is used with an input power supply for 200VAC. In this case, the serial converter should be changed. Contact your Yaskawa representative.

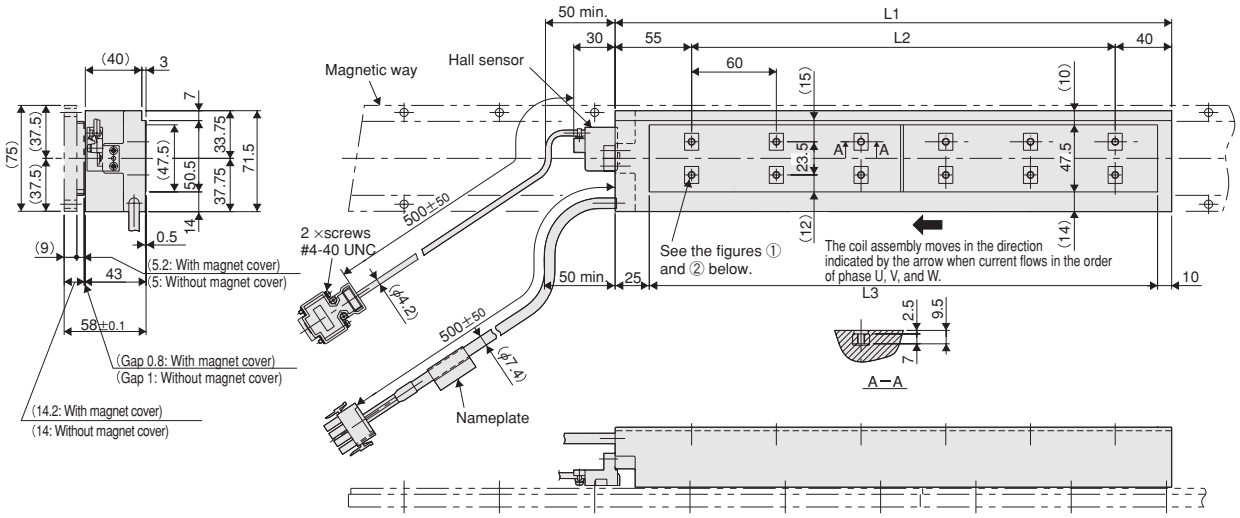
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLFW-□□□	Heat Sink Size in mm
50D200B	254×254×25
50D380B	400×500×40

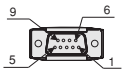
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLFW-50 □□□□B□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

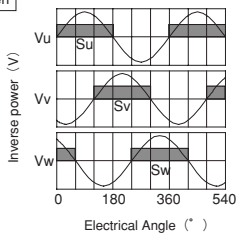
The mating connector

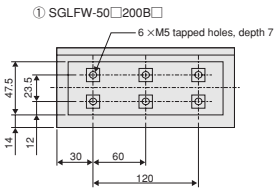
Cap type: 350780-1
Socket type: 350536-3 or
350550-3

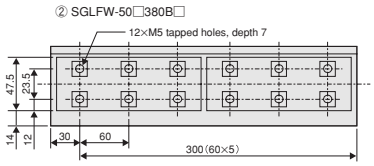
Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Black
4	FG	Green

Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each phase Vu, Vv, Vw becomes as shown in the figure below.

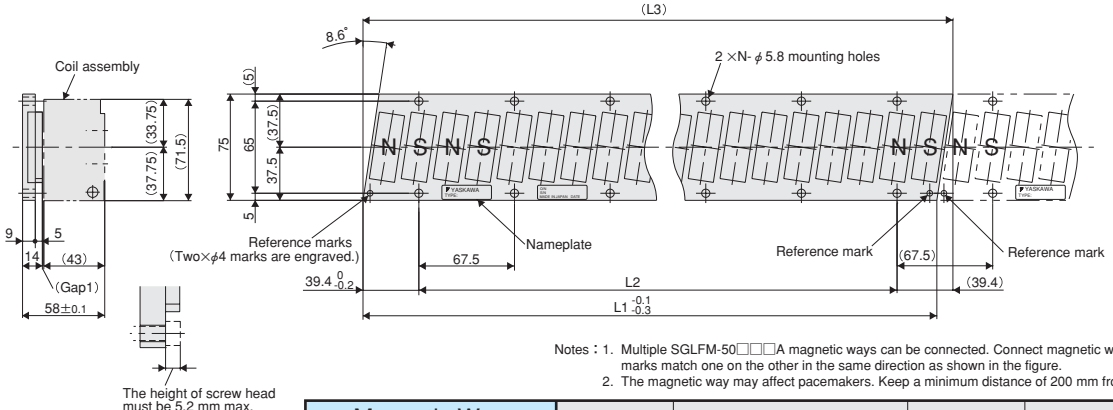






Coil Assembly Model SGLFW- □	L1	L2	L3	N	Approx. Mass kg
50□200B□	215	120	180	6	3.5
50□380B□	395	300	360	12	6.9

Magnetic Way (SGLFM-50□□□A)



The height of screw head must be 5.2 mm max.

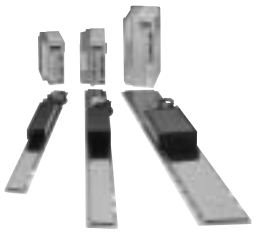
Assembly Dimensions

Notes : 1. Multiple SGLFM-50□□□A magnetic ways can be connected. Connect magnetic ways so that the reference marks match one on the other in the same direction as shown in the figure.
2. The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.

Magnetic Way Model SGLFM- □	L1 -0.1 -0.3	L2	(L3)	N	Approx. Mass kg
50405A	405	337.5 (67.5×5)	(416.3)	6	2.8
50675A	675	607.5 (67.5×9)	(686.3)	10	4.6
50945A	945	877.5 (67.5×13)	(956.3)	14	6.5

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Iron-Core FW SGLF□-1Z (400V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

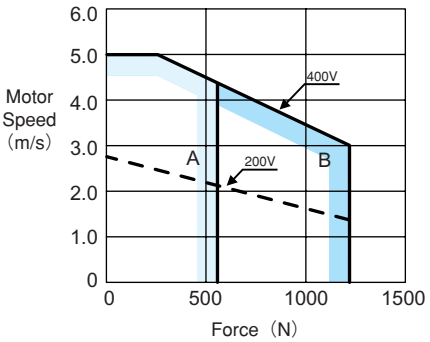
Ratings and Specifications

Linear Servomotor Type SGLFW-[ ]		1ZD	
		200B	380B
Rated Force *	N	560	1120
Rated Current *	Arms	4.9	9.8
Instantaneous Peak Force *	N	1200	2400
Instantaneous Peak Current *	Arms	12.3	24.6
Coil Assembly Mass	kg	6.4	11.5
Force Constant	N/Arms	122.6	122.6
BEMF Constant	V/(m/s)	40.9	40.9
Motor Constant	N/√W	51.0	72.1
Electrical Time Constant	ms	17.4	17.2
Mechanical Time Constant	ms	2.5	2.2
Thermal Resistance (with Heat Sink)	K/W	0.6	0.28
Thermal Resistance (without Heat Sink)	K/W	0.92	0.55
Magnetic Attraction	N	3300	6520

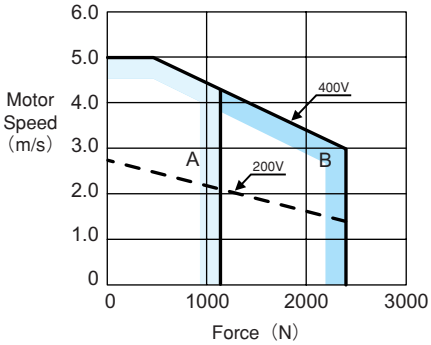
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLFW-1ZD200B



SGLFW-1ZD380B



Note: The dotted line indicates characteristics when the linear servomotor for 400VAC is used with an input power supply for 200VAC. In this case, the serial converter should be changed. Contact your Yaskawa representative.

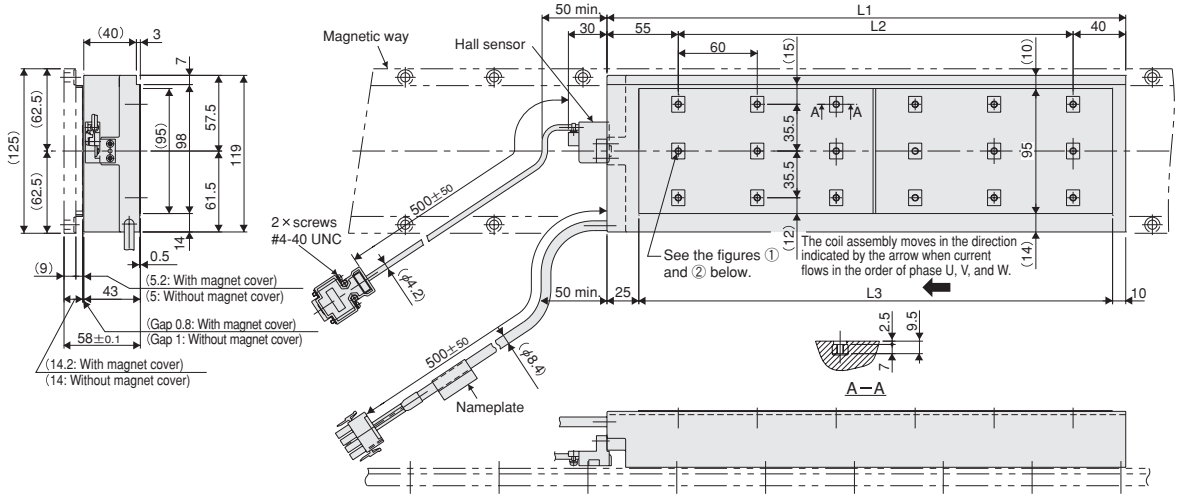
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLFW-[ ]	Heat Sink Size in mm
1ZD200B	254×254×25
1ZD380B	400×500×40

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Dimensional Drawings (Units: mm)

Coil Assembly (SGLFW-1Z□□□□B□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Plug type: 350779
Pin type: 350218-3 or
350547-3 (No.1 to 3)
350654-1
350669-1 (No.4)
made by Tyco Electronics AMP K.K.

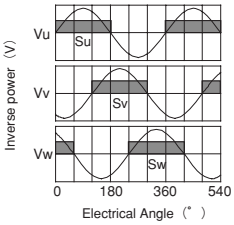
The mating connector

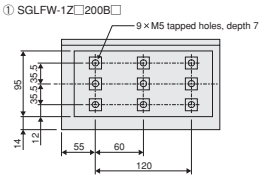
Cap type: 350780-1
Socket type: 350536-3 or
350550-3

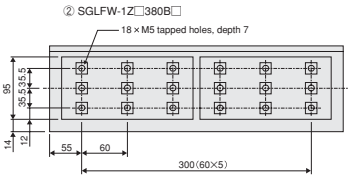
Pin No.	Name	Lead Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	FG	Green

Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure below.

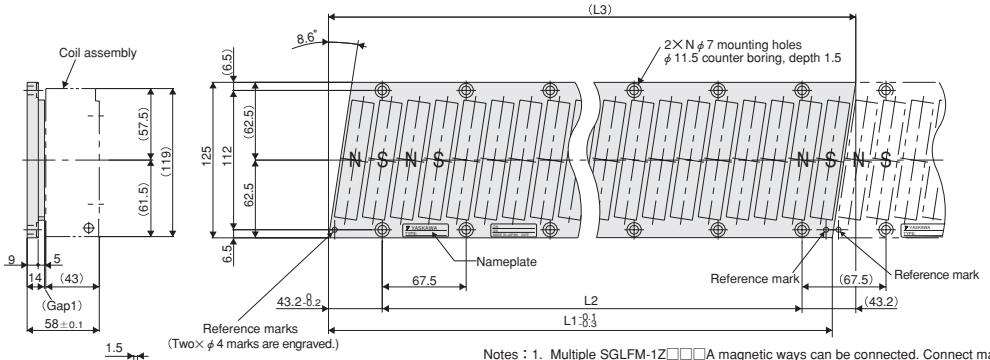






Coil Assembly Model SGLFW-	L1	L2	L3	N	Approx. Mass kg
1Z□200B□	215	120	180	9	6.4
1Z□380B□	395	300	360	18	11.5

Magnetic Way (SGLFM-1Z□□□A)

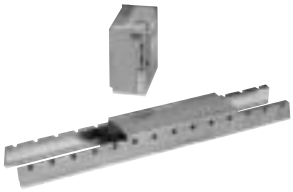


Notes : 1. Multiple SGLFM-1Z□□□A magnetic ways can be connected. Connect magnetic ways so that the reference marks match one on the other in the same direction as shown in the figure.
2. The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.

Magnetic Way Model SGLFM-	L1 -0.1 -0.3	L2	(L3)	N	Approx. Mass kg
1Z405A	405	337.5 (67.5×5)	(423.9)	6	5
1Z675A	675	607.5 (67.5×9)	(693.9)	10	8.3
1Z945A	945	877.5 (67.5×13)	(963.9)	14	12

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Iron-Core TW SGLT□-35 (400V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

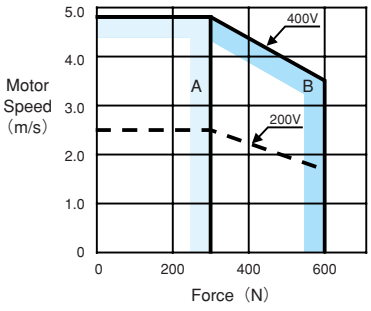
Linear Servomotor Type SGLTW-□□□		35D	
		170H	320H
Rated Force *	N	300	600
Rated Current *	Arms	3.2	6.5
Instantaneous Peak Force *	N	600	1200
Instantaneous Peak Current *	Arms	7.5	15.1
Coil Assembly Mass	kg	4.7	8.8
Force Constant	N/Arms	99.6	99.6
BEMF Constant	V/(m/s)	33.2	33.2
Motor Constant	N/√W	36.3	51.4
Electrical Time Constant	ms	14.3	14.3
Mechanical Time Constant	ms	3.5	3.5
Thermal Resistance (with Heat Sink)	K/W	0.76	0.4
Thermal Resistance (without Heat Sink)	K/W	1.26	0.83
Magnetic Attraction *1	N	0	0
Magnetic Attraction *2	N	1400	2780

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

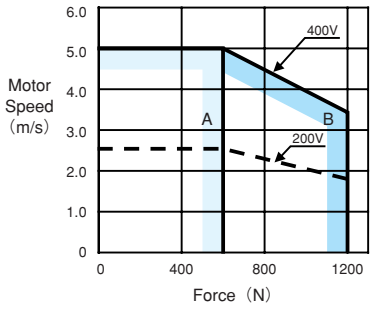
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLTW-35D170H



SGLTW-35D320H



Note: The dotted line indicates characteristics when the linear servomotor for 400VAC is used with an input power supply for 200VAC. In this case, the serial converter should be changed. Contact your Yaskawa representative.

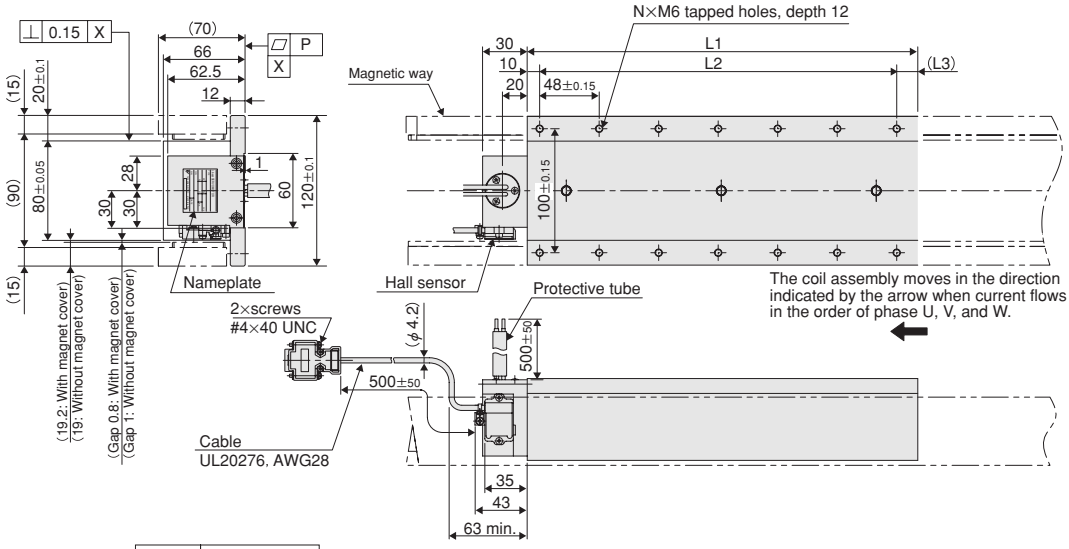
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□□	Heat Sink Size in mm
35D170H 35D320H	400×500×40

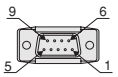
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-35 □□□□H□)



Wiring specifications of hall sensor cable



Pin connector:
17JE-23090-02(D8C)
made by DDK Ltd.

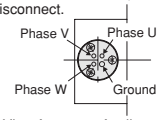
The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5VDC
2	Phase U
3	Phase V
4	Phase W
5	0V
6	Not used
7	Not used
8	Not used
9	Not used

Lead specifications of coil assembly

- If this cable is bent repetitively, the cable will disconnect.

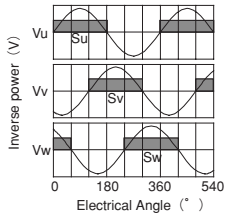


View from top of coil assembly

Name	Color	Code	Wire size
Phase U	Black	U	2mm²
Phase V		V	
Phase W		W	
Ground	Green	-	2mm²

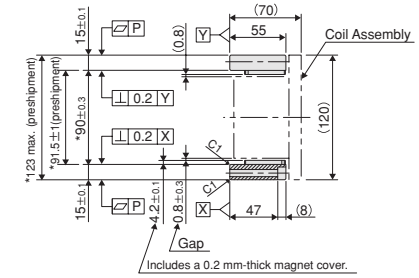
Hall Sensor Output Signals

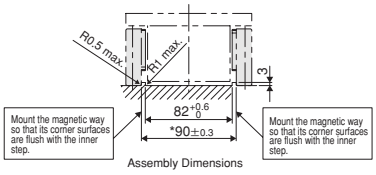
When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right.

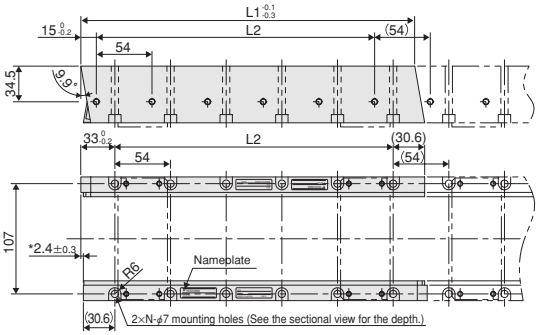


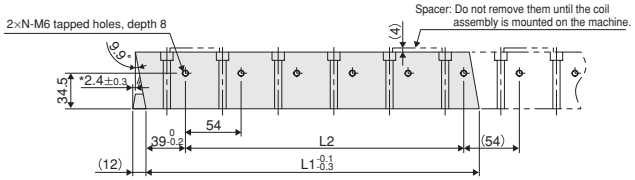
Coil Assembly Model SGLTW-	L1	L2	L3	N	Approx. Mass kg
35□170H□	170	144 (48×3)	(16)	8	4.7
35□320H□	315	288 (48×6)	(17)	14	8.8

Magnetic Way (SGLTM-35□□□H)







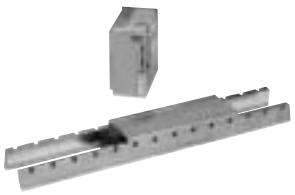


Notes : 1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

Magnetic Way Model SGLTM-	L1 -0.1 -0.3	L2	N	Approx. Mass kg
35324H	324	270 (54×5)	6	4.8
35540H	540	486 (54×9)	10	8
35756H	756	702 (54×13)	14	11

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Iron-Core TW SGLT□-50 (400V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet

Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

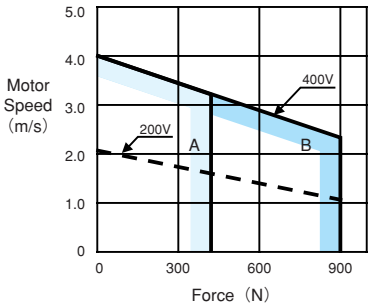
Linear Servomotor Type SGLTW-□□		50D	
		170H	320H
Rated Force *	N	450	900
Rated Current *	Arms	3.2	6.3
Instantaneous Peak Force *	N	900	1800
Instantaneous Peak Current *	Arms	7.3	14.6
Coil Assembly Mass	kg	6	11
Force Constant	N/Arms	153.3	153.3
BEMF Constant	V/(m/s)	51.1	51.1
Motor Constant	$N/\sqrt{W}$	48.9	69.1
Electrical Time Constant	ms	15.6	15.6
Mechanical Time Constant	ms	2.5	2.5
Thermal Resistance (with Heat Sink)	K/W	0.61	0.3
Thermal Resistance (without Heat Sink)	K/W	0.97	0.8
Magnetic Attraction *1	N	0	0
Magnetic Attraction *2	N	2000	3980

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

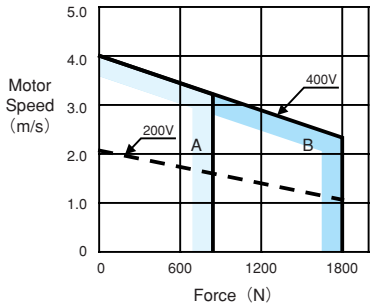
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLTW-50D170H



SGLTW-50D320H



Note: The dotted line indicates characteristics when the linear servomotor for 400VAC is used with an input power supply for 200VAC. In this case, the serial converter should be changed. Contact your Yaskawa representative.

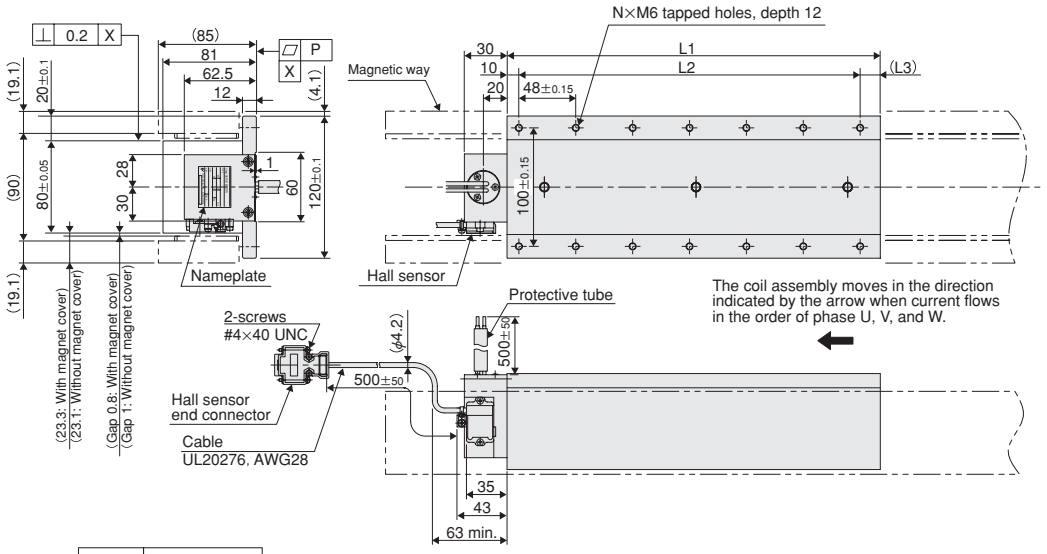
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□	Heat Sink Size in mm
50D170H	400×500×40
50D320H	609×762×50

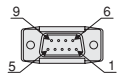
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-50□□□□H□)



Wiring specifications of hall sensor cable



Pin connector:
17JE-23090-02(D8C)
made by DDK Ltd.

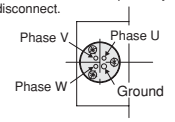
The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5VDC
2	Phase U
3	Phase V
4	Phase W
5	0V
6	Not used
7	Not used
8	Not used
9	Not used

Lead specifications of coil assembly

If this cable is bent repetitively, the cable will disconnect.

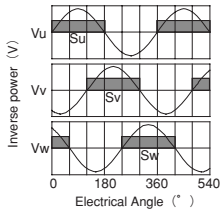


View from top of coil assembly

Name	Color	Code	Wire size
Phase U	Black	U	2mm²
Phase V		V	
Phase W		W	
Ground	Green		2mm²

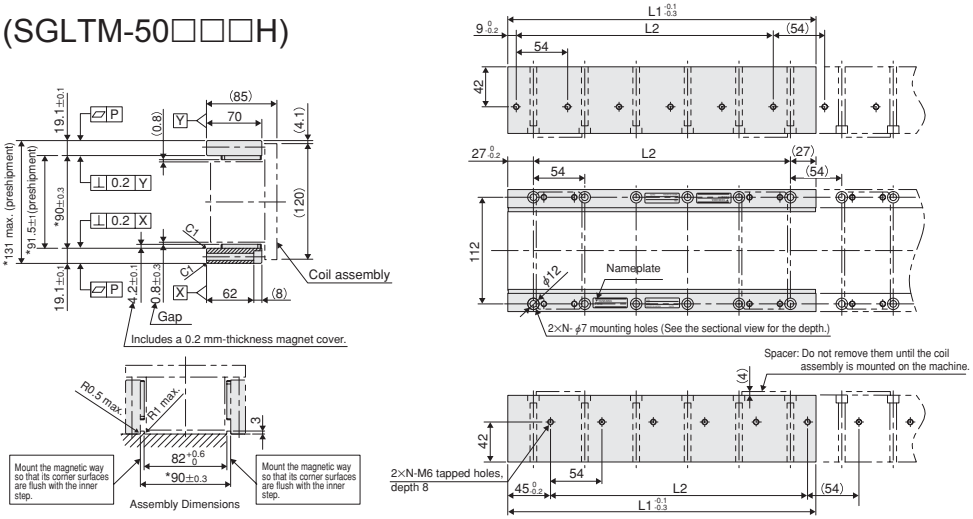
Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right.



Coil Assembly Model SGLTW-□	L1	L2	L3	N	Approx. Mass kg
50□170H□	170	144 (48×3)	(16)	8	6
50□320H□	315	288 (48×6)	(17)	14	11

Magnetic Way (SGLTM-50□□□H)

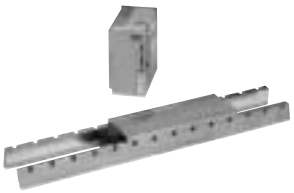


Notes : 1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

Magnetic Way Model SGLTM-□	L1 -0.1 -0.3	L2	N	Approx. Mass kg
50324H	324	270 (54×5)	6	8
50540H	540	486 (54×9)	10	13
50756H	756	702 (54×13)	14	18

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Iron-Core TW SGLT□-40 (400V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet
Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

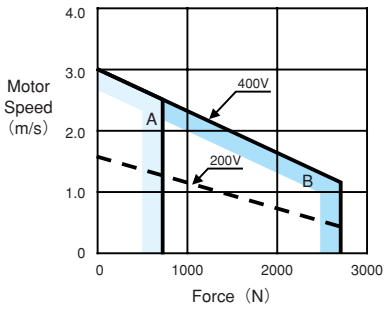
Linear Servomotor Type SGLTW-□□		40D	
		400B	600B
Rated Force *	N	670	1000
Rated Current *	Arms	3.7	5.5
Instantaneous Peak Force *	N	2600	4000
Instantaneous Peak Current *	Arms	20.7	30.6
Coil Assembly Mass	kg	15	23
Force Constant	N/Arms	196.1	196.1
BEMF Constant	V/(m/s)	65.4	65.4
Motor Constant	N/√W	59.6	73
Electrical Time Constant	ms	14.4	14.4
Mechanical Time Constant	ms	4.2	4.2
Thermal Resistance (with Heat Sink)	K/W	0.24	0.2
Thermal Resistance (without Heat Sink)	K/W	0.57	0.4
Magnetic Attraction *1	N	0	0
Magnetic Attraction *2	N	3950	5890

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

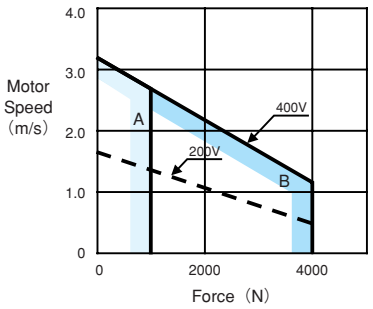
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLTW-40D400B



SGLTW-40D600B



Note: The dotted line indicates characteristics when the linear servomotor for 400VAC is used with an input power supply for 200VAC. In this case, the serial converter should be changed. Contact your Yaskawa representative.

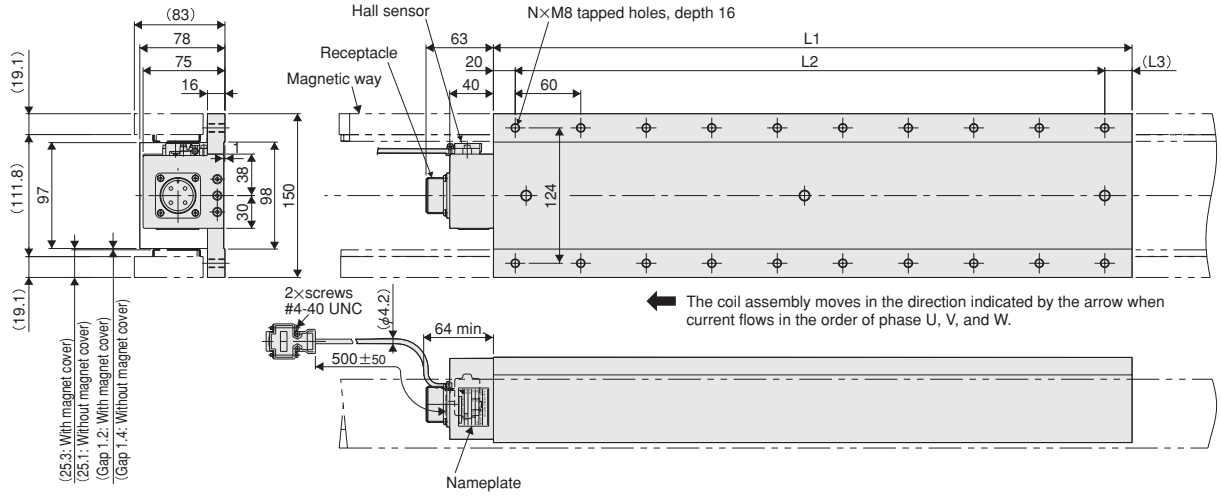
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□	Heat Sink Size in mm
40D400B 40D600B	609×762×50

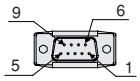
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-40 □□□□B□)



Hall Sensor Connector Specifications



Pin connector type: 17JE-23090-02(D8C) made by DDK Ltd.

The mating connector

Socket connector type: 17JE-13090-02(D8C)
Stud type: 17L-002C or 17L-002C1

Pin No.	Name
1	+5V (Power supply)
2	Phase U
3	Phase V
4	Phase W
5	0V (Power supply)
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Pin No.	Name
A	Phase U
B	Phase V
C	Phase W
D	Ground

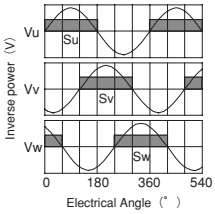
Receptacle type: MS3102A-22-22P made by DDK Ltd.

The mating connector

L-shaped plug type: MS3108B22-22S
Straight plug type: MS3106B22-22S
Cable clamp type: MS3057-12A

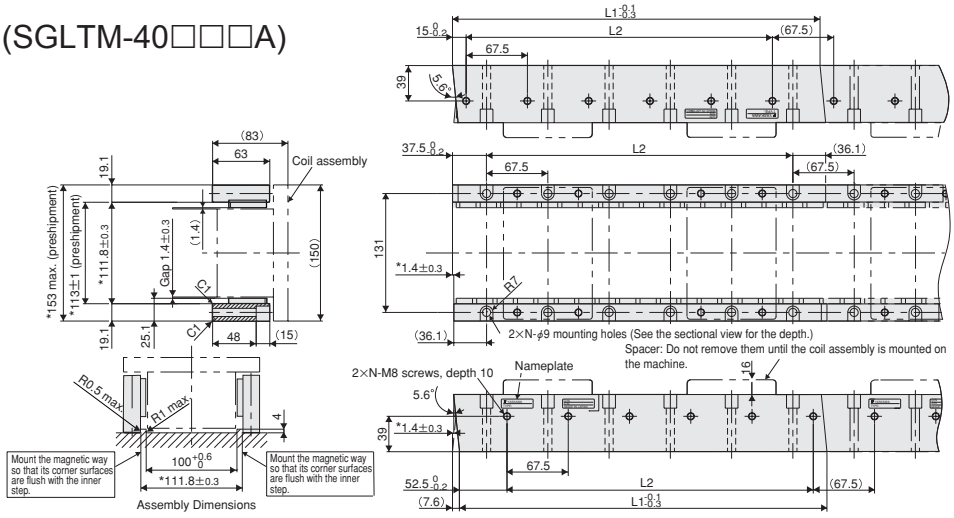
Hall Sensor Output Signals

When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw, and the inverse power of each motor phase Vu, Vv, Vw becomes as shown in the figure on the right side.



Coil Assembly Model SGLTW-□	L1	L2	L3	N	Approx. Mass kg
40□400B□	395	360 (60×6)	(15)	14	20
40□600B□	585	540 (60×9)	(25)	20	30

Magnetic Way (SGLTM-40□□□A)

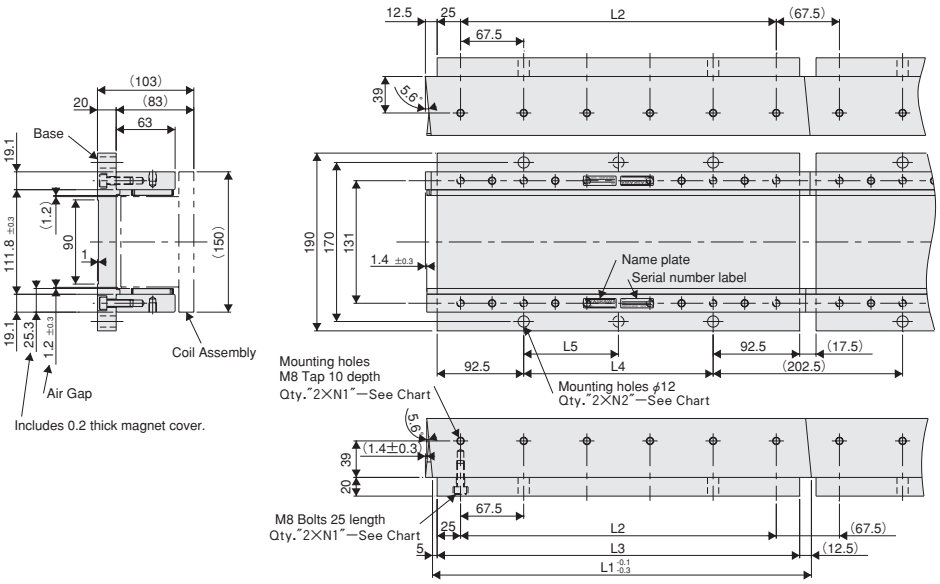


Notes : 1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure above. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

Magnetic Way Model SGLTM-□	L1 -0.1 -0.3	L2	N	Approx. Mass kg
40405A	405	337.5 (67.5×5)	6	9
40675A	675	607.5 (67.5×9)	10	15
40945A	945	877.5 (67.5×13)	14	21

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Magnetic Way with Base (SGLTM-40□□□AY)

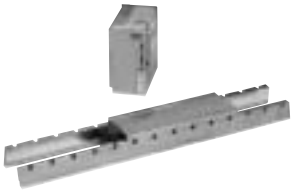


Magnetic Way Model SGLTM-□	L1	L2	L3	L4	L5	N1	N2	Approx. Mass kg
40405AY	405	337.5	387.5	202.5	202.5	6	2	13
40675AY	675	607.5	657.5	472.5	236.25	10	3	21
40945AY	945	877.5	927.5	742.5	247.5	14	4	30

Notes：1. Users of pacemakers and similar devices are strongly recommended to maintain minimum distance of 200mm from the magnets.
2. The characteristics of the stators with bases are the same as the ones of the stators without bases (SGLTM-40□□□A).

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Iron-Core TW SGLT□-80 (400V)



Basic Specifications

Time Rating: Continuous
Insulation Resistance: 500VDC, 10M or more
Ambient Temperature: 0 to 40ºC (32 to 104ºF)
Excitation: Permanent Magnet
Dielectric Strength: 1500VAC for 1 min.
Enclosure: Self-cooled
Ambient Humidity: 20 to 80% (non-condensing)
Allowable Winding Temperature: 105°C (221° F)
(UL tested for Class A insulation system)

Ratings and Specifications

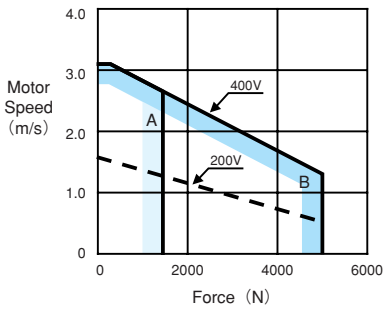
Linear Servomotor Type SGLTW-□□□		80D	
		400B	600B
Rated Force *	N	1300	2000
Rated Current *	Arms	7.2	11.1
Instantaneous Peak Force *	N	5000	7500
Instantaneous Peak Current *	Arms	37.6	56.4
Coil Assembly Mass	kg	25	36
Force Constant	N/Arms	194.4	194.4
BEMF Constant	V/(m/s)	64.8	64.8
Motor Constant	$N/\sqrt{W}$	85.9	105.2
Electrical Time Constant	ms	15.4	15.4
Mechanical Time Constant	ms	3.2	3.2
Thermal Resistance (with Heat Sink)	K/W	0.22	0.18
Thermal Resistance (without Heat Sink)	K/W	0.47	0.33
Magnetic Attraction *1	N	0	0
Magnetic Attraction *2	N	7650	11400

*1. The unbalanced magnetic gap resulted from the coil assembly installation condition causes a magnetic attraction on the coil assembly.
*2. The value indicates the magnetic attraction generated on one side of the magnetic way.

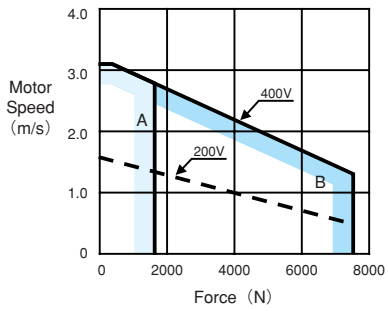
Force and Speed Characteristics

A: Continuous Duty Zone B: Intermittent Duty Zone

SGLTW-80D400B



SGLTW-80D600B



Note: The dotted line indicates characteristics when the linear servomotor for 400VAC is used with an input power supply for 200VAC. In this case, the serial converter should be changed. Contact your Yaskawa representative.

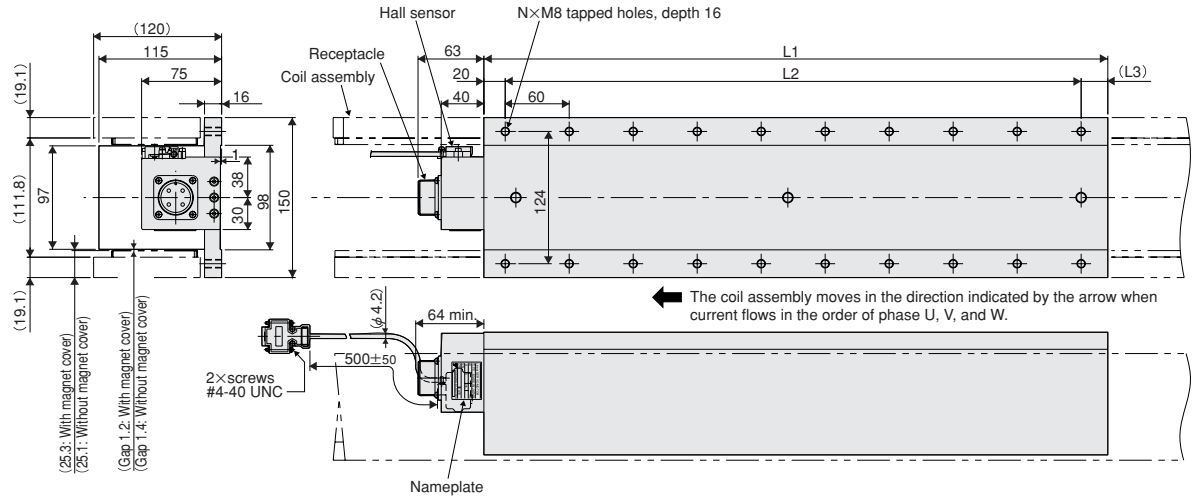
Notes:
1. Items marked with * and Force and Speed Characteristics are values at a motor winding temperature of 100ºC (212ºF) during operation in combination with a SERVOPACK. The others are at 20ºC (68ºF).
2. The specifications show the values under the cooling condition when a heat sink (aluminum board) listed in the following table is mounted on the coil assembly.

Linear Servomotor Model SGLTW-□□□	Heat Sink Size in mm
80D400B 80D600B	609×762×50

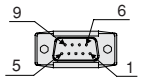
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Dimensional Drawings (Units: mm)

Coil Assembly (SGLTW-80 □□□□B□)



Hall Sensor Connector Specifications



Pin connector type:
17JE-23090-02(D8C)
made by DDK Ltd.

The mating connector

Socket connector type:
17JE-13090-02(D8C)
Stud type: 17L-002C or
17L-002C1

Pin No.	Name
1	+5VDC
2	Phase U
3	Phase V
4	Phase W
5	0V
6	Not used
7	Not used
8	Not used
9	Not used

Linear Servomotor Connector Specifications



Pin No.	Name
A	Phase U
B	Phase V
C	Phase W
D	Ground

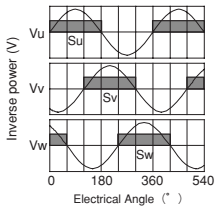
Receptacle type: MS3102A-22-22P
made by DDK Ltd.

The mating connector

L-shaped plug type: MS3108B22-22S
Straight plug type: MS3106B22-22S
Cable clamp type: MS3057-12A

Hall Sensor Output Signals

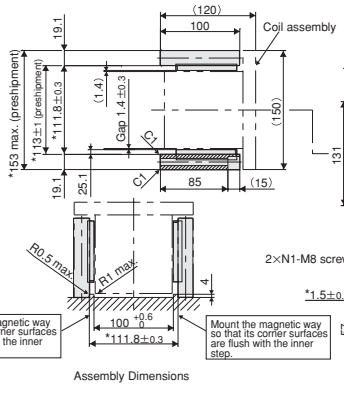
When the coil assembly moves in the direction indicated by the arrow in the figure, the relationship between the hall sensor output signals Su, Sv, Sw and the inverse power of each motor phase Vu, Vv,Vw becomes as shown in the figiure on the right side.

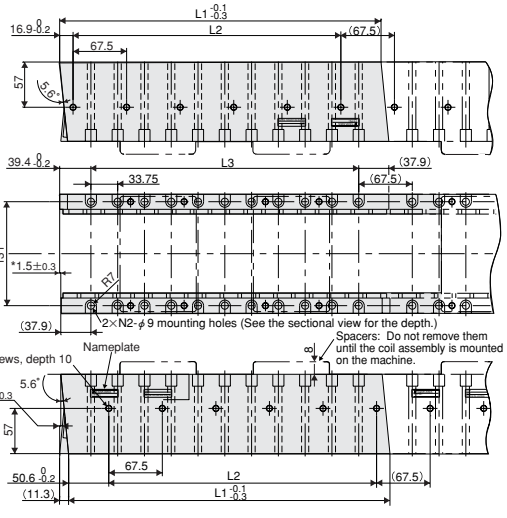


Coil Assembly Model SGLTW- □	L1	L2	L3	N	Approx. Mass kg
80□400B□	395	360 (60×6)	(15)	14	30
80□600B□	585	540 (60×9)	(25)	20	43

Magnetic Way (SGLTM-80□□□A)

Notes：1 Two magnetic ways for both ends of coil assembly make one set. Spacers are mounted on magnetic ways for safety during transportation. Do not remove the spacers until the coil assembly is mounted on a machine.
2 The magnetic way may affect pacemakers. Keep a minimum distance of 200 mm from the magnetic way.
3 Two magnetic ways in a set can be connected to each other.
4 The dimensions marked with an* are the dimensions between the magnetic ways. Be sure to follow exactly the dimensions specified in the figure. Mount magnetic ways as shown in Assembly Dimensions. The values with an* are the dimensions at preshipment.
5 Use socket headed screws of strength class 10.9 minimum for magnetic way mounting screws. Do not use stainless steel screws.

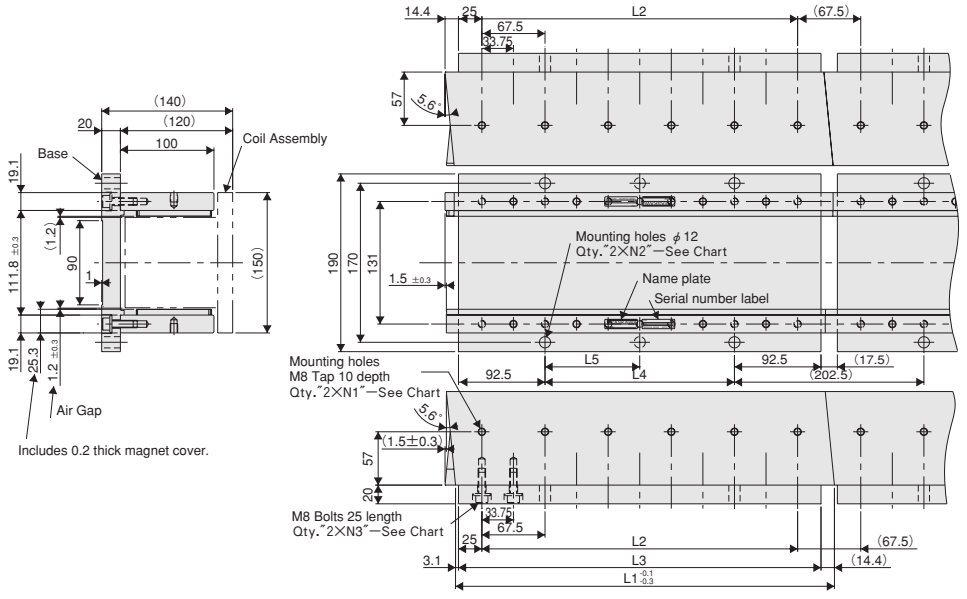




Magnetic Way Model SGLTM- □	L1 -0.1 -0.3	L2	L3	N1	N2	Approx. Mass kg
80405A	405	337.5 (67.5×5)	337.5 (33.75×10)	6	11	14
80675A	675	607.5 (67.5×9)	607.5 (33.75×18)	10	19	24
80945A	945	877.5 (67.5×13)	887.5 (33.75×26)	14	27	34

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Magnetic Way with Base (SGLTM-80□□□AY)



Magnetic Way Model SGLTM-□	L1	L2	L3	L4	L5	N1	N2	N3	Approx. Mass kg
80405AY	405	337.5	387.5	202.5	202.5	6	2	11	18
80675AY	675	607.5	657.5	472.5	236.25	10	3	19	31
80945AY	945	877.5	927.5	742.5	247.5	14	4	27	43

Notes：1. Users of pacemakers and similar devices are strongly recommended to maintain minimum distance of 200mm from the magnets.
2. The characteristics of the stators with bases are the same as the ones of the stators without bases (SGLTM-80□□□A).

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Servo Amplifier (SERVOPACK) Specifications

SGDH

Ratings and Specifications



Basic Specifications	Conditions	Usage/storage Temperature		0 to +55℃/−20 to +85℃
		Usage/storage Humidity		90% RH or less (non-condensing)
		Altitude		1000m or less above sea level
		Vibration/Shock Resistance		4.9m/s²／19.6m/s²
Speed/Force Control Mode	Performance	Speed Control Range		1：5000 (The lower limit of speed is under rated load and no stopping conditions.)
		Speed Regulation	Load Regulation	During 0 to 100% load：±0.01% or less (at rated speed)
			Voltage Regulation	Rated voltage ±10%：0% (at rated speed)
			Temperature Regulation	25 ±25℃：±0.1% or less (at rated speed)
		Frequency Characteristics		400Hz (when load mass = coil mass)
		Force Control Tolerance(Repeatability)		±2%
		Soft Start Time Setting		0 to 10s (Acceleration, deceleration each.)
	Input Signal	Speed Reference Input	Reference Voltage	±6VDC at rated speed：set at delivery Variable setting range：±2 to ±10VDC at rated speed/max. input voltage：±12V
			Input Impedance	Approx. 14kΩ
			Circuit Time Constant	Approx. 47 μs
		Force Reference Input	Reference Voltage	±3VDC at rated force：set at delivery Variable setting range：±1 to ±10VDC at rated force reference / max. input voltage：±12V
			Input Impedance	Approx. 14kΩ
			Circuit Time Constant	Approx. 47 μs
Position Control Mode	Performance	Bias Setting		0 to 450 mm/s. (setting resolution：1 mm/s)
		Feed Forward Gain Compensation		0 to 100% (setting resolution：1%)
		Position Completed Width Setting		0 to 250 reference units (setting resolution：1 reference unit)
	Input Signal	Reference Pulse	Input Pulse Type	Sign + pulse train, 90° phase difference 2-phase pulse (phase A + phase B), or CCW/CW pulse train
			Input Pulse Form	Line driver (+5V level), open collector (+5V or +12V level)
			Input Pulse Frequency	500kpps max. (200kpps max. at open collector)
		Control Signal		Clear signal (input pulse form is same as reference input pulse form)
I/O Signal	Position Output Signal			Phase A, phase B, phase C：Line driver output.
	Sequence Input Signal			Servo ON, pole detection start (or control mode switching, zero clamp, reference pulse inhibit), forward / reverse run prohibit, alarm reset, forward/reverse current limit (or internal speed selection)
	Sequence Output Signal			Servo alarm, alarm codes (3-bit output)：CN1 output terminal is fixed.
				It is possible to output three types of signals from among：positioning complete (or speed coincidence), motor moving, servo ready, current limit, speed limit, brake release, warning, and NEAR.
Internal Functions	Communications	Interface		Digital operator (hand-held type), RS-422A port for PCs, etc. (RS-232C ports under some conditions)
		1：N Communications		N may equal up to 14 when an RS-422A port is used.
		Axis Address Setting		Set by user setting parameter.
		Items		Status display, user parameter setting, monitor display, alarm traceback display, JOG run/ auto-tuning operations, and graphing functions for speed/torque reference signal, etc.
	Auto-tuning			Position/speed loop gain and integral time constant can be automatically set.
	Dynamic Brake (DB)			Operates at main power OFF, servo alarm, servo OFF or overtravel
	Regenerative Processing			Regenerative resistor externally mounted (option)
	Overtravel (OT) Prevention			DB stop, deceleration stop or coast to stop at P-OT, N-OT operation
	Encoder Divider			Optional division possible
	Electronic Gearing			0.01＜B/A＜100
	Internal Speed Setting			3 speeds may be set internally
	Protection			Overcurrent, overvoltage, low voltage, regeneration error, overload, main circuit detection error, heatsink overheat, power open phase, overflow, overspeed, encoder error, overrun, CPU error, parameter error, etc.
	Analog Monitor Functions for Supervision			Integrates analog monitor connectors for supervision of the speed and force reference signals, etc.
	Display			CHARGE, POWER, 7-segment LED× 5 (Integrated digital operator function)
	Others			Reverse movement connection, zero point search, automatic servomotor ID and DC reactor connection terminal for harmonic suppressions (except for SGDH-75AE-□)

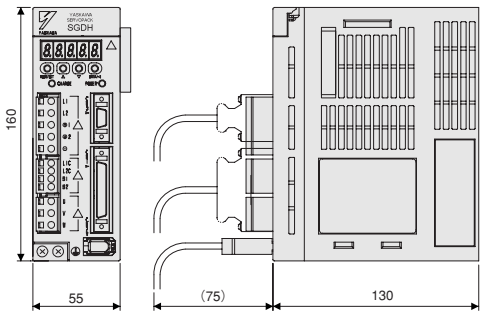
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Dimensional Diagrams of Base Mounted SERVOPACK Models

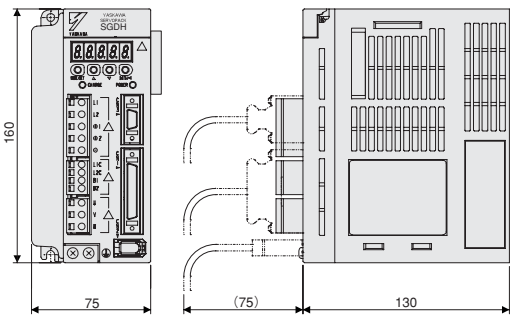
Units: mm

Single-Phase (200V)

SGDH-A5AE, SGDH-01AE, SGDH-02AE

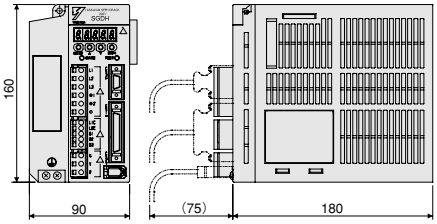


SGDH-04AE

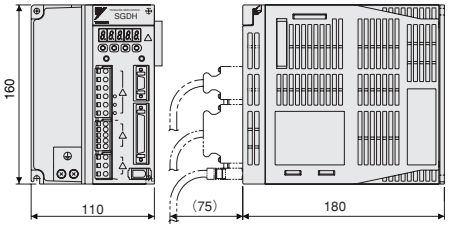


Three-Phase

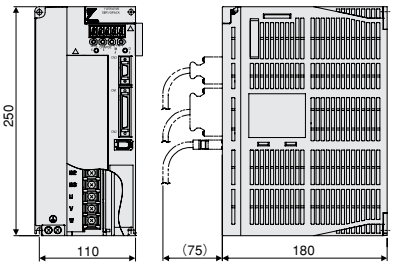
200V:SGDH-05AE～SGDH-10AE



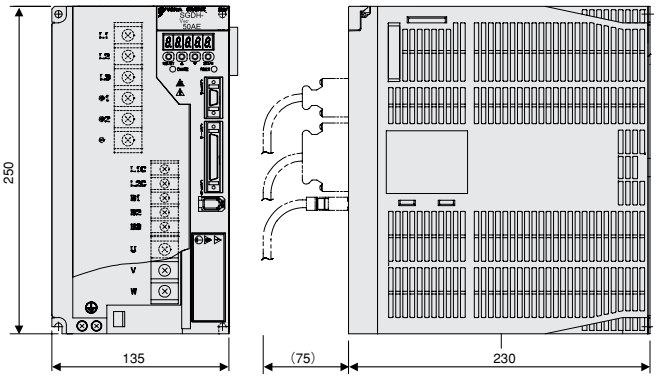
200V:SGDH-15AE
400V:SGDH-05DE～SGDH-15DE



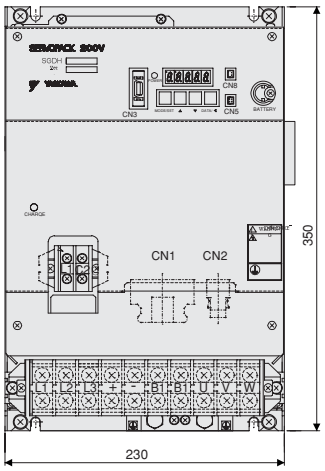
200V:SGDH-20AE, SGDH-30AE
400V:SGDH-20DE, SGDH-30DE

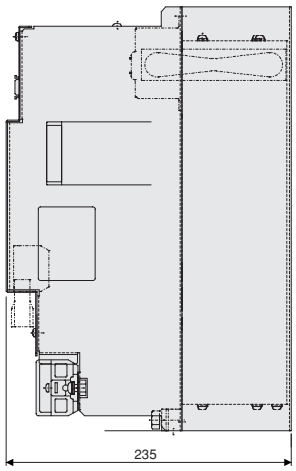


200V:SGDH-50AE
400V:SGDH-50DE

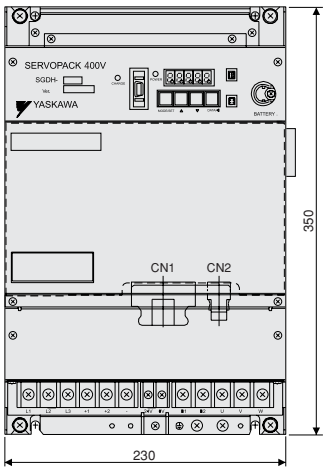


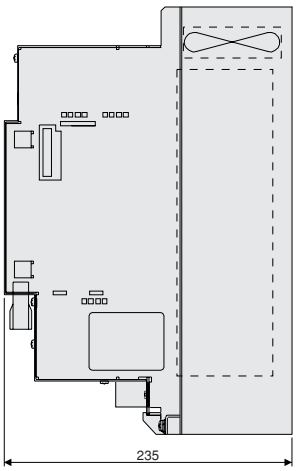
200V:SGDH-75AE





400V:SGDH-75DE



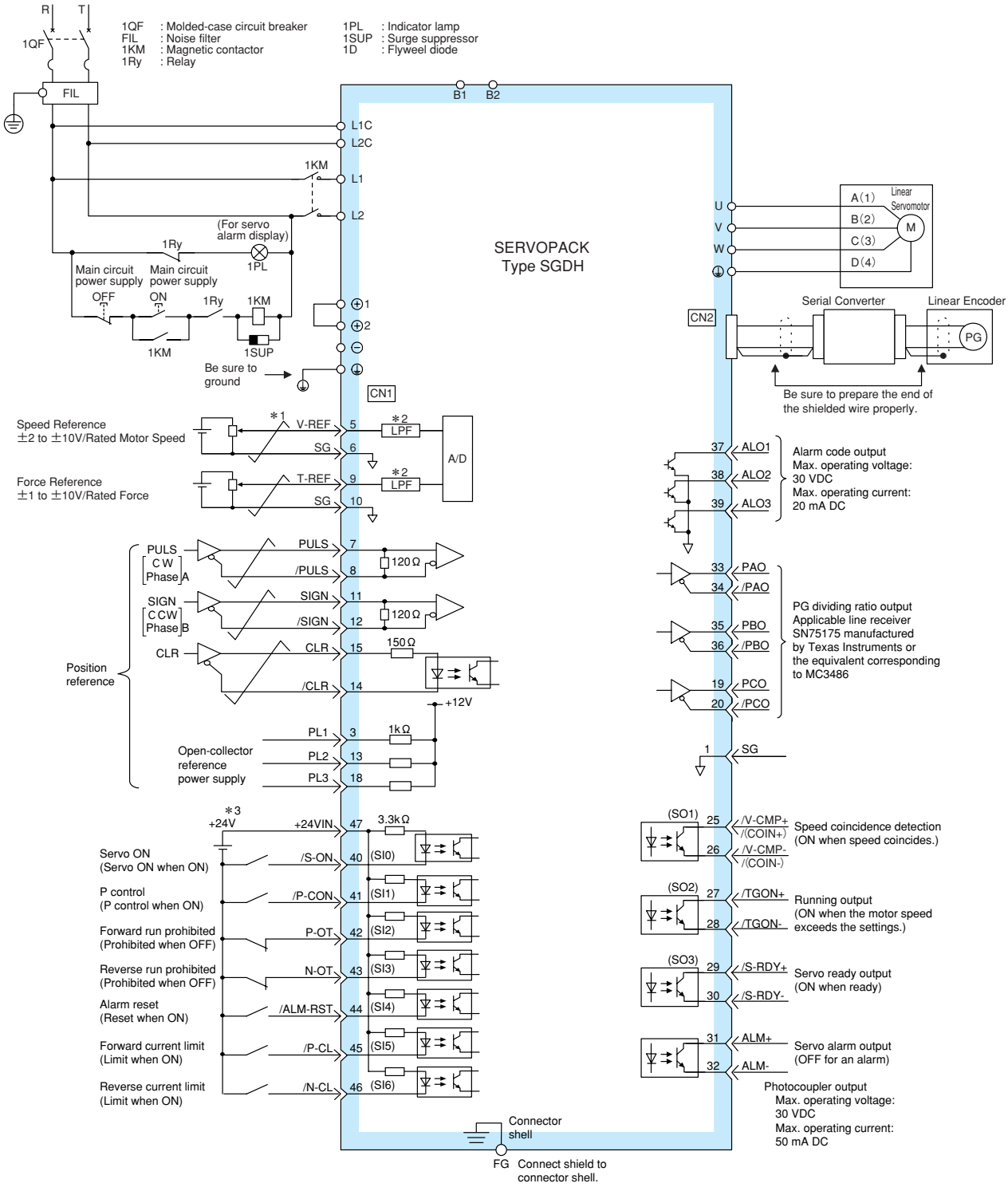


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Connection Diagram

Single-Phase

Single-phase 200 to 230 VAC $^{+10\%}_{-15\%}$ (50/60Hz) or Single-phase 100 to 115 VAC $^{+10\%}_{-15\%}$ (50/60Hz)



*1. represents twisted-pair wires.

*2. The time constant for the primary filter is 47 μs.

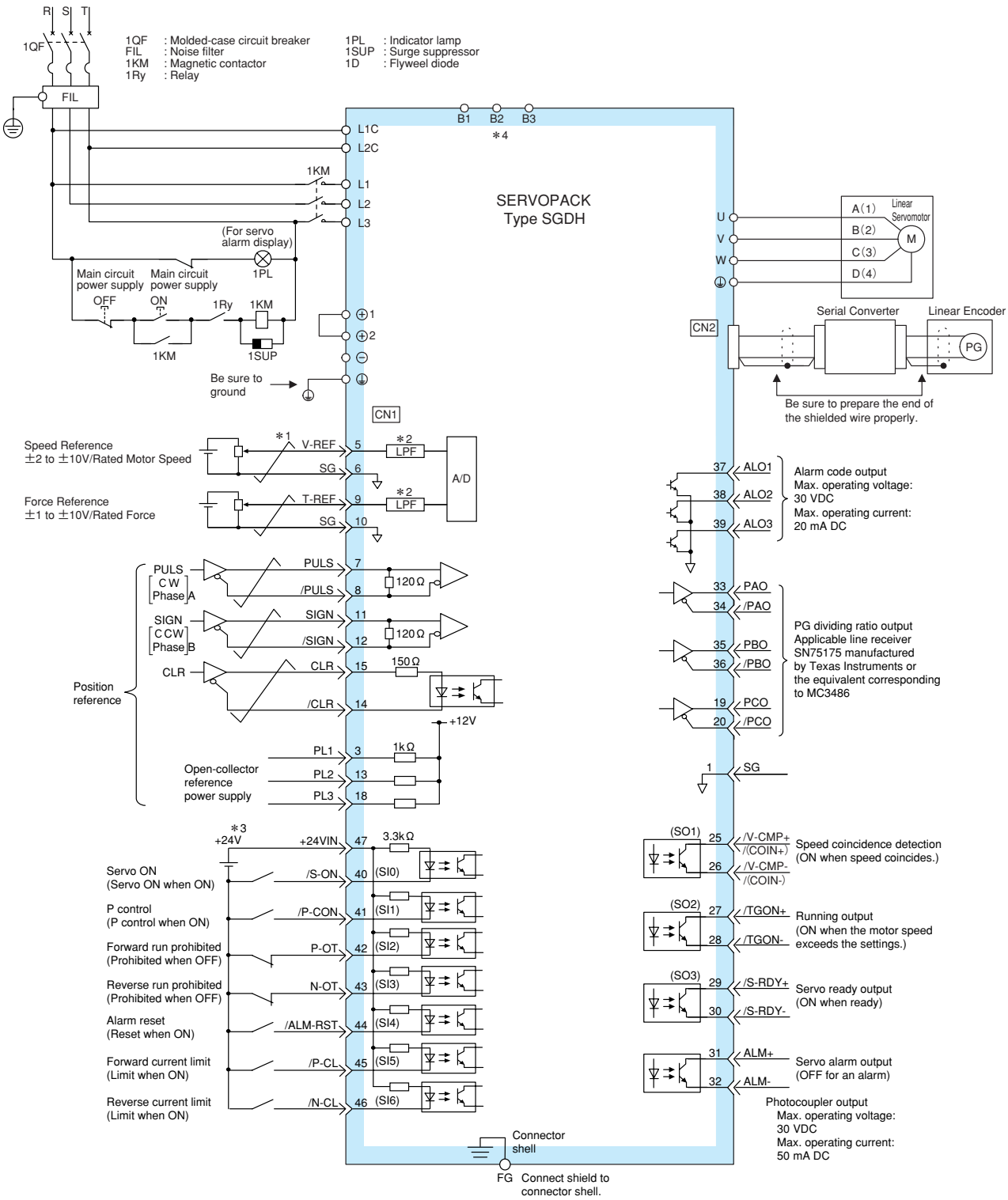
*3. Customers must purchase a 24 VDC power supply with double-shielded enclosure.

Note: The functions allocated to the input signals SI0 to SI6 and the output signals SO1 to SO3 can be changed by using the parameters.

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Three-Phase

Three-phase 200 to 230 VAC $^{+10\%}_{-15\%}$ (50/60Hz)



*1. represents twisted-pair wires.

*2. The time constant for the primary filter is 47 μs.
*3. Customers must purchase a 24 VDC power supply with double-shielded enclosure.
*4. When using SERVOPACK of 7.5kw connect an external regenerative resistor between B1 and B2.(B3 terminal is not provided)
Note: The functions allocated to the input signals SI0 to SI6 and the output signals SO1 to SO3 can be changed by using the parameters.

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Serial Converter Unit (JZDP-D00□-□□□)

Characteristics and Specifications

	Item	Specifications
Electrical Characteristics	Power Supply Voltage	+5.0VDC ±5% ripple content 5% max.
	Current Consumption *1	120mA Typ. 350mA max.
	Signal Resolution	Input 2-phase sine wave : 1/256 pitch
	Max. Response Frequency	250kHz
	Analog Input Signal *2 (Cos,Sin,Ref)	Differential input amplitude : 0.4 to 1.2V Input signal level : 1.5 to 3.5V
	Hall Sensor Inputs Signal	CMOS level
	Output Signals*3	Position data, hall sensor information, and alarms
	Output Method	Serial data transmission (HDLC (High-level Data Link Control) protocol format with Manchester codes)
	Transmission Cycle	62.5 μs
	Output Circuit	Balanced transceiver (SN75LBC176 or the equivalent) Internal terminal resistance: 120 Ω
Mechanical Characteristics	Approx. Mass	150g
	Vibration Resistance	98m/s² max. (1 to 2500Hz) in 3 directions
	Shock Resistance	980m/s², (11ms) in 3 directions for 2 times
Environment	Operating Temperature	0 to +55℃ (32 to 131°F)
	Storage Temperature	−20 to +80℃ (-4 to 176°F)
	Humidity	20 to 90%RH (non-condensing)

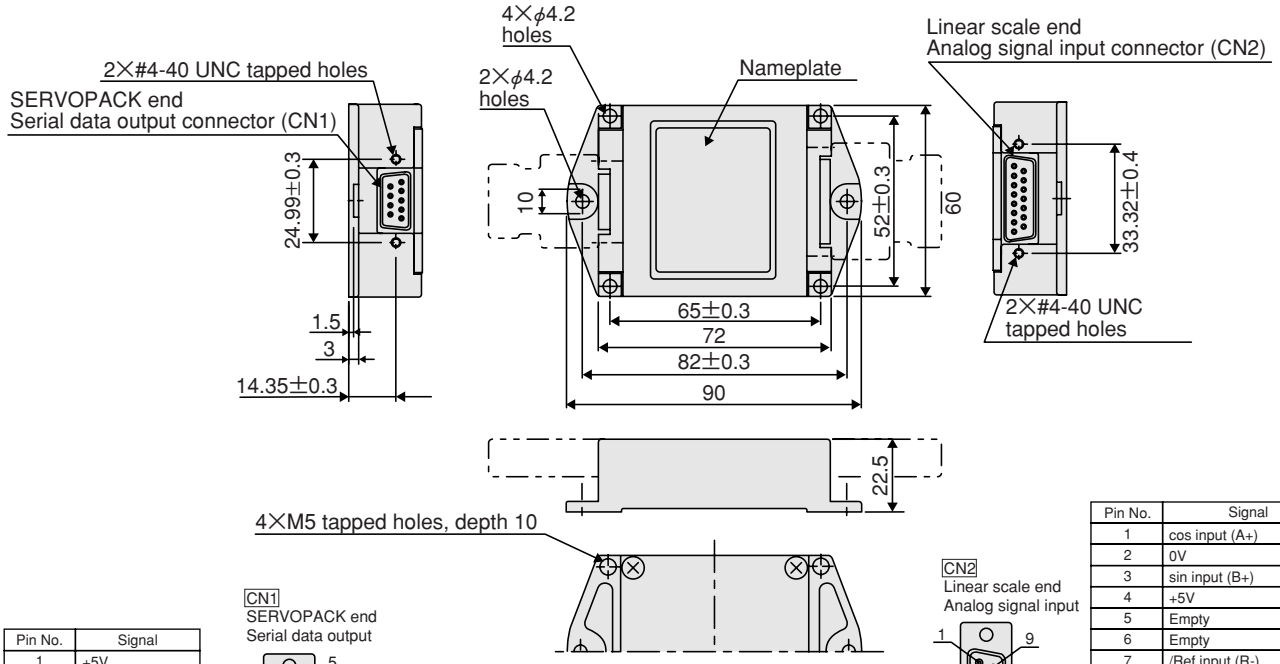
*1 The current consumption of the linear scale and hall sensor is not included in this value.
The current consumption of linear scale and hall sensor must be taken into consideration for the current capacity of host controller that supplies the power. The current consumption of hall sensor: Approx. 40 mA.

*2 Input a value within the specified range. Otherwise, incorrect position information is output, and the device may be damaged.

*3 The transmission is enabled 100 to 300 ms after the power turns ON.

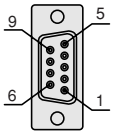
Dimensional Drawings Units: mm

Linear Scale without Cable for Hall Sensor by Heidenhain
Serial Converter Unit Model: JZDP-D003-□□□



Pin No.	Signal
1	+5V
2	S-phase output
3	Empty
4	Empty
5	0V
6	/S-phase output
7	Empty
8	Empty
9	Empty
Case	Shield

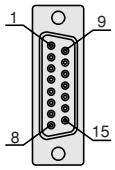
CN1
SERVOPACK end
Serial data output



17-series connector model:
17LE-13090-27
(socket) by DDK Ltd.

Notes: 1. Do not use the empty pins.
2. The linear scale (analog 1Vp-p output, D-sub 15-pin, male) manufactured by Heidenhain Corp. can be directly connected. Contact Heidenhain Corp. for details.

CN2
Linear scale end
Analog signal input

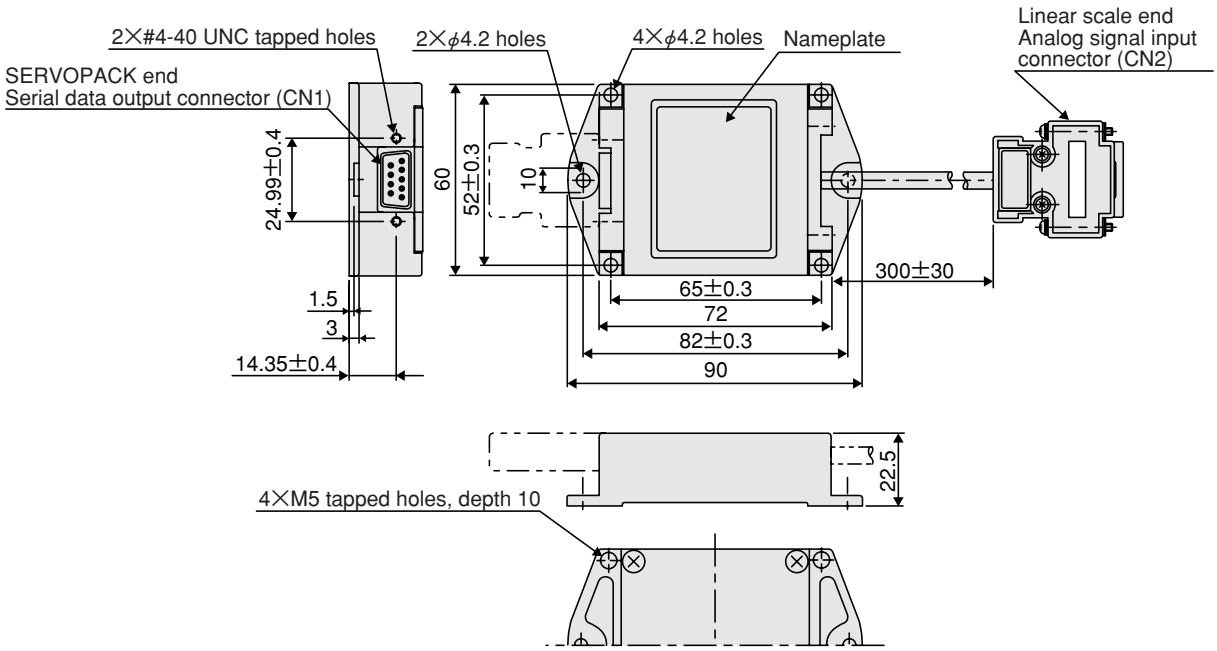


17-series connector model:
17LE-13150-27
(socket) by DDK Ltd.

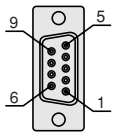
Pin No.	Signal
1	cos input (A+)
2	0V
3	sin input (B+)
4	+5V
5	Empty
6	Empty
7	/Ref input (R-)
8	Empty
9	/cos input (A-)
10	0V sensor
11	/sin input (B-)
12	5V sensor
13	Empty
14	Ref input (R+)
15	Empty
Case	Shield

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Linear Scale without Cable for Hall Sensor by Renishaw
Serial Converter Unit Model: JZDP-D005-□□□



CN1
SERVOPACK end
Serial data output

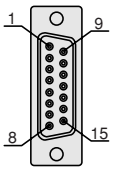


17-series connector model:
17LE-13090-27 (socket) by DDK Ltd.

Pin No.	Signal
1	+5V
2	S-phase output
3	Empty
4	Empty
5	0V
6	/S-phase output
7	Empty
8	Empty
9	Empty
Case	Shield

SERVOPACK does not have
the function to process Vq signals.

CN2
Linear scale end
Analog signal input



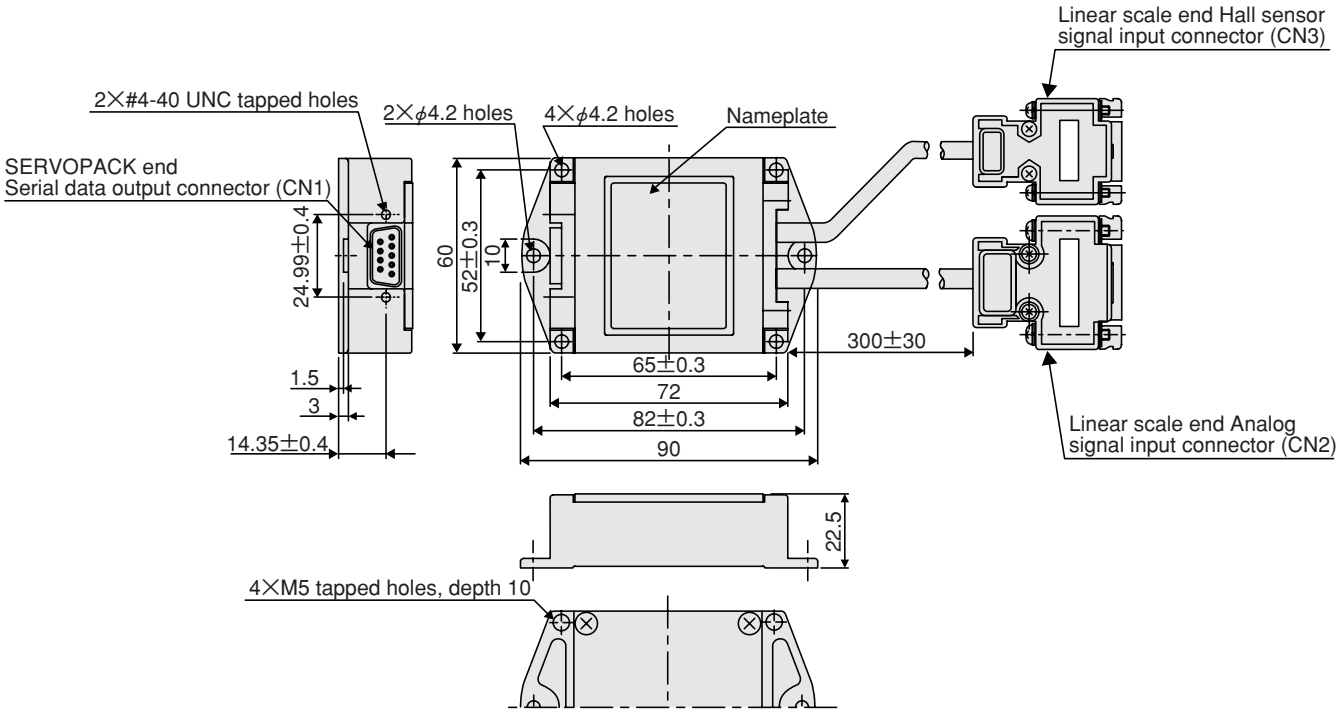
17-series connector model:
17LE-13150-27 (socket) by DDK Ltd.

Pin No.	Signal
1	/cos input (V1-)
2	/sin input (V2-)
3	Ref input (V0+)
4	+5V
5	5Vs
6	Empty
7	Empty
8	Empty
9	cos input (V1+)
10	sin input (V2+)
11	/Ref input (V0-)
12	0V
13	0Vs
14	Empty
15	Inner (0V)
Case	Shield

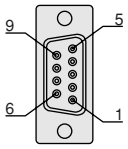
Notes: 1. Do not use empty pins.
2. The linear scale (analog 1Vp-p output, D-sub 15-pin, male) by Renishaw Inc. can be directly connected. However, the BID and DIR signals are not connected.
3. Use the linear scale end connector to change the zero point specifications of the linear scale.

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Linear Scale with Cable for Hall Sensor by Heidenhain
Serial Converter Unit Model: JZDP-D006-□□□



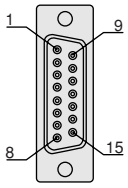
CN1
SERVOPACK end
Serial data output



17-series connector model:
17JE-13090-27 (socket) by DDK. Ltd.

Pin No.	Signal
1	+5V
2	S-phase output
3	Empty
4	Empty
5	0V
6	/S-phase output
7	Empty
8	Empty
9	Empty
Case	Shield

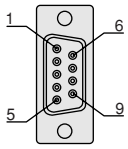
CN2
Linear scale end
Analog signal input



17-series connector model:
17JE-13150-02 (D8C)(socket) by DDK. Ltd.

Pin No.	Signal
1	cos input (A+)
2	0V
3	sin input (B+)
4	+5V
5	Empty
6	Empty
7	/Ref input (R-)
8	Empty
9	/cos input (A-)
10	0V sensor
11	/sin input (B-)
12	5V sensor
13	Empty
14	Ref input (R+)
15	Empty
Case	Shield

CN3
Linear scale end
Hall sensor signal input



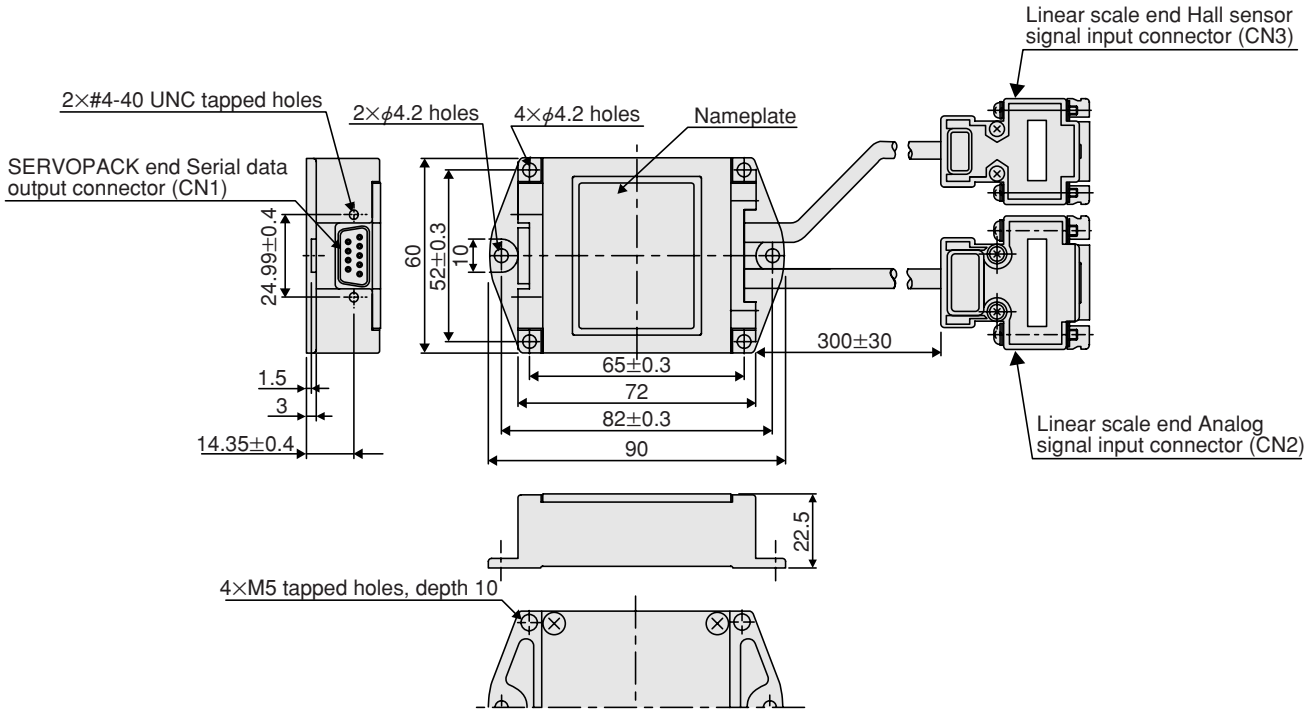
17-series connector model:
17JE-13090 by DDK. Ltd.

Pin No.	Signal
1	+5V
2	U-phase input
3	V-phase input
4	W-phase input
5	0V
6	Empty
7	Empty
8	Empty
9	Empty
Case	Shield

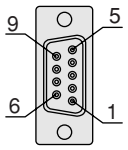
Notes: 1. Do not use empty pins.
2. The linear scale (analog 1Vp-p output, D-sub 15-pin, male) by Heidenhain Corp. can be directly connected.
3. U-phase, V-phase, and W-phase input are internally pulled up at 10kΩ.

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Linear Scale with Cable for Hall Sensor by Renishaw
Serial Converter Unit Model: JZDP-D008-□□□



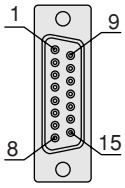
CN1
SERVOPACK end
Serial data output



17-series connector model:
17JE-13090-27 (socket) by DDK. Ltd.

Pin No.	Signal
1	+5V
2	S-phase output
3	Empty
4	Empty
5	0V
6	/S-phase output
7	Empty
8	Empty
9	Empty
Case	Shield

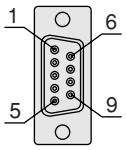
CN2
Linear scale end
Analog signal input



17-series connector model:
17JE-13150-02(D8C) (socket) by DDK. Ltd.

Pin No.	Signal
1	/cos input (V1-)
2	/sin input (V2-)
3	Ref input (V0+)
4	+5V
5	5Vs
6	Empty
7	Empty
8	Empty
9	cos input (V1+)
10	sin input (V2+)
11	/Ref input (V0-)
12	0V
13	0Vs
14	Empty
15	Inner
Case	Shield

CN3
Linear scale end
Hall sensor signal input



17-series connector model:
17JE-13090 by DDK. Ltd.

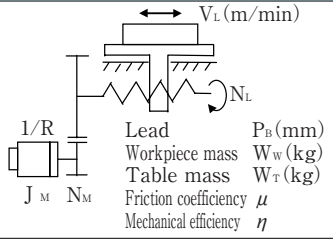
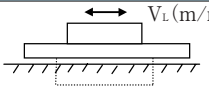
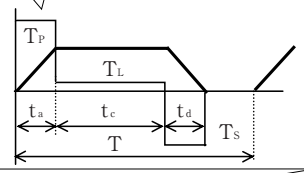
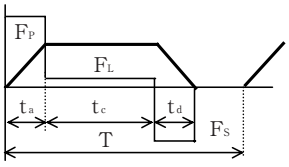
Pin No.	Signal
1	+5V
2	U-phase input
3	V-phase input
4	W-phase input
5	0V
6	Empty
7	Empty
8	Empty
9	Empty
Case	Shield

Notes: 1. Do not use empty pins.
2. The linear scale (analog 1V_{P-P} output, D-sub 15-pin, male) by Renishaw Inc. can be directly connected. However, the BID and DIR signals are not connected.
3. U-phase, V-phase, and W-phase input are internally pulled up at 10kΩ.

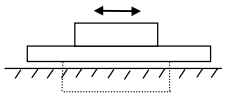
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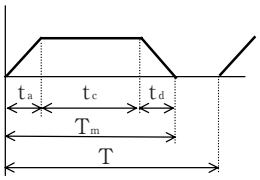
Selecting Motor Force

Comparison with Rotary Motor

Rotary Motor		Linear Motor	
Drive Mechanism	 Lead P_B (mm) Workpiece mass W_W (kg) Table mass W_T (kg) Friction coefficiency μ Mechanical efficiency η	Drive Mechanism	 Workpiece mass W_W (kg) Table mass W_T (kg) Coil Assembly mass W_M (kg) Friction coefficiency μ Mechanical efficiency η Acceleration α (m/s²)
Load Shaft Rotation Speed N_L (r/min)	$\frac{1000 \times V_L}{P_B}$		
Motor Speed N_M (r/min)	$R \times N_L$		
Inertia Converted into Load Shaft J_1	$(W_W + W_T) \times \left(\frac{P_B}{1000\pi}\right)^2 \times \frac{1}{4}$		
Inertia Converted into Motor Shaft J_L	$J_1 \times \left(\frac{1}{R}\right)^2$		
Drive Torque by Load Shaft T_1 (N·m)	$\mu \times (W_W + W_T) \times 9.8 \times \left(\frac{P_B}{2000\pi}\right)$	Normal Force F_L (N)	$\frac{\mu \times (W_W + W_T + W_M) \times 9.8}{\eta}$
Connected Motor Shaft T_L (N·m)	$T_1 \times \frac{1}{R} \times \frac{1}{\eta}$		
Running Power P_O (W)	$\frac{T_L \times 2 \times \pi \times N_M}{60}$	Running Power P_O (W)	$\frac{F_L \times V_L}{60}$
Accel Torque T_P (N·m)	$T_P = \frac{(J_L + J_M) \times 2 \times \pi \times N_M}{60 \times t_a} + T_L$	Accel Force F_P (N)	$F_P = (W_W + W_T + W_M) \times \alpha + F_L$
Decel Torque T_S (N·m)	$T_S = \frac{(J_L + J_M) \times 2 \times \pi \times N_M}{60 \times t_d} - T_L$	Decel Force F_S (N)	$F_S = (W_W + W_T + W_M) \times \alpha - F_L$
Required Torque T_{rms} (N·m)	$T_{rms} = \sqrt{\frac{T_P^2 \times t_a + T_L^2 \times t_c + T_S^2 \times t_d}{T}}$ 	Required Force F_{rms} (N)	$F_{rms} = \sqrt{\frac{F_P^2 \times t_a + F_L^2 \times t_c + F_S^2 \times t_d}{T}}$ 
		Estimated Winding Temperature θ_C (℃)	$\theta_C = (Frms/Km)^2 \times Rth + \theta$

Selection Example





Load speed	V_L	= 120m/min
Workpiece mass	W_W	= 1kg
Table mass	W_T	= 2kg
Friction coefficiency	μ	= 0.2
Mechanical efficiency	η	= 0.9
Feeding time	T_m	= 0.4s
Acceleration time	t_a	= 0.02s
1 cycle time	T	= 0.5s

・Temporary Selection

①Normal load force=0.2×(1+2) 9.8=5.88 (N)
②Load accel force=(1+2)×120／60／0.02+5.88=306 (N)
From ②, select SGLGW-40A365A whose peak force is 420N
Specifications of SGLGW-40A365A
Continuous force : 140N　Peak force: 420N　Moving coil mass: 0.91kg　Motor constant: 13.5 (N/$\sqrt{W}$)
Thermal resistance: 0.65(K/W)
(Ambient temperature (θ) : 25℃)

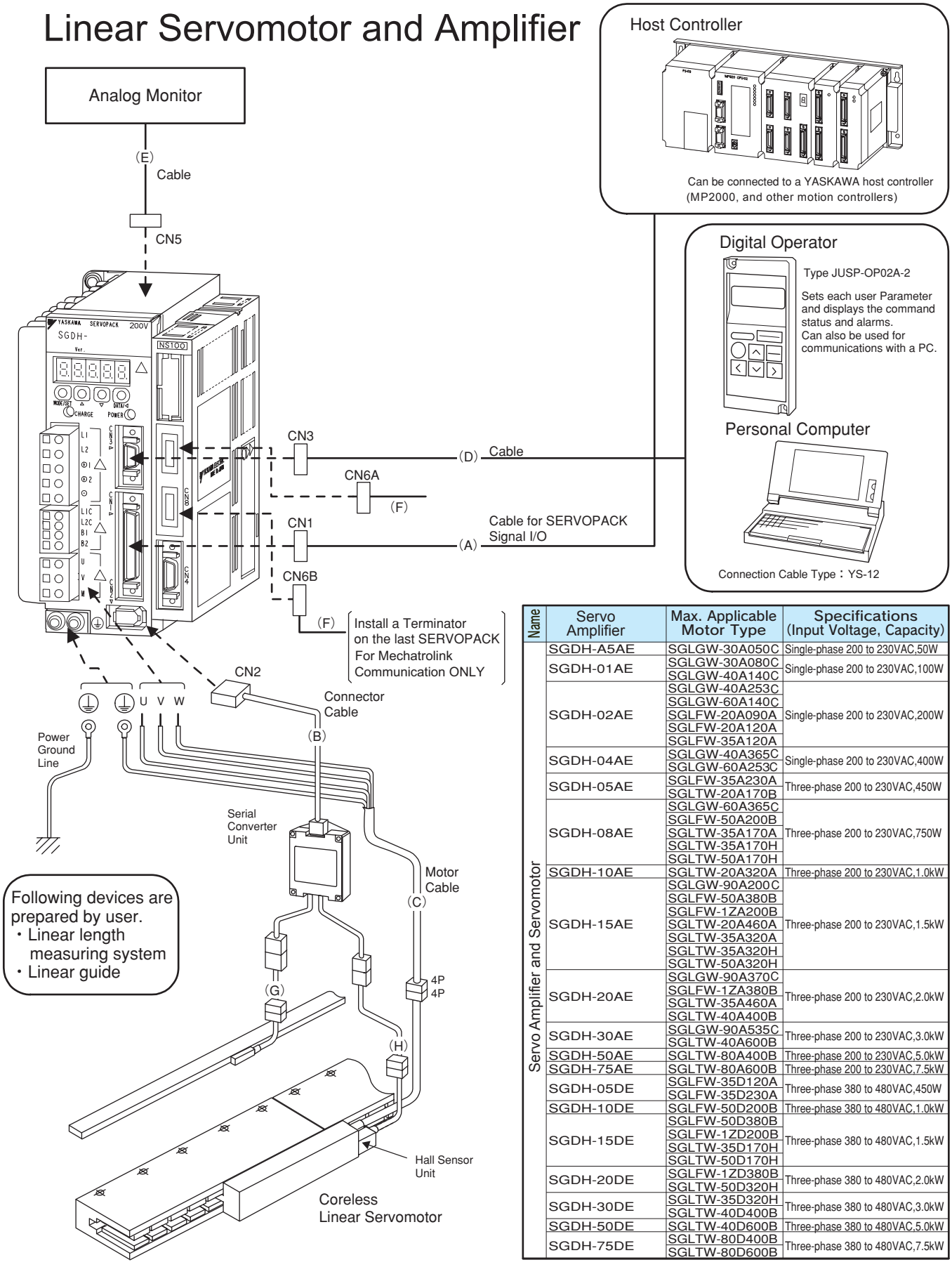
・Servomotor Checking

③Normal force=0.2×(1+2+0.91)×9.8／0.9=8.5 (N)
④Accel force=(1+2+0.91)×120／60／0.02+8.5=400 (N) ＜Peak force (applicable)
⑤Decel force=(1+2+0.91)×120／60／0.02−8.5=383 (N) ＜Peak force (applicable)
⑥Required force=$\sqrt{\frac{400^2 \times 0.02 + 8.5^2 \times 0.36 + 383^2 \times 0.02}{0.5}}$=111 (N) ＜Rated force (applicable)
⑦Estimated winding temperature: $(111/13.5)^2 \times 0.65 + 25 = 69$(℃)＜130(℃) (applicable)

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Ordering Reference

Linear Servomotor and Amplifier



Name	Servo Amplifier	Max. Applicable Motor Type	Specifications (Input Voltage, Capacity)
Servo Amplifier and Servomotor	SGDH-A5AE	SGLGW-30A050C	Single-phase 200 to 230VAC,50W
	SGDH-01AE	SGLGW-30A080C SGLGW-40A140C	Single-phase 200 to 230VAC,100W
	SGDH-02AE	SGLGW-40A253C SGLGW-60A140C SGLFW-20A090A SGLFW-20A120A SGLFW-35A120A	Single-phase 200 to 230VAC,200W
	SGDH-04AE	SGLGW-40A365C SGLGW-60A253C	Single-phase 200 to 230VAC,400W
	SGDH-05AE	SGLFW-35A230A SGLTW-20A170B	Three-phase 200 to 230VAC,450W
	SGDH-08AE	SGLGW-60A365C SGLFW-50A200B SGLTW-35A170A SGLTW-35A170H SGLTW-50A170H	Three-phase 200 to 230VAC,750W
	SGDH-10AE	SGLTW-20A320A	Three-phase 200 to 230VAC,1.0kW
	SGDH-15AE	SGLGW-90A200C SGLFW-50A380B SGLFW-1ZA200B SGLTW-20A460A SGLTW-35A320A SGLTW-35A320H SGLTW-50A320H	Three-phase 200 to 230VAC,1.5kW
	SGDH-20AE	SGLGW-90A370C SGLFW-1ZA380B SGLTW-35A460A SGLTW-40A400B	Three-phase 200 to 230VAC,2.0kW
	SGDH-30AE	SGLGW-90A535C SGLTW-40A600B	Three-phase 200 to 230VAC,3.0kW
	SGDH-50AE	SGLTW-80A400B	Three-phase 200 to 230VAC,5.0kW
	SGDH-75AE	SGLTW-80A600B	Three-phase 200 to 230VAC,7.5kW
	SGDH-05DE	SGLFW-35D120A SGLFW-35D230A	Three-phase 380 to 480VAC,450W
	SGDH-10DE	SGLFW-50D200B	Three-phase 380 to 480VAC,1.0kW
	SGDH-15DE	SGLFW-50D380B SGLFW-1ZD200B SGLTW-35D170H SGLTW-50D170H	Three-phase 380 to 480VAC,1.5kW
	SGDH-20DE	SGLFW-1ZD380B SGLTW-50D320H	Three-phase 380 to 480VAC,2.0kW
	SGDH-30DE	SGLTW-35D320H SGLTW-40D400B	Three-phase 380 to 480VAC,3.0kW
	SGDH-50DE	SGLTW-40D600B	Three-phase 380 to 480VAC,5.0kW
	SGDH-75DE	SGLTW-80D400B SGLTW-80D600B	Three-phase 380 to 480VAC,7.5kW

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Options

Name		Type	Specifications
Digital Operator	Digital Operator	JUSP-OP02A-2	With connection cable(1m)
	Cable	JZSP-CMS00-1 JZSP-CMS00-2 JZSP-CMS00-3	1m 1.5m 2m Required only when using JUSP-OP02A-1, the digital operator for Σ Series.
Recommended Noise Filter (Schaffner P/Ns)		FN2070-6/07 FN2070-10/07 FN258L-7/07 FN258L-16/07 FN258L-30/07 FMAC-0934-5010 FMAC-0953-6410 FN258L-7/07 FN258L-16/07 FS5559-35-33	Single-phase 250 VAC,6A Single-phase 250 VAC,10A Three-phase 480 VAC,7A Three-phase 480 VAC,16A Three-phase 480 VAC,30A Three-phase 440 VAC,50A Three-phase 440 VAC,64A Three-phase 480 VAC,7A Three-phase 480 VAC,16A Three-phase 480 VAC,35A

Cables and Connectors

Name		Type	Specifications
(A) CN1 Connector for I/O Signals	Connector Terminal Conversion Unit	JUSP-WA50P-D50	Terminal block and connection cable 0.5m
	Cable with connector on Servo Amp Side only	JZSP-CK101-1 JZSP-CK101-2 JZSP-CK101-3	1m 2m 3m
	Connector Kit (for CN1)	JZSP-CK19	50-Pin Connector (no cable)
(B) CN2 ↕ Serial Converter Unit	Cable with Connectors on Both Ends	JZSP-CLP70-01 JZSP-CLP70-03 JZSP-CLP70-05 JZSP-CLP70-10 JZSP-CLP70-15 JZSP-CLP70-20	1m 3m 5m 10m 15m 20m
(C) Servo Amp Terminal ↕ Motor	Motor Cable (for Main Circuit)	JZSP-CLN11-01 (1m) JZSP-CLN11-03 (3m) JZSP-CLN11-05 (5m) JZSP-CLN11-10 (10m) JZSP-CLN11-15 (15m) JZSP-CLN11-20 (20m)	Applicable linear Servomotor type SGLGW-30 SGLGW-40 SGLGW-60 SGLFW-20 SGLFW-35
		JZSP-CLN21-01 (1m) JZSP-CLN21-03 (3m) JZSP-CLN21-05 (5m) JZSP-CLN21-10 (10m) JZSP-CLN21-15 (15m) JZSP-CLN21-20 (20m)	Applicable linear Servomotor type SGLGW-90 SGLFW-50 SGLFW-1Z SGLTW-20 SGLTW-35 (not applicable to H type) SGLTW-50 (not applicable to H type)
		JZSP-CLN39-01 (1m) JZSP-CLN39-03 (3m) JZSP-CLN39-05 (5m) JZSP-CLN39-10 (10m) JZSP-CLN39-15 (15m) JZSP-CLN39-20 (20m)	Applicable linear Servomotor type SGLTW-40 SGLTW-80

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Name		Type	Specifications
(D) CN3 ↕ Setting Device	Cable for Digital Operator	—	Attached to digital operator (JUSP-OP02A-2)
	Cable for PC	YS-12	2m D-SUB 9-pin
(E) CN5	Cable for Analog Monitor	JZSP-CA01 or DE9404559	1m
(F) CN6A CN6B	Cable for MECHATROLINK Communication	JEPMC-W6000-A3 JEPMC-W6000-A5 JEPMC-W6000-01	0.3m 0.5m With connectors on both ends 1.0m
	Terminator for MECHATROLINK Communication	JEPMC-W6020	
(G) Serial Converter Unit ↕ Linear Encoder	Special Cable for Renishaw Linear Encoders	JZSP-CLL00-01 JZSP-CLL00-03 JZSP-CLL00-05 JZSP-CLL00-10 JZSP-CLL00-15	1m D-SUB 15-pin 3m D-SUB 15-pin 5m D-SUB 15-pin 10m D-SUB 15-pin 15m D-SUB 15-pin
(H) Serial Converter Unit ↕ Hall Sensor	Special Cable for Hall Sensor	JZSP-CLL10-01 JZSP-CLL10-03 JZSP-CLL10-05 JZSP-CLL10-10 JZSP-CLL10-15	1m 3m 5m 10m 15m

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