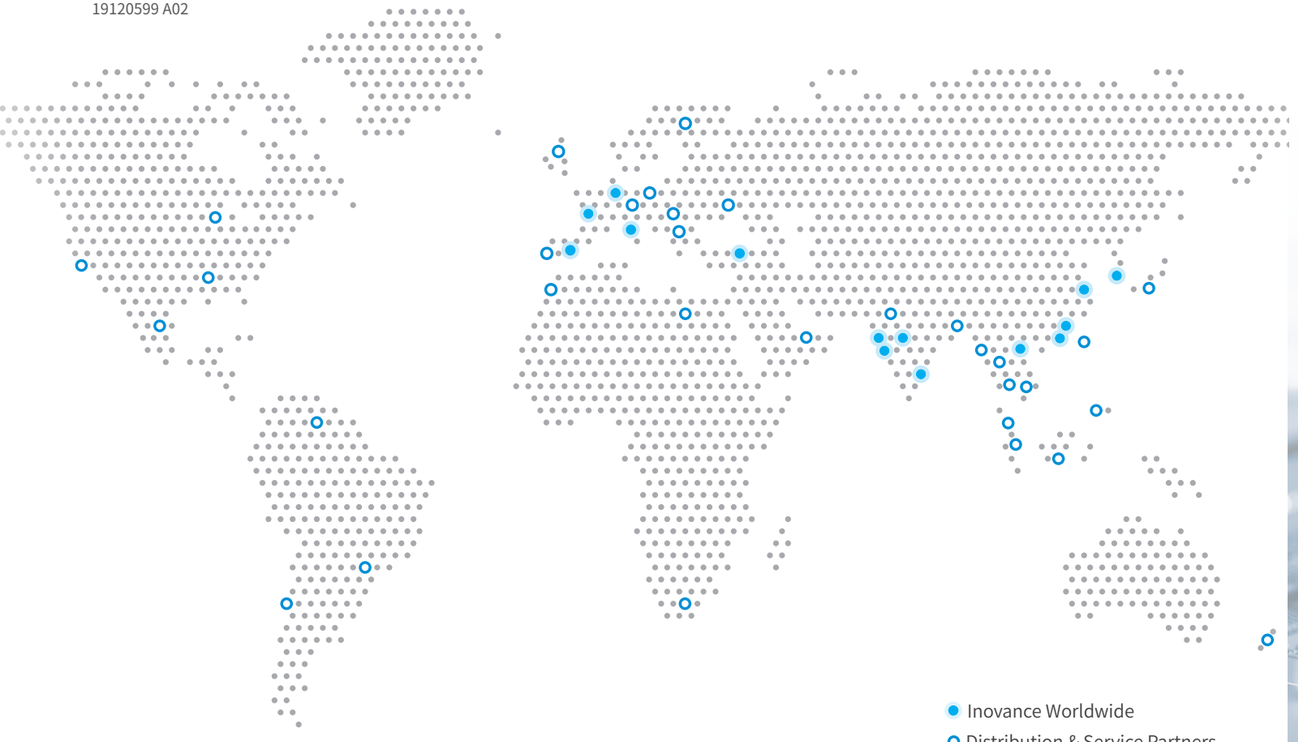
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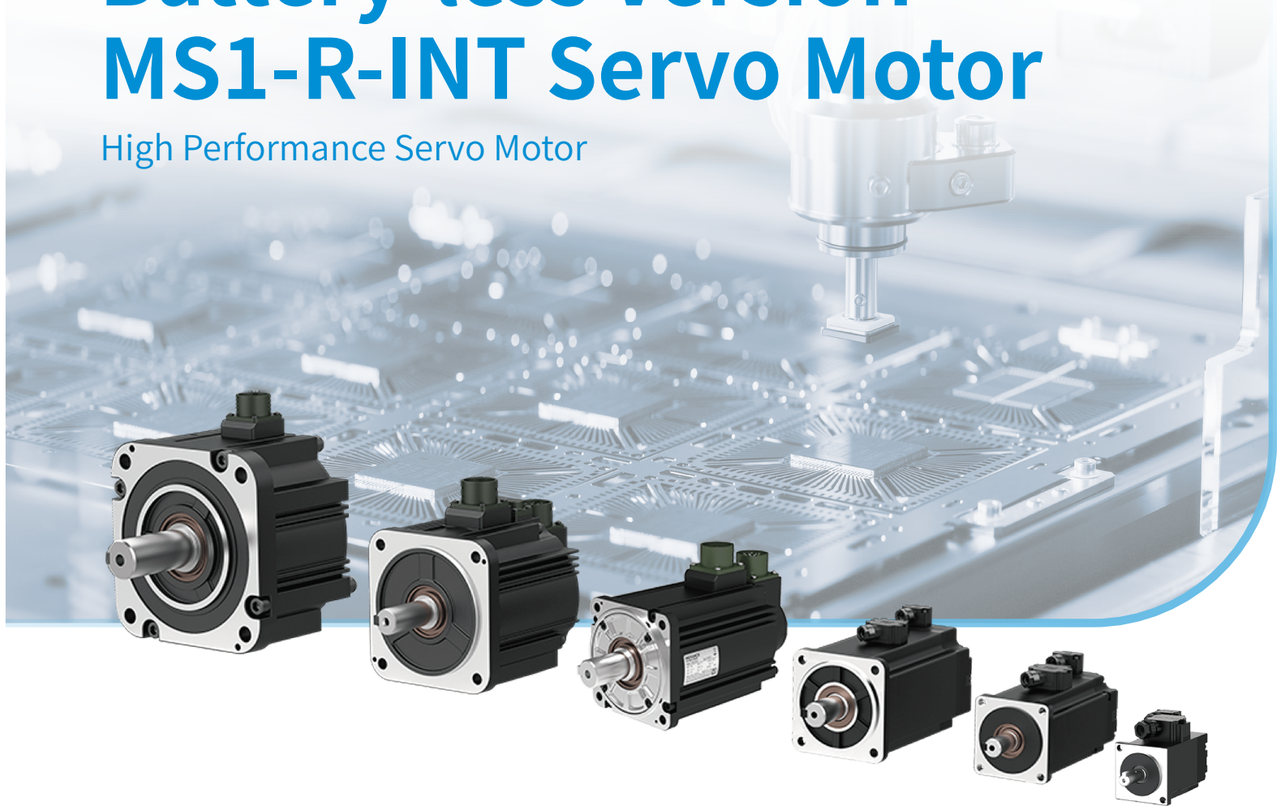
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INOVANCE

Battery-less Version MS1-R-INT Servo Motor

High Performance Servo Motor



Features & functions

- Power from 0.05kW to 7.5kW with 6 types of frame size
- Optimized characteristics max.speed 7000rpm
- Options: · 23bit or 26bit multi-turn encoder
  · With or without brake
- Compact dimensions with more power per space
- Highest energy efficiency equivalent to IE5 level
- Optimized design with low cogging torque and high accuracy

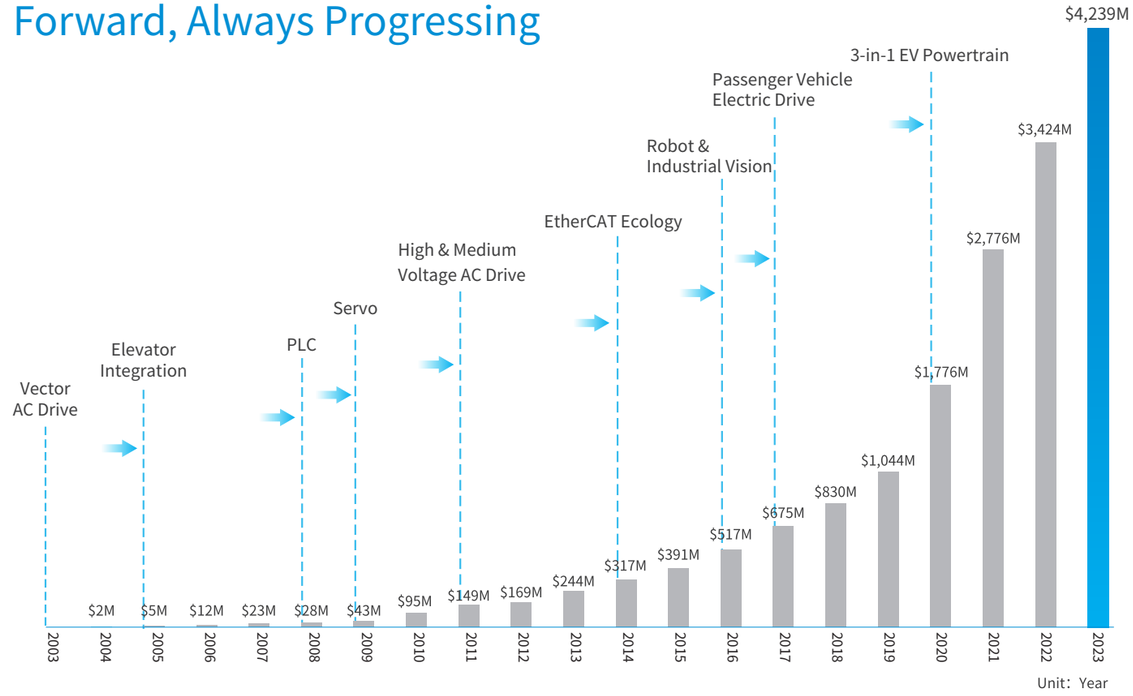


About Inovance

The Inovance Group, founded in 2003, is a rising star in the global industrial automation business and has revenues of $4.2 in 2023. Inovance is headquartered in Shenzhen, China, and has built a global operation with offices and facilities in Germany, France, Italy, Spain, Turkey, India, and South Korea. Additionally, the company has a strong network of distribution partners around the world.

The company 's flexible production techniques and expert understanding of all industry sectors - from plastics to printing to packaging to iron & steel production - have allowed it to establish globally leading industry-specific business units. Over the years, Inovance has built an engineering team with specialist expertise in industrial automation. This knowledge allows it to form strong partnerships with OEMs and end users, providing ongoing advice about how to get the most out of their automation solutions today, and how to stay prepared for the market and technology changes that are coming in future.

Forward, Always Progressing



2003
founded

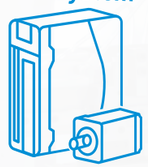
IPO:2010
Shenzhen, China

20,000
employees

Global
network of offices and distributors

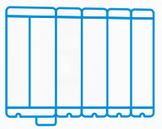
$4.2+bn
revenues in 2023

Servo System



4,500,000+
sets delivered in 2023

AC Drive



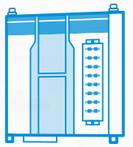
2,20,000+
sets delivered in 2023

Industrial Robot



22,000+
sets delivered in 2023

Controller



3,400,000+
sets delivered in 2023

Battery-less Multi-turn Encoder Servo System

Cost and Time Saving | Maintenance-Free | Environmental Protection



SV660-INT
Basic Single Servo Drive



SV670-INT
Standard Single Servo Drive



SV680-GINT
High-End Single Servo Drive



Encoder with battery

Battery-less encoder

Battery-less Design

- Simplify the wiring inside the control cabinet
- Save equipment wiring time
- Overcomes air & sea transportation challenges for customers

Maintenance-free

- Eliminates home position calibration caused by battery replacement
- No risk of power cable disconnection due to battery removal
- Lifetime maintenance-free - Improved reliability and ease of use

Environmental Protection

- No need to manage battery inventory anymore
- Reduces battery usage to minimize environmental impact

MS1-R Naming Rules

MS1	H1	-	75B	30C	B	-	V6	3	1	R	-	*	-	INT
①	②		③	④	⑤		⑥	⑦	⑧	⑨		⑩		⑪

① MS1 series servo motor

② Inertia and capacity type
H1: Low inertia, small capacity
H2: Low inertia, medium capacity
H3: Medium inertia, medium capacity
H4: Medium inertia, small capacity

③ Rated power (W)
Comprised of a letter and two digits
B: x 10
C: x 100
Example: 75B: 750 W

④ Rated speed (rpm)
Comprised of a letter and two digits
B: x 10
C: x 100
Example: 30C: 3000 rpm

⑤ Voltage class
B: 200V grade
D: 400V grade

⑥ Encoder type[1]
Comprised of a letter and a digit
V6: 26-bit multi-turn absolute battery-less encoder
V3: 23-bit multi-turn absolute battery-less encoder

⑦ Shaft connection mode
3: Solid and keyed, with threaded hole in the shaft center

⑧ Brake or oil seal
0: Without oil seal or brake
1: With oil seal, without brake
2: Without oil seal, with brake
4: With oil seal and brake

⑨ Sub-series No.
R: R series

⑩ Customization information
_: Standard type
-S: Flying leads type
-**: Other customized types

⑪ Model type
INT: International

[1] Absolute position over 65536 revolutions (16bit multi-turn).

Technical Data

Item	Description
Duty type	S1 (Continuous duty)
Vibration class	V15[1]
Insulation resistance	500 VDC, above 10 MΩ
Ambient temperature	0°C to 40°C (non-frozen) (See the derating curve for temperaturesa above 40°C .)
Ambient humidity	20% to 80% (without condensation)
Storage environment	Observe the following environment requirements for storing a de-energized motor: · Storage temperature: -20° C to +60° C (non-frozen) · Storage humidity: 20% to 80% RH (without condensation)
Excitation mode	Permanent magnet
Installation mode	Flange type
Insulation class	F (155°C)
Insulation voltage	1 min for 1500 VAC (220 V class); 1 min for 1800 VAC (380 V class)
IP rating of enclosure	IP67 (excluding shaft opening and connectors of flying lead type motors)
Ambient humidity	20% to 80%RH (without condensation)
Direction of rotation	Rotating counterclockwise when viewed from the driving end side with forward run commands 
Vibration resistance [2][4]	49 m/s² (Flange face as standard)
Shock resistance [3][4]	490 m/s² (Flange face as standard); Number of shocks: Two
Altitude	Derating is required only for altitudes above 1000 m.
Certification	CE/UKCA/UL/EAC/RoHS

Note: [1] Vibration level V15 represents the vibration amplitude of the servo motor is lower than 15 μm during operation at rated speed.
[2] The vertical, side-to-side, and front-to-back vibration resistance in three directions when the motor is mounted with the shaft in a horizontal position is given in the above table.
[3] The shock resistance for shock in the vertical direction when the motor is mounted with the shaft in a horizontal position is given in the above table.
[4] Do not operate the system at a fixed frequency because exceeding the allowable vibration value can damage the system.

Technical Data of MS1-R Motors with 26-bit Battery-less Encoder

MS1H1 motors with low inertia and small capacity (flange size 40/60/80)

Motor Model MS1H1-	05B30CB	10B30CB	20B30CB	40B30CB	55B30CB	75B30CB	10C30CB
Flange size (mm)	40	40	60	60	80	80	80
Rated power (kW)	0.05	0.1	0.2	0.4	0.55	0.75	1.0
Rated voltage (V)	220	220	220	220	220	220	220
Rated torque (N·m)	0.16	0.32	0.64	1.27	1.75	2.39	3.18
Max. torque (N·m)	0.56	1.12	2.24	4.45	6.13	8.36	11.13
Rated current (A)	1.2	1.2	1.5	2.5	3.9	4.4	6.2
Max. current (A)	4.8	4.8	5.3	9.8	15	16.9	24
Rated speed n_N (rpm)	3000	3000	3000	3000	3000	3000	3000
Max. speed n_{max} (rpm)	7000	7000	7000	7000	7000	7000	7000
Torque coefficient (N·m/A)	0.15	0.30	0.51	0.57	0.51	0.62	0.59
Rotor moment of inertia (kg·cm^2)	0.018 (0.0208)	0.0316 (0.0345)	0.094 (0.106)	0.145 (0.157)	0.55 (/)	0.68 (0.71)	0.82 (0.87)
Applicable drive (SV680)	S1R6	S1R6	S1R6	S2R8	S5R5	S5R5	S7R6

MS1H2 motors with low inertia and medium capacity (flange size 100)

Motor Model MS1H2-	10C30CB	10C30CD	15C30CB	15C30CD	20C30CB	20C30CD	25C30CB	25C30CD
Flange size (mm)	100	100	100	100	100	100	100	100
Rated power (kW)	1.0	1.0	1.5	1.5	2.0	2.0	2.5	2.5
Rated voltage (V)	220	380	220	380	220	380	220	380
Rated torque (N·m)	3.18	3.18	4.9	4.9	6.36	6.36	7.96	7.96
Max. torque (N·m)	9.54	9.54	14.7	14.7	19.1	19.1	23.9	23.9
Rated current (A)	6.4	3.3	8.6	4.2	11.3	5.6	14.7	7.2
Max. current (A)	23	11	32	14	42	20	53	26
Rated speed n_N(rpm)	3000	3000	3000	3000	3000	3000	3000	3000
Max. speed n_{max}(rpm)	6000	6000	6000	6000	6000	6000	6000	6000
Torque coefficient (N·m/A)	0.54	1.07	0.62	1.28	0.60	1.19	0.60	1.18
Rotor moment of inertia (kg·cm^2)	1.78 (2.6)	1.78 (2.6)	2.35 (3.17)	2.35 (3.17)	2.92 (3.74)	2.92 (3.74)	3.49 (4.3)	3.49 (4.3)
Applicable drive (SV680)	S7R6	T3R5	S012	T5R4	S018	T8R4	S022	T012

MS1H2 motors with low inertia and medium capacity (flange size 130)

Motor Model MS1H2-	30C30CB	30C30CD	40C30CB	40C30CD	50C30CB	50C30CD
Flange size (mm)	130	130	130	130	130	130
Rated power (kW)	3.0	3.0	4.0	4.0	5.0	5.0
Rated voltage (V)	220	380	220	380	220	380
Rated torque (N·m)	9.8	9.8	12.6	12.6	15.8	15.8
Max. torque (N·m)	24.5	29.4	31.5	37.8	39.5	47.4
Rated current (A)	16.6	8.9	22	13.5	22	17
Max. current (A)	55	29	67.5	42.5	67.5	52.5
Rated speed n_N(rpm)	3000	3000	3000	3000	3000	3000
Max. speed n_{max}(rpm)	6000	6000	6000	6000	6000	6000
Torque coefficient (N·m/A)	0.67	1.25	0.65	1.06	0.81	1.04
Rotor moment of inertia (kg·cm^2)	6.4 (9.38)[1]	6.4 (9.38)	9 (11.98)	9 (11.98)	11.6 (14.58)	11.6 (14.58)
Applicable drive (SV680)[2]	S022	T012	S027	T017	S027	T021

Note:[1] Values in the parentheses are rotor moment of inertia values for motors with brake.
[2] The motor with 26-bit encoder matches SV680 series servo drives. Drive model description: S-220 V voltage class; T-380 V voltage class; 1R6-Rated output current 1.6 A...; 027-Rated output current 27 A

MS1H3 motors with mid inertia and medium capacity (flange size 130)

Motor Model MS1H3-	85B15CB	85B15CD	13C15CB	13C15CD	18C15CB	18C15CD
Flange size (mm)	130	130	130	130	130	130
Rated power (kW)	0.85	0.85	1.3	1.3	1.8	1.8
Rated voltage (V)	220	380	220	380	220	380
Rated torque (N·m)	5.39	5.39	8.34	8.34	11.5	11.5
Max. torque (N·m)	13.5	13.5	20.85	20.85	28.75	28.75
Rated current (A)	6.6	3.5	10.5	5.1	11.9	6.75
Max. current (A)	17.2	8.5	27.3	12.6	32.2	17.7
Rated speed n_N (rpm)	1500	1500	1500	1500	1500	1500
Max. speed n_{max} (rpm)	4500	4500	4500	4500	4500	4500
Torque coefficient (N·m/A)	0.93	1.84	0.89	1.85	1.05	1.87
Rotor moment of inertia (kg·cm^2)	13.56 (15.8)	13.56 (15.8)	19.25 (21.5)	19.25 (21.5)	24.9 (27.2)	24.9 (27.2)
Applicable drive (SV680)	S7R6	T3R5	S012	T5R4	S018	T8R4

MS1H3 motors with mid inertia and medium capacity (flange size 180)

Motor Model MS1H3-	29C15CB	29C15CD	44C15CB	44C15CD	55C15CD	75C15CD
Flange size (mm)	180	180	180	180	180	180
Rated power (kW)	2.9	2.9	4.4	4.4	5.5	7.5
Rated voltage (V)	220	380	220	380	380	380
Rated torque (N·m)	18.6	18.6	28.4	28.4	35	48
Max. torque (N·m)	46.5	46.5	71.1	71.1	87.6	119
Rated current (A)	18	10.5	25.5	16	20.7	25
Max. current (A)	52.5	29.75	67	42	52	65
Rated speed n_N (rpm)	1500	1500	1500	1500	1500	1500
Max. speed n_{max} (rpm)	4500	4500	4500	4500	4500	4500
Torque coefficient (N·m/A)	1.16	1.94	1.25	1.96	1.92	2.13
Rotor moment of inertia (kg·cm^2)	44.7 (52.35)	44.7 (52.35)	64.9 (72.55)	64.9 (72.55)	86.9 (94.55)	127.5 (135.15)
Applicable drive (SV680)	S022	T012	S027	T017	T021	T026

MS1H4 motors with mid inertia and small capacity (flange size 40/60/80)

Motor Model MS1H4-	05B30CB	10B30CB	20B30CB	40B30CB	55B30CB	75B30CB	10C30CB
Flange size (mm)	40	40	60	60	80	80	80
Rated power (kW)	0.05	0.1	0.2	0.4	0.55	0.75	1.0
Rated voltage (V)	220	220	220	220	220	220	220
Rated torque (N·m)	0.16	0.32	0.64	1.27	1.75	2.39	3.18
Max. torque (N·m)	0.56	1.12	2.24	4.45	6.13	8.37	11.13
Rated current (A)	1.27	1.27	1.3	2.4	3.3	4.4	6.5
Max. current (A)	4.78	4.78	5.3	9.2	13.2	16.9	24
Rated speed n_N (rpm)	3000	3000	3000	3000	3000	3000	3000
Max. speed n_{max} (rpm)	7000	7000	7000	7000	7000	7000	7000
Torque coefficient (N·m/A)	0.15	0.29	0.55	0.58	0.58	0.63	0.53
Rotor moment of inertia (kg·cm^2)	0.038 (0.04)	0.072 (0.074)	0.22 (0.23)	0.43 (0.44)	1.12 (/)	1.46 (1.51)	1.87 (1.97)
Applicable drive (SV680)	S1R6	S1R6	S1R6	S2R8	S5R5	S5R5	S7R6

Technical Data of MS1-R Motors with 23-bit Battery-less Encoder

MS1H1 motors with low inertia and small capacity (flange size 40/60/80)

Motor Model MS1H1-	05B30CB	10B30CB	20B30CB	40B30CB	55B30CB	75B30CB	10C30CB
Flange size (mm)	40	40	60	60	80	80	80
Rated power (kW)	0.05	0.1	0.2	0.4	0.55	0.75	1.0
Rated voltage (V)	220	220	220	220	220	220	220
Rated torque (N·m)	0.16	0.32	0.64	1.27	1.75	2.39	3.18
Max. torque (N·m)	0.56	1.12	2.24	4.45	6.13	8.36	11.13
Rated current (A)	1.2	1.2	1.5	2.5	3.9	4.4	6.2
Max. current (A)	4.8	4.8	5.3	9.8	15	16.9	24
Rated speed n_N(rpm)	3000	3000	3000	3000	3000	3000	3000
Max. speed n_{max}(rpm)	7000	7000	7000	7000	7000	7000	7000
Torque coefficient (N·m/A)	0.15	0.30	0.51	0.57	0.51	0.62	0.59
Rotor moment of inertia (kg·cm^2)	0.018 (0.0208)	0.0316 (0.0345)	0.094 (0.106)	0.145 (0.157)	0.55 (/)	0.68 (0.71)	0.82 (0.87)
Applicable drive (SV670)0[2]	S1R6	S1R6	S1R6	S2R8	S5R5	S5R5	S7R6
Applicable drive (SV660)	S1R6	S1R6	S1R6	S2R8	S5R5	S5R5	S7R6

MS1H2 motors with low inertia and medium capacity (flange size 100)

Motor Model MS1H2-	10C30CB	10C30CD	15C30CB	15C30CD	20C30CB	20C30CD	25C30CB	25C30CD
Flange size (mm)	100	100	100	100	100	100	100	100
Rated power (kW)	1.0	1.0	1.5	1.5	2.0	2.0	2.5	2.5
Rated voltage (V)	220	380	220	380	220	380	220	380
Rated torque (N·m)	3.18	3.18	4.9	4.9	6.36	6.36	7.96	7.96
Max. torque (N·m)	9.54	9.54	14.7	14.7	19.1	19.1	23.9	23.9
Rated current (A)	6.4	3.3	8.6	4.2	11.3	5.6	14.7	7.2
Max. current (A)	23	11	32	14	42	20	53	26
Rated speed n_N(rpm)	3000	3000	3000	3000	3000	3000	3000	3000
Max. speed n_{max}(rpm)[2]	6000	6000	6000	6000	6000	6000	6000	6000
Torque coefficient (N·m/A)	0.54	1.07	0.62	1.28	0.60	1.19	0.60	1.18
Rotor moment of inertia (kg·cm^2)	1.78 (2.6)	1.78 (2.6)	2.35 (3.17)	2.35 (3.17)	2.92 (3.74)	2.92 (3.74)	3.49 (4.3)	3.49 (4.3)
Applicable drive (SV670)	S7R6	T3R5	S012	T5R4	S018[4]	T8R4	S022	T012[5]
Applicable drive (SV660)	S7R6	T3R5	S012	T5R4	S012	T8R4	/	T012

MS1H2 motors with low inertia and medium capacity (flange size 130)

Motor Model MS1H2-	30C30CB	30C30CD	40C30CB	40C30CD	50C30CB	50C30CD
Flange size (mm)	130	130	130	130	130	130
Rated power (kW)	3.0	3.0	4.0	4.0	5.0	5.0
Rated voltage (V)	220	380	220	380	220	380
Rated torque (N·m)	9.8	9.8	12.6	12.6	15.8	15.8
Max. torque (N·m)	24.5	29.4	31.5	37.8	39.5	47.4
Rated current (A)	16.6	8.9	22	13.5	22	17
Max. current (A)	55	29	67.5	42.5	67.5	52.5
Rated speed n_N(rpm)	3000	3000	3000	3000	3000	3000
Max. speed n_{max}(rpm)	6000	6000	6000	6000	6000	6000
Torque coefficient (N·m/A)	0.67	1.25	0.65	1.06	0.81	1.04
Rotor moment of inertia (kg·cm^2)	6.4 (9.38)	6.4 (9.38)	9 (11.98)	9 (11.98)	11.6 (14.58)	11.6 (14.58)
Applicable drive (SV670)	S022	T012	S027	T017	S027	T021[6]
Applicable drive (SV660)	/	T012	/	T017	/	T021

Note: [1] Values in the parentheses are rotor moment of inertia values for motors with brake. The slash symbol "/" represents this drive model is not available.
[2] Drive model description: S-220 V voltage class; T-380 V voltage class; 1R6-Rated output current 1.6 A...; 027-Rated output current 27 A

MS1H3 motors with mid inertia and medium capacity (flange size 130)

Motor Model MS1H3-	85B15CB	85B15CD	13C15CB	13C15CD	18C15CB	18C15CD
Flange size (mm)	130	130	130	130	130	130
Rated power (kW)	0.85	0.85	1.3	1.3	1.8	1.8
Rated voltage (V)	220	380	220	380	220	380
Rated torque (N·m)	5.39	5.39	8.34	8.34	11.5	11.5
Max. torque (N·m)	13.5	13.5	20.85	20.85	28.75	28.75
Rated current (A)	6.6	3.5	10.5	5.1	11.9	6.75
Max. current (A)	17.2	8.5	27.3	12.6	32.2	17.7
Rated speed n_N(rpm)	1500	1500	1500	1500	1500	1500
Max. speed n_{max}(rpm)	4500	4500	4500	4500	4500	4500
Torque coefficient (N·m/A)	0.93	1.84	0.89	1.85	1.05	1.87
Rotor moment of inertia (kg·cm^2)	13.56 (15.8)	13.56 (15.8)	19.25 (21.5)	19.25 (21.5)	24.9 (27.2)	24.9 (27.2)
Applicable drive (SV670)	S7R6	T3R5	S012	T5R4	S012	T8R4
Applicable drive (SV660)	S7R6	T3R5	S012	T5R4	S012[4]	T8R4

MS1H3 motors with mid inertia and medium capacity (flange size 180)

Motor Model MS1H3-	29C15CB	29C15CD	44C15CB	44C15CD	55C15CD	75C15CD
Flange size (mm)	180	180	180	180	180	180
Rated power (kW)	2.9	2.9	4.4	4.4	5.5	7.5
Rated voltage (V)	220	380	220	380	380	380
Rated torque (N·m)	18.6	18.6	28.4	28.4	35	48
Max. torque (N·m)	46.5	46.5	71.1	71.1	87.6	119
Rated current (A)	18	10.5	25.5	16	20.7	25
Max. current (A)	52.5	29.75	67	42	52	65
Rated speed n_N(rpm)	1500	1500	1500	1500	1500	1500
Max. speed n_{max}(rpm)	4500	4500	4500	4500	4500	4500
Torque coefficient (N·m/A)	1.16	1.94	1.25	1.96	1.92	2.13
Rotor moment of inertia (kg·cm^2)	44.7 (52.35)	44.7 (52.35)	64.9 (72.55)	64.9 (72.55)	86.9 (94.55)	127.5 (135.15)
Applicable drive (SV670)	S022	T012	S027	T017	T021	T026
Applicable drive (SV660)	/	T012	/	T017	T021	T026

MS1H4 motors with mid inertia and small capacity (fange size 40/60/80)

Motor Model MS1H4-	05B30CB	10B30CB	20B30CB	40B30CB	55B30CB	75B30CB	10C30CB
Flange size (mm)	40	40	60	60	80	80	80
Rated power (kW)	0.05	0.1	0.2	0.4	0.55	0.75	1.0
Rated voltage (V)	220	220	220	220	220	220	220
Rated torque (N·m)	0.16	0.32	0.64	1.27	1.75	2.39	3.18
Max. torque (N·m)	0.56	1.12	2.24	4.45	6.13	8.37	11.13
Rated current (A)	1.27	1.27	1.3	2.4	3.3	4.4	6.5
Max. current (A)	4.78	4.78	5.3	9.2	13.2	16.9	24
Rated speed n_N(rpm)	3000	3000	3000	3000	3000	3000	3000
Max. speed n_{max}(rpm)	7000	7000	7000	7000	7000	7000	7000
Torque coefficient (N·m/A)	0.15	0.29	0.55	0.58	0.58	0.63	0.53
Rotor moment of inertia (kg·cm^2)	0.038 (0.04)	0.072 (0.074)	0.22 (0.23)	0.43 (0.44)	1.12 (/)	1.46 (1.51)	1.87 (1.97)
Applicable drive (SV670)	S1R6	S1R6	S1R6	S2R8	S5R5	S5R5	S7R6
Applicable drive (SV660)	S1R6	S1R6	S1R6	S2R8	S5R5	S5R5	S7R6

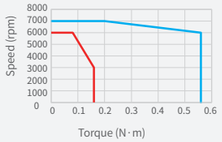
Note: [3] MS1-R series H4 models can be used to replace MS1-Z series H1/H4 motor models.
[4] For motors matching IS620 and IS650 series servo drives, see the related selection guide of the drive.
Motor type：18C15CB、20C30CB、25C30CD、50C30CD matching with different power of drive，the motor max. torque value is different, please refer the T-N curve to select.

Torque-Speed Characteristics of MS1-R Motors with 26-bit Battery-less Encoder

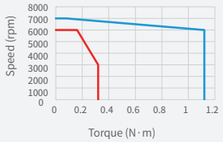
MS1H1 low inertia, small capacity

A Continuous duty zone
B Intermittent duty zone

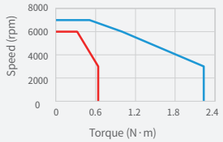
MS1H1-05B30CB-V63 ☐ R-INT



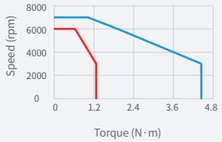
MS1H1-10B30CB-V63 ☐ R-INT



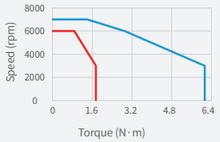
MS1H1-20B30CB-V63 ☐ R-INT



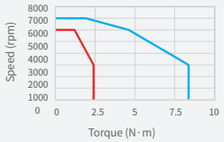
MS1H1-40B30CB-V63 ☐ R-INT



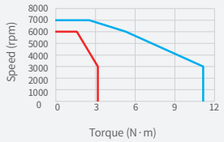
MS1H1-55B30CB-V63 ☐ R-INT



MS1H1-75B30CB-V63 ☐ R-INT



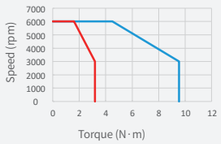
MS1H1-10C30CB-V63 ☐ R-INT



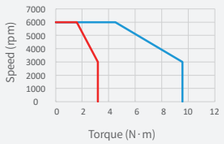
MS1H2 low inertia, small capacity

A Continuous duty zone
B Intermittent duty zone

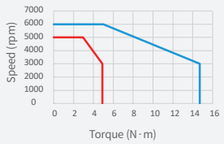
MS1H2-10C30CB-V63 ☐ R-INT



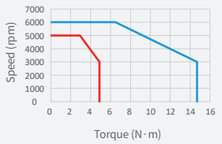
MS1H2-10C30CD-V63 ☐ R-INT



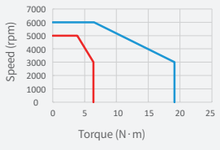
MS1H2-15C30CB-V63 ☐ R-INT



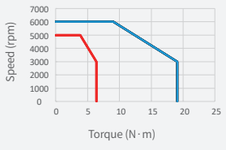
MS1H2-15C30CD-V63 ☐ R-INT



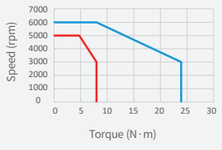
MS1H2-20C30CB-V63 ☐ R-INT



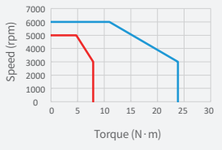
MS1H2-20C30CD-V63 ☐ R-INT



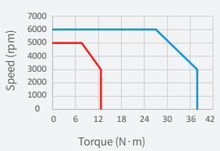
MS1H2-25C30CB-V63 ☐ R-INT



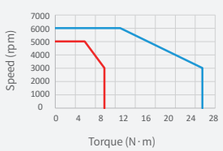
MS1H2-25C30CD-V63 ☐ R-INT



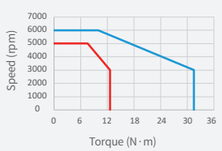
MS1H2-30C30CB-V63 ☐ R-INT



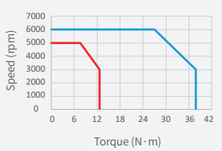
MS1H2-30C30CD-V63 ☐ R-INT



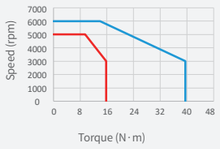
MS1H2-40C30CB-V63 ☐ R-INT



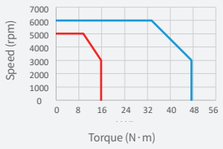
MS1H2-40C30CD-V63 ☐ R-INT



MS1H2-50C30CB-V63 ☐ R-INT



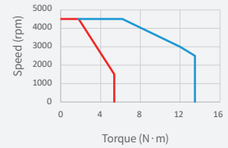
MS1H2-50C30CD-V63 ☐ R-INT



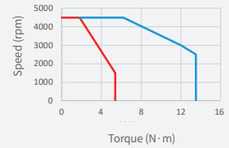
MS1H3 medium inertia, medium capacity

A Continuous duty zone
B Intermittent duty zone

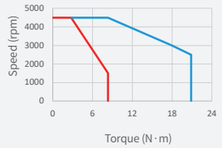
MS1H3-85B15CB-V63 ☐ R-INT



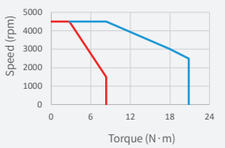
MS1H3-85B15CD-V63 ☐ R-INT



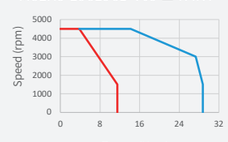
MS1H3-13C15CB-V63 ☐ R-INT



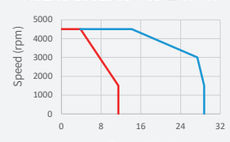
MS1H3-13C15CD-V63 ☐ R-INT



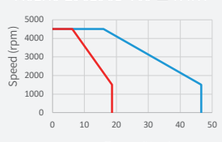
MS1H3-18C15CB-V63 ☐ R-INT



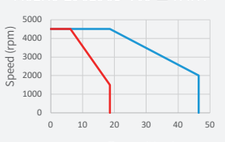
MS1H3-18C15CD-V63 ☐ R-INT



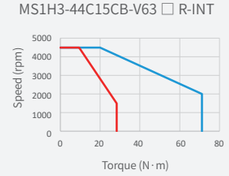
MS1H3-29C15CB-V63 ☐ R-INT



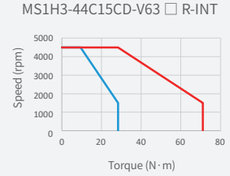
MS1H3-29C15CD-V63 ☐ R-INT



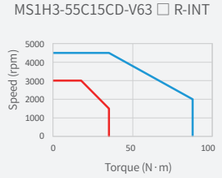
MS1H3-44C15CB-V63 ☐ R-INT



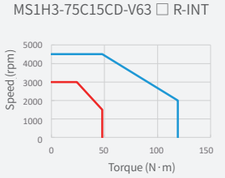
MS1H3-44C15CD-V63 ☐ R-INT



MS1H3-55C15CD-V63 ☐ R-INT



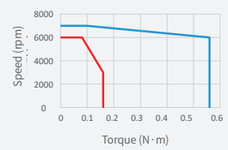
MS1H3-75C15CD-V63 ☐ R-INT



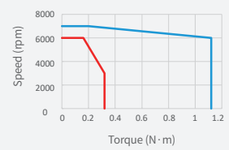
MS1H4 medium inertia, small capacity

A Continuous duty zone
B Intermittent duty zone

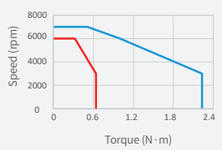
MS1H4-05B30CB-V63 ☐ R-INT



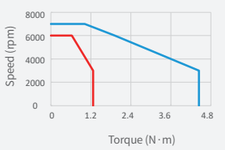
MS1H4-10B30CB-V63 ☐ R-INT



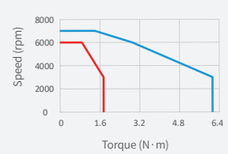
MS1H4-20B30CB-V63 ☐ R-INT



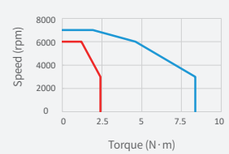
MS1H4-40B30CB-V63 ☐ R-INT



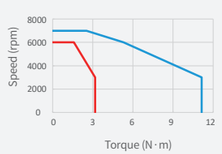
MS1H4-55B30CB-V63 ☐ R-INT



MS1H4-75B30CB-V63 ☐ R-INT



MS1H4-10C30CB-V63 ☐ R-INT

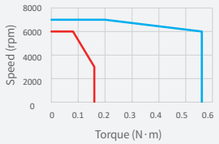


Torque-Speed Characteristics of MS1-R Motors with 23-bit Battery-less Encoder

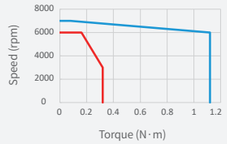
MS1H1 low inertia, small capacity

A Continuous duty zone
B Intermittent duty zone

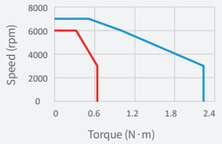
MS1H1-05B30CB-V33 ☐ R-INT



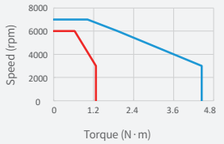
MS1H1-10B30CB-V33 ☐ R-INT



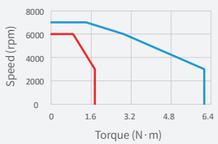
MS1H1-20B30CB-V33 ☐ R-INT



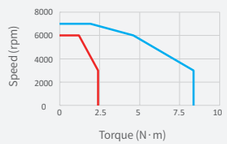
MS1H1-40B30CB-V33 ☐ R-INT



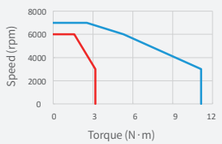
MS1H1-55B30CB-V33 ☐ R-INT



MS1H1-75B30CB-V33 ☐ R-INT



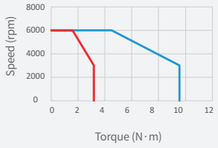
MS1H1-10C30CB-V33 ☐ R-INT



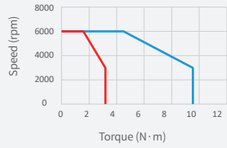
MS1H2 low inertia, small capacity

A Continuous duty zone
B Intermittent duty zone

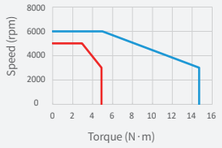
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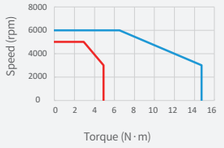
MS1H2-10C30CD-V33 ☐ R-INT



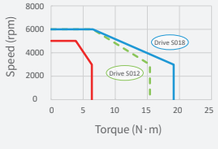
MS1H2-15C30CB-V33 ☐ R-INT



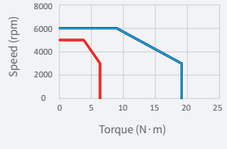
MS1H2-15C30CD-V33 ☐ R-INT



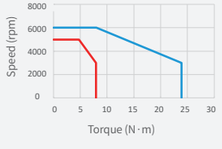
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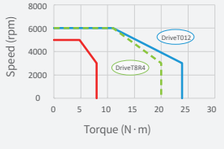
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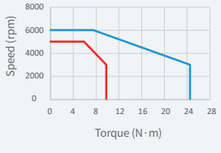
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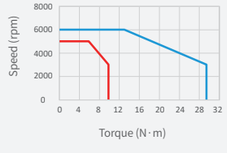
MS1H2-25C30CD-V33 ☐ R-INT



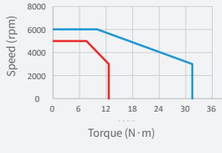
MS1H2-30C30CB-V33 ☐ R-INT



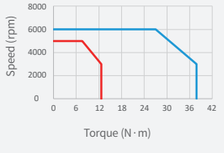
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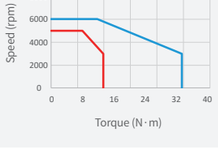
MS1H2-40C30CB-V33 ☐ R-INT



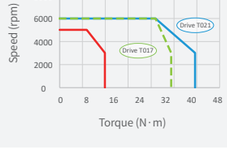
MS1H2-40C30CD-V33 ☐ R-INT



MS1H2-50C30CB-V33 ☐ R-INT



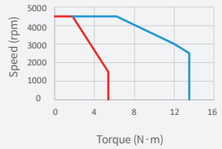
MS1H2-50C30CD-V33 ☐ R-INT



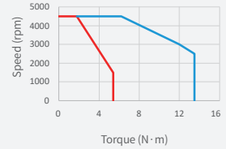
MS1H3 medium inertia, medium capacity

A Continuous duty zone
B Intermittent duty zone

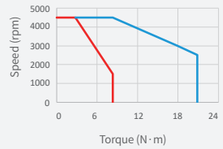
MS1H3-85B15CB-V33 ☐ R-INT



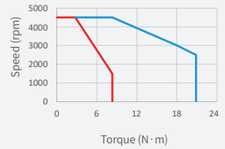
MS1H3-85B15CD-V33 ☐ R-INT



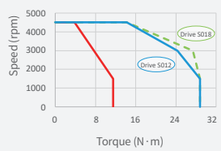
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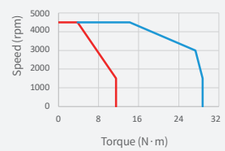
MS1H3-13C15CD-V33 ☐ R-INT



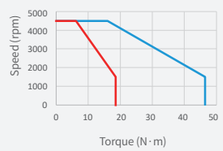
MS1H3-18C15CB-V33 ☐ R-INT



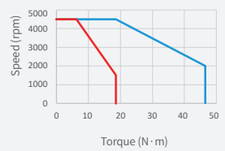
MS1H3-18C15CD-V33 ☐ R-INT



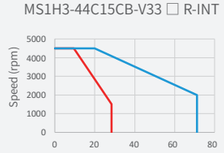
MS1H3-29C15CB-V33 ☐ R-INT



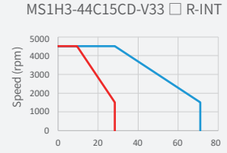
MS1H3-29C15CD-V33 ☐ R-INT



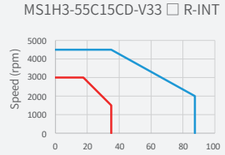
MS1H3-44C15CB-V33 ☐ R-INT



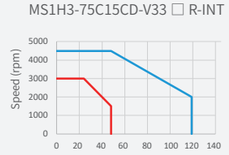
MS1H3-44C15CD-V33 ☐ R-INT



MS1H3-55C15CD-V33 ☐ R-INT



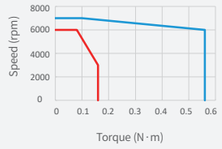
MS1H3-75C15CD-V33 ☐ R-INT



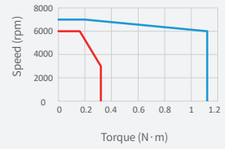
MS1H4 medium inertia, small capacity

A Continuous duty zone
B Intermittent duty zone

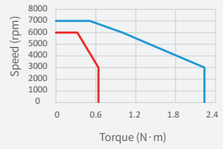
MS1H4-05B30CB-V33 ☐ R-INT



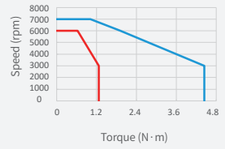
MS1H4-10B30CB-V33 ☐ R-INT



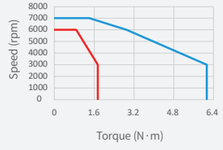
MS1H4-20B30CB-V33 ☐ R-INT



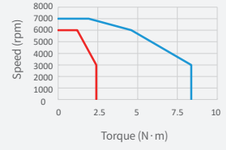
MS1H4-40B30CB-V33 ☐ R-INT



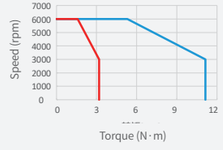
MS1H4-55B30CB-V33 ☐ R-INT



MS1H4-75B30CB-V33 ☐ R-INT

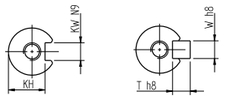


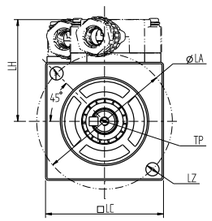
MS1H4-10C30CB-V33 ☐ R-INT

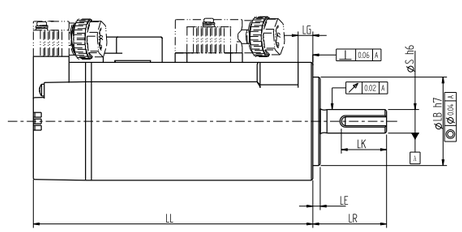


Dimensions of MS1-R Series H1/H4 Motors

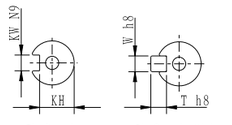
Flange size 40

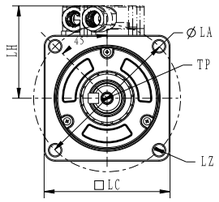


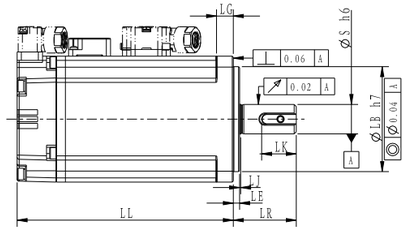




Flange size 60/80







Motor Model		LC (mm)	LL (mm)	LR (mm)	LA (mm)	LZ (mm)	LH (mm)	LG (mm)	LE (mm)	LJ (mm)	LB (mm)
Flange size 40	MS1H1-05B30CB-□□3□R-INT[1]	40	57 (84.3)	25±0.5	46	2-Ø4.5	34.5	5	2.5±0.5	-	Ø30h7 $^{0}_{-0.021}$
	MS1H1-10B30CB-□□3□R-INT[1]	40	69.5 (96.8)	25±0.5	46	2-Ø4.5	34.5	5	2.5±0.5	-	Ø30h7 $^{0}_{-0.021}$
	MS1H4-05B30CB-□□3□R-INT[2]	40	53.5 (80.8)	25±0.5	46	2-Ø4.5	34.5	5	2.5±0.5	-	Ø30h7 $^{0}_{-0.021}$
	MS1H4-05B30CB-□□3□R-INT[3]	40	65.15 (83.45)	25±0.5	46	2-Ø4.5	34.5	5	2.5±0.5	-	Ø30h7 $^{0}_{-0.021}$
	MS1H4-10B30CB-□□3□R-INT[2]	40	64.5 (91.8)	25±0.5	46	2-Ø4.5	34.5	5	2.5±0.5	-	Ø30h7 $^{0}_{-0.021}$
	MS1H4-10B30CB-□□3□R-INT[3]	40	67.15 (94.45)	25±0.5	46	2-Ø4.5	34.5	5	2.5±0.5	-	Ø30h7 $^{0}_{-0.021}$

Motor Model		S (mm)	TP (mm)	LK[4] (mm)	KH (mm)	KW (mm)	W (mm)	T (mm)	Weight[5] (kg)
Flange size 40	MS1H1-05B30CB-□□3□R-INT	8	M3×6	14 $^{0}_{-0.36}$	6.2 $^{0}_{-0.1}$	3	3	3	0.26 (0.43)
	MS1H1-10B30CB-□□3□R-INT	8	M3×6	14 $^{0}_{-0.36}$	6.2 $^{0}_{-0.1}$	3	3	3	0.35 (0.52)
	MS1H4-05B30CB-□□3□R-INT	8	M3×6	14 $^{0}_{-0.36}$	6.2 $^{0}_{-0.1}$	3	3	3	0.24 (0.40)
	MS1H4-05B30CB-□□3□R-INT	8	M3×6	14 $^{0}_{-0.36}$	6.2 $^{0}_{-0.1}$	3	3	3	0.26 (0.42)
	MS1H4-10B30CB-□□3□R-INT	8	M3×6	14 $^{0}_{-0.36}$	6.2 $^{0}_{-0.1}$	3	3	3	0.32 (0.48)
	MS1H4-10B30CB-□□3□R-INT	8	M3×6	14 $^{0}_{-0.36}$	6.2 $^{0}_{-0.1}$	3	3	3	0.34 (0.50)

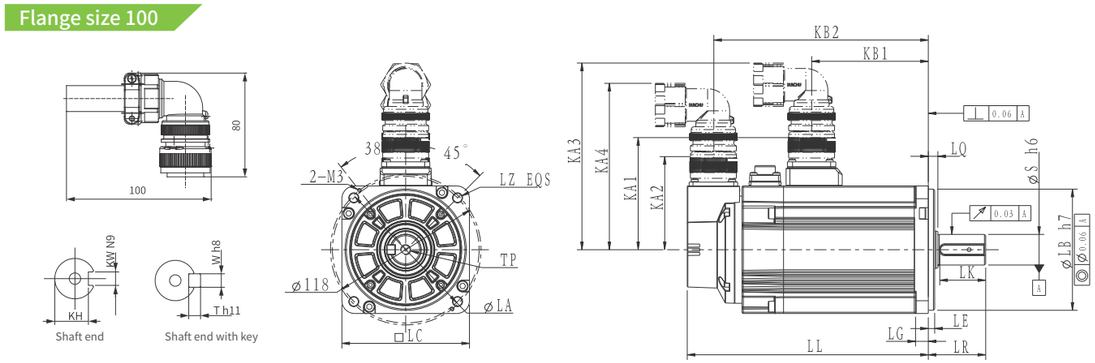
Motor Model		LC (mm)	LL (mm)	LR (mm)	LA (mm)	LZ (mm)	LH (mm)	LG (mm)	LE (mm)	LJ (mm)	LB (mm)
Flange size 60/80	MS1H1-20B30CB-□□3□R-INT	60	75.5 (103)	30±0.5	70	4-Ø5.5	44	8	3±0.5	-	Ø50h7 $^{0}_{-0.025}$
	MS1H1-40B30CB-□□3□R-INT	60	93 (121)	30±0.5	70	4-Ø5.5	44	8	3±0.5	-	Ø50h7 $^{0}_{-0.021}$
	MS1H1-55B30CB-□□3□R-INT	80	96.7 (/)	35±0.5	90	4-Ø7	54	7.5	3±0.5	0.5±0.35	Ø70h7 $^{0}_{-0.03}$
	MS1H1-75B30CB-□□3□R-INT	80	107.3 (141.5)	35±0.5	90	4-Ø7	54	7.5	3±0.5	0.5±0.35	Ø70h7 $^{0}_{-0.03}$
	MS1H1-10C30CB-□□3□R-INT	80	119.2 (153.4)	35±0.5	90	4-Ø7	54	7.5	3±0.5	0.5±0.35	Ø70h7 $^{0}_{-0.03}$
	MS1H4-20B30CB-□□3□R-INT	60	73.5 (101.1)	30±0.5	70	4-Ø5.5	44	8	3±0.5	-	Ø50h7 $^{0}_{-0.025}$
	MS1H4-40B30CB-□□3□R-INT	60	92 (119.8)	30±0.5	70	4-Ø5.5	44	8	3±0.5	-	Ø50h7 $^{0}_{-0.021}$
	MS1H4-55B30CB-□□3□R-INT	80	96.7 (/)	35±0.5	90	4-Ø7	54	8	3±0.5	0.5±0.35	Ø70h7 $^{0}_{-0.03}$
	MS1H4-75B30CB-□□3□R-INT	80	107.3 (140.5)	35±0.5	90	4-Ø7	54	8	3±0.5	0.5±0.35	Ø70h7 $^{0}_{-0.03}$
	MS1H4-10C30CB-□□3□R-INT	80	118.7 (153.2)	35±0.5	90	4-Ø7	54	8	3±0.5	0.5±0.35	Ø70h7 $^{0}_{-0.03}$

Motor Model		S (mm)	TP (mm)	LK (mm)	KH (mm)	KW (mm)	W (mm)	T (mm)	Weight (kg)
Flange size 60/80	MS1H1-20B30CB-□□3□R-INT	14	M5×8	16.5 $^{0}_{-0.53}$	11 $^{0}_{-0.1}$	5	5	5	0.80 (1.17)
	MS1H1-40B30CB-□□3□R-INT	14	M5×8	16.5 $^{0}_{-0.53}$	11 $^{0}_{-0.1}$	5	5	5	1.11 (1.48)
	MS1H1-55B30CB-□□3□R-INT	19	M6×20	25 $^{0}_{-0.62}$	15.5 $^{0}_{-0.1}$	6	6	6	1.88 (/)
	MS1H1-75B30CB-□□3□R-INT	19	M6×20	25 $^{0}_{-0.62}$	15.5 $^{0}_{-0.1}$	6	6	6	2.22 (2.88)
	MS1H1-10C30CB-□□3□R-INT	19	M6×20	25 $^{0}_{-0.62}$	15.5 $^{0}_{-0.1}$	6	6	6	2.61 (3.27)
	MS1H4-20B30CB-□□3□R-INT	14	M5×8	16.5 $^{0}_{-0.53}$	11 $^{0}_{-0.1}$	5	5	5	0.78 (1.16)
	MS1H4-40B30CB-□□3□R-INT	14	M5×8	16.5 $^{0}_{-0.53}$	11 $^{0}_{-0.1}$	5	5	5	1.11 (1.48)
	MS1H4-55B30CB-□□3□R-INT	19	M6×20	25 $^{0}_{-0.62}$	15.5 $^{0}_{-0.1}$	6	6	6	1.85 (/)
	MS1H4-75B30CB-□□3□R-INT	19	M6×20	25 $^{0}_{-0.62}$	15.5 $^{0}_{-0.1}$	6	6	6	2.18 (2.82)
	MS1H4-10C30CB-□□3□R-INT	19	M6×20	25 $^{0}_{-0.62}$	15.5 $^{0}_{-0.1}$	6	6	6	2.55 (2.9)

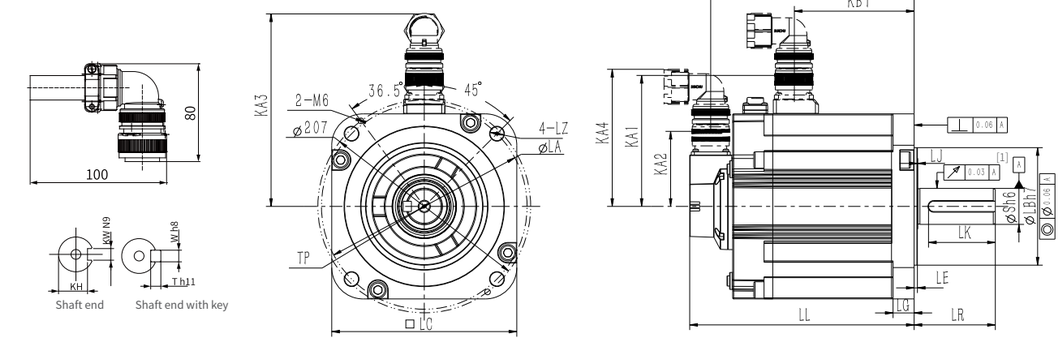
Note : [1] Flange size 40mm with H1 type motors are not equipped with an oil seal.
[2] Flange size 40mm without oil seal types.
[3] Flange size 40mm with oil seal types.
[4] LK is the length of shaft key.
[5] Values in the parentheses are for the motor with brake types.

Dimensions of MS1-R Series H2/H3 Motors

Flange size 100



Flange size 130/180



Motor Model		LC (mm)	LL (mm)	LR (mm)	LA (mm)	LZ (mm)	KA1 (mm)	KB1 (mm)	KA2 (mm)	KB2 (mm)	LG (mm)	LE (mm)
Flange size 100	MS1H2-10C30CB- □□ 3 □ R-INT MS1H2-10C30CD- □□ 3 □ R-INT	100	144 (172)	45±1	115	4 — Ø7	88	75	73	123.5 (151.5)	10	5±0.3
	MS1H2-15C30CB- □□ 3 □ R-INT MS1H2-15C30CD- □□ 3 □ R-INT	100	161 (189)	45±1	115	4 — Ø7	88	92	73	140.5 (168.5)	10	5±0.3
	MS1H2-20C30CB- □□ 3 □ R-INT MS1H2-20C30CD- □□ 3 □ R-INT	100	177 (205)	45±1	115	4 — Ø7	88	108	73	156.5 (184.5)	10	5±0.3
	MS1H2-25C30CB- □□ 3 □ R-INT MS1H2-25C30CD- □□ 3 □ R-INT	100	195 (223)	45±1	115	4 — Ø7	88	126	73	174.5 (202.5)	10	5±0.3

Motor Model		LQ (mm)	LB (mm)	S (mm)	TP (mm)	LK[2] (mm)	KH (mm)	KW (mm)	W (mm)	T (mm)	Weight[3] (kg)
Flange size 100	MS1H2-10C30CB- □□ 3 □ R-INT MS1H2-10C30CD- □□ 3 □ R-INT	7.5±0.75	Ø95h7 $^{0}_{-0.035}$	24	M8×16	35 $^{0}_{-0.62}$	20 $^{0}_{-0.2}$	8	8	7	3.85 (4.9)
	MS1H2-15C30CB- □□ 3 □ R-INT MS1H2-15C30CD- □□ 3 □ R-INT	7.5±0.75	Ø95h7 $^{0}_{-0.035}$	24	M8×16	35 $^{0}_{-0.62}$	20 $^{0}_{-0.2}$	8	8	7	4.65 (5.75)
	MS1H2-20C30CB- □□ 3 □ R-INT MS1H2-20C30CD- □□ 3 □ R-INT	7.5±0.75	Ø95h7 $^{0}_{-0.035}$	24	M8×16	35 $^{0}_{-0.62}$	20 $^{0}_{-0.2}$	8	8	7	5.5 (6.55)
	MS1H2-25C30CB- □□ 3 □ R-INT MS1H2-25C30CD- □□ 3 □ R-INT	7.5±0.75	Ø95h7 $^{0}_{-0.035}$	24	M8×16	35 $^{0}_{-0.62}$	20 $^{0}_{-0.2}$	8	8	7	6.3 (7.35)

Motor Model		LC (mm)	LL (mm)	LR (mm)	LA (mm)	LZ (mm)	KA1 (mm)	KB1 (mm)	KA2 (mm)	KB2 (mm)	LG (mm)	LE (mm)
Flange size 130	MS1H2-30C30CB- □□ 3 □ R-INT MS1H2-30C30CD- □□ 3 □ R-INT	130	198 (223)	63±1	145	4 — Ø9	102.4	127.5	73	177.5 (202.5)	10.5	6±0.3
	MS1H2-40C30CB- □□ 3 □ R-INT MS1H2-40C30CD- □□ 3 □ R-INT	130	236 (261)	63±1	145	4 — Ø9	102.4	165.5	73	215.5 (240.5)	10.5	6±0.3
	MS1H2-50C30CB- □□ 3 □ R-INT MS1H2-50C30CD- □□ 3 □ R-INT	130	274 (299)	63±1	145	4 — Ø9	102.4	203.5	73	253.5 (278.5)	10.5	6±0.3
	MS1H3-85B15CB- □□ 3 □ R-INT MS1H3-85B15CD- □□ 3 □ R-INT	130	142 (167)	55±1	145	4 — Ø9	103	70	73	121.5 (146.5)	14	4
	MS1H3-13C15CB- □□ 3 □ R-INT MS1H3-13C15CD- □□ 3 □ R-INT	130	157 (182)	55±1	145	4 — Ø9	103	85	73	136.5 (161.5)	14	4
	MS1H3-18C15CB- □□ 3 □ R-INT MS1H3-18C15CD- □□ 3 □ R-INT	130	172 (197)	55±1	145	4 — Ø9	103	100	73	151.5 (176.5)	14	4

Motor Model		LJ (mm)	LB (mm)	S (mm)	TP (mm)	LK (mm)	KH (mm)	KW (mm)	W (mm)	T (mm)	Weight (kg)
Flange size 130	MS1H2-30C30CB- □□ 3 □ R-INT MS1H2-30C30CD- □□ 3 □ R-INT	0.5±0.75	Ø110h7 $^{0}_{-0.035}$	28	M8×20	53 $^{0}_{-0.62}$	24 $^{0}_{-0.2}$	8	8	7	10.0 (11.9)
	MS1H2-40C30CB- □□ 3 □ R-INT MS1H2-40C30CD- □□ 3 □ R-INT	0.5±0.75	Ø110h7 $^{0}_{-0.035}$	28	M8×20	53 $^{0}_{-0.62}$	24 $^{0}_{-0.2}$	8	8	7	13.2 (15.1)
	MS1H2-50C30CB- □□ 3 □ R-INT MS1H2-50C30CD- □□ 3 □ R-INT	0.5±0.75	Ø110h7 $^{0}_{-0.035}$	28	M8×20	53 $^{0}_{-0.62}$	24 $^{0}_{-0.2}$	8	8	7	16.5 (18.25)
	MS1H3-85B15CB- □□ 3 □ R-INT MS1H3-85B15CD- □□ 3 □ R-INT	0.5±0.75	Ø110h7 $^{0}_{-0.035}$	22	M6×20	35 $^{0}_{-0.62}$	18 $^{0}_{-0.2}$	8	8	7	5.8 (7.7)
	MS1H3-13C15CB- □□ 3 □ R-INT MS1H3-13C15CD- □□ 3 □ R-INT	0.5±0.75	Ø110h7 $^{0}_{-0.035}$	22	M6×20	35 $^{0}_{-0.62}$	18 $^{0}_{-0.2}$	8	8	7	7.1 (8.9)
	MS1H3-18C15CB- □□ 3 □ R-INT MS1H3-18C15CD- □□ 3 □ R-INT	0.5±0.75	Ø110h7 $^{0}_{-0.035}$	22	M6×20	35 $^{0}_{-0.62}$	18 $^{0}_{-0.2}$	8	8	7	8.5 (10.3)

Motor Model		LC (mm)	LL (mm)	LR (mm)	LA (mm)	LZ (mm)	KA1 (mm)	KB1 (mm)	KA2 (mm)	KB2 (mm)	LG (mm)	LE (mm)
Flange size180	MS1H3-29C15CB- □□ 3 □ R-INT MS1H3-29C15CD- □□ 3 □ R-INT	180	161 (194.8)	79±1	200	4-Ø13.5	127.4	93.5	73	140.5 (174.3)	20.5	3.2±0.3
	MS1H3-44C15CB- □□ 3 □ R-INT	180	184.5 (218.3)	79±1	200	4-Ø13.5	127.4	117	73	164 (197.8)	20.5	3.2±0.3
	MS1H3-44C15CD- □□ 3 □ R-INT	180	184.5 (218.3)	79±1	200	4-Ø13.5	127.4	117	73	164 (197.8)	20.5	3.2±0.3
	MS1H3-55C15CD- □□ 3 □ R-INT	180	208 (241.8)	113±1	200	4-Ø13.5	127.4	140.5	73	187.5 (221.3)	20.5	3.2±0.3
	MS1H3-75C15CD- □□ 3 □ R-INT	180	255 (288.8)	113±1	200	4-Ø13.5	127.4	187.5	73	234.5 (268.5)	20.5	3.2±0.3

Motor Model		LJ (mm)	LB (mm)	S (mm)	TP (mm)	LK (mm)	KH (mm)	KW (mm)	W (mm)	T (mm)	Weight (kg)
Flange size 180	MS1H3-29C15CB- □□ 3 □ R-INT MS1H3-29C15CD- □□ 3 □ R-INT	0.3±0.75	Ø114.3h7 $^{0}_{-0.035}$	35	M12×25	64 $^{0}_{-0.74}$	30 $^{0}_{-0.2}$	10	10	8	13.8 (17.9)
	MS1H3-44C15CB- □□ 3 □ R-INT	0.3±0.75	Ø114.3h7 $^{0}_{-0.035}$	35	M12×25	64 $^{0}_{-0.74}$	30 $^{0}_{-0.2}$	10	10	8	17.4 (21.9)
	MS1H3-44C15CD- □□ 3 □ R-INT	0.3±0.75	Ø114.3h7 $^{0}_{-0.035}$	35	M12×25	64 $^{0}_{-0.74}$	37 $^{0}_{-0.2}$	10	10	8	17.4 (21.6)
	MS1H3-55C15CD- □□ 3 □ R-INT	0.3±0.75	Ø114.3h7 $^{0}_{-0.035}$	42	M16×32	95 $^{0}_{-0.87}$	37 $^{0}_{-0.2}$	12	12	8	21.7 (25.9)
	MS1H3-75C15CD- □□ 3 □ R-INT	0.3±0.75	Ø114.3h7 $^{0}_{-0.035}$	42	M16×32	95 $^{0}_{-0.87}$	37 $^{0}_{-0.2}$	12	12	8	29 (33.2)

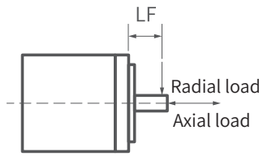
Note :

[1] The radial runout on the shaft extension end of the 130H3-flange motors is: ⟋ 0.02 A

[2] LK is the length of shaft key.

[3] Values in the parentheses are for the motor with brake.

Axial/Radial Allowable Load



Motor Model	Flange Size (mm)	LF (mm)	Allowable Radial Load (N)	Allowable Axial Load (N)
MS1H1-05B30CB- □□ 3 □ R-INT MS1H1-10B30CB- □□ 3 □ R-INT MS1H4-05B30CB- □□ 3 □ R-INT MS1H4-10B30CB- □□ 3 □ R-INT	40	20	78	54
MS1H1-20B30CB- □□ 3 □ R-INT MS1H1-40B30CB- □□ 3 □ R-INT MS1H4-20B30CB- □□ 3 □ R-INT MS1H4-40B30CB- □□ 3 □ R-INT	60	25	245	74
MS1H1-55B30CB- □□ 3 □ R-INT MS1H1-75B30CB- □□ 3 □ R-INT MS1H1-10C30CB- □□ 3 □ R-INT MS1H4-55B30CB- □□ 3 □ R-INT MS1H4-75B30CB- □□ 3 □ R-INT MS1H4-10C30CB- □□ 3 □ R-INT	80	35	392	147
MS1H2-10C30CB- □□ 3 □ R-INT MS1H2-10C30CD- □□ 3 □ R-INT MS1H2-15C30CB- □□ 3 □ R-INT MS1H2-15C30CD- □□ 3 □ R-INT MS1H2-20C30CB- □□ 3 □ R-INT MS1H2-20C30CD- □□ 3 □ R-INT MS1H2-25C30CB- □□ 3 □ R-INT MS1H2-25C30CD- □□ 3 □ R-INT	100	45	686	196
MS1H2-30C30CB- □□ 3 □ R-INT MS1H2-30C30CD- □□ 3 □ R-INT MS1H2-40C30CB- □□ 3 □ R-INT MS1H2-40C30CD- □□ 3 □ R-INT MS1H2-50C30CB- □□ 3 □ R-INT MS1H2-50C30CD- □□ 3 □ R-INT	130	63	1176	392
MS1H3-85B15CB- □□ 3 □ R-INT MS1H3-85B15CD- □□ 3 □ R-INT MS1H3-13C15CB- □□ 3 □ R-INT MS1H3-13C15CD- □□ 3 □ R-INT MS1H3-18C15CB- □□ 3 □ R-INT MS1H3-18C15CD- □□ 3 □ R-INT	130	55	686	196
MS1H3-29C15CB- □□ 3 □ R-INT MS1H3-29C15CD- □□ 3 □ R-INT MS1H3-44C15CB- □□ 3 □ R-INT MS1H3-44C15CD- □□ 3 □ R-INT	180	79	1470	490
MS1H3-55C15CD- □□ 3 □ R-INT MS1H3-75C15CD- □□ 3 □ R-INT	180	113	1764	588

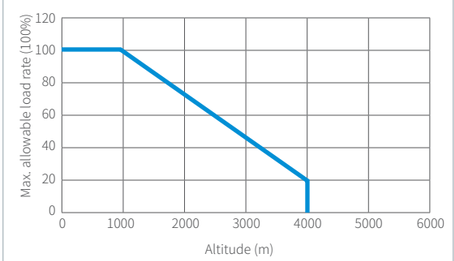
Technical Data for the Motor with Brake

Motor Model	Holding Torque (N·m)	Supply Voltage (V DC)±10%	Rated Power (W)	Coil Resitance (Ω)±7%	Exciting Current (A)	Release Time (ms)	Apply Time (ms)	Backlash (°)
MS1H1-05B/10B MS1H4-05B/10B	0.32	24	6.1	94.4	0.25	⩽ 20	⩽ 40	⩽ 1.5
MS1H1/4-20B/40B	1.5	24	7.6	75.79	0.32	⩽ 20	⩽ 60	⩽ 1
MS1H1/4-75B/10C	3.2	24	10	57.6	0.42	⩽ 40	⩽ 60	⩽ 1
MS1H2-10C/15C/20C/25C	8	24	17.6	32.73	0.73	⩽ 40	⩽ 100	⩽ 1
MS1H2-30C/40C/50C	16.5	24	24	24	1	⩽ 60	⩽ 120	⩽ 1
MS1H3-85B/13C/18C	16.5	24	24	24	1	⩽ 60	⩽ 120	⩽ 1
MS1H3-29C/44C/55C/75C	55	24	31	18.58	1.29	⩽ 100	⩽ 200	⩽ 1

Note:
· The holding brake cannot be used for braking purpose.
· The brake release time and apply time vary with the discharging circuit. Check the actual action delay of the product during use.
· 24 VDC power supplies need to be prepared by users.

Derating Characteristics

Altitude-based derating curve



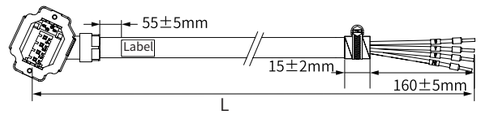
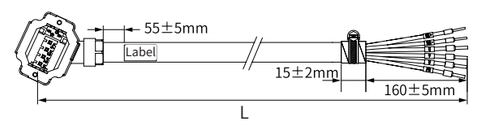
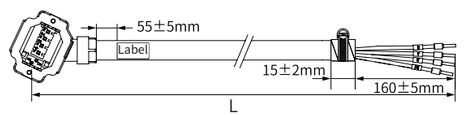
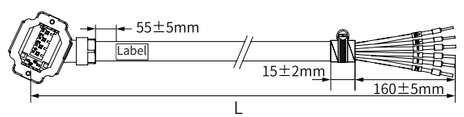
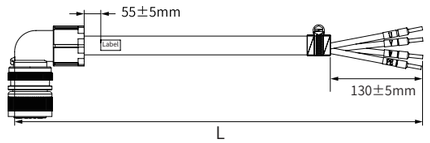
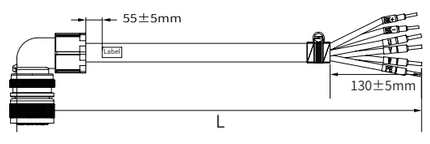
Applicable Cable Selection

Ordering code for power cable

S6-L-M 0 0 1 - 3.0 - T - INT
① ② ③ ④ ⑤ ⑥ ⑦

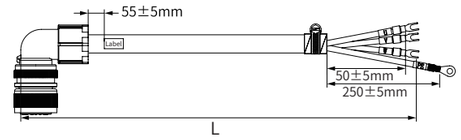
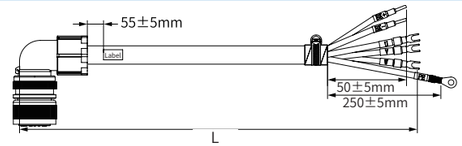
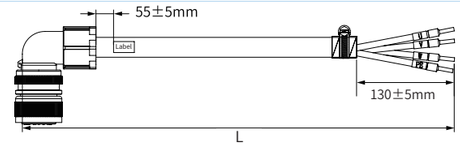
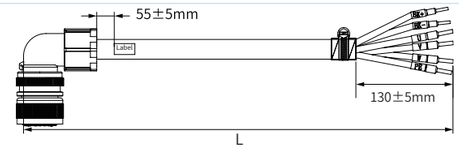
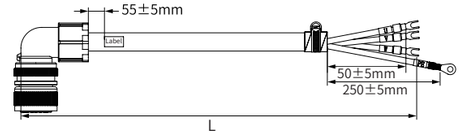
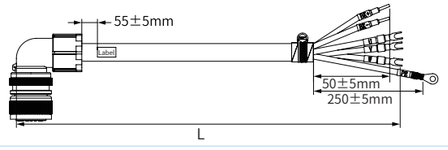
① Servo system power cable B: With brake M: Without brake	③ Applicable power of the motor 0: Frame sizes 40/60/80 1: Frame sizes 100/130/180 2: Frame size 180 (motors of 4.4kW and above)	⑤ Cable length (m) 3.0: 3 5.0: 5 10.0: 10
② Connector type at drive side 0: U-shaped cable lug 1: Pin-shaped cable lug	④ Connector type at motor side 1: 9-core aviation connector 2: 6-core aviation connector 7: Specified connector for FS 40/60/80mm motor (front outlet) 8: Specified connector for FS 40/60/80mm motor (rear outlet)	⑥ Special requirements Null: Non-flexible T: Flexible cables ⩾ 10 million bendings
		⑦ Version INT: Global version

Power cable

Motor Model	Cable Name	Cable Model	Cable Length (mm)	Dimension Drawing
MS1H1/ MS1H4 terminal-type motor	Without brake (Front outlet)	S6-L-M107-3.0 (-T) -INT	3000	
		S6-L-M107-5.0 (-T) -INT	5000	
		S6-L-M107-10.0 (-T) -INT	10000	
	With brake (Front outlet)	S6-L-B107-3.0 (-T) -INT	3000	
		S6-L-B107-5.0 (-T) -INT	5000	
		S6-L-B107-10.0 (-T) -INT	10000	
	Without brake (Rear outlet)	S6-L-M108-3.0 (-T) -INT	3000	
		S6-L-M108-5.0 (-T) -INT	5000	
		S6-L-M108-10.0 (-T) -INT	10000	
	With brake (Rear outlet)	S6-L-B108-3.0 (-T) -INT	3000	
		S6-L-B108-5.0 (-T) -INT	5000	
		S6-L-B108-10.0 (-T) -INT	10000	
MS1H2 motors of 3 kW and below/ MS1H3 motors of 1.8 kW and below	Without brake	S6-L-M111-3.0 (-T) -INT	3000	
		S6-L-M111-5.0 (-T) -INT	5000	
		S6-L-M111-10.0 (-T) -INT	10000	
	With brake	S6-L-B111-3.0 (-T) -INT	3000	
		S6-L-B111-5.0 (-T) -INT	5000	
		S6-L-B111-10.0 (-T) -INT	10000	

Applicable Cable Selection

Power cable

Motor Model	Cable Name	Cable Model	Cable Length (mm)	Dimension Drawing
MS1H2 motors of 4 kW/5 kW	Without brake	S6-L-M011-3.0 (-T) -INT	3000	
		S6-L-M011-5.0 (-T) -INT	5000	
		S6-L-M011-10.0 (-T) -INT	10000	
	With brake	S6-L-B011-3.0 (-T) -INT	3000	
		S6-L-B011-5.0 (-T) -INT	5000	
		S6-L-B011-10.0 (-T) -INT	10000	
MS1H3 motors of 2.9 kW	Without brake	S6-L-M112-3.0 (-T) -INT	3000	
		S6-L-M112-5.0 (-T) -INT	5000	
		S6-L-M112-10.0 (-T) -INT	10000	
	With brake	S6-L-B112-3.0 (-T) -INT	3000	
		S6-L-B112-5.0 (-T) -INT	5000	
		S6-L-B112-10.0 (-T) -INT	10000	
MS1H3 motors of 4.4 kW and above	Without brake	S6-L-M022-3.0 (-T) -INT	3000	
		S6-L-M022-5.0 (-T) -INT	5000	
		S6-L-M022-10.0 (-T) -INT	10000	
	With brake	S6-L-B022-3.0 (-T) -INT	3000	
		S6-L-B022-5.0 (-T) -INT	5000	
		S6-L-B022-10.0 (-T) -INT	10000	

Note:
· For more information on cables, see section Cable Specifications and Models in the hardware guide of the servo drive.
· Power cable with shielded as standard.
· -T: Flexible cable is optional.
· Encoder cable with shielded as standard.

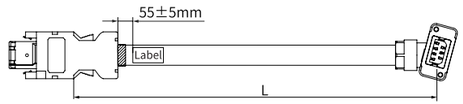
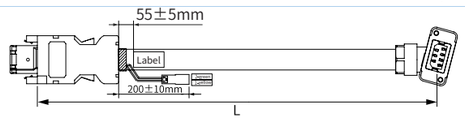
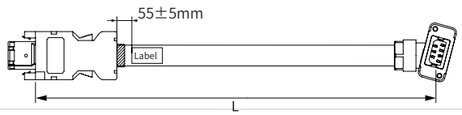
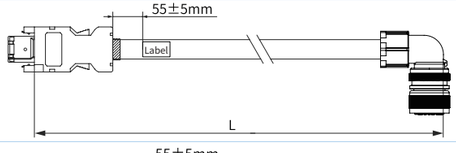
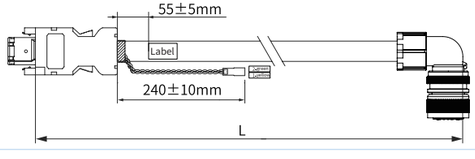
Applicable Cable Selection

Ordering code for Encoder cable

S6-L-P 1 2 1 - 3.0 - T - INT
① ② ③ ④ ⑤ ⑥ ⑦

① Servo system encoder cable	④ Connector type at motor sider 1: 9-core aviation connector 4: Specified connector for FS 40/60/80mm motor (front outlet) 5: Specified connector for FS 40/60/80mm motor (rear outlet)	⑥ Special requirements Null: Non-flexible T: Flexible cables ⩾ 10 million bendings
② Connector type at drive side 1: 1394 Connector (6pin plug)		
③ Encoder 1: Communication-type incremental encoder 2: Multi-turn absolute encoder	⑤ Cable length(m) 3.0: 3m 5.0: 5m 10.0: 10m	⑦ Version INT: Global version

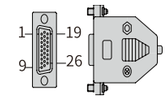
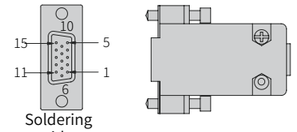
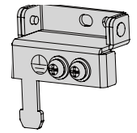
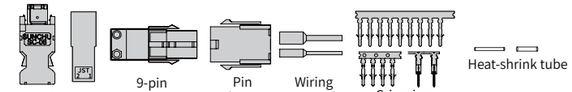
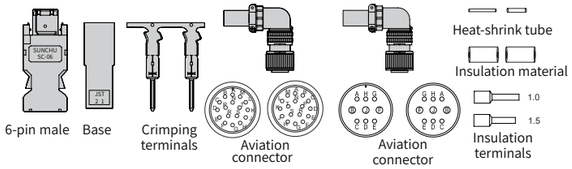
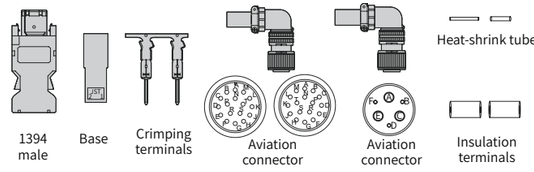
Encoder cable

Motor Model	Cable Name		Cable Model	Cable Length (mm)	Dimension Drawing
MS1H1/ MS1H4 terminal-type motors	Front outlet	Single-turn absolute encoder	S6-L-P114-3.0 (-T) -INT	3000	
			S6-L-P114-5.0 (-T) -INT	5000	
			S6-L-P114-10.0 (-T) -INT	10000	
		Multi-turn absolute encoder	S6-L-P124-3.0 (-T) -INT	3000	
			S6-L-P124-5.0 (-T) -INT	5000	
			S6-L-P124-10.0 (-T) -INT	10000	
	Rear outlet	Single-turn absolute encoder	S6-L-P115-3.0 (-T) -INT	3000	
			S6-L-P115-5.0 (-T) -INT	5000	
			S6-L-P115-10.0 (-T) -INT	10000	
		Multi-turn absolute encoder	S6-L-P125-3.0 (-T) -INT	3000	
			S6-L-P125-5.0 (-T) -INT	5000	
			S6-L-P125-10.0 (-T) -INT	10000	
MS1H2/ MS1H3 motors	Single-turn absolute encoder		S6-L-P111-3.0 (-T) -INT	3000	
			S6-L-P111-5.0 (-T) -INT	5000	
			S6-L-P111-10.0 (-T) -INT	10000	
	Multi-turn absolute encoder		S6-L-P121-3.0 (-T) -INT	3000	
			S6-L-P121-5.0 (-T) -INT	5000	
			S6-L-P121-10.0 (-T) -INT	10000	

Note:
· Encoder cable for MS1-R series motor with V6/S6/A6/V3/A3 types of encoder are same.
· For more information on cables, see section of【Cable Specifications and Models】in the hardware guide of the servo drive.
· Encoder cable with shielded as standard.
· -T: Flexible cable is optional for drag drain application.

Connector Kits

Overview of connector kits

Name	Model	Outline Drawing
CN1 terminal (DB26)	S6-C74	 Male
CN7 terminal (DB15)	S6-C6	 Soldering side
Shield bracket	S6-C25 S6-C25 (optional for size A to size C)	
	S6-C27 S6-C27 (optional for size D to size E)	
MS1H1/MS1H4 terminal-type motor connector	S6-C26	 6-pin male, Base, 9-pin connector, Pin base, Wiring terminals, Crimping terminals, Heat-shrink tube
MS1H2/MS1H3 motor (1.8 kW and below) connector	S6-C29	 6-pin male, Base, Crimping terminals, Aviation connector, Aviation connector, Heat-shrink tube, Insulation material, Insulation terminals
MS1H3 motor (2.9kW and above) connector	S6-C39	 1394 male, Base, Crimping terminals, Aviation connector, Aviation connector, Heat-shrink tube, Insulation terminals

Note:
· Don't need to order battery kit for battery-less encoder motor.
· For multi-turn use, please refer to the parameter description of H02.01 to set the multi-turn model from servo drive manual.