YASKAWA

7 ultimate e-motional solutions e-motional solution

AC Servo Drives

Σ-7 SERIES

Σ-7 Rotary Servomotors

- Compact dimensions (approximately 80% smaller than earlier models)
- High-resolution 24-bit encoder incorporated (16,777,216 pulses/rev)
- Maximum torque: 350% (small capacity)

High-resolution, 24-bit encoder

Σ-7 Servomotors (50 W or greater) use encoders with a resolution that are 16 times higher than those used in Σ-V Servomotors.

Encoder resolution comparison

Σ-V series
20 bits =
1 million pulses/rev (approx.)

Σ-7 series
24 bits =
16 million pulses/rev (approx.)
16 times higher!

Solution for 50-W or greater models.

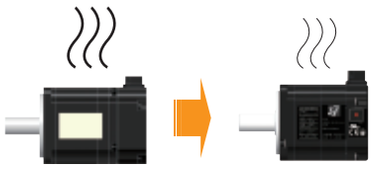
Servomotors with 24-bit batteryless absolute encoders have also been added to the lineup.

High Efficiency and Low Heat Generation

Σ-7 Servomotors use an optimized magnetic circuit that improves motor efficiency and reduces heat generation. (comparison with typical models)

About 20% reduction in temperature increase!

(under the same conditions)



Σ-V series → Σ-7 series

Model

SGMMV	10 W	30 W
SGM7J	50 W	750W
SGM7A	50 W	7kW
SGM7P	100 W	1.5kW
SGM7G	300 W	15kW

Σ-7S Single-axis SERVOPACKs

- 3.1 kHz response frequency
- Optimized for specific applications, new models in EX and FT to be released
- Improved vibration suppression

Σ-7W Two-axis SERVOPACKs

- 2-axis SERVOPACKs (200 W x 2 axes to 1 kW x 2 axes)
- 3.1 kHz response frequency
- Improved vibration suppression

Σ-7C Two-axis SERVOPACKs with Built-in Controllers

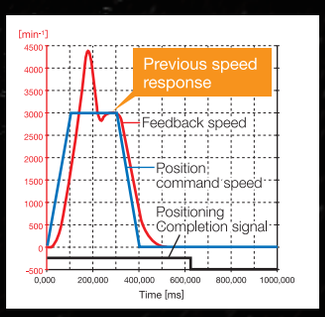
- 3.1 kHz response frequency
- Build small scale equipment system without PLC using one SERVOPACK

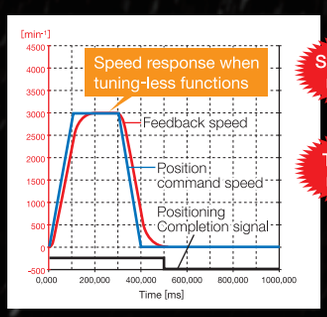
No need to adjust servo gains

With Yaskawa's original turning-less function, systems can run without vibration for a load with 30 times (max.) of load moment of inertia. Systems remain stable even with load changes during operation.

	Σ-V Series	Σ-7 Series
Allowable load moment of inertia ratio	30 times (max.)	30 times (max.)
Max. control gain	Speed loop gain 40 Hz (approx.)	Speed loop gain 70 Hz (approx.)

When the allowable load moment of inertia ratio is 30 times:





Product Lineup

7 ultimate e-motional solutions Σ-7

Servomotors

Rotary Servomotors

Low Inertia

Model	SGMMV	SGM7A
Rated Output	10W - 30W	50W - 7kW

Medium Inertia

Model	SGM7J	SGM7P	SGM7G
Rated Output	50W - 750W	100W - 1.5kW	300W - 15kW

Direct Drive Servomotors

With core, outer rotor

With core, inner rotor

Model	SGM7D	Small Capacity SGM7F/SGMCV	Medium Capacity SGM7F/SGMCS
Rated Torque	1.30N.m - 240N.m	2.00N.m - 35.0N.m	45.0N.m - 200N.m

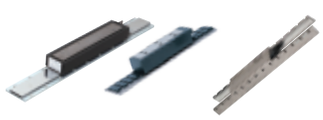
Coreless inner rotor

Model	Small Capacity SGM7E/SGMCS
Rated Torque	2.00N.m - 35.0N.m

Linear Servomotors

Coreless Motor

With iron core



Model	SGLG	SGLFW2	SGLFW	SGLT
Rated Force	12.5N - 750N	45N - 1680N	25N - 1120N	130N - 900N

SERVOPACKs

Σ-7S (Single-axis)

Analog Voltage/Pulse Train Reference
SGD7S-□□□□00A

MECHATROLINK-II Communications Reference
SGD7S-□□□□10A

MECHATROLINK-III Communications Reference
SGD7S-□□□□20A

INDEXER Module-Mounted
SGD7S-□□□□E0A□□□10□

DeviceNet Module-Mounted
SGD7S-□□□□E0A□□□50□
SGD7S-□□□□E0A□□□60□

EtherCAT Communications Reference
SGD7S-□□□AA0A

FT Specifications

FT Specifications:

FT19: Less Deviation control
FT21: Feed Shaft response function
FT40: Pressure Feedback control
FT41: Pressure feedback control handling
FT62: Fixed-point throughputs, rotation system coordinates
FT77: Built-in torque assistance function
FT79: Built-in INDEXER

Σ-7W (Two-axis)

MECHATROLINK-III Communications Reference
SGD7W-□□□A20A

Σ-7C (Two-axis)

Built-in, Controllers Bus Connection Reference
SGD7C-□□□AMAA□□□

Option Modules

Fully-Closed Module
SGDV-OFA01A

Safety Module
SGDV-OSA01A

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