SANYO DENKI

SANYO DENKI's servo systems have evolved to a whole new level

ALL NEW

High-Performance Servo Systems

SANMOTION G

AC SERVO SYSTEMS

SANMOTION G
AC SERVO SYSTEMS

Servo Amplifier

Lineup

Analog/Pulse **EtherCAT**

AC/DC 100 V class: 10 A, 20 A, 30 A
AC/DC 200 V class: 10 A, 20 A, 30 A, 50 A

Speed frequency response
3.5 kHz
(1.6 times higher than our conventional product)

Positioning settling time
3 times shorter
than that of our conventional product

Realizes system status monitoring and preventive maintenance with a variety of diagnostic functions

Next-Level Servo System That Combines Strength and Flexibility

Servo Motor

Lineup

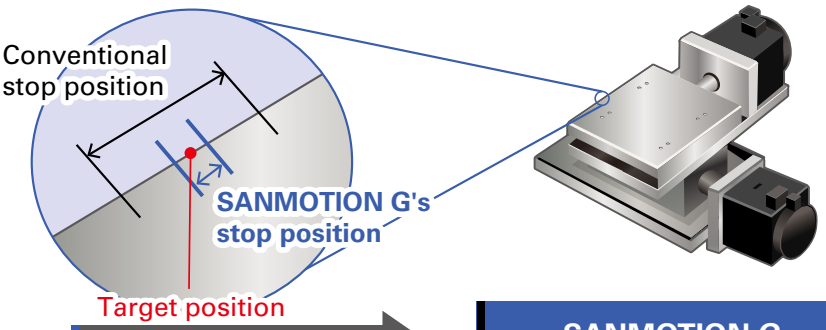
200 V class: Medium inertia... 40 mm to 130 mm, 30 W to 1.5 kW
Low inertia..... 40 mm to 100 mm, 50 W to 1.5 kW
100 V class: Medium inertia... 40 mm to 60 mm, 30 W to 200 W
Low inertia..... 40 mm to 60 mm, 50 W to 200 W

Motor length up to 22% shorter	**High-resolution encoder up to 27-bit**	**Max. speed 6500 min^{-1}**	**Newly developed holding brake with increased reliability**

The Servo System That Delivers What Customers Desire

Need the positioning to be stable with high precision

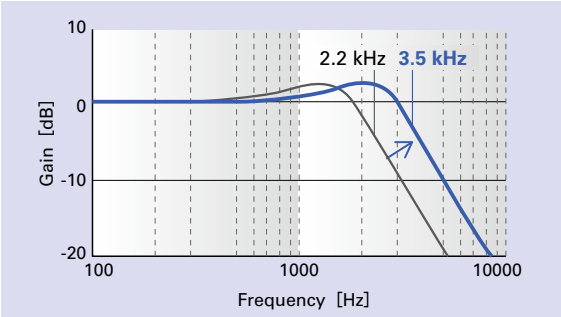
This product comes with a **23-bit encoder as standard** (64 times that of our conventional model*), and even an encoder with a maximum of 27-bit high resolution can be selected as an option. The high-resolution encoder enables high-precision, stable positioning.



Conventional product
17 bit: 131,072 P/R

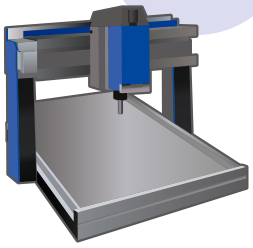
SANMOTION G
23 bit: 8,388,608 P/R
27 bit: 134,217,728 P/R

Want to improve processing quality with high-response control



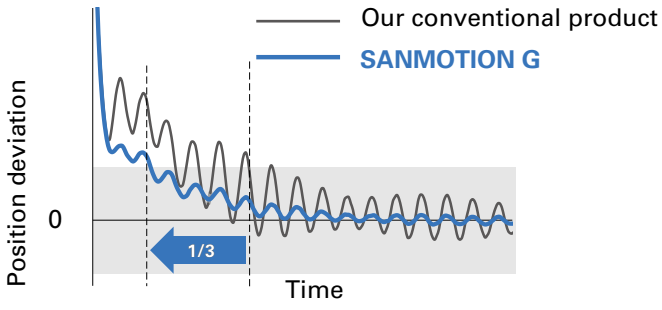
With newly developed current control, speed frequency response has been increased to **3.5 kHz** (1.6 times higher than our conventional product*) This helps improve the processing quality of machinery.

Increased processing quality

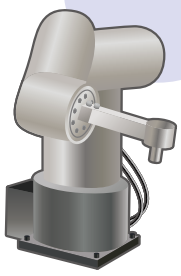


Need a quick positioning

By accurately detecting and compensating for Coulomb friction, viscous friction, and the force of gravity, the positioning settling time has been shortened **5.5 ms**, which is **1/3** that of our conventional product.*

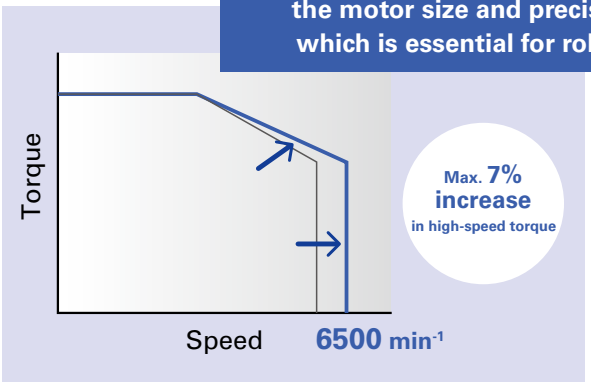


Quick positioning



Want a faster motor without size increase

Faster motor speed while maintaining the motor size and precision, which is essential for robots



The servo motor's maximum speed has been increased from 6000 min^{-1} to **6500 min^{-1}** compared to our conventional product.*
A combination of a new PWM control and the faster motor speed has expanded the motor output range, speeding up the system without using a larger motor.
Moreover, the motor has low cogging effect and low heat generation.

Want to make your equipment smaller and lighter

By optimizing the electromagnetic field and the brake structure, the motor length and weight have been reduced compared to our conventional product.*

Motor length	Without brake: 12.2% shorter
	With brake: 11.9% shorter
Motor mass	Without brake: 10.5% lighter
	With brake: 11.4% lighter

Average value of all low and medium inertia servo motor models

With optimized thermal design and smaller components used, the servo amplifier has been made 5% lighter than our conventional product.*

Want to make your system more efficient

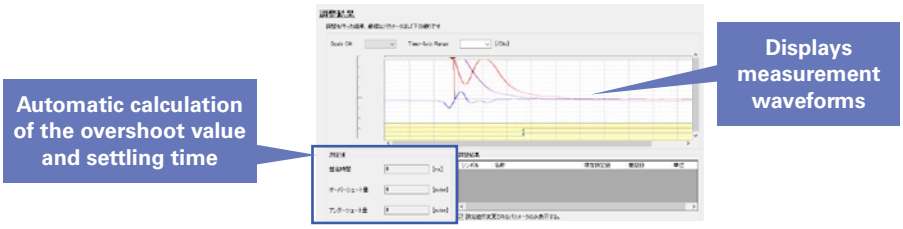
Compared to our conventional product,* power consumption of servo motors and holding brakes has been reduced by up to **8.4%** and **44%**, respectively.
The servo amplifier's power loss has been reduced by up to **26%** in the main circuit thanks to the latest power device used and up to **16%** in the control circuit thanks to a high-efficiency LSI (large-scale integrated) circuit.

ECO PRODUCTS

* Conventional product: SANMOTION R AC servo systems

Want equipment startup to be faster

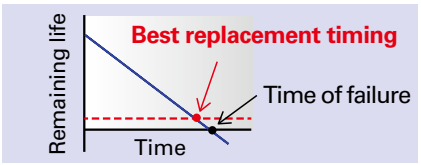
This product is equipped with the **advanced tuning** that ensures automatic tuning of parameters by precisely measuring resonance, friction, and load inertia of mechanical systems. Frequency characteristics can be measured with an 11-fold higher precision than our conventional product.* Based on this information, parameters are tuned automatically to stabilize motion and shorten positioning settling time. Startup time of equipment can be shortened and its performance can be increased.



The screen capture shown above is the Japanese version

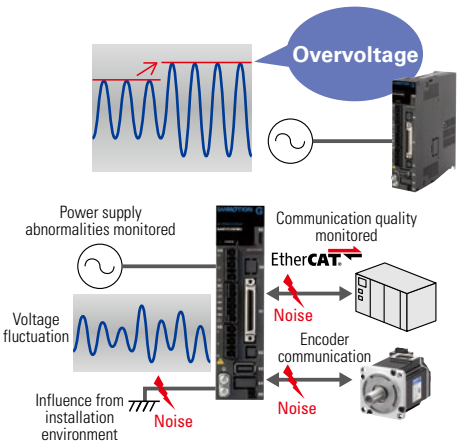
Want to enhance monitoring to prevent failures

Failure of holding brake and electronic components can be prevented by predicting the remaining life of the holding brake, in systems where braking is needed, and by optimally controlling the inrush current limiting circuit.

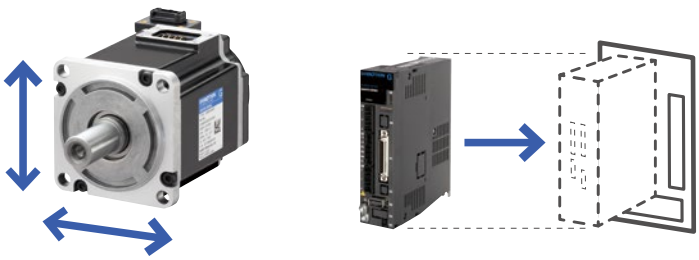


The monitoring of the main circuit input voltage and the detection of overvoltage in the control circuit power supply can be performed. Early identification of faults can help **shorten system downtime**.

The quality of encoder and EtherCAT communication can be diagnosed. The impact on communication quality due to noise and installation environments can be monitored, contributing to improving the environmental durability of the system.



Want to replace your current system without a hassle



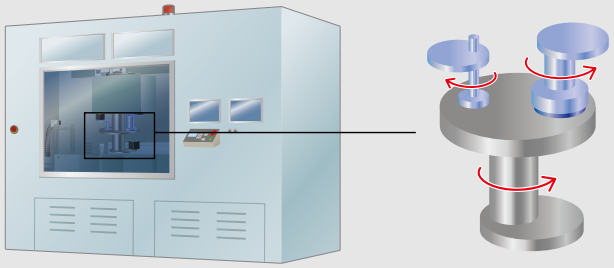
With the motor flange size, output shaft shape, amplifier dimensions, mounting, interface, and functionality fully compatible with our conventional SANMOTION R series, replacement can be done smoothly.

* Conventional product: SANMOTION R AC servo systems

Application Examples

In semiconductor factories
CMP (chemical mechanical polishing) equipment

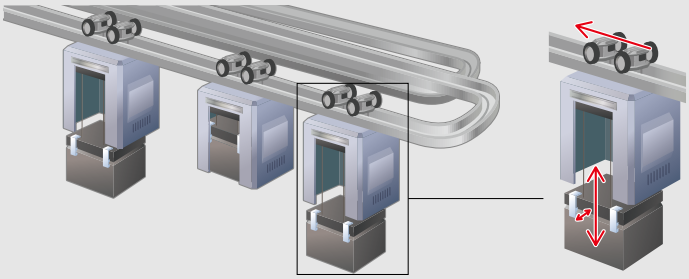
Used for polishing and flattening semiconductor wafers



Servo systems are used to rotate semiconductor wafers and rotary tables. SANMOTION G is ideal for semiconductor manufacturing applications, where smooth, precise positioning is required.

In semiconductor factories
Overhead conveyor

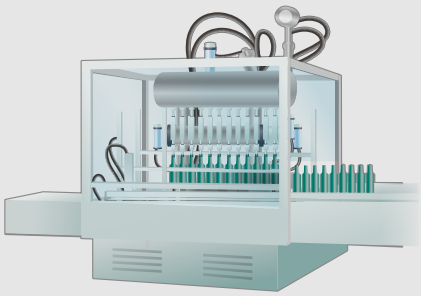
Automatic conveyor equipment that is suspended from and moves along the guide rails installed overhead



Servo systems are used to move conveyor trolleys, and grab and move up and down the boxes containing semiconductor wafers, making efficient semiconductor manufacturing possible.

In food/beverage factories
Filling machine

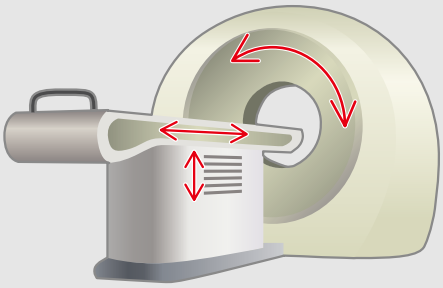
Used to fill containers with liquids



With high-precision synchronous control of water- and dust-resistant motors, this servo system can be used with confidence in machines that handle food and beverages.

In hospitals
CT scanner

Used to perform a scan of a patient to create cross-sectional images of the body by using a rotating X-ray tube and a row of detectors



Servo systems are used for the gantry drive axis, and the vertical and horizontal bed moving axes. This application requires high vibration resistance and smooth motion.

Servo amplifiers	Features	Amplifier capacity [A]	Compatible servo motor output [kW]
Analog/Pulse	This servo amplifier can enhance the value of equipment by increasing responsiveness and ensuring safety with a variety of safety functions.	AC/DC 100 V class 10, 20, 30	0.03 to 0.2
		AC/DC 200 V class 10, 20, 30, 50	0.03 to 1.5
EtherCAT	EtherCAT, a high-speed fieldbus, is an open network with high versatility and widely used with high-precision industrial equipment. It can be used in combination with our SANMOTION C motion controller.	AC/DC 100 V class 10, 20, 30	0.03 to 0.2
		AC/DC 200 V class 10, 20, 30, 50	0.03 to 1.5

Servo motors	Input voltage	Flange size [mm]	Rated output [kW]
Medium-inertia servo motor These motors feature high efficiency and low ripple, and are suitable for robots, injection molding machines, and general industrial machinery.	100 V	40 mm sq.	0.03, 0.05, 0.1
		60 mm sq.	0.1, 0.2
	200 V	40 mm sq.	0.03, 0.05, 0.1, 0.15
		60 mm sq.	0.1, 0.2, 0.4, 0.6
		80 mm sq.	0.2, 0.4, 0.75, 1
		86 mm sq.	0.75, 1
		100 mm sq.	0.75, 1, 1.5
		130 mm sq.	0.55, 1.2
Low-inertia servo motor These motors feature high-acceleration drive and high torque even at high speeds. They are suitable for injection molding machines and general industrial machinery.	100 V	40 mm sq.	0.05, 0.1
		60 mm sq.	0.2
	200 V	40 mm sq.	0.05, 0.1, 0.15
		60 mm sq.	0.2, 0.4, 0.6
		80 mm sq.	0.75, 1
		100 mm sq.	1, 1.5

■ Standard motor specifications
- Shaft: Circular or with key
- Power/brake connection: 40 to 86 mm ... SANMOTION G motor dedicated connector, 100 to 130 mm ... Circular connector
- Encoder connection: 40 to 86 mm ... SANMOTION G motor dedicated connector, 100 to 130 mm ... Circular connector
- Ingress protection: IP67

■ Encoder options: Battery-backup absolute encoder, wire-saving incremental encoder, etc.

SANYO DENKI CO., LTD. 3-33-1 Minami-Otsuka, Toshima-ku, Tokyo 170-8451, Japan TEL: +81 3 5927 1020 https://www.sanyodenki.com/

CATALOG No.S1058B001 '22.5