

**YASKAWA**

# **SIGMA-7 SERVO SYSTEMS**

THE NEXT REVOLUTION IN MOTION AUTOMATION



# MORE FROM YOUR MACHINE

## Seven advances that give Sigma-7 greater automation effectiveness

Sigma-7 is engineered to bring new responsiveness, reliability and effectiveness to the automation that powers your productivity. The Sigma-7 family of rotary, direct drive and linear servo products continue the legacy of the Sigma series, which has set the standard in innovation and reliability for a quarter century.

### IMPROVED PERFORMANCE

Nearly double the servo bandwidth of the Sigma-5 series, with increased feedback resolution and improved vibration suppression functions that maximize your machine's speed and accuracy.

### EASIER APPLICATION

Automatic servo tuning right out of the box, plus software that makes automation commissioning faster and easier.

### MORE CHOICES

A full range of standard, direct drive and linear servos from 50W to 15kW, ready to interface with the most in-demand motion networks.

### ENVIRONMENTALLY FRIENDLY

Able to withstand more rigorous environmental conditions, with features that conserve energy without compromising performance.



### SMALLER SIZE

Dual-axis SERVOPACKs and smaller motor sizes to meet end-user demands for a more compact machine footprint.

### SAFETY AND SECURITY

New designs which improve machine safety, temperature performance and servo motor life, simplifying machine design and maintenance.

### EASY COMPATIBILITY

Sigma-7 directly replaces Sigma-5, offering a performance boost without the need to change any element of your system design.



# PERFORMANCE FACTS

## 3.1 KHZ FREQUENCY RESPONSE

Nearly double the servo bandwidth of the Sigma-5 systems that set the industry standard in performance

## NEW TUNING FUNCTIONS

Vibration suppression, anti-resonance compensation, friction model compensation and ripple compensation improve machine speed, accuracy and smoothness

## IMPROVED TUNING-LESS MODE

Delivers reliable stability with inertia ratios up to 30:1. Tuning gains adjust automatically and continually to provide consistent motion despite load changes

## 24-BIT ABSOLUTE ENCODER FEEDBACK

Provides 16 times better resolution than the industry-leading Sigma-5

## 20% REDUCTION

Motor size and motor heating reduced for better efficiency and easier implementation

## NEW DUAL-AXIS SERVOPACKS

Save space and reduce enclosure size



## COMPANION GERMOTORS

Five different sizes and six gear ratios, all factory tested for guaranteed performance.



## SIGMA-5 COMPATIBILITY

Interchangeable mounting dimensions, parameters convert to Sigma-7 with SigmaWin+ software (included at no charge)

## NETWORK COMPATIBILITY

Includes built-in MECHATROLINK-III, EtherCAT and analog interfaces

## BUILT-IN SAFETY

Features with IEC 61508, SIL 3 Safe Torque Off in Sigma-7 SERVOPACKs

## NEW THERMAL SENSORS

Thermal sensors on servo motors and SERVOPACKs directly monitor machine temperatures

## BETTER RATINGS

At higher temperature environments (60°C ambient), at higher altitudes (>2,000 meters) or in harsh motor environments (IP67 rated)

## REGENERATIVE POWER SHARING

Available for dual-axis SERVOPACKs or DC-Bus connections with single-axis SERVOPACKs

## SERVICE LIFE MONITORING

Offers preventive maintenance data on key SERVOPACK components



# PRODUCT PORTFOLIO

## STANDARD ROTARY

The world's largest manufacturer of servo motors brings 25 years of design innovation into each Sigma-7 rotary servo. Choose from a wide range of sizes, speeds and torque ratings, then add an amplifier and an MPIec controller to create a complete motion automation system.

100/200 V Servo Motors			
Low Inertia		Medium Inertia	
	SGMMV 3 W - 30 W		SGM7P 100 W - 1.5 kW
	SGM7A 50 W - 7 kW		SGM7J 50 W - 750 W
			SGM7G 300 W - 15 kW

400 V Servo Motors			
Low Inertia		Medium Inertia	
	SGM7A 200 W - 5 kW		SGM7J 200 W - 1.5 kW
			SGM7G 300 W - 5 kW
			SGMVV 22 kW - 55 kW

SERVOPACKs			
1 Axis		2 Axis	
	SGD7S 50 W - 15 kW		SGD7W 200 W - 1 kW per axis

SERVOPACKs			
1 Axis		2 Axis	
	SGD7S 500 W - 15 kW		SGD7W 750 W - 1.5 kW per axis

**Control Interface Options:** EtherCAT, MECHATROLINK  
(Analog 100 V SERVOPACKs available from 50-400W)

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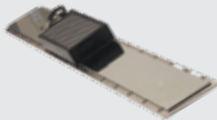


## DIRECT DRIVE ROTARY

Direct drive products save space, eliminate backlash and cut component costs, adding extra mechanical strength to stiffen dynamic applications.



200 V	
<b>SGM7F</b>	
	(Iron Core) 20–200 Nm rated torque, 600 rpm max speed
<b>SGM7E</b>	
	(Coreless) 2.0–35 Nm rated torque, 500 rpm max speed
<b>SGM7D</b>	
	(Iron Core) 1.30–240 Nm rated torque, 30–240 rpm

## DIRECT DRIVE LINEAR

Maximum speed and acceleration for linear motion. Choose from four designs to reduce compliance, replace mechanical linkages and create a better fit for your application.

200 V and 400 V	
<b>SGLG</b>	
	(Coreless) 40–3000 N peak force, 5 m/s max speed
<b>SGLF</b>	
	(Iron Core) 86–2400 N peak force, 5 m/s max speed
<b>SGLT</b>	
	(DoubleTrac) 380–7500 N peak force, 5 m/s max speed
<b>Sigma Trac II</b>	
	(Complete Linear Stage) 540 N peak force, 5 m/s max speed

## SERVOPACKS

1 Axis		2 Axis	
			
<b>SGD7S</b>	50W–15kW	<b>SGD7W</b>	200W–1kW/axis

Control Interface Options: EtherCAT, MECHATROLINK

YASKAWA.COM



Yaskawa is the leading global manufacturer of low and medium voltage variable frequency drives, servo systems, machine controllers and industrial robots. Our standard products, as well as tailor-made solutions, are well known and have a high reputation for outstanding quality and reliability.

# YASKAWA

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