

# 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 indemand 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.

# 27 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

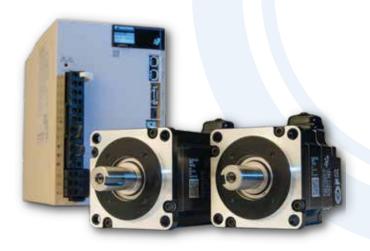
Provides 16 times better resolution than the industry-leading Sigma-5

### **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 GEARMOTORS

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		
<b>S</b>	18	5			
SGM7A	50 W - 7 kW	SGM7J	50 W - 750 W		

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

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

SGM7G

300 W - 15 kW

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



Control Interface Options: EtherCAT, MECHATROLINK

# **DIRECT DRIVE ROTARY**

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

# 200 V SGM7F (Iron Core) 20-200 Nm rated torque, 600 rpm max speed SGM7E (Coreless) 2.0-35 Nm rated torque, 500 rpm max speed SGM7D (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.





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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