

# SIGMA-7 SERVO SYSTEMS

THE NEXT REVOLUTION  
IN MOTION AUTOMATION



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NEW SERVO TECHNOLOGY  
LIFTS SPEED,  
PRECISION AND  
PRODUCTIVITY TO  
THE NEXT LEVEL

# 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.



## Drives Motors Controls

### *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.



# SIGMA-7 PERFORMANCE FACTS



- **3.1kHz 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** for 16x better resolution\*

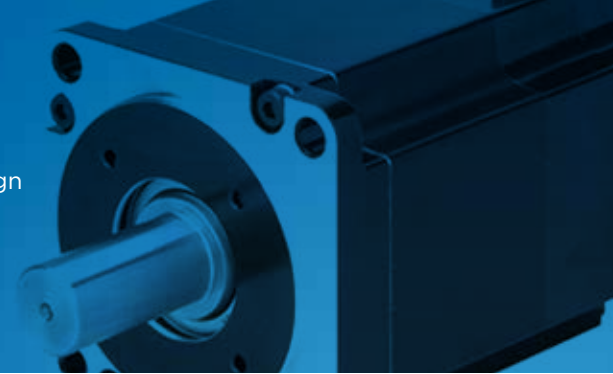
- **New Dual-axis SERVOPACKs** save space, reduce enclosure size
- **20% Reduction** in motor size and motor heating\*, for better efficiency and easier implementation
- **Companion gearmotors** in five different sizes and six gear ratios, all factory tested for guaranteed performance.
- **Complete Sigma-5 compatibility**. Interchangeable mounting dimensions, parameters convert to Sigma-7 with SigmaWin+ software (included at no charge)
- **Network compatibility** with 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** on servo motors and SERVOPACKs directly monitor machine temperatures
- **Better ratings** in higher temperature environments (60°C ambient), at higher altitudes (>2,000 meters) or in harsh motor environments (IP67 rated)
- **Regenerative Power Sharing** with Dual-axis SERVOPACKs or DC-Bus connections with single-axis SERVOPACKs
- **Service Life Monitoring** offers preventive maintenance data on key SERVOPACK components



\*In comparison to Sigma-5

## 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 MPic controller to create a complete motion automation system.



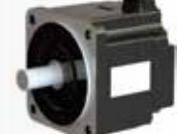
### 100/200V

#### LOW INERTIA ▼



SGMMV 3W-30W

#### MEDIUM INERTIA ▼



SGM7P 100W-1.5kW

### 400V

#### LOW INERTIA ▼



SGM7A 200W-1kW

#### MEDIUM INERTIA ▼



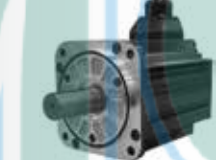
SGM7J 200W-1.5kW



SGM7A 50W-7kW



SGM7J 50W-750W



SGMSV 1kW-7kW



SGMGV 300W-15kW



SGM7G 300W-15kW



SGMVV 22kW-55kW

#### GEAR MOTORS

Available custom-fit for any rotary servo motor

### SERVOPACKS

#### 1 AXIS ▼



SGD7S 50W-15kW

#### 2 AXES ▼



SGD7W 200W-1kW/axis

### SERVOPACKS

#### 1 AXIS ▼



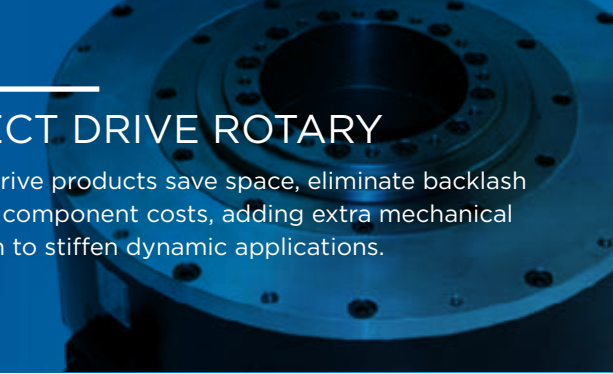
SGDV 500W-55kW

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

Control Interface Options: EtherCAT, MECHATROLINK, Analog

## DIRECT DRIVE ROTARY

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



### 200V



SGM7F  
(Iron Core)  
4.0-25Nm  
rated torque,  
600rpm  
max speed



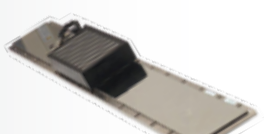
SGMCS  
(Coreless)  
2.0-200Nm  
rated torque,  
500rpm  
max speed

### 200V

#### 400V OPTIONS ALSO AVAILABLE



SGLG  
(Coreless)  
40-3,000 N  
peak force,  
5m/s  
max speed



SGLF  
(Iron Core)  
86-2,400 N  
peak force,  
5m/s  
max speed



SGLT  
(DoubleTrac)  
380-7,500 N  
peak force,  
5m/s  
max speed



Sigma Trac  
Assembly  
220-1200 N  
peak force,  
5m/s  
max speed

### SERVOPACKS

#### 1 AXIS ▼



SGD7S 50W-15kW

#### 2 AXES ▼



SGD7W 200W-1kW/axis

Control Interface Options: EtherCAT, MECHATROLINK, Analog

TO LEARN MORE ABOUT YASKAWA'S LEGENDARY  
RELIABILITY, UNBEATABLE PERFORMANCE AND  
EXCEPTIONAL VALUE, CONTACT YOUR YASKAWA  
SALES REPRESENTATIVE OR VISIT **YASKAWA.COM**.



## Drives Motors Controls

Yaskawa is the leading global manufacturer of inverter drives, servo drives, machine controllers, medium voltage inverters 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