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 adapt automatically and continue 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-II, EtherCAT and analog interfaces.

BUILT-IN SAFETY
Faults with IEC 61800-5-2 Safe Torque Off in Sigma-7 SERVOPACK.

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
Omits preventative maintenance data on key SERVOPACK components.
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 HMI controller to create a complete motion automation system.

**STANDARD ROTARY**

<table>
<thead>
<tr>
<th>SERVOPACKs</th>
<th>1 Axis</th>
<th>2 Axis</th>
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</thead>
<tbody>
<tr>
<td>SGD7S</td>
<td>50W – 15 kW</td>
<td></td>
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<tr>
<td>SGD7W</td>
<td>200W – 1 kW</td>
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</tbody>
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Control Interface Options: EtherCAT, HMI/Keypad, Modbus (Analog 100 V SERVOPACKs available from 50-400W)
**DIRECT DRIVE ROTARY**
Direct drive products save space, eliminate backlash and cut component costs, adding extra mechanical strength to stiffen dynamic applications.

**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.

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

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

### SGM7D (Iron Core)
- 1.30–240 Nm rated torque,
- 30-240 rpm max speed

### SGLG (Coreless)
- 40–3000 N peak force,
- 5 m/s max speed

### SGLF (Iron Core)
- 86–2400 N peak force,
- 5 m/s max speed

### SGLT (DoubleTrac)
- 380–7500 N peak force,
- 5 m/s max speed

### Sigma Trac II (Complete Linear Stage)
- 540 N peak force,
- 5 m/s max speed

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**SERVOPACKs**

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**Control Interface Options:** EtherCAT, MECHATROLINK
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.