



AC SERVO DRIVES

SIGMA-5 LARGE CAPACITY

EN

DE



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Experience and Innovation

Since 1915 YASKAWA has manufactured and supplied products for machine building and industrial automation. Our standard products as well as tailor-made solutions are famous and have a high reputation for outstanding quality and durability.

YASKAWA is the leading global manufacturer of inverter drives, servo drives, machine controllers, medium voltage inverters, and industrial robots. Founded in 1915, YASKAWA has been a pioneer in motion control and drive technology, launching product innovations, which optimise the productivity and efficiency of both machines and systems.



Today YASKAWA produces more than 1.8 million inverters per year. Considering this, we are probably the biggest inverter manufacturer in the world.



Furthermore, with a yearly production of more than 800,000 servomotors and 20,000 robots we offer a wide range of products for drive automation processes in many different industries such as mining, steel, machine tools, automotive, packaging, woodworking, textiles and semiconductors.

YASKAWA technology is used in all fields of machine building and industrial automation and has a high reputation for its outstanding performance and quality.

Wherever You Are – Our Local Support is Near.



Employing more than 14,600
People Worldwide

More than 1,350 Employees in
Worldwide Service Network

More than 1,000 Employees in
Europe

Powerful and Smart

The strongest Sigma-5 line-up ever! Newest Sigma-5 servo drives increase speeds and improve performance with cleaner, lighter and more compact equipment. Easy to use and easy to set up with Sigma-5 high standard of excellence.



Separated converter

Compact converter and amplifier

Supports newest Sigma-5 functions and optional modules

20 bit serial encoder

Compatible with a wide variety of reference interfaces

Compliance with Global Standards

The Sigma-5 Large Capacity Motors and SERVOPACKs extend the power range to up to 55 kW. With the Sigma-5 Mini starting from 3.3 W the Sigma-5 series is suitable for a stunning broad range of applications.

3,3 W

22 kW

Sigma-5
Large Capacity

55 kW

Sigma-5 power range with the Large Capacity Motors and SERVOPACKs made for 22 kW to 55 kW applications.

Efficient High Performance Applications

The YASKAWA Sigma-5 Servo Drive series offers a wide range of well matched components of excellent performance, outstanding efficiency and reliability.

Upgrade large-scale equipment

Servo presses

- ▶ Clean and efficient operation by converting hydraulic drives to electric drives. The use of power regenerative converters saves energy.

Rotary cutters

- ▶ Outstanding acceleration/deceleration torque for high speed tracking.

Injection moulding machines

- ▶ The use of a high resolution encoder provides high precision injection control to increase forming quality.

Metal processing machines

- ▶ YASKAWA can help you increase the precision of equipment that requires high torque, e.g. for bending and stretching metal.

Machine tools

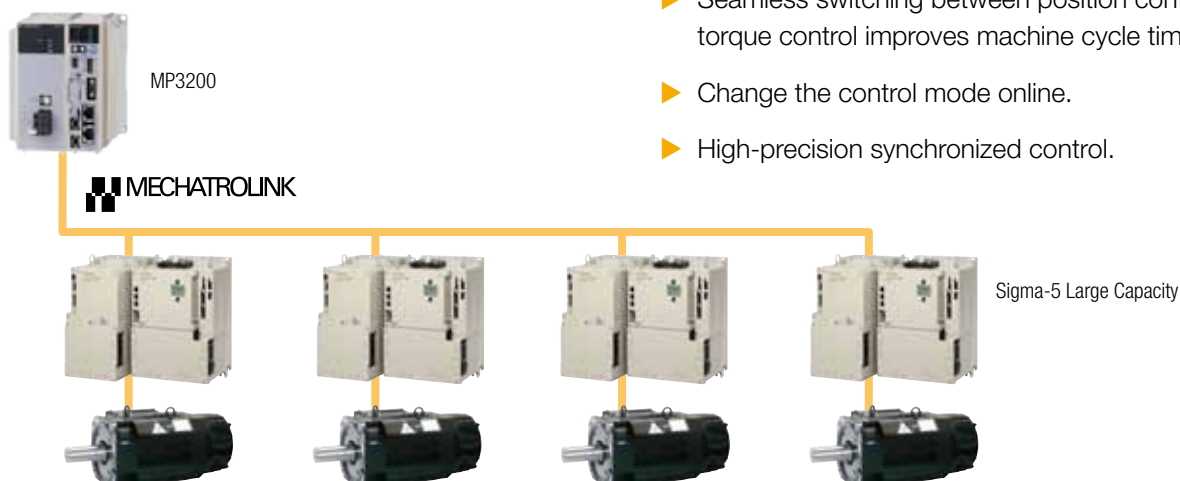
- ▶ Satisfies speed and capacity demands of feed and spindle motors in high speed, heavy duty machining applications.

Wire saws

- ▶ With a higher cutting force due to the high torque, saws for hard materials can be realized. Combined with YASKAWA Motion Controller it is possible to synchronize roller shafts, wind-up shafts with a high level of precision.

Extended application range with perfect synchronous control

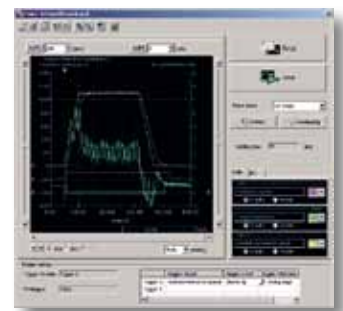
- ▶ High torque can be generated with synchronized control of multiple axes.
- ▶ The high-precision synchronized control of multiple axes (roller, takeup, etc.) increases quality.
- ▶ Seamless switching between position control and torque control improves machine cycle time.
- ▶ Change the control mode online.
- ▶ High-precision synchronized control.



Easy Setup

With a collection of handy functions Sigma-5 supports the installation and wiring of the product. You can download free applications which makes installation quick and easy.

- ▶ Simple parameter setup with wizard-aided input.
- ▶ The SigmaWin+ wiring check function checks your wiring in a single operation
- ▶ Realtime trace of adjustment state means you can check instantly
- ▶ Even without servo adjustment and with load changes, oscillation- and vibration-free drive is possible up to 20 times the load moment of inertia.
- ▶ The reference filter and feedback gain adjustment functions have a new automatic feed forward gain adjustment for optimal adjustment performance.
- ▶ The friction compensation function automatically cancels out the effect of friction on machine characteristics.



Easy servo tuning

Tuning-less function.

“Get up and run” quickly after connecting the motor.

Even without servo adjustment and with load changes, an oscillation- and vibration-free drive is possible with up to 20 times the load moment of inertia.

Advanced autotuning

Minimize settling time with less vibration.

The reference filter and feedback gain adjustment functions have a new automatic feed forward gain adjustment for optimal adjustment performance. The friction compensation function automatically cancels out the effect of friction on machine characteristics.

“One-parameter” tuning

Fine tuning is a must.

Fine tuning can tweak machine performance to the max.

Safety in Motion

Machine movements represent a major source of hazard for operators and personnel carrying out maintenance tasks. Typical situations requiring safe machine states occur during commissioning, in setup mode, troubleshooting and when operating or maintenance personnel are required to approach the machine.

The safety module SGDV-OSA01A for the Sigma-5 series servo drives enables you to realise safe and cost-effective automated motion applications.

- ▶ Sigma-5 servo drive functionality allows a smooth integration of the mandatory legal safety standards.
- ▶ The STO function is implemented by default in all Sigma-5 series servo amplifiers. The safety functions SS1, SS2 and SLS are integrated by using the SGDV-OSA01A safety module.

With the coming into effect of the standard EN ISO 13489 1:2008 "Safety of machinery – Safety-related parts of control systems", the construction of safe machines will now be assessed either according to the performance level (PL a – e) or according to the safety integrity level (SIL 1 – 4). The safety relevant functions for variable speed drives are defined in the standard IEC 61800-5-2.

Description	Standard	Performance
Safety Integrity Level	IEC 61508	SIL 2
	IEC 62061	SILCL2
Performance Level	EN ISO 13849-1	PL-d
Stop Functions	IEC 60204-1	Stop category 0/1/2
Functional Safety	IEC 61800-5-2	STO/SS1/SS2/SLS



Outstanding Expandability

Smooth integration into systems.

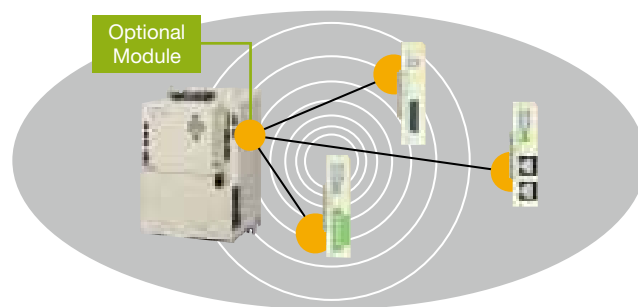
Standard support for four different SERVOPACK types

- ▶ Analog voltage/pulse train reference
- ▶ MECHATROLINK-III communication reference
- ▶ MECHATROLINK-II communication reference
- ▶ Command Option Attachable Type

Compliant with applicable safety standards

- ▶ Easy compliance with machine safety standards

Wide selection of optional modules for various communication interfaces and feedback



MECHATROLINK

ETHERNET
POWERLINK

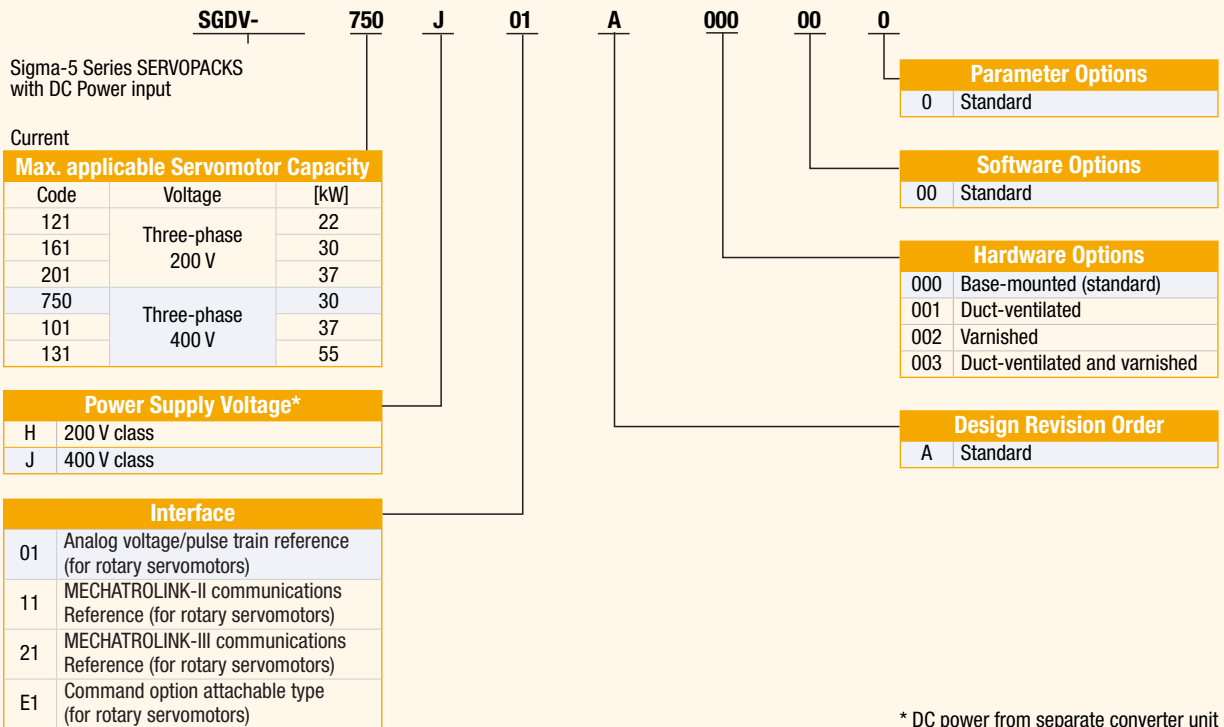
DeviceNet

CANopen

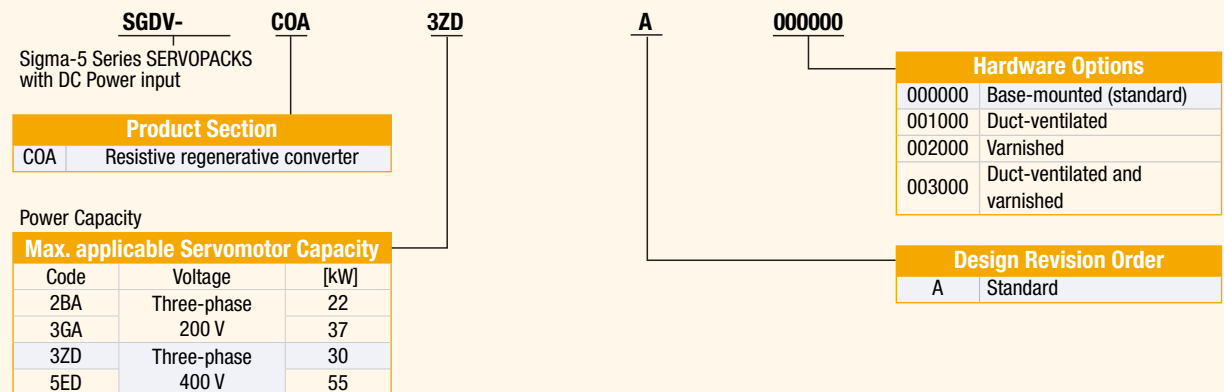
EtherCAT
Technology Group

PROFINET

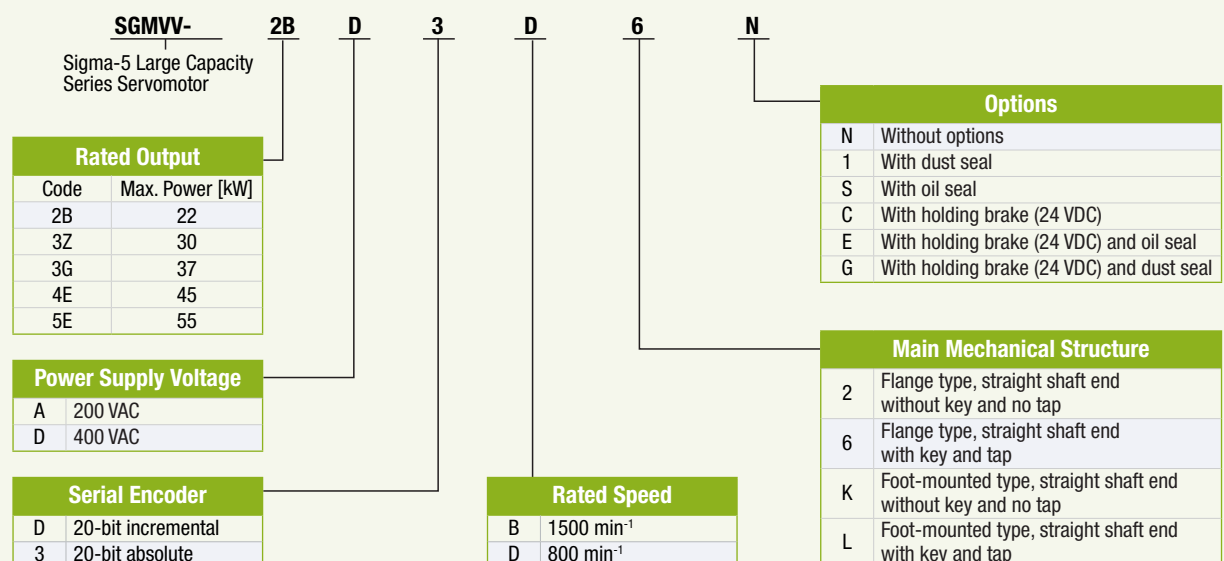
SERVOPACK



Converter



Servomotor





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The Sigma-5 Series is CE-certified,
cULus-listed and RoHS-conform.



Specifications are subject to change without notice
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