

YASKAWA

Compressors Vacuum Pumps

Best in class products and solutions
for compressed air and vacuum technology



Under pressure we do our best

Cost-savings through
optimized application Efficiency

Experience from 30 million
installed AC drives

Application Reliability with 10 years
of maintenance-free drive operation



Flexibility to master any challenge

Maximized machine Performance

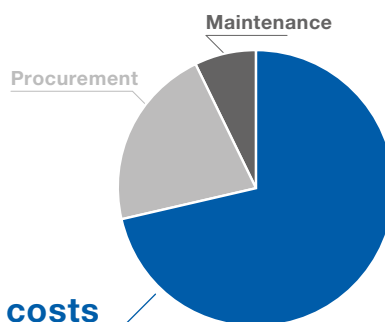
Ease of use minimizes setup times

Compressed air and vacuum play an important role in many industrial processes. Whether for driving pneumatic tools or for surface coating. Speed-controlled systems combine top performance with maximum energy efficiency.

Yaskawa AC drives

Best In Class - for compressors and vacuum pumps

High-efficiency motors in combination with Yaskawa AC drives provide the highest energy efficiency and reliability. The high dynamics of these systems allow the design of particularly compact systems.



Energy costs are cost factor no. 1

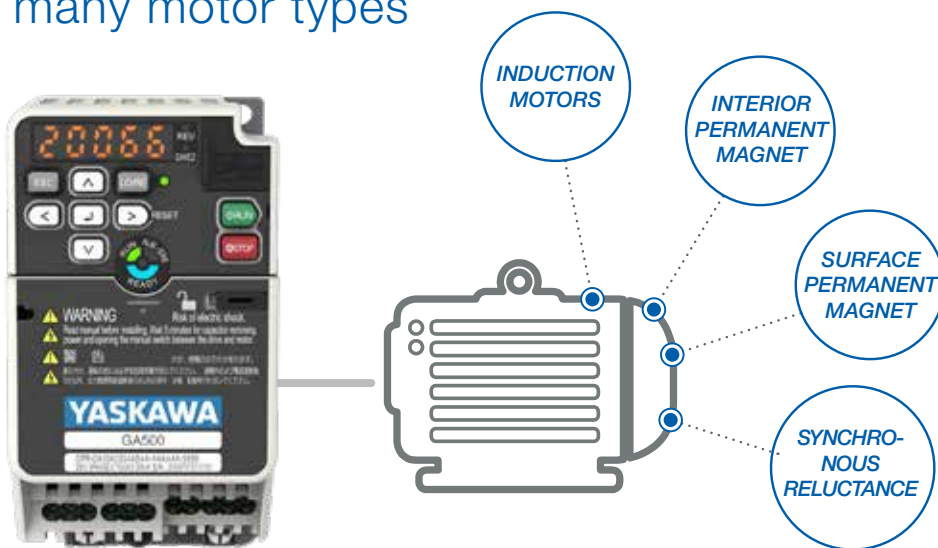
The production of compressed air requires a lot of energy. Here, speed-controlled systems with highly efficient motors can save up to 30%.

Energy costs

Flexibility is our strength



One AC drive for many motor types



One AC drive for different applications

- Open-Loop zero speed and torque control for permanent magnet motors
- Only one AC drive for asynchronous, permanent magnet and synchronous reluctance motors
- Output frequency up to 590 Hz
- High switching frequency for noiseless motor operation
- Time-saving and easy set-up of any engine without autotuning

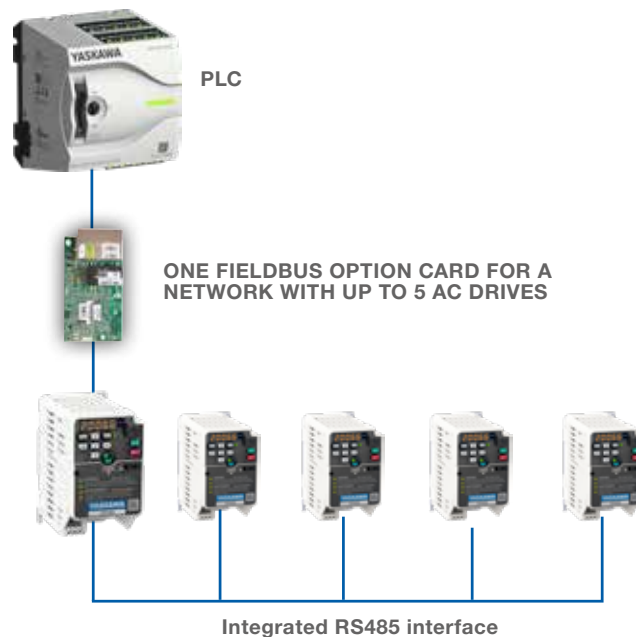
- 200 V AC 1-phase, 0.10 - 4.0 kW
- 200 V AC 3-phase, 0.10 - 22 kW
- 400 V AC 3-phase, 0.37 - 30 kW

Effortless network integration

Up to five GA500 AC drives can be controlled with just one fieldbus option card, reducing costs and minimizing wiring.

Cost savings through integrated protocols

- RS-485 MEMOBUS/Modbus protocol
- Communication speed up to 115.2 kbit/s



DeviceNet™

CC-Link

MECHATROLINK

PROFIBUS

EtherNet/IP™

CANopen

ETHERNET POWERLINK

PROFINET

EtherCAT®

Modbus

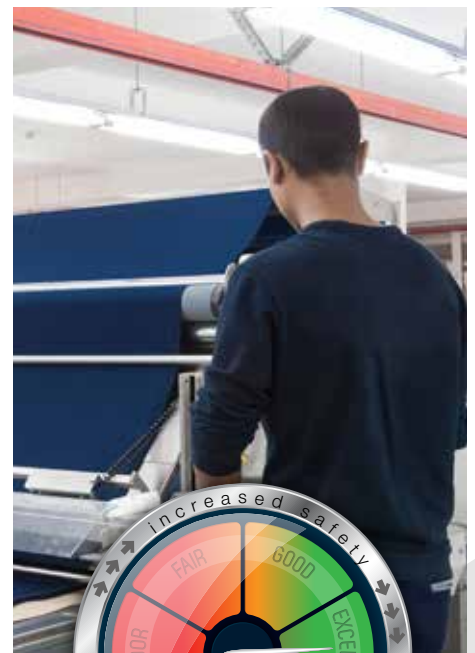


Integrated functional safety



Benefits and features of functional safety

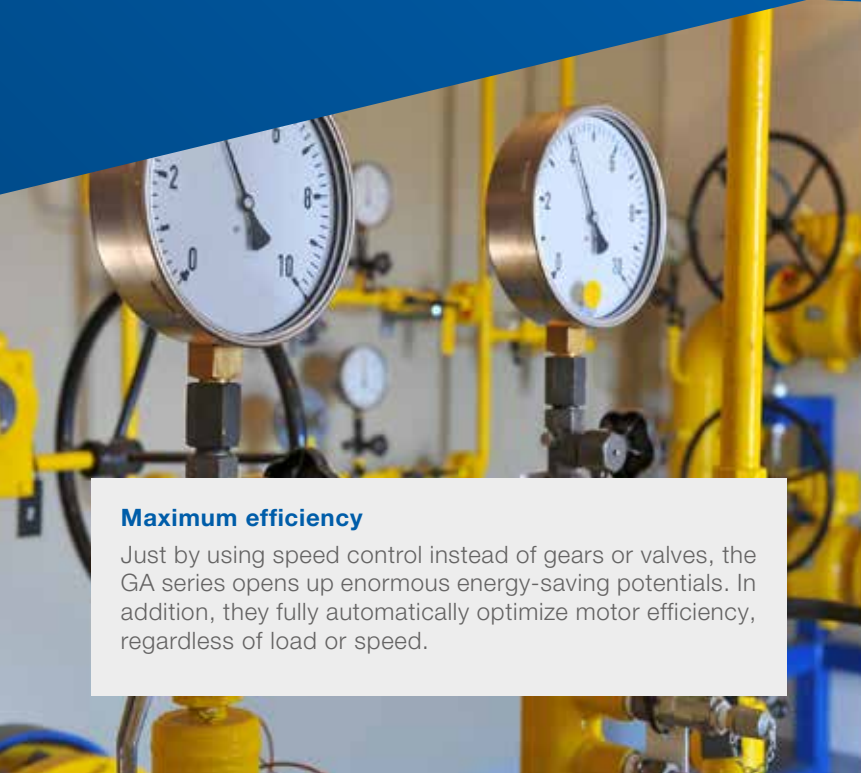
- STO with SIL3/PLe according to IEC 61800-5-2/IEC 61508/ISO 13849
- EDM (Electronic Device Monitor)
- Reduced installation effort and increased reliability due to fewer components
- TÜV Süd certified



Integrated functional safety

The built-in STO safety function replaces power contactors, thus reducing the number of components. This increases reliability and reduces costs.

Operate and control efficiently

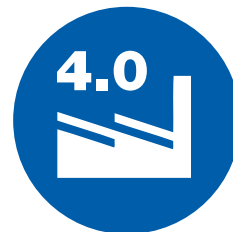


Maximum efficiency

Just by using speed control instead of gears or valves, the GA series opens up enormous energy-saving potentials. In addition, they fully automatically optimize motor efficiency, regardless of load or speed.

Ready for Industrie 4.0 through powerful controllers with SPEED7 processors

Programmable logic controllers like the VIPA MICRO allow the integration of the devices into a variety of system environments such as PROFIBUS, PROFINET, Modbus and others.



AC drives in compressor applications

- High starting performance
- Optimized space requirement due to compact design
- Protective class IP66
- Low total cost of ownership through low maintenance and high energy efficiency
- Low noise level through integrated anti-vibration function
- Large bandwidth from 0.1 kW to 630 kW

Due to the electronic control of compressors with Yaskawa AC drives and the resulting low number of moving parts, operation is particularly low-wear. In addition, the overall system can be designed smaller. Since the compressors are usually operated at partial load, controlled systems offer high energy efficiency.



Adaptation to customer-specific requirements

The industrial drives of the GA series are prepared for most applications. For special hardware environments, our application engineers also develop customer-specific firmware versions.

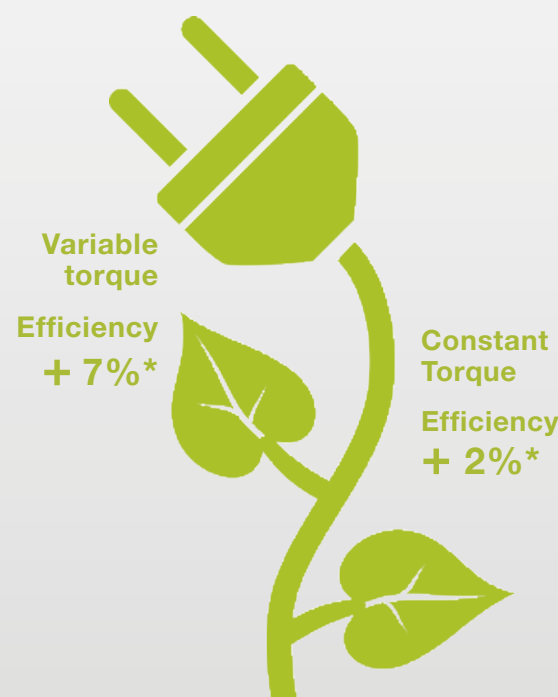
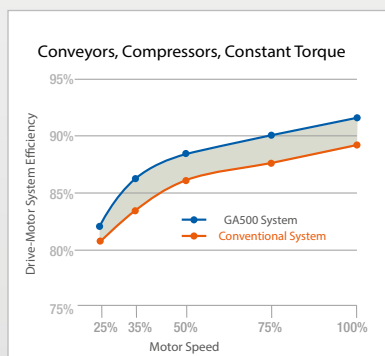
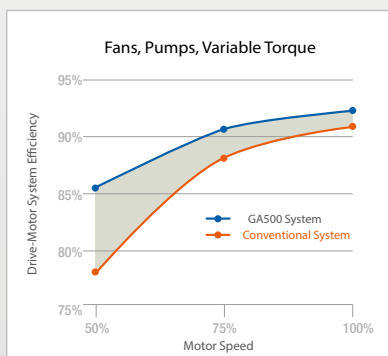
Highly energy-efficient

By minimizing conversion losses, the GA500 AC drive operates with superior efficiency of up to 98.5 %. Additionally its sophisticated control system drives the motor in an extremely energy-saving manner. The drive system delivers maximum performance with maximum energy savings in many industrial applications from simple fans to pumps, compressors and conveyor belts.

Best performance

Minimized operating costs

Small carbon footprint



GA500 drives offer enormous potential for energy savings by operating applications with maximum efficiency.

* Comparison of a conventional drive and a permanent magnet motor with GA500 and identical motor

Robust and versatile in vacuum

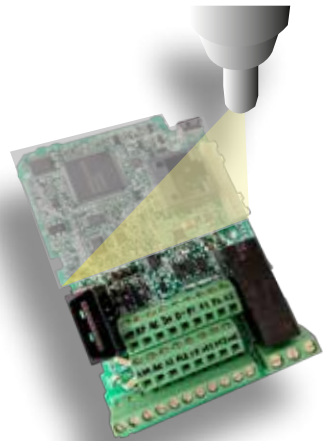
Designed for 10 years of maintenance-free operation, the GA500 is well prepared for tougher conditions.

Coated PCBs

Standard coated PCBs protect the electronics from dust and moisture and ensure reliable operation even in harsh environments.

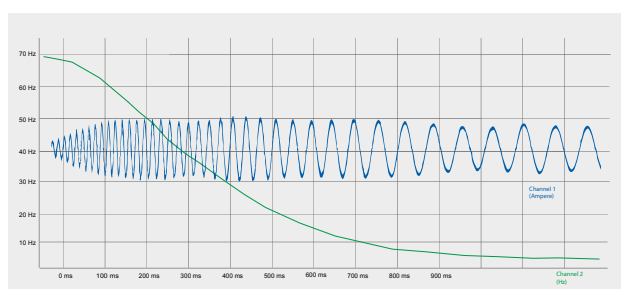
Hassle-free operation even at inhospitable temperatures

GA500 AC drives can be safely operated in ambient temperatures from -10 to 60 °C. Derating is only necessary above 50 °C.



High torque at zero speed

Shorter cycle times mean frequent load changes. In these situations, AC drives from Yaskawa provide the necessary starting power in the shortest possible time. If the vacuum chamber is ventilated by opening the valve, the AC drive suddenly reduces the speed to limit current and torque. This happens in about 0.5 seconds.



CH1: Output current, 50 A/div
CH2: Output frequency, 10 Hz/div, 100 ms/div

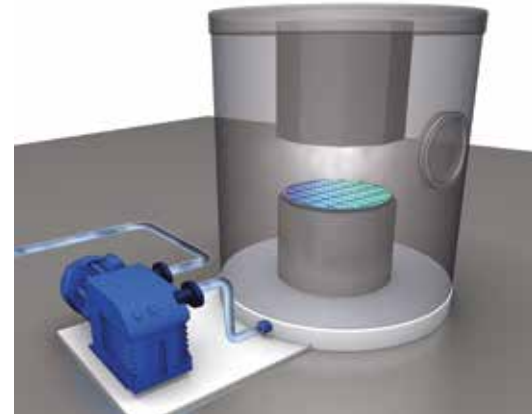
50 Hz grid frequency, 250 V input voltage

High load pulses, as they occur with vacuum pumps, cannot impress our AC drives. With 200% overload capacity during start-up, they ensure that the required vacuum is quickly reached.

Yaskawa AC drives in use, e.g. in the DRYVAC DV 650 from Leybold



© Leybold GmbH, Factory photo



Higher cycle rate through overload capability

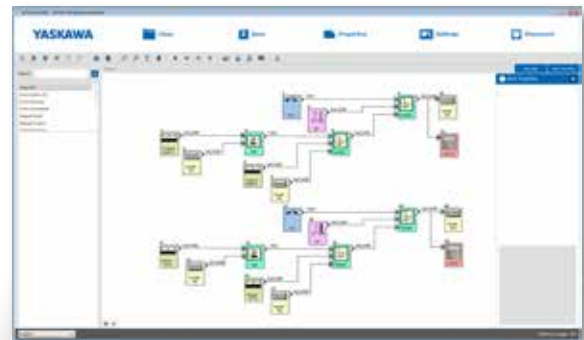
With a starting load of 200% of the nominal power, shorter production cycles can be realized. Especially for coatings the evacuation time is an important limiting factor.

Yaskawa AC drives in use with vacuum pumps

- Low space requirement due to compact design
- Low total cost of ownership through minimized maintenance and high energy efficiency
- Low noise level through integrated anti-vibration function
- Wide range from 0.1 kW to 630 kW

Clear parameter structure

Parameterization is as easy for the compact GA500 AC drive as for the more powerful GA700. Thanks to an identical parameter structure, the effort involved remains manageable.



Easy programming

DriveWorksEZ® is the intuitive graphical programming environment for GA drives. With more than 300 function blocks, you can create the functions your application requires in the shortest possible time using drag-and-drop. Online diagnostics help you during testing.

System solutions and a broad range of products

Drives

AC drives

From 0.1 kW to 630 kW

Servo drives

Wide range of motors
Highest performance



Robotics

Robots

Range up to 3,159 mm
From 4 to 15 axes



Controller

Machine controllers and PLCs

For up to 62 axes
IEC61131-3 standards



Visualization

HMI

Displays
Touch panels



Teleservice

Teleservice

Remote access
Industrial ethernet
Fieldbus



Industry 4.0

Industry automation

i³-Mechatronics

i³-Mechatronics

After Sales Service

Total Customer Support

Global support
Application support
Training
Service programs
Optimization & modernization



Yaskawa –

A global company – Firmly anchored in Europe

Yaskawa Electric is one of the world's leading manufacturers in the fields of drive technology, industrial automation and robotics with headquarters in Kitakyushu, Japan.

Yaskawa Europe sees itself as a European player capable of developing products and solutions in cooperation with customers.

Through our global service network we are always close to you to ensure your success, because your satisfaction is our top priority!



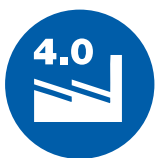
Local development

1,900 employees in the EMEA region
More than 400 developers and application engineers in Europe



Local network

23 European branches
100+ channel partners



Local production

28 production sites worldwide,
thereof 8 in the EMEA region



Glasgow, Scotland

Production of AC drives and servo drives



Ribnica, Slovenia

Plant engineering and robot systems



Allershausen, Germany

Plant engineering and robot systems



Torsås, Schweden

Assembly of controls, positioners and portals



Kočevje, Slovenia

Robot production and R&D Center



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08/2020
YEU_App_Compressor_EN_v1

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