



Enhanced productivity.

Greater flexibility. More innovation.

**Modular drive and control
systems for complete
automation!**

AMK

AMK



The AMKASYN drive and control system.

Application-orientated, modular, complete.

AMKASYN is an elaborate system comprising optimally harmonized components in a modular and open architecture for innovative and complete automation solutions.

The AMKASYN drive and control system offers everything you require for your automation solution.

- operator control devices and controllers
- compact and safe servo inverters
- servo motors in a wide variety of designs, with various power classes and cooling types
- engineering tools and accessories
- technology library and application support
- service and consultation as required

Systematically reduce your costs – you only need to purchase the components you actually need from the modular system. Features such as scalability and extremely compact design not only save space, they also cut costs. Engineering tools and preprogrammed function blocks keep your engineering costs at a minimum and simplify the commissioning process.

The components of the AMKASYN system are highly efficient and help to increase the productivity of your machinery and equipment.

Remain flexible for new market developments and open to new technologies. With AMKASYN, your ideas do not have to be implemented within the bounds of existing architectures. Demand more than drive and control technology. We welcome your challenge! We grow with you but do not constrain your flexibility. We see your visions and turn them into reality. Step-by-step and systematically.

Use the decades of experience of a technology leader to achieve your goals. Regardless of whether you wish to reduce costs, increase productivity or optimize work procedures, a discussion with AMK is always worthwhile. We secure your competitive edge.

Operator panels ▼



Operator panels ▲



Modbus HMI's ▲

The operator control devices.

Individual, reliable, easy to operate.

The AMK operator control devices were developed specially for rough industrial applications and offer clear and precise visualization. Here, efficiency and ease of operation are a central focus.

Operator control devices

These devices greatly simplify the control, diagnostics and monitoring processes when executing complex tasks. Regardless of whether you wish to map a part of a machine, a complete machine or the entire production system, you can configure and vary the user interface at any time in line with your individual requirements.

The terminals come in various designs that vary in size, resolution and operation. You can select between intuitive user guidance via touch screen, permanently assigned function keys or a combination of both. The keys can be labeled individually with insert strips. One version comes with soft keys, a numerical input field and arrow keys.

Important features for industrial applications:

- high efficiency
- extremely robust in compliance with IP 65 (front side)
- reduced engineering costs
- customized according to your requirements
- non-ventilated

Modbus devices

The small, convenient operator control devices, which can be connected to all systems via a modbus, represent a cost-effective solution for simple visualization tasks. These, in combination with our controllers, form a complete automation solution. The corresponding engineering environment offers message management and language change in addition to a wide range of input and output possibilities.



Compact controller ▶



CNC controllers ▶



Drive-integrated PLC on the controller card in the inverter ▶



▲ SYMAC controller



Drive-integrated PLC as an option card in the inverter ▶

The controllers.

Compact, scalable, open.

AMKASYN controllers offer maximum flexibility, openness and modularity so that you are free to decide on the architecture and topology of your control structure - centralized, decentralized or combined.

The embedded PLC and motion control technology is based on CoDeSys in compliance with IEC 61131-3.

Compact controllers

The compact unit, which comprises an operator control device and a controller, is a cost-effective and economic automation solution for your machinery and equipment – the control, operation, monitoring, maintenance and diagnostic functions are combined in one device. The AMKASYN compact controllers are equipped with a realtime capable PLC.

The integration of the visualization unit in the development environment of the PLC via the programming interface CoDeSys allows faster access to all PLC states and variables. As a result, the machine visualization is very easy to create and operate.

SYMAC controllers

SYMAC is a PLC series with motion control functions. The fast processing of the PLC code with a large program and data memory guarantees that your resources are used efficiently. Being a multi-axis system, SYMAC guarantees high-precision synchronization with a maximum jitter of 1µs over the entire axis group.

CNC controllers

A modular, individually configurable CNC control system for up to 320 CNC axes is available for CNC applications which require a large number of axes, channels and transformers.

A compact 4-axis CNC controller represents an economic and cost-effective solution when operating less sophisticated machines.

Communication

The realtime communication with the drives and I/O takes place via the ACC bus on a CANopen or realtime Ethernet basis. The realtime bus system ensures that the axes run synchronously and allows constant communication and diagnosis over all levels up to the drive.

Drive-integrated controllers KW-PLC and KW-R03P

The KW-PLC is an option card that is plugged onto the controller card in the inverter. Now, the drive becomes a complete control solution and also allows the cost-effective realization of complex multi-axis applications.

The KW-R03P is the controller card for the inverter module KW. In addition to the basic functions and interfaces for drive control this card also offers extensive PLC functionality. With this compact solution decentralized structures can be implemented easily and cost-effectively.

Servo inverter series KE/KW ▶



Double inverter module KWD ▲



◀ Digital twin frequency inverter KWF



◀ Option boards

The compact servo inverters.

Intelligent, flexible, safe.

AMKASYN servo inverter KE/KW

The intelligent servo inverter KE/KW opens up new dimensions of power density. With this inverter, control cabinets can be built extremely compact and, in many cases, even integrated directly into the machine. This saves space and also reduces costs. The clever cooling system with cold plate technology guarantees optimal heat dissipation and increases service life.

The KE/KW series consists of supply modules and inverter modules in a power range from 2 kVA to 120 kVA. The modular structure of the system offers the highest level of flexibility. Access to all parameters is guaranteed via the system bus ACC, based on CANopen. In addition, interface modules for Profibus, Sercos and various realtime Ethernet protocols ensure reliable communication to higher ranking controllers. The openness of the system to all conventional standards is guaranteed. The basic device includes standard functions such as position control, synchronous control and electronic gearing.

Double inverter module AMKASYN KWD

The compact inverter module KWD contains two independent KW inverters in one unit. The inverters represent a cost-effective and very compact solution for precise and highly dynamic

control of various three-phase motor types in a power range from 1 kVA to 5 kVA.

Digital twin frequency inverters AMKASYN KWF

The twin frequency inverter KWF contains two individual inverters in a power range from 1 kVA to 2 kVA in a narrow book-size enclosure and is a cost-effective solution for all simple position and speed drives.

Security for humans and machines

The servo inverters not only offer the highest function standards, they also offer maximum safety. They are certified in accordance with the Safety Category 4 under EN 954-1 as well as SIL3 in compliance with IEC 61508.

Extensive safety functions, which include safely reduced speed and safe operational stop, are integrated into the system.

Servo inverters.



High torque motors
DT series ▶



Synchronous servo motors
DS series ▶



▲ Asynchronous servo motors
DW series



▲ Hollow-shaft motors
SPINDASYN series



◀ Asynchronous servo motors DV series



◀ Inverter-integrated motors
AMKASmart IDT series

Servo motors.

Powerful, reliable, maintenance-free.

Decades of experience combined with extensive know-how and a wealth of ideas paved the way for the creation of a comprehensive line of servo motors. All motors are developed and produced within AMK's own plants.

The extensive range of power, designs, cooling types and encoders guarantee that AMK can provide the right motor for each application.

Synchronous servo motors

The **AMKASYN hightorque motors of the DT series** are extremely compact and offer highest power density with high pole numbers and optimized lamination geometry. The motors are characterized by their reliability, high dynamic response and by the fact that they are, to a very large extent, maintenance free. The motors are available in a power range of up to 25 kW and have a maximum torque from 0,5 up to 240 Nm. The motors are available with convection cooling or liquid cooling.

The **AMKASYN synchronous servo motors of the DS series** are brushless, permanent magnet AC servo motors in various frame sizes and in 6-pole design. High efficiency and a high overload capability guarantee high speeds and optimized dynamic response. These highly efficient motors also have a very wide field weakening range. The power range of the DS motors extends up to 48 kW. The motors have a maximum torque from 0,4 up to 650 Nm.

Asynchronous servo motors

The **AMKASYN asynchronous servo motors of the DH and DW series** are particularly suitable as main drives or high-power servo drives. The heavy duty design and rigid bearing arrangement allow high radial loads on the bearings. The AMKASYN DH motor series is air-cooled while the AMKASYN DW motors are liquid-cooled. The power range of these motors extend up to 38 kW and provide a maximum torque range between 34 and 255 Nm. The DW motors deli-

ver a power range up to 48 kW and torque from 14 up to 320 Nm.

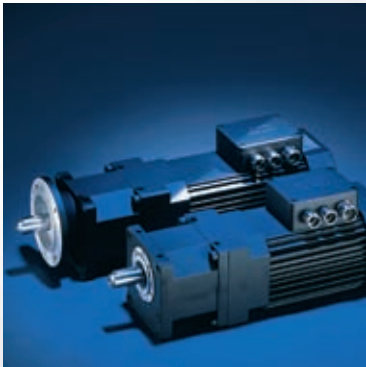
The **AMKASYN asynchronous servo motors of the DV series** are characterized by their high overload capability and their smooth running characteristics. These heavy duty motors provide good synchronization capabilities making them ideal for feed axis. The DV motors are available in a power up to 8,3 kW and have a maximum torque from 0,6 up to 27 Nm.

Hollow-shaft motors from the SPINDASYN series

SPINDASYN synchronous motors are hollow-shaft motors and allow the direct integration of various ball screws or planetary roller spindles. They are equipped with all components that are necessary for axis drives such as a servo motor, DIN attachment for ball screws, optional locking brake and position encoder. The motor bearings are designed for high axial forces. The motors are highly dynamic and display high mechanical rigidity and zero backlash. SPINDASYN synchronous motors are available in convection or liquid cooling.

Inverter-integrated motors

The AMKASmart IDT series combines an intelligent servo inverter with a highly dynamic, permanent magnet synchronous motor. This extremely compact drive solution offers continuous stall torques of 1 to 3 Nm with a nominal power of up to 270 watt. Thanks to the wide range of functions and interfaces AMKASmart IDT is ideal for all drive tasks either as a stand-alone solution or in combination with the KE/KW system.



Helical geared motors series TS (**TORG**System®) ▶



Right angle geared motors series DK ▶



▲ Right angle geared motors series TX (**TORG**System®)



◀ Customer-specific partial motors

▼ Special liquid-cooled motor



◀ Special motor

Geared motors.

High power density, compact, low noise level.

The modular geared motors of the **TORG_{System}**[®] offer a selection of inline and right angle designs in gear ratios from 2.5 to 250.

The **TORG_{System}**[®] is characterized by its compact form with low shaft heights, a weight-optimized design and low noise level. With torques from 5 to 1000 Nm and an excellent price-performance ratio, the geared motors are ideal for a wide range of applications. Depending on the application and the mounting position, you can choose from a variety of series:

General industrial applications

- helical geared motors of the TS series (**TORG_{System}**[®])
- low-profile geared motors of the TF series (**TORG_{System}**[®])

Rehabilitation Technology:

- helical-worm geared motors of the SZV series
- worm geared motors of the SV series

Door drives

- worm geared motors of the SV series
- compact drives of the DK series

Special drives

E.g. right angle geared motors of the TX series for hoist technology, elevator technology, storage technology and many other applications.

AMKAVERT frequency inverters

When combined with the AMKAVERT frequency inverters or the KWF frequency inverters of the modular AMKASYN servo drive system, the standard geared motors of the **TORG_{System}**[®] offer optimal drive solutions for all materials handling applications.

Special motors.

Customer-specific, dynamic, robust.

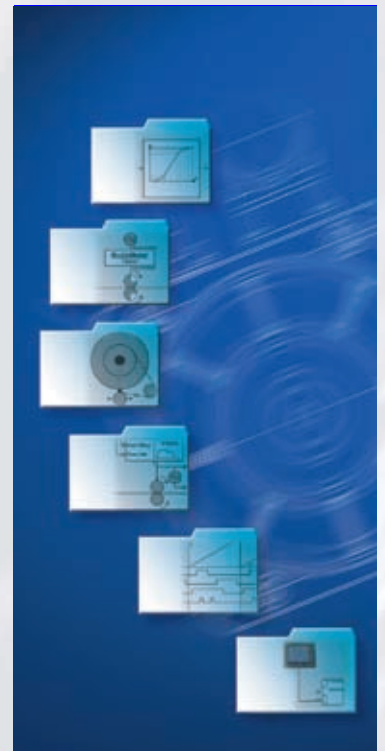
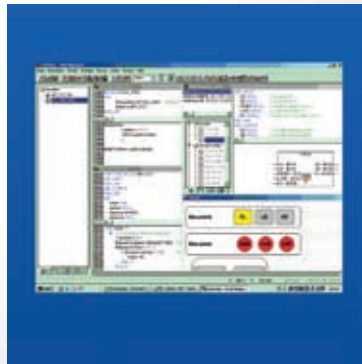
We also manufacture special, customer-specific motors according to your individual specifications in economic lot sizes. Use our decades of experience to solve your drive tasks:

- integrated motors for all industrial applications
- direct drives up to 2000 Nm
- winder drives
- godet motors and outside rotor motors
- low-power motors
- fan drives
- low-voltage motors

▼ Programming



Programming ▼



AIPEX ▲

▲ AMK technology library

Engineering tools and accessories.

Efficiency is guaranteed.

The engineering tools supplement the AMKASYN drive and control components.

Programming

The development platform CoDeSys, which has been successfully tried and tested worldwide, makes programming in compliance with IEC 61131-3 simple and safe. All IEC 61131-3 based programming languages can be used. The visualization is already integrated as well.

AMK technology library

Preprogrammed function blocks are available. This greatly simplifies the control and commissioning of your machinery and equipment. The AMK technology library contains established PLC and motion control functions such as:

- positioning
- electronic gearing
- electronic cam plate
- register controller/print-mark controller
- winders of all types
- pick and place
- flying saw
- motion profile

AIPEX

The user interface AIPEX was specially designed for the parameterization and start-up of intelligent servo inverters of the KE/KW series. Using a standard PC, AIPEX provides full access to all devices within a machine via the ACC-BUS master, even in the case of highly complex systems.

The I/O modules guarantee that your system remains flexible and expandable at all times, regardless of the amount of peripheral equipment installed.



Printing industry ▶



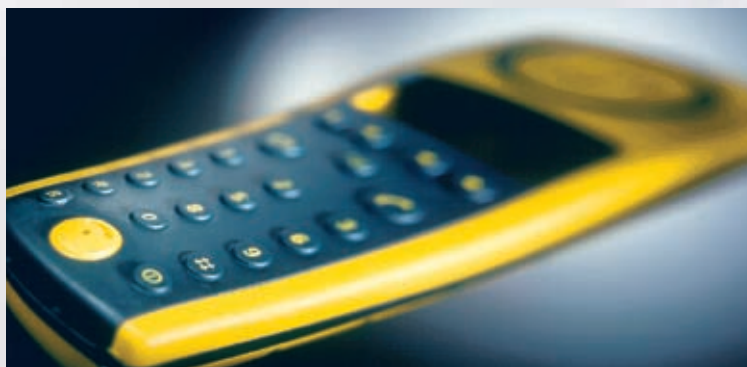
Paper processing industry ▶



Machine tool industry ▶



▶ Packaging industry



◀ Injection molding industry

Industrial solutions.

Extensive, cost-optimized, future-orientated.

The innovative drive and control solutions of the AMKASYN system provide the ideal product for your production machines!

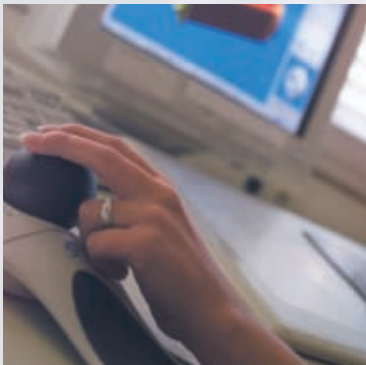
- Printing industry
- Paper processing industry
- Machine tool industry
- Plastics industry
- Textile industry
- Packaging industry
- Food industry

Regardless of the sector you operate in, our application and development engineers have extensive theoretical and practical know-how and are happy to create tailor-made solutions in line with your specific requirements.

Use experience gathered over more than four decades for your automation requirements.

For one thing is certain - we work towards your success!

See for yourself!



Service, training, consulting.

Our expertise – specially for you.

Service

AMK is committed to offering an extensive range of services. When help is needed, our specialists from „Technical Support“ provide valuable assistance in the planning, design, installation, commissioning and programming phases.

Consulting

We provide individual and project-related consulting services to support you in the operation of your particular drives and controllers. You receive precisely the information you need based on your specific requirements.

Training

Our extensive training program provides theoretical and practical know-how and offers various training options either at our training center or at your company.

The program extends from basic training to expert workshops. If required, we can also provide individual, project-orientated training.

Control your Motion.



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