



Automation solutions for printing and paper converting machines

High precision and dynamics for
highest levels of quality.

AMK





Impressive.
Dynamic.
Precise.

When 18 meters of newspaper is rolled off, printed, folded and cut per second, or 60,000 sheets of paper are cut per hour, you know top-of-the-range technology manufactured by AMK is being used. The innovative drive and control technology with scalable and modular components is predestined to deliver highly dynamic performance and utmost precision.

Printing and paper processing machines working under tough conditions. On the one hand, the set-up and conversion times need to be as short as possible to meet deadlines and save costs, on the other hand, high levels of precision and accuracy are demanded.

With the modular drive and controller design of AMK these demands are consistently met. That is why AMK has been the reliable partner of the pioneers in the printing industry for many years.



AMKAMAC Controllers



AMKASYN Servo inverters



DYNASYN Servo motors



AMK Technology library



Advice, service, training

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For the machine manufacturer

- Modular machine design
- Low engineering costs
- Reduction in start-up time
- Remote maintenance

For the end customer

- Highest print precision
- Higher machine performance
- Reduction in machine downtime
- User friendly
- Low operating costs
- Communication up to the factory control level



Modern and flexible automation solutions.

Scalable solutions - from the controller to the drive.

For the realisation of innovative machine concepts, AMK offers standard components from a modular system in various output classes and sizes.

Motion control and PLC functions for synchronisation and dynamics.

AMKAMAC Controllers.

The AMKAMAC controls contain a powerful PLC and extensive motion control functions. Based on the realtime Linux operating system and the realtime fieldbuses EtherCAT, SERCOS III and CANopen synchronised, an uninterrupted communication of the drives, sensors and actuators right up to the factory control level is ensured. The synchronisation of as many axes as desired with one jitter of $< 1 \mu\text{s}$ is easily possible.

Numerous pre-programmed technology modules make easy and simple engineering possible for the user. This considerably reduces the development time for the machine.

The programming is done in accordance with IEC 61131-3 (CoDeSys). The visualisation is already integrated in CoDeSys. Thus functional connections between an unlimited number of sensors and actuators can be programmed quickly and easily.

For hierarchically synchronised systems, such as those required in printing machines, SERCOS III is available as a realtime fieldbus. SERCOS III allows cross-communication between controllers.

The system can make use of a redundant signal path. This increases the security of the system, as communication can continue even when there is a cable break.

Half as big with integrated security.

AMKASYN Servo inverters.

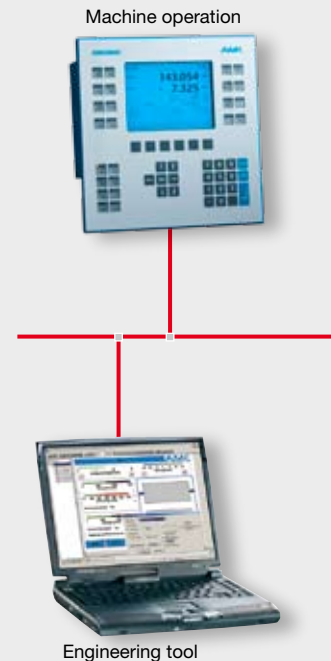
The AMKASYN KE/KW model series, consisting of input and inverter modules in the output range up to 120 kVA, is exceptionally compact. This is achieved by so-called cold plate technology. The AMKASYN servo inverters are available with liquid cooling or air cooling. To save on energy costs, supply modules are also available with sinusoidal infeed and feedback.

In case of a sudden loss of electricity, the AMK energy management allows for a controlled shut-down of the machine.

The AMKASYN servo inverters KE/KW are certified according to the safety category 4 in accordance with EN 954-1 as well as SIL 3 according to IEC 61508 (in preparation):

- Cost saving by integration in the drive system
- Simplified amount of wiring because no external elements are needed
- High flexibility, because of free possibilities for configuring the safety functions

Overall solution of your machine.

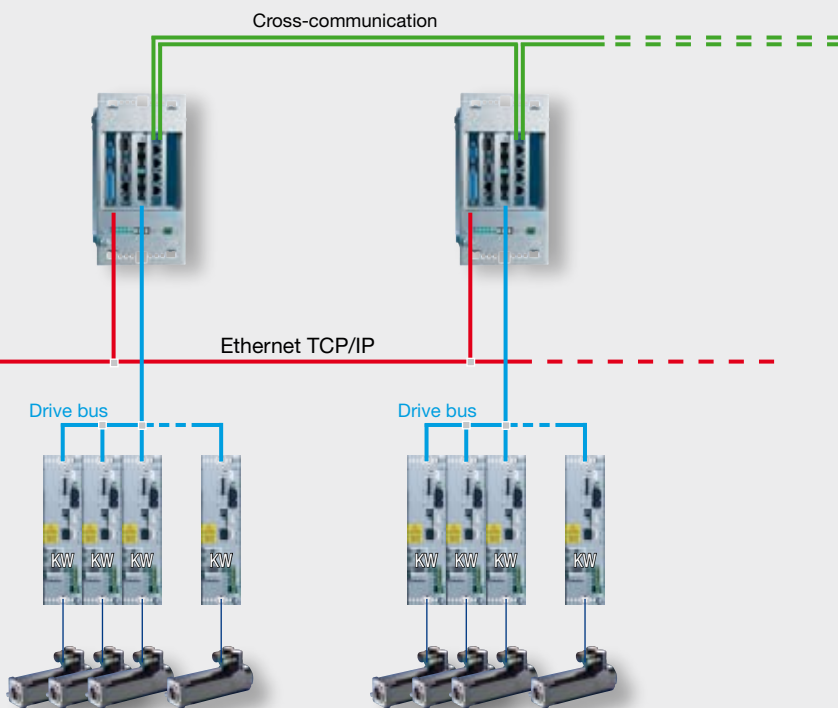


ADVANTAGES

- Top performance and functionality
- Redundant cross-communication
- AMK Vision Control
- Realtime synchronisation of multiple axes
- Uniform PLC platform according to IEC 61131-3
- Industry-specific libraries and function components for motion control
- Quick extension and simple connection of control devices and I/Os
- Compatible communication with OPC, TCP/IP
- Diagnostics and remote maintenance
- Centralised access to system data
- Low engineering costs with automatic configuration
- System can be easily retrofitted for future requirements



Reduction in engineering costs through integrated technology functions.



Technology functions:

The following print process oriented functions have already been pre-programmed in the AMK library:

- Printing mark detection and regulation
- Electronic cam
- Electronic transmission
- Electronic cam controller
- Flying saw
- Cross cutter
- Winder
- Calliper function
- Register controller
- Temperature regulation
- Web tension control

Dynamic and compact for increasing the work speed.

DYNASYN Servomotors.

The motor series is available in a very wide performance range from 280 W to 60 KW. Due to the optimised winding and magnet construction, individually adjusted to the cooling methods, the motors are available with continuous stall torques of 0.5 to 650 Nm at a high overload capacity for peak demands. The bandwidth allows an integrated drive concept; from the auxiliary axis to the main drive.

The product range also includes special motors for winding applications. Energy costs can be saved with the intelligent use of direct drives.

Reduction of the cabinet volume

AMKASmart IDT.

The AMKASmart IDT is a complete mechatronic function unit that can be installed into the machine decentrally. Consisting of a high torque motor, servo controller and angle transmitter, it offers excellent servo properties and controller intelligence "on board" for tasks such as, for example, as a point and positioning drive.

Thanks to the decentralised automation, not only does the cabinet volume decrease, but also the amount of wiring.



Integrated solutions for innovative machine designs.

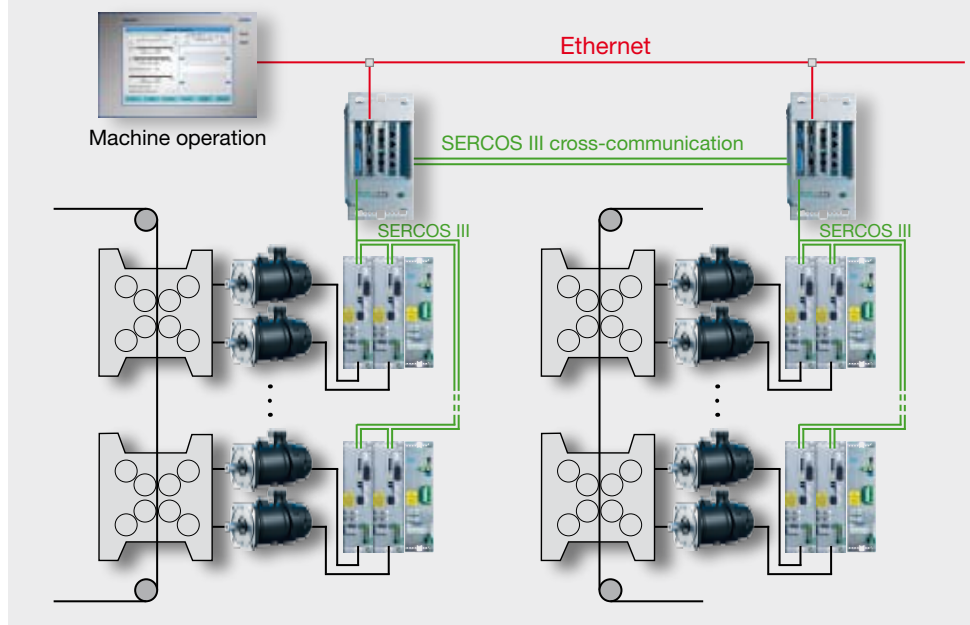
Solution competence and Know-how.

The intelligent solutions of AMK ensure high cycle rates and optimal productivity for various packaging tasks; regardless of whether it is a stand-alone machine or an entire production line.

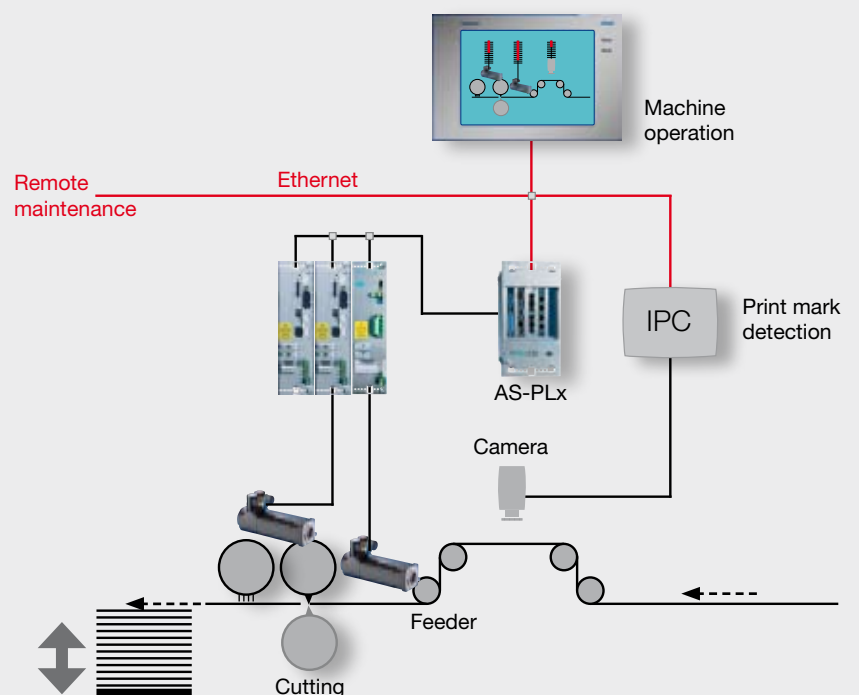
Lower your costs spiral and shorten your time to market! Your application can be solved quickly, simply and reliably for years to come with scalable hardware, a uniform system software, pre-programmed technology functions, a system bus and drive-integrated safety equipment.

- ▶ Job-printing
- ▶ Sheet-fed printing
- ▶ Digital printing
- ▶ Label printing
- ▶ Flexographic printing
- ▶ Offset printing
- ▶ Gravure printing
- ▶ Tampon printing
- ▶ Corrugated cardboard printing
- ▶ Newspaper printing

Print tower

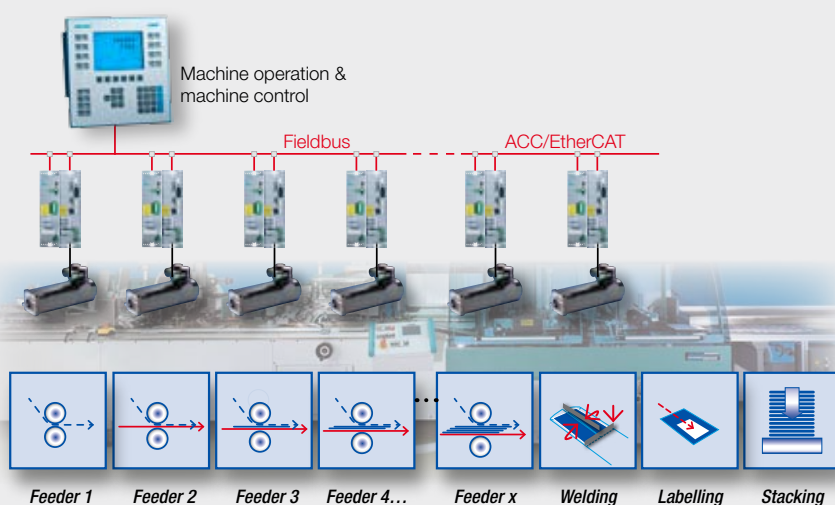


Cross cutter with vision control



Precision and speed at the highest level.

Mail room



The drive and controller modules from AMK will always provide you with an economic solution. You can also profit from the expertise of the AMK application engineers. Our engineers will gladly assist in the programming of your application.

AMK Vision Control, e.g. for paper cutting

The use of modern camera systems allows for register control with client-specific printing marks. Individual printing marks on a scale of 2x2 mm are recognised and forwarded to the cutter wheel by the controller. The printing mark is contained in the normal printing picture and can barely be seen by the human eye. This dramatically increases precision.

- ▶ Winding
- ▶ Printing
- ▶ Embossing
- ▶ Perforating
- ▶ Punching
- ▶ Laminating
- ▶ Cross cutting
- ▶ Slitting
- ▶ Enveloping
- ▶ Labelling

Control your Motion.



- **AMKAMAC**
Controllers
- **AMKASYN**
Servo inverters
- **DYNASYN**
Servo motors
- **AMKASMART**
Inverter integrated motors
- **SPINDASYN**
Hollow shaft motors
- **TORGSystem®**
Gear motors
- **AMKAVERT**
Frequency inverter

AMK

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