

# APPLICATION PLASTICS MACHINERY

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# EXTRUSION TECHNOLOGY



## THE KEB BUILDING BLOCKS FOR YOUR SUCCESS:

- Application team plastics machinery
- Powerful product portfolio for plastic machines
- Easy commissioning
- Worldwide service



## INJECTION MOLDING

### THE KEB PRINCIPLE - AUTOMATION WITH DRIVE

Drive means movement, dynamics, precision, endurance, repeatability and much more.

Automation handles the management of recipes, meets the demand for optimum user operation, regulates controlled movement in horizontal and vertical axes.

All of which calls for application competence and oversight combined with logic, based essentially on the selection of the right technology.

The integrated KEB system provides the best basis for high performance and economy, combined with outstanding efficiency and practical implementation.

# INJECTION MOLDING

## HYBRID - DRIVE CONTROLLER F6:

The single-axis converter COMBIVERT F6, available up to 1065A and prepared for all motor types, provides demand-optimized control of servo pumps.

Optimized controller structures and application-specific functions, such as tool protection or water cooling-management, are specifically designed for injection molding machines.

Flexible machine cooling for air, water, or oil can be provided either in flush-fit or push-through mounting in the control cabinet or on the machine frame.

The F6 bus solutions are flexible: EtherCAT, CAN, ProfiNET, Powerlink and VARAN.

## DRIVES:

KEB's portfolio of servo and integral controller offers excellent machine control, dynamic operation and offer high torque. They are offered in a variety of size and power. Rapid engineering is supported by KEB DRIVE.



## BOX-/PANEL-IPCs

This fan-less IPC hardware has scalable multi-core processor technology and utilizes a smart memory concept. It can be used in applications with ambient temperatures up to 50°C.



Maximum usage flexibility based on PLC and Motion-Control functionality forms the basis for all procedures in plastics processing (COMBIVIS CONTROL Runtime).

## SAFETY-SYSTEM

Freely programmable safety PLCs combined with safety I/O modules provides safety functionality at the machine and plant levels.

Certified safety function blocks simplify development, verification and acceptance of safety applications.

The Fail-Safe-over-EtherCAT (FSoE) protocol integrates the safety system in new or existing EtherCAT applications.

## MONITORS / PANELS

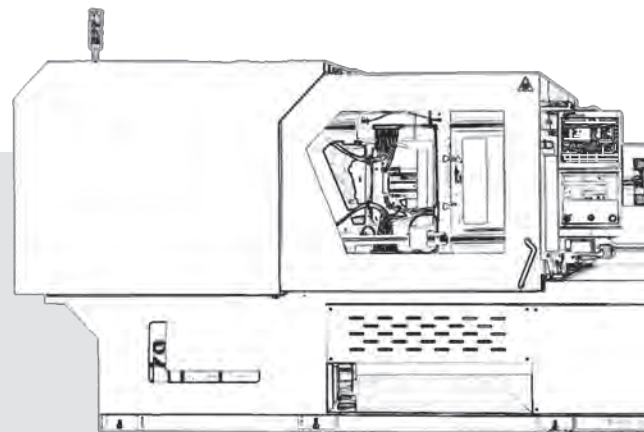
Powerful TFT/ LCD Displays, available in a wide range of sizes and formats, or combined as panel IPCs or remote monitors, enable expert user operation.

The high image sharpness, 16 million colors and resolutions up to full HD, make for convincing displays. Both resistive and capacitive touch technology (e.g. multi-touch) is offered with the capability of transmitting up to 100 meters on a single cable.



## REMOTE MAINTENANCE

The fast and secure remote maintenance service and diagnosis. Secure End-to-End available at any time without a local presence. An expanded function scope allows authentication of all devices within a subnetwork. The possibility of remote analysis of machine data promotes continuous process improvement.



gear motors along with the Drive control. KEB servo motors provide torque overloads. KEB gearmotors in various configurations. The product selection software

### FULLY ELECTRICAL - DRIVE CONTROLLER H6

The benefits of a shared bus multi-axis servo technology become clear in fully electric machines. The compact construction and high integration of the COMBIVERT H6 reduces the space and costs of wiring right through to commissioning.

Integrated safety technology with STO, SS1, SS2, SOS, SGS, SLP, SLI, SDI, and SSM is offered. Scalable single and double output drive modules are available with the wide performance range peak currents up to 400A. An economical bridge rectifier module acts as a central supply. Alternatively, an Active-FrontEnd input module can be used which allows the machine's regenerated energy to be returned to the utility grid.



### COMBIVIS studio 6

The software combines assistant-led field bus configuration, drive parameterization and object-oriented project generation (IEC61131-3) with Motion Control functionality. Intuitive commissioning and diagnostic wizards optimize the handling of individual requirements.



### COMBIVIS studio HMI

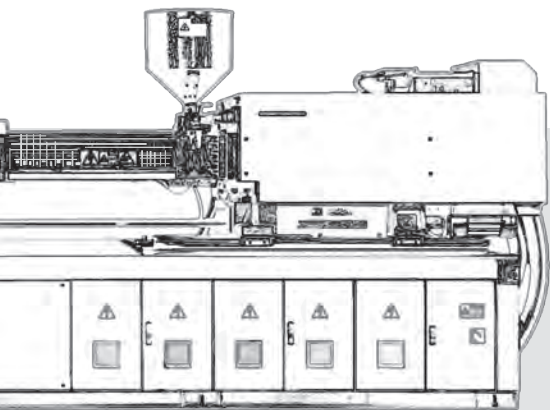
The Design tool for the effective design of display and user interfaces, or status monitoring of the industrial plant. A comprehensive communications driver database ensures easy integration into almost every commercial control system.



### SOFTWARE

The COMBIVIS studio 6 and COMBIVIS studio HMI development environments contain extensive libraries, device and template databases, and highly developed graphics tools. With this framework, we can develop a tailor-made solution for you.

Become our solution partner for the development of the library for plastics injection molding technology.



platform creates access to automation systems for connections make the centrally managed devices accessible. Authorized engineers access to the remote system and machine data reduces travelling time/costs and pro-



### APPLICATION PLASTICS MACHINES

The world's leading manufacturers of plastics machines have been using KEB for many years. The current KEB product portfolio starts with individual visualization and even remote maintenance. Innovative Drive Controllers on servo motors. The KEB product platform offers a wealth of possible solutions for your application. A high level of customer collaboration is a fixed component of the KEB Plastics application team will be pleased to offer you active support. We make Automation **with Drive**.

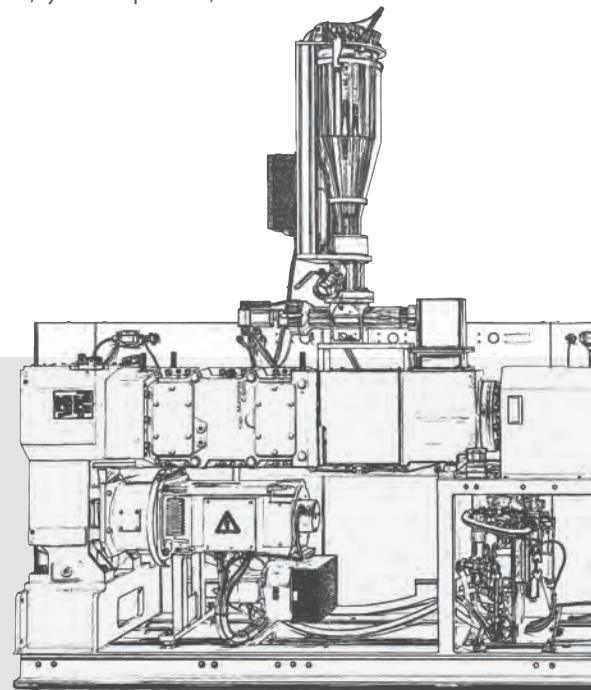
# EXTRUDERS

## MAIN DRIVES - DRIVE CONTROLLER F6

The basis of the extruder is emitter-free controlled operation with excellent speed stability and precise torque regulation – requirements for a high quality end product. COMBIVERT F6 supports a wide variety of machines and materials with versatile software for asynchronous and synchronous motors, IPM and synchronous reluctance motors. Processes and protection in the machine are optimized with modular cooling with air, water or oil, adaptability of installation and the bonus of extruder-specific functions such as blockage detection, free running or integrated coolant management. Machine operation is optimized using air or liquid cooled heatsink options with integrated cooling management. Additionally, easy-to-use motor auto-tunes provide the best system response. Features like blockage detection, system torque limits, and anti-reversing functionality protect critical machine components.

## I/O SYSTEM

The KEB I/O system allows for a modular and decentralized arrangement of digital and analog signals. The compact construction saves space in the control cabinet and brings EtherCAT-real-time communication into the individual input and output module. The broad offering of I/O modules meets sector-typical requirements such as temperature, distance and energy measurement.



## SOFTWARE

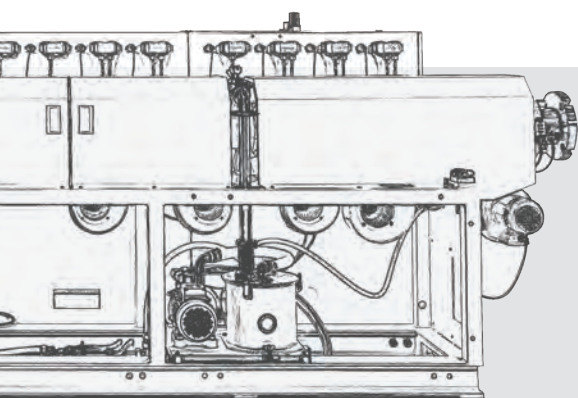
The universal COMBIVIS studio 6 and COMBIVIS studio HMI tools provide a development environment with function libraries, device and template data. As well as the basic elements of the plastics industry, we can design application-specific functions upon request. Again, become our application partner to continue our library development and extruder technology to meet demand and suit the market.

en using high quality drive and control technology from KEB for over 25 years. tion in HMI and extends to the application software for motion control, and and gear motors ensure efficient movement. or present and future requirements. the KEB market strategy for plastics machines. Engineers and technicians with ive support in the development of your machine.

### SECONDARY DRIVES - DRIVE CONTROLLER S6

From trimming/cutting applications, to stacking material on a pallet: the solution is the COMBIVERT S6. Equipped with high dynamics and high overloads to allow for dynamic motion profiles, the S6 is offered in a compact book size format which saves cabinet space. The same properties found in the COMBIVERT F6 hardware and software make implementation and application, including safety technology in the machine, particularly simple.

The integrated EMI filter technology in the performance range up to 5.5 kW is an additional feature.



### VISU-IPC C6 HMI

The high-quality display module is based on the latest IPC technology and offers robust Touch Screen displays in various sizes and formats. Mechanically constructed with an aluminium front and rated for protection class IP66, the C6 HMI comes with remote maintenance as standard. The large-capacity, intelligent memory management ensures the storage of data and recipes.



### Motion-IPC C6 SMART

The DIN-rail IPC with flexible I/O system and integrated Micro UPS has Dual and Quad-Core technology. That means optimum processor power for synchronous Motion Control and rapid detection and processing of signals, or in brief: ideal for extrusion.

With an installation width of just 45 mm, the system integrates real-time control with remote maintenance, optional visualization, and is flexibly applicable due to a wide range of communication interfaces.

Extensive functionalities are implemented in the function modules for automation in extrusion.



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**Automation with Drive**

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