



# SOLUTION SERVO PUMP

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## **SERVOPUMP KERNEL**

Intelligent servo pump control



## **COMBIVIS STUDIO 6**

Automation tool for PLC, safety and drives



## **HELIO**

HMI management system



## **NOA NEXT OPEN AUTOMATION**

Automation and IIoT platform



## **COMBIVIS CONNECT**

Remote maintenance



In the same way that we have been able to support our mechanical engineering customers in the transition from asynchronous motors to servomotors, KEB is now offering support for its hydraulic partners for the transition to even more economical and available servo pump solutions.

The use of servo pumps allows real-time control of the flow and/or pressure of a system directly from the motor, without the use of valves. Energy savings (more than 70 percent) but also noise savings (up to -20dB) can be achieved, in particular by reducing the motor speed during phases when the actuators of a machine are not operating.

Thanks to the combined use of a frequency inverter and a controller to drive the pumps, it is thus possible to eliminate a large number of valves and thus reduce cycle times and the overall inertia of a system. A permanent magnet motor operates over a wide range of speed (flow) and torque (pressure) without excessive consumption or overheating. Applications are even more dynamic. Tank to cylinder and cooling system distances are reduced. In addition, the real-time control allows the pumps to be protected, especially against cavitation.

### **HOW THE SOLUTION WORKS WITH KEB**

Thanks to our mechanical expertise, and in collaboration with a team of hydraulic engineers, hydraulic machine and pump manufacturers, we have developed solutions dedicated to the control of your pumps and servo pumps.



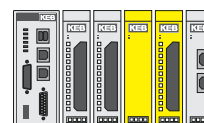
### EMBEDDED CONTROLS IPC CONTROLS

Scalable real-time control solutions



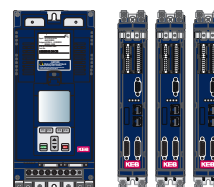
### REMOTE I/O SAFETY PLC

EtherCAT-based I/O system  
Safety over EtherCAT



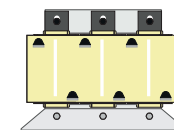
### DRIVES

Modular drive systems



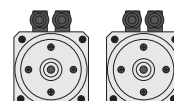
### FILTER

Flexible drive and motor filters



### MOTORS

Extensive range of motors



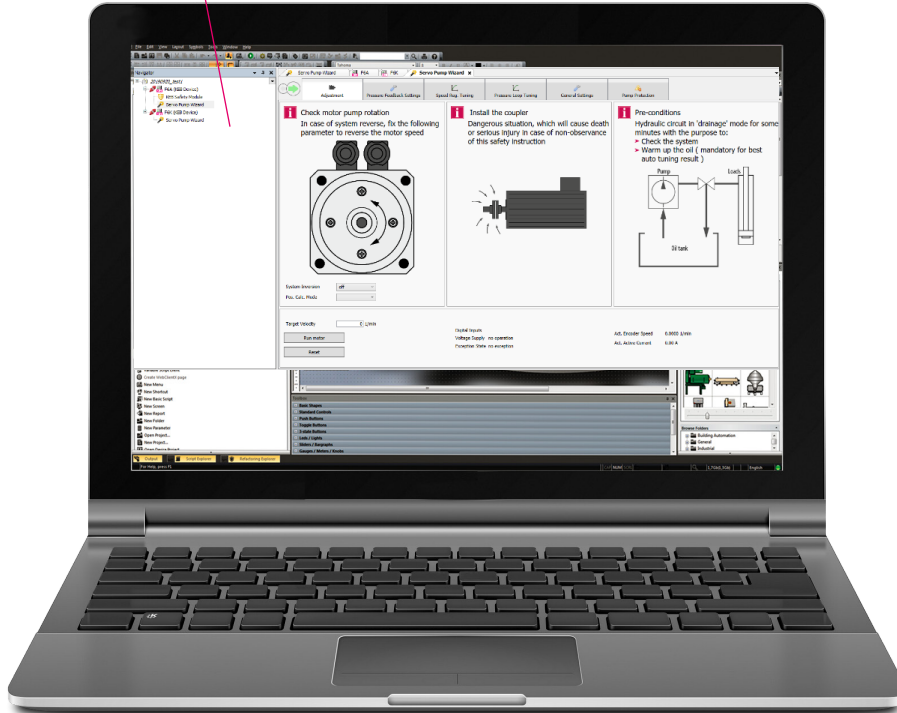
## THERE ARE MANY ADVANTAGES TO USING KEB SOLUTIONS:

- Dual loop pressure/flow control integrated in the drive
- Dedicated function libraries in our controllers
- Control in Bar and L/min
- Eight parameter sets for programming hydraulic cycles
- Communication: real-time fieldbus, analog and digital I/O, OPC UA
- Two encoder inputs integrated in the drive, motor and cylinder feedback for optimal control  
→ no more risk of over shoot in dynamic applications
- Real-time diagnostics → predictive maintenance
- Energy Recovery Solutions
- Wide power range 0.75 kW ... 450 kW

# FUNCTIONALITY DEDICATED TO PUMPS AND SERVO PUMPS

## WIZARD

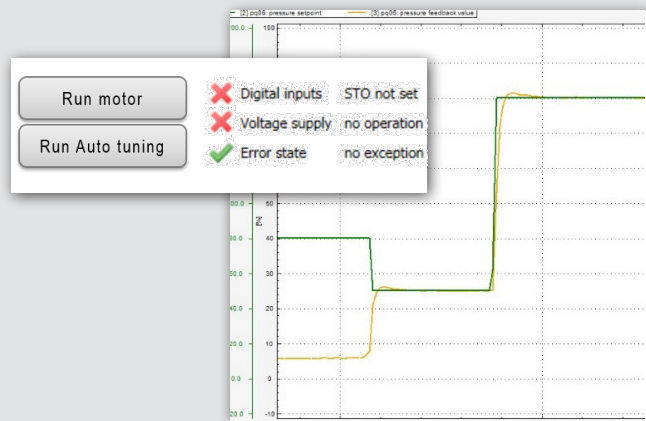
Quick and intuitive start-up of your pumps from our free software.



## AUTOTUNING

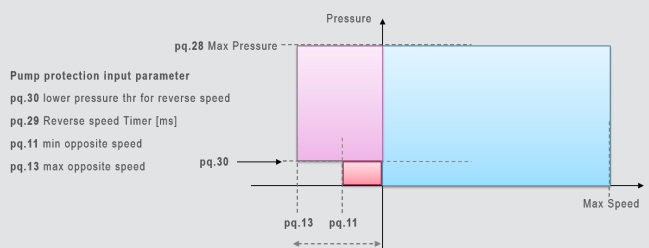
Automatic optimization of the control system and response time in 3 steps:

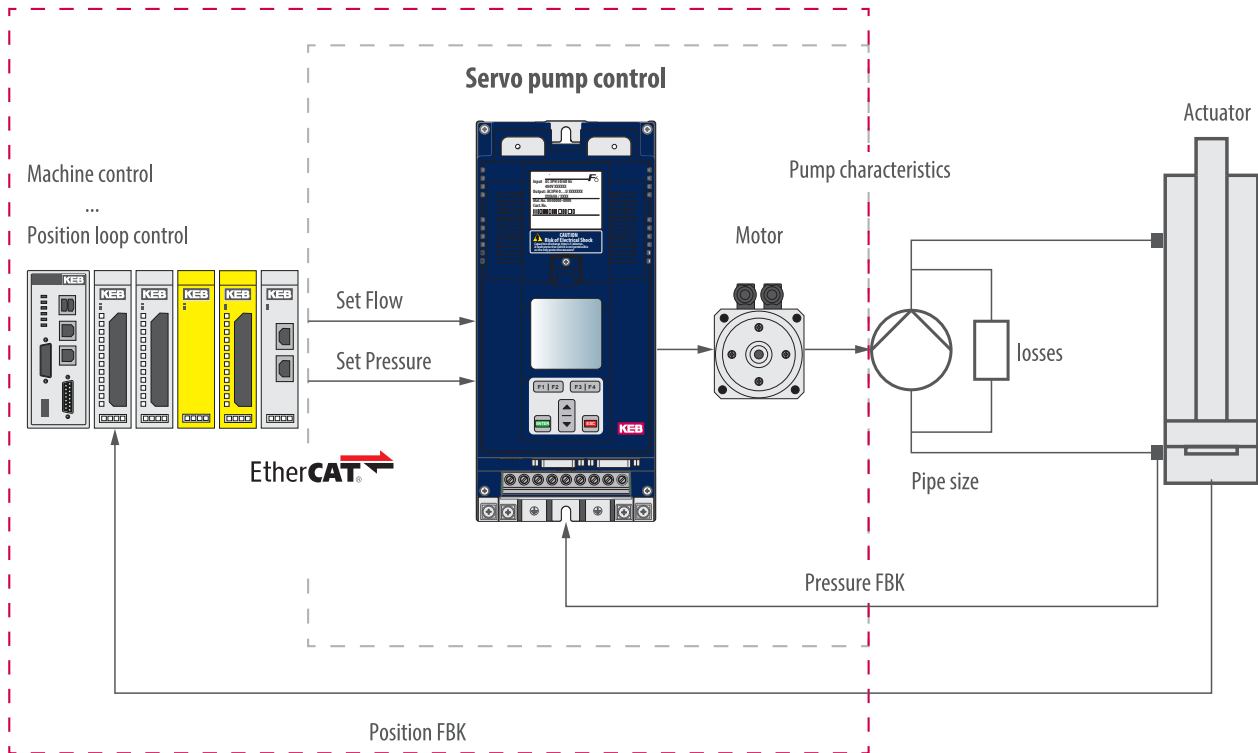
- In drainage mode
- Hydraulic circuit „under load“
- Automatic response time optimization



## SECURITY AND PROTECTIONS

Pump protection





### MULTI-PUMP FUNCTION

Parallel or series operation on a single circuit

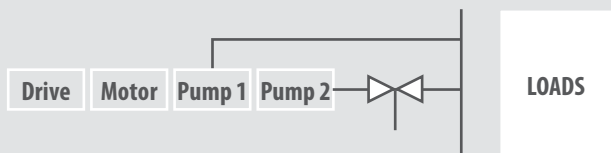
#### IN PARALLEL

This configuration extends the operating range of the system. Example: Pump #1 is used for high flow at low pressure and pump #2 is used for low flow at high pressure.



#### IN SERIES

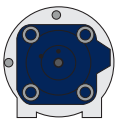
In this configuration, both pumps are connected to the same hydraulic circuit. The main pump is always active, the auxiliary pump is connected via a valve to increase the flow.



## POWER CONSUMPTION OPTIMIZATION



## HYBRID METAL PRESS



The trend towards increased energy efficiency in forming technology is unbroken and is experiencing new impulses day after day.

The next step towards eco-design has been taken with the new European Commission Regulation (EU) 2019/1781. The first measures will already come into force from 2021. Integrated drive systems that implement the requirements of the new standard already exist - of course at KEB Automation.



With the COMBIVERT F6 drive controllers - which already meet the IE2 energy efficiency, in connection with our IE3 motors or even more efficient servo motors - you already meet the new directives of the next years today.



## REAL-TIME DISPLAY OF PUMP CONSUMPTION

### KEB'S EXPERIENCE IN THE CONTROL OF PUMPS AND SERVO PUMPS

Over the years, we have acquired a great deal of experience in the control of pumps and servo pumps in a number of different areas:

- Plastic injection moulding
- Metal shears
- Hydraulic Presses
- Metal bending machines
- Punching machines

Today more than 150,000 KEB drive controllers are sold worldwide. Hydraulic pump control applications are one of the most important strategic industries in which our drives are used.



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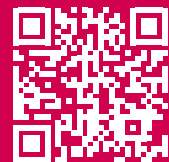
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THE COMPLETE WORLDWIDE KEB PARTNER NETWORK



Automation with Drive

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