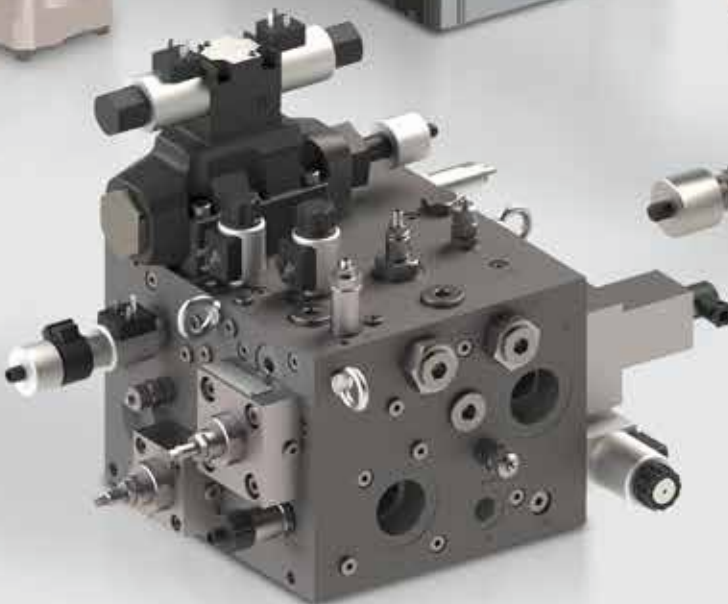


# HYDAC INTERNATIONAL



**KINESYS** | **Simple. Safe. Pressing.**

Modern hydraulic drive concepts in  
press technology do more with less.



**The “KineSys added value”:  
drive experts with knowledge spanning multiple  
systems. The press expertise team at HYDAC.**

Our **interdisciplinary team** supports you with your tasks – from simple components to complex drive systems. Hydraulic engineers, mechanical engineers, electrical engineers and programmers work together closely here in one department. **This is your HYDAC KineSys added value.**

A wide range of expertise and specific knowledge is needed to delve deeply into modern machine drive technology as **ordering individual components can have its pitfalls!**

The all-round service from KineSys is worth it when configuring complex drive systems.

It can sometimes happen that you find out much too late whether the selected sub-components and systems are compatible with each other and whether the system design is optimally balanced in terms of technology and cost-effectiveness.

In press technology, interdisciplinary knowledge, such as press safety, must often be incorporated.

The clever combination of individual components right down to a reconceptualised system architecture is a win for the environment and companies. This is much more than just the isolated selection of standard components from a catalogue.



**Your production should  
always run reliably.**

You must be certain that there is maximum protection for man and machine. You want to be confident that your production conserves resources. You rest assured if you know that your counterpart understands your problem and can solve it easily.

**You can count on us for support.**



**The custom all-round  
care-free package  
from HYDAC KineSys**

No experiments with quality and performance.

Technical consultation with a focus on efficiency and a constant view of the solution when choosing the right drive concept.

Support right from the outset to the final implementation – we take on your challenges.

**The story of the  
“miraculous servo pump part”.**

When it comes to modernising systems, the servo pump quickly comes into play as an expression of future-proof and energy-efficient technology. That's of course nonsense. Because the servo pump is just one element in a chain of system components and steps that all influence each other. A servo pump is great – if it is used correctly.



# Our product range

All from a single supplier

HFI-CM:  
Drive controller switch cabinet installation



HFI-MM:  
Motor-mounted drive controller



HFI-X:  
Drive controller integrated into the power unit



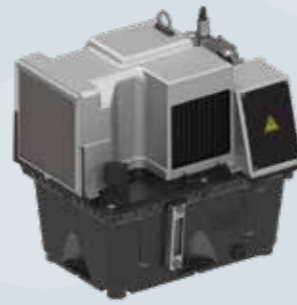
HSM:  
Servo motors



HEZ:  
Electro-mechanical cylinder



CO3:  
Compact power unit



DVA Kit:  
Electronically adjustable fixed displacement pump



DVA Kit unit



PSB:  
Press control blocks



Hydraulic system solution



Electromechanical system solution



Drive & component

Product

Turnkey subsystem

## Automation of development stages or:

Keep as much under your own control as you like. Or you can partially or fully place the task of solving the motion tasks in your machines in our hands.

Our HYDAC KineSys team's drive knowledge means you have the choice. You can choose an application-specific drive solution, interface-optimised and perfectly designed to meet your needs.

Alternatively, we can provide you with knowledge, engineering and service as well as a circuit diagram, commissioning support and specific machine type know-how. The programming and sequence of the motion function remains with your company.

A turnkey sub-control system is, of course, also possible. You provide the signals while we control the logic of the valves and the drive.

**The TARGET value becomes the motion and ACTUAL value.**

## How much can we help you?

Level 1: component delivery approach

- Preset motor-pump drive unit with HYDAC management of simple control tasks via the drive controller, such as:
  - » Pressure control
  - » Speed control
- No HYDAC management of switching logic or timing the valve switching
- Peripheral equipment is wired and controlled by the customer

Level 2: System approach

- HYDAC management of subordinate sub-functions of the hydraulics. e.g.:
  - » Positioning
  - » Motion profiles
  - » Safety functions
- Simplified electrical interfaces: Valve and sensor connections bundled at control blocks, e.g. with I/O modules and/or on the unit with terminal box
- HYDAC management of switching logic and timing of the valves at the signal level. Electrical actuation at the power level occurs via customer peripheral equipment

Level 3: Turnkey drive subsystems

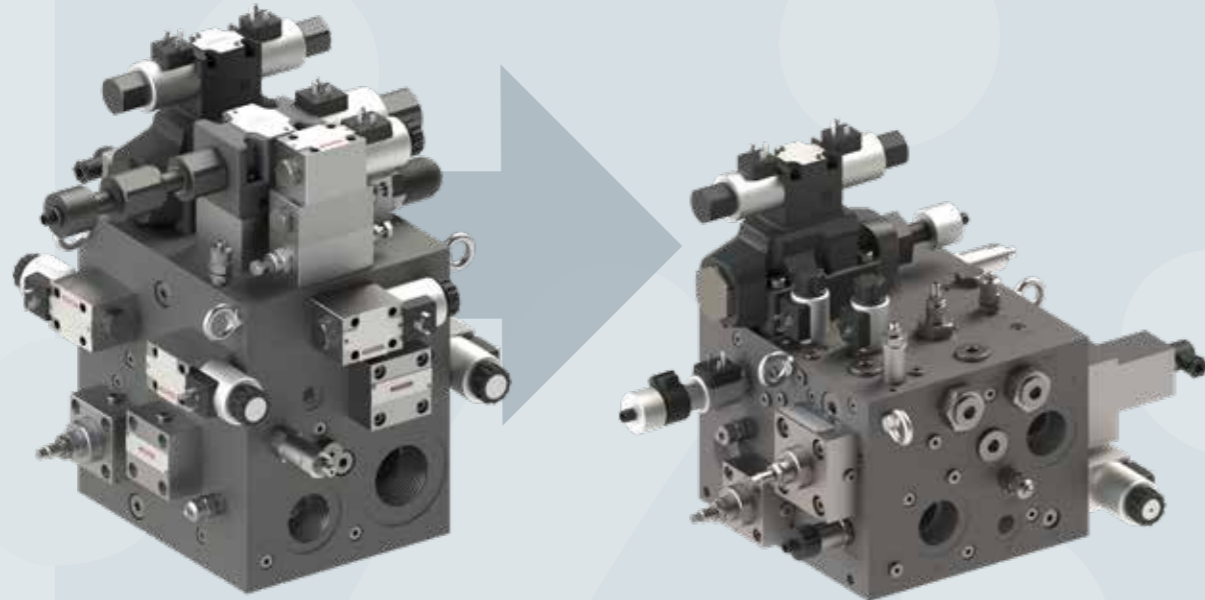
- Drive system assumes the full control and regulation of the motion functions as the sub-control system
  - » Completely "Plug & Play"
  - » Actuation of the drive, valve and sensor technology both at the signal and power level
  - » Integration of the actuators (e.g. cylinders)
  - » Monitoring of the system state
  - » Sub-control system for hydraulics integrated in the customer's switch cabinet or as an auxiliary solution
- A defined interface for control, electrically as well as in terms of control technology
- **Exchange of target and actual signals**

# That's why our press control blocks really make sense for you:

Our press control blocks are unique in their hybrid design! Thanks to the skilful combination of screw-in valves, logic valves and sandwich plates, the dimensions are reduced by about 30 % compared to conventional designs with sandwich plates and surface-mounted valves. This saves material, weight and space.

We rethought the design while paying attention to the inner qualities: the concept is rounded off by the integration of auxiliary functions in the block. Complex valve stacking is a thing of the past.

**Pioneering. Cost-effective. Safe.**



Weight: 130 kg



Weight: 90 kg

Our hybrid press control blocks have the same functional scope as conventional press control blocks with about 30 % less weight and a smaller installation space. Less weight means better handling during installation.

**This allows the pressing force to build up smoothly.**

## Conventional control block

## Optimised with a hybrid design:

Larger dimensions and valves that protrude make handling difficult	Up to 30 % less installation space thanks to a clever combination of different valve technologies
More raw material needed for the block, sandwich plates and valves	Up to 50 % less weight due to less raw material required
Complex piping required between the valves » Pipes and valves make installation and maintenance difficult	Valve piping eliminated. No disruptive or protruding components
For auxiliary functions, separate valve stacking must be retrofitted and piped » Additional costs and time	Auxiliary functions integrated into the block » No additional valve technology needed (e.g. control of a press cylinder filling valve or a holding brake)
Functional changes or expansion is associated with considerable extra work due to additional sandwich plates, valves and piping  A simple expansion is often not possible due to lack of room and installation space	The same valve installation spaces: Simple function changes by replacing valves with identical installation spaces without changing sandwich plates or other components
Standard components cannot always be used, which means a special custom design is needed	Only standard components are used which can also be easily adapted by the customer following technical clarification
Custom solutions require a large range of variants in the components, blocks and sandwich plates	No large range of variants required: Just two basic block variants ensure a very high number of custom design options
Custom production leads to delivery times that are difficult to calculate	High stock availability: customised assembly and delivery in just a few weeks as components and basic blocks are already in stock
Changes to performance entail major conversions and high costs	Performance level of the press can be changed without additional work and costs (e.g. simply insert a different valve and you're done)

# Product features. An overview.

Service, consultation during implementation and adaptation is provided for all blocks

## Press control block PSB

for upper piston presses 315 bar and a max. flow rate up to 1,000 l/min



## Press control block PSBH



## Die cushion control block ZSB/ZSBH

For die cushion systems up to 300 l/min and 315 bar



## Retrofit Block PSN/PSNH

For existing presses up to 600 l/min and 315 bar



- PSB with type approval according to DIN EN ISO 16092-3
- Designed for hydraulic control system safety regulations to DIN EN ISO 16092-3
- The hydraulic control system corresponds to the performance level PLe in accordance with DIN EN ISO 13849
- Meets redundant and monitored safeguarding against unwanted pressure build-up on the piston side of the press cylinder as required according to DIN EN ISO 16092-3
- System pressure adjustment & pump pressure protection
- Press slide direction control
- Pressure release on the piston side of the press cylinder
- Redundant holding up of the press slide that is monitored
- Many auxiliary functions integrated into the block without additional valve technology
- For example: control of a filling valve, Sitema holding brake, ejector, clamping functions, accumulator for supplying auxiliary functions
- Rapid traverse "down" with own weight, rapid traverse cylinder or with regenerative circuit
- Raise & lower setup mode, also with PLd
- With accumulator: maintain pressure and operate auxiliary functions during main drive downtimes
- Direct use of load-sensing pumps is possible
- Custom individual functions and adaptations possible for a wide range of press types

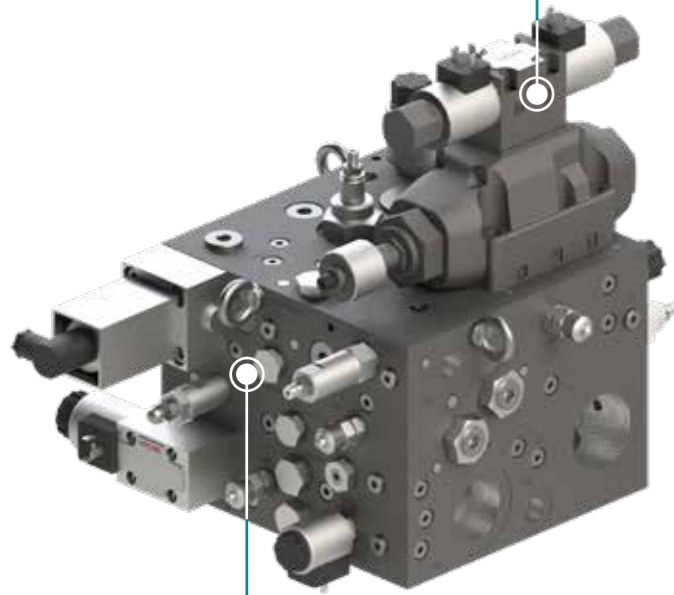
- Safe movement of the die cushion in both motion directions
- Hydraulic control system corresponds to the performance level PLe category 4 as per DIN EN ISO 13849 in all travel modes
  - » This means that PLe can be achieved for the entire press with just a little extra work
- Both movement directions are redundantly protected and monitored with valve technology
- Circuits possible for differential cylinders or plunger cylinders
- Pump pressure protection
- Proportional drawing force adjustment
- Maximum pressure protection for the drawing cylinder on the piston side
- Leak-proof piston side so that any unwanted sinking of the die cushion is prevented overnight
- Pump recirculation to maximise energy efficiency
- Hybrid block design: minimal space requirements, piping and maintenance work
- High availability
- System consultation and consultation during commissioning included

- Simple and low-cost retrofitting of existing hydraulic presses
- Hydraulic control block for retrofitting existing machines to achieve the currently required safety requirements Performance Level e (PLe) Cat. 4 according to DIN EN ISO 13849
- Safe setup with PLd in accordance with DIN EN ISO 16092-3
- Existing press hydraulics can be brought to the current state of DIN EN ISO 16092-3
- Usually no change to the existing hydraulic operation necessary and so machine downtime is reduced
- High return on investment compared to replacing the entire control block
- Leak-proof option prevents the press cylinder from lowering so that no undesired machine states occur during longer downtimes

# The difference: The variable-speed drive concept makes the press control block simpler.

Equipment for variable-speed pump concept

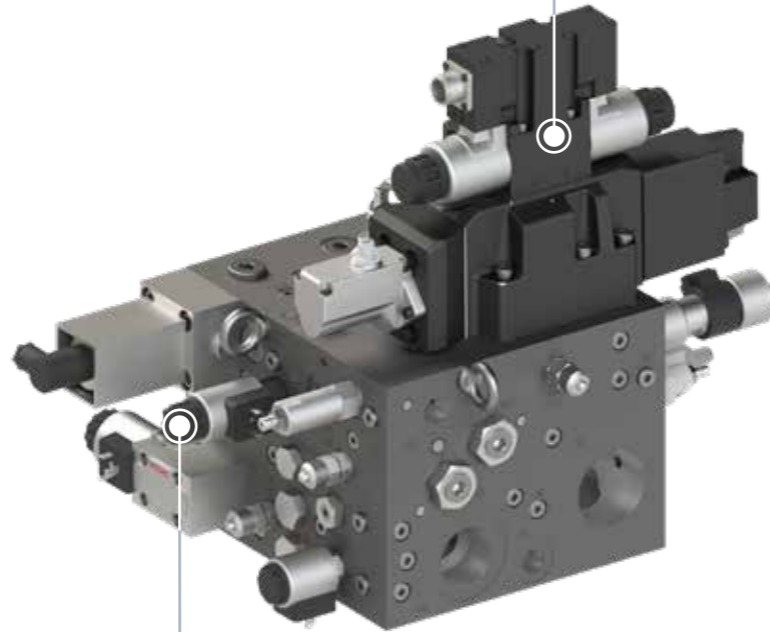
➤ 4/3 directional switching valve



- Valve for proportional pressure setting is not required
- System pressure adjustment via drive

Equipment for variable displacement pump & control pump concept

➤ 4/3 directional proportional valve

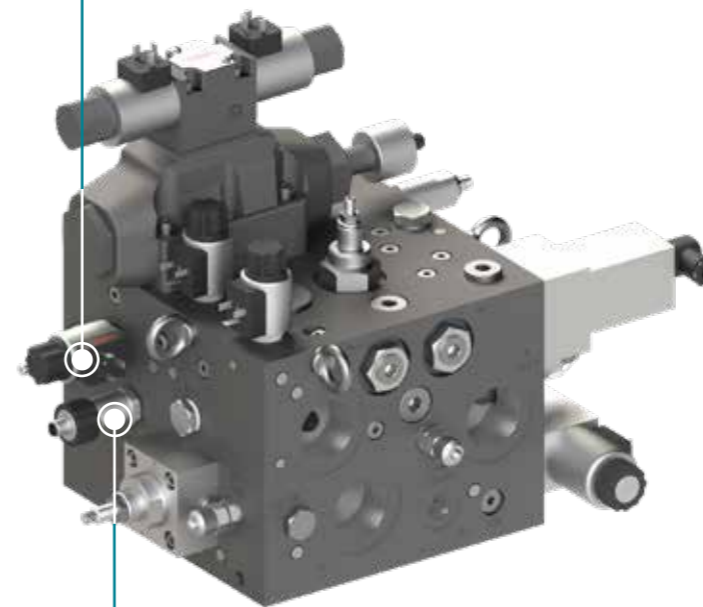


- Valve for proportional pressure adjustment required
- System pressure adjustment via main pressure relief

Equipment for variable-speed pump concept

➤ No switch position-monitored valve

➤ Safety function integrated into the drive

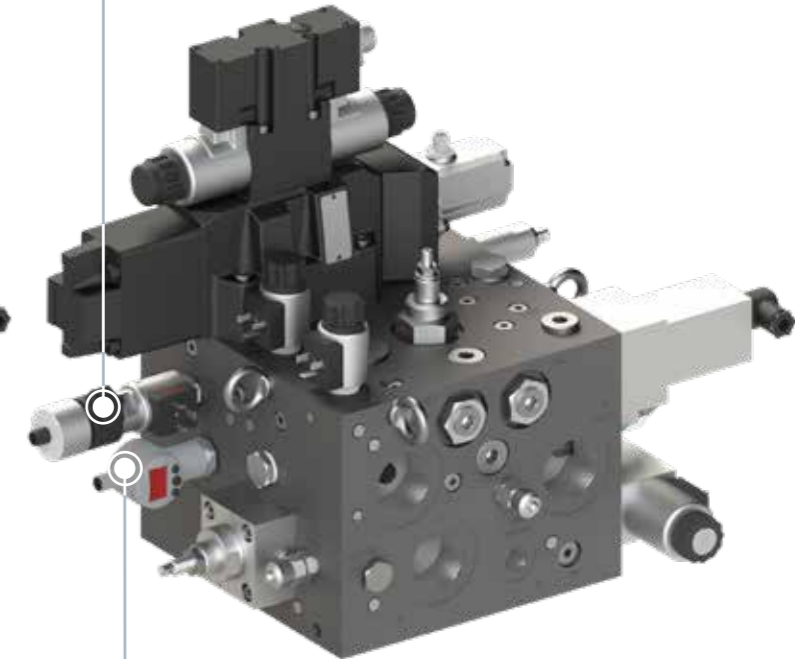


➤ Analogue sensor without switch points sufficient

Equipment for variable displacement pump & control pump concept

➤ Switch position-monitored valve

➤ Safety function required in the block



➤ Pressure switch with defined switch points and analogue signal



## Variable-speed hydraulics in press technology are unbeatable

Switching to variable-speed hydraulics in combination with our press control blocks is simple and cost-effective.

- Simple pumps: no error-prone adjustment mechanisms thanks to fixed predefined displacement volumes
- Less noise: Simple pumps and variable speeds lower the average noise emission and therefore reduce the perceptible noise level
- Simple valves: no control valves, no control cards, no control edge wear, less viscosity-dependent
- Simple filtration: return filtration is sufficient, as there are no error-prone valves in the system
- Cooling is eliminated: reduced energy costs, lower maintenance costs, less space required
- Drive power reduced: less energy and space required
- Energy requirements reduced: optimal energy provision as needed. Drive unit can be switched off any number of times as appropriate for the cycle, instead of continuous idle-stroke operation
- Tank volume reduced: lower initial oil costs and oil maintenance costs, machine installation space can be reduced
- Maintenance intervals reduced: significantly less oil degradation, as there are no valve control edges present, lower maintenance costs
- Increased functional scope and better ways to analyse operating states, without additional sensors
- Functions altered by reprogramming without making physical alterations to the machine
- Control for control pumps & prop./servo valves eliminated
- Turnkey subsystem: the TARGET value becomes the movement and the ACTUAL value
- Control of hydraulic functions with only one traverse command, no coordination of valves, drives & and closed-loop control circuits

Variable-speed hydraulic designs by **HYDAC KineSys** make your control blocks simple and reliable, while enabling additional functionalities and flexibility.

We'll work in partnership with you and help you to implement the hydraulic subsystem in your machine until everything is running smoothly.

**This is what our HYDAC KineSys Service means to us.**

**The turnkey HYDAC KineSys subsystem: the TARGET value becomes the movement and ACTUAL value.**

**No matter how dynamic or complex your motion is – we have the optimal solution. Put us to the test.**

### Contact

Let's tackle your challenge together.  
We look forward to hearing from you!

Contact us at: [kinesys@hydac.com](mailto:kinesys@hydac.com)

Or visit our website: [www.hydac.com/kinesys](http://www.hydac.com/kinesys)



# Everything is getting more complex and challenging. Who gets excited about that?

## We do!

We help you to integrate future-proof solutions which reduce complexity and increase efficiency. Design your machines so that they ensure long service lives thanks to significantly reduced maintenance work. It's also important for your machines to be equipped with the hardware and software requirements for the machine cycles of tomorrow.

You can rely on our proven expertise. We're at your side to make your production process fit for the future.

You stay independent with us as a partner. You get exactly as much from HYDAC as you want.



## Our drive systems are smart problem-solvers.

## Good reasons to collaborate with us

- Custom, industry-specific solutions are standard with us
- We provide the specialists in hydraulics and automation who understand your machines
- Drive subsystems complete with HYDAC quality. You can choose the depth of interface interventions on your own
- **Mechanical engineering, hydraulics, electrical engineering and automation in one unit: KineSys by HYDAC**
- Model for success: design, programming and integration by HYDAC press specialists
- We help you to decide whether it has to be a custom solution or whether a solution is possible with standard products
- Full-range supplier with a high quality product range and 360° services
- Free choice as to whether you want to purchase components, benefit from our know-how or receive turnkey subsystems as a drive solution for plug & play installation
- **Fewer valves, less or hardly any cooling, smaller tank, less oil, greater efficiency – The right system architecture makes your machine particularly efficient**

## Contact us to find out more.

### Contact

Let's tackle your challenge together. We look forward to hearing from you!  
Contact us at: [kinesys@hydac.com](mailto:kinesys@hydac.com)  
Or visit our website: [kinesys.hydac.com](http://kinesys.hydac.com)







Accumulator Technology 30,000



Filter Technology 70,000



Process Technology 77,000



Filter Systems 79,000



Compact Hydraulics 53,000



Accessories 61,000

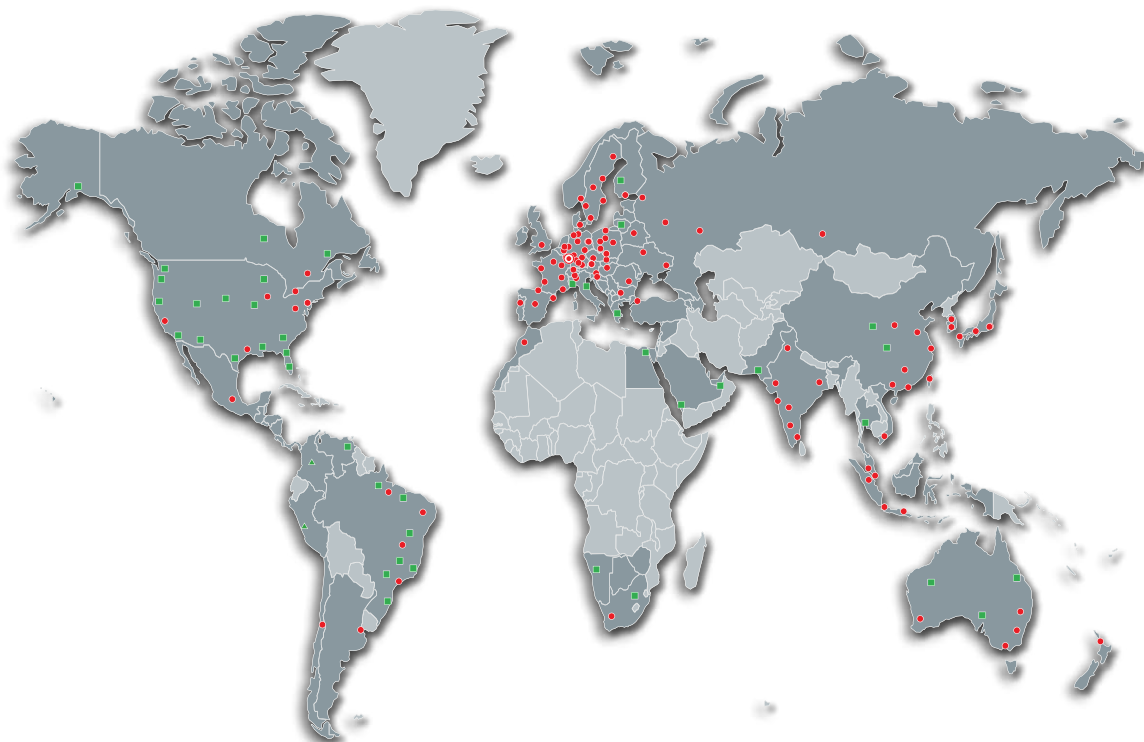





Electronics 180,000



Cooling Systems 57,000

# Global Presence. Local Expertise. [www.hydac.com](http://www.hydac.com)



-  HYDAC Headquarters
-  HYDAC Companies
-  HYDAC Sales and Service Partners
-  Free sales partners

## **HYDAC** INTERNATIONAL

**HYDAC INTERNATIONAL  
GMBH**

Industriegebiet  
66280 Sulzbach/Saar  
Germany

Tel.: +49 6897 509-01  
Fax: +49 6897 509-577

E-mail: [kinesys@hydac.com](mailto:kinesys@hydac.com)  
Internet: [www.hydac.com](http://www.hydac.com)