

24/7 AUTOMATED FLUID MANAGEMENT

# STAYCOOL

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## HIPP MEDICAL - MORE PRE- CISE THANKS TO FLUIDLYNX HOW REVOLUTION- ARY CUTTING OIL MANAGEMENT WORKS

HIPP medical AG has quickly established itself as a leading partner and innovator in the Tuttlingen medical technology centre. Founded in 2008, the company produces high-precision orthopaedic instruments and implants that are manufactured specifically to customer requirements. A new plant was opened in Renquishausen in 2022 to meet the increasing requirements. Here, HIPP utilises state-of-the-art production technologies and the innovative FLUIDLYNX NEATOIL BOX fluid management system to increase efficiency and sustainability.



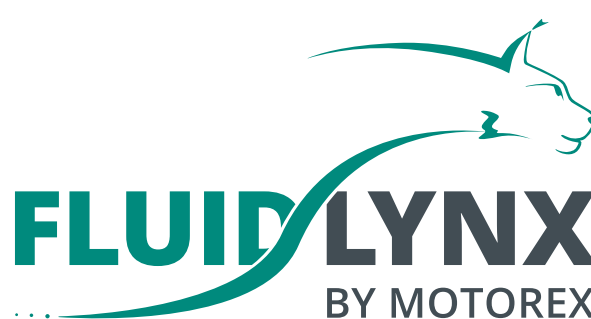
## MEASURABLE PROCESS IM- PROVEMENT THROUGH DIGI- TAL COOLANT MANAGEMENT

Metzler Fertigungstechnik in Austria relies on state-of-the-art technologies and was the first company in Austria to implement the FLUIDLYNX CONTROL system from MOTOREX. This digital cooling lubricant management system automates the monitoring and control of cooling lubricants, which increases process reliability and efficiency. It reduces labour costs, increases quality, saves resources and enables seamless monitoring. This also improves the working environment for employees.



## THE FRAUNHOFER GESELLSCHAFT RESEARCH INSTITUTE BELIEVES IN A FUTURE-PROOF COOLING LUBRICANT CONCEPT

The Production Technology Centre (PTZ) Berlin is a leader in manufacturing processes. MOTOREX was chosen for lubricants due to their outstanding performance. One example is the high-performance cutting oil SWISS-SCUT DECO EX, which is used in an ultra-precision environment. The PTZ, home to TU Berlin and Fraunhofer IPK, offers state-of-the-art research facilities and equipment for sustainable production. SWISSCOOL UX 440 is a water-miscible coolant that is perfectly tailored to the requirements of the PTZ, with outstanding cutting performance and a long service life.



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HIPP MEDICAL – MORE PRECISE THANKS TO FLUIDLYNX

# HOW TO DO REVOLUTIONARY CUTTING OIL MANAGEMENT

Outstanding performance is essential for any company that wants to successfully hold its own with orthopedic instruments, bone screws and implants in the medical technology hub that is the Tuttlingen district of Germany. It is in this challenging environment that HIPP medical AG has grown into a capable partner and technological pioneer. To do justice to its high manufacturing standards, the company put the first FLUIDLYNX NEATOIL BOX into service a year ago.

## Custom products

All implants and orthopedic instruments are manufactured to customers' specific requests, with a very high level of vertical integration and painstaking precision. The company views itself first and foremost as a strategic partner to its customers, accompanying them on the path that leads from the original idea, through constant development, testing and laboratory work, to production. Bone drills, thread cutters, setscrews and guide wires are all designed to withstand the loads, torque and heat build-up to which they will be exposed. The design of the cutting edges is the crucial factor, and highly sensitive sensor systems are used to test the ideal geometries for drills. All products are machined from titanium and medical-grade stainless steel. Using this approach, over 6,000 different products in batches ranging from one to several thousand parts have been produced in the past five years.

## State-of-the-art manufacturing technology

The company expanded into a new facility in Renquishausen in 2002 after production capacity at its Kolblingen site had been exhausted. "Factory of the future" is certainly an apt term for it. The production facility outdoes many hospitals for cleanliness and interior fit-out, processes have been optimized down to the smallest detail and the state-of-the-art, fully automatic production machinery guarantees production technology with total quality



NEATOIL BOX relieves employees and creates added value.

control at the highest level. The building also houses the design department, a clean room, automated metrology and assembly production. Ralf Gfrörer, Head of Machining at HIPP medical AG, uses the latest generation of CNC sliding headstock lathes, fully automatic machining centers, and EDM systems. The move to the new factory gave the company an opportunity to carefully analyze its fluids management. HIPP medical relies entirely on cutting oil to cool and lubricate all its machines. This makes sense, given that sterility and cleanliness are vital. The water in emulsion-type machining fluids means there is a risk of bacteria and fungi forming, which may in turn adhere to the workpieces and necessitate intensive cleaning processes. Sustainability is a further consideration. The cutting oil is constantly reprocessed, and even moved from Kolblingen to Renquishausen with the company. It was then that the idea of automating replenishment, inspection, filtration and reprocessing came up, and HIPP medical approached MOTOREX, its longstanding cutting oil partner.

## Automated cutting oil monitoring and control

Three years ago, MOTOREX, the Swiss fluid management technology leader, developed FLUIDLYNX, a system that automatically manages and monitors water-soluble machining fluids. The system has proven extremely successful in practice and is in widespread use. This spurred the development team to come up with the FLUIDLYNX NEATOIL BOX for cutting oil, to which up to 12 machines can be connected. HIPP medical was the first customer in Germany to adopt this system. A year ago, six fully automated FANUC Robodrill machining centers were hooked up to the NEATOIL BOX. The box is equipped with various sensors and controls the systems in programmable bypass cycles. A vacuum pump sucks the oil into the box, where it is filtered through a 3 µm mesh. At the same time, the box measures the temperature, viscosity, particle content and fill level. The oil is automatically topped up if necessary. The system is very reliable in practice and almost completely maintenance-free. All it needs is to have its microfilters replaced every two months and its oil drum changed when needed.

## More sustainable and economical

After one year, Ralf Gfrörer feels the system has many advantages. "We have between 12,000 and 14,000 liters of cutting oil circulating through our machining operations. The box extends the oil's service life and reduces

disposal costs. Our employees are relieved of 'annoying' tasks and can focus on the important things". In the past, judging cutting oil quality was a matter of the individual employee's gut instinct and experience; nowadays, the dashboard displays all the key information for each machine, including fill level, temperature and particle status. Looking ahead, the plan is to make all this data available through an app too. MOTOREX's service engineers can already access the box remotely and perform tasks such as updating its software.

## Hipp medical AG

Founded by Markus Hipp in 1993, HIPP Präzisionstechnik quickly became a capable partner to the medical technology, aerospace and automotive industries. HIPP medical AG was set up in 2008 to gear the business to medical technology. In 2019, Swiss investment company Kontivia bought into the German-based business, laying the foundations of further growth. The recently founded, Zurich-based HIPP Technology Group AG comprises HIPP medical AG, HIPP Präzisionstechnik GmbH, Wymed AG and MK Medical GmbH & Co. KG.

**"Total precision and cleanliness are vital".**

Ralf Gfrörer, Head of Machining at HIPP medical AG

- 300 employees in the HIPP Technology Group
- The share of medical technology in the Group is 75 %.
- 6000 different products in the last 5 years

A FURTHER STEP TOWARDS PAPERLESS, FULLY AUTOMATED PRODUCTION AT METZLER

# MEASURABLE PROCESS IMPROVEMENT THROUGH DIGITAL COOLANT MANAGEMENT

Metzler Fertigungstechnik in Feldkirch AT is recognised as a genuine high-tech forge in the supplier industry. State-of-the-art machines are used to machine workpieces made of aluminium, steel and plastic. The company always utilises the latest technologies. With the first installation of the FLUIDLYNX CONTROL system from MOTOREX, the company has taken a further step towards paperless, fully automated production.

Coolants are crucial in metalworking but are often underestimated as a cost factor. Thanks to decades of excellent cooperation with MOTOREX, the Swiss technology leader in coolant management, he was confident enough to be the first to test the new FLUIDLYNX CONTROL system in Austria. FLUIDLYNX CONTROL is the first smart, fully automatic measuring, mixing and dosing system for coolants. Up to 16 machines with a total volume of 100,000 litres can be connected. As a first step, four machines were connected at the Metzler site. This was done quite simply during ongoing operations. The system only requires a standard power connection and a water supply line. The machining centres were connected via hoses.

FLUIDLYNX CONTROL measures the concentration, water temperature, conductivity, pH value and fill level and independently controls compliance with the defined values. A redundant measuring system with three sensors ensures optimum dosing with a plus/minus 0.3 per cent tolerance. The automatic adjustment increases process security, efficiency, availability, productivity and quality. The uniform concentration and constant fill level can save up to 15 per cent of



Automatic customisation increases process reliability, efficiency, availability, productivity and quality.

coolant concentrate. The system also features the best mixing process on the market, with an average droplet distribution of less than 80 nm. The finely dispersed emulsion positively influences the foaming behaviour, runs off the chips more easily and has a lower bio-susceptibility and a longer service life.

#### Seamless surveillance and total transparency

FLUIDLYNX CONTROL monitors all processes and machines in real time, synchronises and analyses the data, regulates and controls itself on this basis and documents every step in a log. A central dashboard in the hall displays the current concentrations and pH values of the coolant for each machine in the factory. In addition, each machine has its own controller that clearly visualises its efficiency. The consumption of

water and concentrate is recorded and displayed for each machine.

The concentration can be set individually for each machine, and two different concentrates are possible. The system and all machines are fully networked. The status of each machine on the central dashboard but can also display the data on their computer or mobile phone. This intelligent process monitoring avoids rejects and, therefore, wasted resources. At the same time, predictive maintenance solutions can boost the longevity of their machines. Another plus point in favour of using FLUIDLYNX CONTROL: The system has noticeably improved the working conditions for Metzler's employees. They no longer have to worry about the quality of the coolant and can focus on the essentials

## SWISSCOOL UX 440

WATER-MISCIBLE CUTTING FLUID  
FOR BEST PERFORMANCE



[motorex.com/swisscool-ux-440](http://motorex.com/swisscool-ux-440)



# EVERYTHING AT ONE GLANCE

In today's high-tech industrial landscape, efficiency is the key to success. An often overlooked but crucial component in manufacturing optimisation is the fluid management of coolants. These fluids play a significant role in the cooling, lubrication and cleaning of machines and workpieces in the manufacturing industry. Effective fluid management not only reduces manufacturing costs, but can also extend machine life and improve the quality of products.

## FLUIDLYNX SINGLE ONLINE MEASURING AND DOSING SYSTEM

- Automated dosing and measuring system for coolants
- Measuring, analysing, documenting, dosing with remote control
- For individual and centralised systems, regardless of filling volume
- Fully automatic 24/7 monitoring through online measurements
- Concentration, pH value, temperature, electrical conductivity



More about  
[motorex.com/fluidlynx-single](https://motorex.com/fluidlynx-single)



## FLUIDLYNX COOLANT SMART MIXING AND MAINTENANCE SYSTEM FOR WATER-MISCIBLE COOLANTS

- Automated mixing and maintenance system for coolants
- Mixing, filling, cutting off tramp oil, filtering
- For individual machines and central systems with a capacity of up to 70 000 litres
- Standard with **FLUIDLYNX MULTI** for up to six machining centres or **FLUIDLYNX SINGLE** for one machining centre coupled as an autonomous measuring system



More about  
[motorex.com/fluidlynx-coolant](https://motorex.com/fluidlynx-coolant)

## FLUIDLYNX CONTROL SMART MIXING, MEASURING & DOSING SYSTEM FOR COOLANTS

- Automated dosing and tracking system for coolants
- Measuring, dosing, mixing, tracking
- For up to sixteen production machines



More about  
[motorex.com/fluidlynx-control](https://motorex.com/fluidlynx-control)



## FLUIDLYNX NEATOIL BOX SMART DOSING AND MAINTENANCE SYSTEM FOR CUTTING AND GRINDING OILS

- Autonomous refilling of cutting and grinding oils
- Measuring, analysing, documenting, dosing, filling, filtering
- For up to twelve machining centres
- Circulation of around 18 litres/min
- Fully automatic 24/7 monitoring through online measurements
- Viscosity, degree of purity, temperature



More about  
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COMPLETE SOLUTIONS FOR YOUR BUSINESS

# EVERYTHING FROM A SINGLE SOURCE

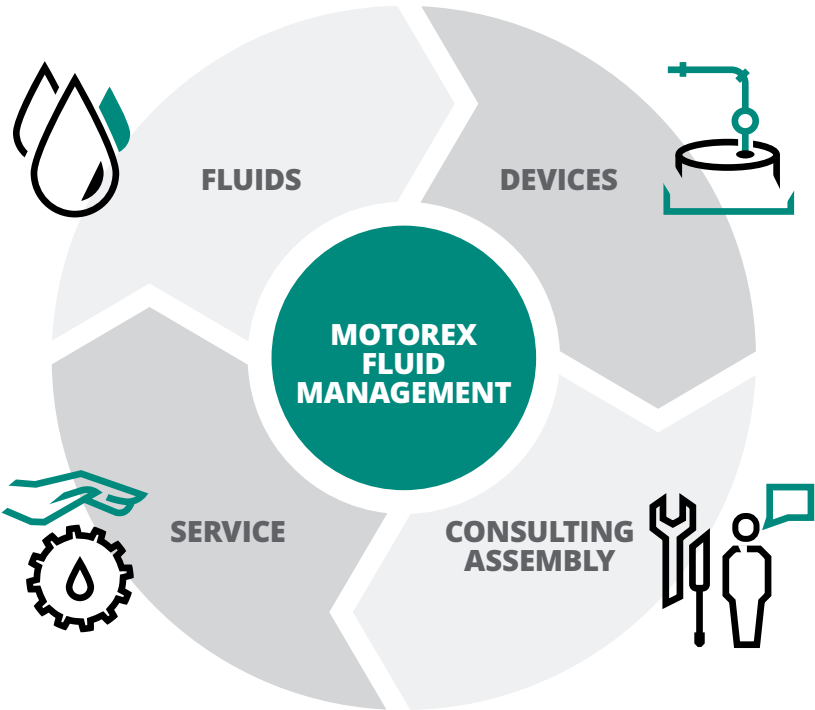
With the digital fluid management system for the industry, water-miscible coolants as well as cutting and grinding oils are reliably monitored and automatically controlled. Based on the motto: The right solution for every application. Now we can support you fully as a full solution provider. The monitoring system FLUIDLYNX protects your employees, workpieces and production machines and guarantees controllable and traceable process reliability.

AUTOMATION & FLUID MANAGEMENT



- Lubricants
- Coolants
- Cutting oils
- Operating fluids
- Cleaners
- Other

- Maintenance
- Spare parts
- Laboratory analyses
- Technical customer service
- Safety data sheets



- Devices for operating fluids and automation (oil- and water-based)
- Measuring
- Mixing
- Dosing
- Pumping
- Rinsing
- Suction
- Filling
- Filtration
- Monitoring
- Analysing
- Storage

- Consulting
- Project planning
- Installation
- Integration of existing systems and devices
- Fluid supply processes
- Success control

# RESEARCH INSTITUTE BELIEVES IN A FUTURE-PROOF COOLING LUBRICANT CONCEPT

The Production Technology Centre (PTZ) Berlin is the reference for questions about production processes. Cooling lubricants have an enormous influence on process security in production and this should not be left to chance. It is not just because of lubricants that MOTOREX was the obvious choice.

## It began with cutting oil

Back in 2022 when the institute wanted cutting oil for a new KERN MICRO HD machine, they chose MOTOREX. The newly developed, high-performance cutting oil SWISSCUT DECO EX met all the requirements: fantastic cutting performance, low evaporation and a very high flash point. In machining,  $\mu$  accuracy is often the aim and has already been found here several times. The ultra-precision laboratory where the machine is located always keeps the temperature at a constant – and with a tolerance of  $\pm 0.5^\circ\text{C}$  at that! This is the only way to meet the high accuracy and repeatability requirements. The fact that milling tools with a diameter of  $50\ \mu\text{m}$  (which is about half the width of a human hair) are routinely used here is yet another amazing feat.

## More about the production technology centre

you will never forget the first time you lay your eyes on the central test area, measuring 64 m in diameter and 14 m high. Two cranes can reach every square metre of the hall. The PTZ is home to two research institutes: the Institute of Machine Tools and Factory Management (IWF) of the Technische Universität Berlin (TU) and the Fraunhofer Institute for Production Systems and Design Technology (IPK). Specialists have been researching the limits of what is feasible in future-proof production day in and day out since 1986. The excellent facilities include the latest machines for all relevant production processes. Everything that is devised in theory behind computer desks can be put directly to the test in practice.



## Water-miscible cooling lubricant

"It soon became clear that the institute needed a very stable product to meet these requirements," recalls René Flindt of the first status meeting and consultation with Dr Yves Kuche and Ingmar Thiede M.Sc from Fraunhofer IPK. In contrast to typical production in machining companies, the machine tools in the institutes do not run all the time. Periods of downtime for many days are not unusual and SWISSCOOL UX 440 plays to its greatest strengths here. Alongside the fantastic cutting performance, the chosen formula prevents uncontrolled biological growth and guarantees a long emulsion service life as a result. The cooling lubricant lends itself perfectly to the PTZ's requirements and, by being a universal solution, covers all metalworking processes that use water-miscible cooling lubricants.

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**CLEAN  
CARE  
LUBE**

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Environmentally friendly lubricants and care products



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