MHT



Getting out of the swamp

Machine cutting has been used since about 1900, and cooling lubricants (KSS) have been used since 1910. Today, 95 percent of machining production processes are still operated with flood lubrication. And why not? KSS works. Although not always perfect, considering for example tool life, problems with chip removal and the disposal of about 1 million tons of hazardous waste every year in Germany alone, by and large it works.



"Actually one knows nothing else" so Jochen Dorlöchter, executive partner of Walther Wolf GmbH in Wendelstein. The medium-sized company from Baden-Württemberg has been producing components for tool and mould making for four generations. "Nevertheless, we were one of the first users to opt for the Mediumverteiler as early as 2011 and are still highly satisfied today". At Walther Wolf, the Mediumverteiler is installed in the entire automation system, in which, among other things, two Röders milling machines and an external changer magazine with over 300 tool places are equipped with the Mediumverteiler. In addition, two stand-alone Hermle milling machines are equipped with the system.

"Compared to our previous production method, we have achieved enormous quality improvements with the Mediumverteiler in terms of surfaces, dimensional and repeat accuracy," says Dorlöchter. "But the greatest financial benefit is in the tool life: Here we save more than 100,000 euros in tool costs every year". And he adds: "In addition, we have had a great energy balance since then and without wet management we no longer produce hazardous waste." These results are confirmed by Gerd Ringelmann, Production Manager at ZF Friedrichshafen in Schweinfurt: "We were able to halve tool costs with the Mediumverteiler when cutting very difficult and hard material with HRC 63 and at the same time work twice as fast. Another advantage was the fast amortization of our investment in less than a year".

The red sleeve stands

The Mediumverteiler works without flood lubrication and is therefore not a cooling lubricant system (KSS). Nor can it be counted as minimum quantity lubrication (MQL), because apart from the lubricants that are still used too much, articulated hoses do not have to be adjusted by hand. There are simply none. There are also no oil collecting basins, filter or pumping systems. Nor does it use an internal rotary union through the spindle (IKZ).

Physically and technically the Mediumverteiler is a completely new system for milling and drilling. A revolutionary dry lubrication technique with compressed air cooling through a nozzle body - the red sleeve - which does not rotate itself.

This ensures the correct contact pressure of the compressed air (at 6 bar) supplied by a spindle attachment to the tool cutting edges. This creates an air jacket along the cutting edges down to the component.



The friction pressure falls



Compressed air cooling primarily minimizes frictional pressure, keeping temperatures constant and low. Without the stressing fluctuations, there are no more micro-cracks and material stresses. This also protects the cutting edges and thus increases tool life, which is sometimes multiplied by the Mediumverteiler.

In addition to efficient cooling, compressed air solves another major problem in machining: it transports the (dry and recyclable) chips cleanly and 100 percent away from the machining point; chip transfer is no longer possible. In this way, surfaces are protected; milling is even possible in polishing quality.

Picture: Copper cone, milled by Walther Wolf GmbH on a Röders RSH 601 (HSK 40), without reworking with a Ra of 0.02.

The medium hits exactly

Material-dependent lubrication is possible by adding medium to the compressed air. Due to the contact pressure, there is no segregation, so that every particle arrives. Lubrication is done in such small quantities (2 to 20 ml/h) exclusively in aerosol quality that all components come out of the machine dry.

In addition to the workpieces, the interior of the machine is also clean, which guarantees a trouble-free process, especially in automation. There is no moisture in the interior, which can get stuck in cable trailing and affect sensors. As a result, both the efficiency and the technical availability of the machine tools can be increased, resulting in greater process reliability due to less dirt.



Short and concise

The Mediumverteiler system is an independent system for machining that has nothing to do with KSS, MMS or IKZ, neither technically nor physically. Due to the aerosol quality lubrication, machines and components remain dry. These can be processed directly.

Money saved

- → extended, in some cases multiplied tool life and at least 20 percent higher productivity through higher feed rates and larger infeeds
- \rightarrow massive cost savings (energy and CO₂) by eliminating the entire wet management: consumption with the Mediumverteiler approx. 1 kWh | KSS or MMS: 8 to 25 kWh
- \rightarrow less spindle load, less spindle damage, less service costs
- ightarrow Eligible with up to 40% by BAFA and KfW

Cleanliness in production

- \rightarrow no reworking, no cleaning
- \rightarrow higher dimensional and repeat accuracy, better surfaces
- → less susceptibility to faults, greater process reliability, greater efficiency and technical availability of machines in automation

Protected cutting edges through air flow technology

- \rightarrow reduction of frictional pressure ensures constant and low temperatures: Protects cutting, workpiece and component
- ightarrow reliable chip removal from any position, even from deep cavities, grooves, pockets
- ightarrow less micro-crack formation, less material stress, less waste, less set-up time

Good for man and environment

- \rightarrow healthier working conditions due to fewer air pollutants
- \rightarrow reduced energy consumption and costs
- ightarrow CO2 emissions minimized up to 80% and no more hazardous waste disposal

Contact:

MHT GmbH Merz & Haag | Waldmössinger Str. 56 | 78713 Schramberg | www.mht-gmbh.de | <u>info@mht-gmbh.de</u>

Managing Director: Herbert Merz +49 7422 520697 | Thomas Haag +49 711 9454 2790

The Mediumverteiler on YouTube https://www.youtube.com/channel/UCeUg6OPktLB2vWRJPHVCdww