

Stay dry!

- „Mediumverteiler“ now not only makes milling but also drilling dry
- World premiere at AMB
- Innovation guarantees productivity and quality improvement and dramatically reduces costs

Already since 2011, the Black Forest company MHT makes dry milling possible with its „Mediumverteiler“. In 2018, the tinkerer from Schramberg completed their system with an innovation that also completely drains drilling - a process that until recently was considered equally impossible by experts and practitioners. Nevertheless, the people from the Black Forest made it - with Swabian inventiveness and German thoroughness.

At the heart of the innovation is the use of air to cool the tool and to remove the milling or drilling chips. The „Mediumverteiler“ of the MHT GmbH ensures that the air with the lubricant is fed via a clever system not through the spindle, but via the existing interface. And that guarantees a completely dry drilling process. This world first in dry drilling is already causing a sensation in the metal and plastic processing industry worldwide and will be presented to the public for the first time at the AMB trade fair in Stuttgart.

A compressed air system cools both the tool and the milling point, while at the same time just as much lubricant is added to the air jet via the interface of the „Mediumverteiler“ as required by the drilling process. Thus, the device cools the tool while drilling and at the same time removes the chips - dry, reliable and clean. Particularly interesting for entrepreneurs should not only be the increase in productivity and quality in this innovation, but also the huge savings potential through the use of the „Mediumverteiler“.



Image: Air jet and flow effect of the nozzle, complete protection of the milling tool up to the cutting edge / to the workpiece

Innovative double pass: After dry milling comes dry drilling

MHT has also been offering its „Mediumverteiler“ for drilling since 2018, thus guaranteeing a completely dry drilling process. This was preceded by years of development of the device at the end of which stood a completely dry milling, both hard milling and other materials. Here - with the necessary addition of lubricants - an innovative approach was taken, too: The lubricant, which is required for many materials and is conventionally fed via MMS- technology, is mixed by the „Mediumverteiler“ into its complex compressed air system. It guarantees targeted lubrication, cooling the tool and at the same time removing the inevitable chips from the cutting edge - clean, durable and reliable. Even from deep contours. This has been unique worldwide since 2011.

„not millable“ is no longer valid since 2011

Since then, numerous medium-sized companies and large corporations took advantage of this technology and milled successfully with the „Mediumverteiler“, which completely fulfilled the expectations placed in it. They report not only the increased downtime of their tools and machines and higher quality milling processes, but also enormous cost reductions for the companies made possible by the „Mediumverteiler“.



Image: Nozzle, fine oblique holes of 0.5mm ensure a constant air jet and a high flow velocity

And this is how it works: An annular nozzle attached to the spindle - which does not rotate - blows air at 6 bar directly onto the cutting edge. This eliminates any chips on the workpiece, even in deep pockets and grooves. At the same time, the compressed air provides the necessary cooling. Depending on the material and requirements, lubricant is mixed with the air in minimal quantities (2 to 5 grams / hour, significantly less than in the MMS process), controlled by M-commands, with fine atomization via a high-pressure pump. This gives the tool an optimal working environment.

Numerous works have so far been considered "non-millable" using conventional methods. If chips were not completely removed, sooner or later the tools broke and it had to be eroded. Especially when milling in deep cavities, the chips sometimes remained in the pocket or jammed. The result: tool breakage. The „Mediumverteiler“ is now coping with this problem. The removal of chips from the interface is no longer an obstacle - no matter how deep pockets and slots are.

Higher service life, lower milling times: Customers report "high quality boost"

Feedback from users, practitioners and companies confirm this. At the same time they report in the application of significantly increased tool life. Normally, these times are more than 20 to 30 percent higher than the previous level, in extreme milling applications, they can be exceeded by more than 100 percent, depending on the material and contour of the components. An MHT customer who cuts graphite and processes very deep contours even reported an increase in tool life of an incredible 700 percent!

Achieved by the use of the „Mediumverteiler“.

But that's not all in terms of milling improvements: The surface quality improves considerably, surfaces in the range $<Ra\ 0.03$ can be efficiently milled with the „Mediumverteiler“; At the same time dimensional accuracy and repeatability increase on the workpiece, the rework is reduced considerably. Innovative is also the complete drainage of the milling machine, which in turn significantly reduces the cleaning effort. At the same time, the milling times are shortened. 20 percent or more is also the norm here. This resulted in what satisfied MHT customers refer to as a "high quality boost". Because of the „Mediumverteiler“, the milling machines no longer require an IKZ / KSS system; companies can use about 30 percent of the workshop floor space for other purposes. What customers save on the IKZ / KSS system, they invest in the „Mediumverteiler“.

Swabian inventor spirit - big plus in the high-tech area and series production

The precise use of air also saves energy; only 1.1 kW are needed for pumping through 200 liters of air per minute. And, last but not least: By using only insignificant amounts of lubricant, the debited water-oil mixture is completely eliminated. Consequently, cooling lubricant and filter systems will no longer be necessary. All in all, the Swabian inventor spirit has many advantages that are right for companies. The „Mediumverteiler“ also scores highly on the topic of "dry instead of wet": operating costs are significantly reduced because machines are clean and dry. Dry processing produces better quality products than wet processing. Cleaning times are drastically reduced, surfaces are finished without annoying reworking. And the nozzles of the „Mediumverteiler“ are still usable when selling a machine.

According to MHT Managing Director Thomas Haag, the medium distributor brings great benefits not only in the high-tech sector, but also in series production: "Especially in series production, the milling processes are faster due to higher feed rates and larger infeeds, especially with aluminum, because the milling tool no longer forms built-up edges. The component is dry, without burrs and can be processed immediately. In addition to reducing tool costs, the working conditions for employees also improve. By using the „Mediumverteiler“, which works only with compressed air, they are no longer exposed to the health-endangering water-oil mixture, which is eliminated without replacement. The MHT concept is completed by adaptation: all common milling machines can be upgraded with the „Mediumverteiler“, so that the costs are kept within limits and the future investment quickly pays off."



Image: Rödgers milling machine with integrated medium distributor via a spindle adaptation

"Partnership of the professionals"

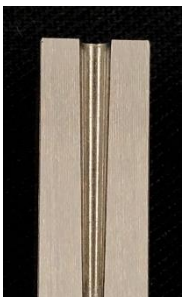
For MHT, the excellent cooperation with Rödgers GmbH from Soltau in Lower Saxony, one of the world's leading manufacturers of milling machines and grinding machines in the high-tech sector, has proven its worth. Rödgers GmbH offers milling machines with integrated „Mediumverteiler“ as a complete solution. The company appreciates the benefits of the small device and its innovative technology. For efficient, productive machining - in addition to the choice of suitable milling tools and the use of suitable

NC programs and strategies - the correct cooling and lubrication of the machining is essential. Rödgers benefits from the integrated „Mediumverteiler“ here. In this successful Lower Saxony - Swabia partnership, two forward-looking companies have combined their know-how into a practicable, innovative and beneficial solution.

What satisfied customers say about the „Mediumverteiler“:

"Due to our great depth of development, our machines offer top performance in terms of accuracy, surface quality and machining speed. We also recognized the potential of the „Mediumverteiler“ early on and fully integrated it. We are pleased to be able to present this at the AMB on a Rödgers milling machine." (Hall 7 booth B 78)

Dr. Oliver Gossel, Sales Manager HSC-Maschinen, Rödgers GmbH



Example 1: Connection, previously not millable

In the conventional milling of this connection, each tool would have broken immediately. It had to be eroded. The „Mediumverteiler“ now allows trouble-free milling. It reliably removes chips even from deep contours.

Data on the workpiece: 25mm deep diameter 0.2mm, tool Hitachi D 1.2mm circular milled without pre-drilling and centering.

Image: Connection



**Image: Drilling process
„Mediumverteiler“ without
water**

Example 2: Mold plate, milling of deep pockets

When finishing with water, fine chips are pushed into the corners by milling movements, especially in deep contours. This creates so-called "chip jam". The medium distributor avoids this by removing the chips immediately, without residues and permanently.

Example 3: Drilling without water

Drill dry? This is also possible with the „Mediumverteiler“, even in the hard drill area (example 56 HRC). Via the interface of the „Mediumverteiler“ – not via the spindle - air and lubricant are supplied with a maximum of six bar. Thus it is also possible to drill with spindles without internal rotary feedthrough.

Data on the drilling process: Drilling diameter 6mm, Material: 1.1730
Drilling depth: 30xD, corresponds to 180mm usual feed rate for mold makers: 500-800 mm / min shown feed rate: 1.800mm / min

The „Mediumverteiler“ in short version:

New, efficient technology since 2011 that enables dry milling and dry drilling at a high level and increases productivity, quality and precision. A compressed air system removes chips permanently, reliably and without residue from the cutting edge and workpiece - even from deep pockets and grooves. At the same time the tool is cooled. The use of water is eliminated. The compressed air can be added to lubricants (about 2 to 5 ml / hour) – no KSS, MMS and IKZ are necessary anymore. When drilling (example 30 x D) the medium distributor fulfills its function, even during hard drilling. This unique technology can be retrofitted on many milling machines. The investment in new machines is cost-neutral compared to conventional technology such as KSS / MMS / IKZ management.

www.mht-gmbh.de

The „Mediumverteiler“ at the AMB 2018:

The „Mediumverteiler“ will be shown at the Röders GmbH booth during the fair. Convince yourself of its advantages of the system in **Hall 7 Booth B 78**. Here you can see the „Mediumverteiler“ in the application on a Röders RXU 1001 DSH with a five-fold simultaneous machining. You will also find advice on the „Mediumverteiler“ at the MHT GmbH booth, **Hall 1 Booth G 90**.

The „Mediumverteiler“ in use:

Take a look at the „Mediumverteiler“ during milling as well as drilling: <https://mht-gmbh.de/praxis/>

Info and advice



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