INTELLIGENZ FÜR FRÄSMASCHINEN

mht-gmbh.de

MILLING TECHNOLOGY OF THE FUTURE.

Cooling, blowing, lubricating – all with the Medium Distributor.

THE MEDIUM VERTEILER OFFERS THESE EXCLUSIVE ADVANTAGES:

- Unlike with other, similar systems, **the nozzle body does not turn but remains fixed in place!**
- The flow of air remains strong and precisely hits the cutting edge in any position – other systems simply cannot compare
- The lubricant is first injected in front of the cutting surface via the air nozzle – this avoids separation, a common drawback of other conventional systems

MILLING TECHNOLOGY OF THE FUTURE.

INNOVATION. From the heart of the Black Forest.

For decades, tradition and innovation have gone hand in hand in the Black Forest. As one of the most dynamic economic regions in Europe, the Black Forest has become the home of numerous innovative medium-sized enterprises, some of which have even become global market leaders.

A CLEAN APPROACH. Faster and more efficient milling.

MHT GmbH from Schramberg, Germany, also belongs to this tradition. Since 2009, the company's core expertise has been the development of innovative solutions for complex milling processes. Drawing from the experience of medium-sized enterprises, the company cooperated with Gebr. Bähr GbR from the town of Illerrieden, Germany, in 2011 to develop the Medium Distributor, which is now patented and under exclusive distribution. This precision instrument makes milling processes faster, cleaner and more efficient thanks to a clever cooling and ventilation system. Users hardly need to apply any more lubricants. This allows the Medium Distributor to contribute to protecting people and machines.

A JACK OF ALL TRADES. The Medium Distributor in action.

This precision instrument can be used anywhere: for tool and mould construction, production, series manufacturing for cars or aerospace, and medical technology. And the device truly stands out due to its high degree of adaptability: in principle, it can be used with any milling machine, from those made by HSC to specialised milling systems for serial operations. Moreover, the Medium Distributor can be used with virtually any material: it mills metal, plastic and composite materials reliably and clean.

SERVICE. Our high priority.

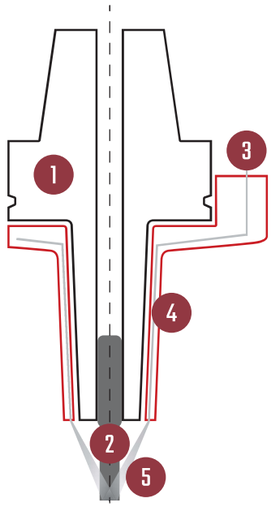
Our associates and service partners are here to make sure that our satisfied customers in Germany, Austria and Switzerland are able to operate MHT products without any issues. Be it for installations, service work or questions about applications, the team is available for our customers directly on site. Additionally, we regularly invite customers to take part in our user days, workshops and webinars. These events provide practitioners with useful tips and allow them to pose their questions directly to our developer.

THE MEDIUM DISTRIBUTOR.

NUMEROUS BENEFITS AND SUPERIOR USABILITY.

Revolutionary technology for milling.

The Medium Distributor is revolutionising the milling process through a completely novel milling system and patented technology. This revolution is taking place in the three problem areas related to milling:



1. THE TOOL HOLDER
2. THE MILLING CUTTER
3. THE AIR OR MEDIUM (AIR + EMULSION)
4. THE RED NOZZLE BODY – SECURELY AFFIXED TO THE SPINDLE
5. THE SPRAY JET (6 BARS)

SWARF

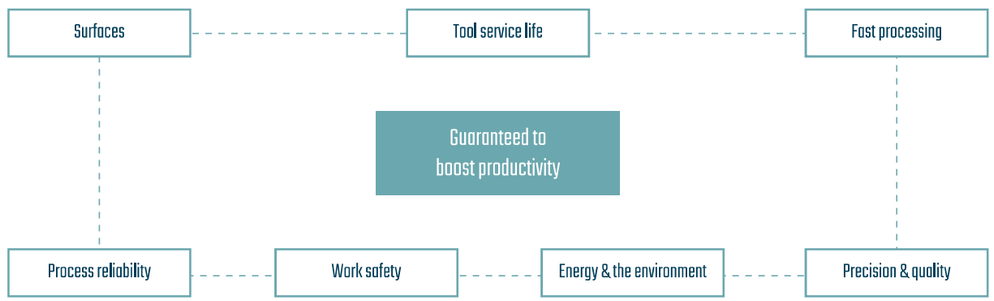
Using compressed air, swarf is immediately removed without leaving any residue behind. This creates ideal working conditions for the cutting edge and the work item, as well as for the person operating the milling machine.

COOLING

An optimally oriented air jet directed towards the cutting edge ensures even and permanent cooling. Completely dry processing reduces water usage, saves costs and soothes the nerves.

LUBRICATION

Provided that the milling material requires lubrication along the cutting edge, only a small amount of lubricant is needed when paired with the enhanced air jet – it all depends on your specific demands.



Better, cleaner and more efficient milling.

TOOL

The service life is extended, allowing you to save on tools costs.

MILLING PROCESS

Processing times are reduced due to higher feed rates and larger infeeds.

SURFACE PROCESSING

Surface qualities improve significantly, meaning that reworking is no longer needed.

PRECISION

A stable manufacturing process increases precision as well as repeat accuracy.

PROCESS RELIABILITY

Because wet management and minimum quantity lubrication are eliminated, the machine is able to operate dry. This greatly reduces cleaning requirements and costs.

RUNNING TIMES

The benefits offered by machines and automation are increased thanks to longer machine running times. The spray nozzles do not have to be manually adjusted.

ENERGY

Less air consumption (1.1 kw = 200 l/min.) saves energy.

ENVIRONMENT

Reduced emulsion consumption (2-5 g of lubricant / hour) simply means that less lubricants are needed.

WORK SAFETY

Contaminated water-oil mixtures are done away with, reducing ambient air pollution.

THE MEDIUM DISTRIBUTOR.

MULTI-FUNCTIONAL AND INTELLIGENT TECHNOLOGY.

Thanks to its cutting-edge technology, the Medium Distributor is sustainably improving the milling process. The clever design of this system removes swarf, cools and lubricates, all at the same time. The result is an intelligent process that benefits people, material and machine while also resolving many existing user issues. Four basic developments achieved by the Medium Distributor are making milling even better.

ELEMENT 1

THE DREAM TEAM. Spindle structure and nozzle body.

A spindle structure directs air into the nozzle body under 6 bars of pressure. If needed, the spindle structure mixes tiny amounts of lubricant with the air via a secondary interface. The air and lubricant are then precisely and steadily directed onto the cutting edge and the work item. This process only requires 2 to 5 grammes of lubricant per hour – 95 per cent less than the amount required in conventional KSS processing.

The nozzle body does not turn. This ensures consistently high precision when removing swarf from the cutting edge and the work item. Even when processing deeper contours and grooves, no residual swarf will get in the way of the cutting edge. It is now also possible to use internal coolant-lubricant supply tools (IKZ) via a special drilling attachment. An interface in the spindle structure provides an internal supply of coolant. This also makes it possible to carry out pure drilling work without the need for internal rotary feedthrough.

ELEMENT 2

STANDARDISED OR CUSTOMISED: Nozzle bodies for all requirements.

MHT GmbH offers two nozzle bodies to satisfy your specific needs. **Our standard nozzle bodies are** ideal for MERZ tool holders by MHT. They can be produced in greater quantities, and readily available whenever they are needed.
We can also produce **individualised nozzle bodies** should you wish to continue using your own tool holders. We will be sure to deliver a customised nozzle body that is precisely tailored to your requirements.

The nozzle body performs just a single function, albeit a decisive one: continuously and precisely blowing the air jet onto the cutting edge without any turbulence. As this is performed without any contact with the tool holder, mechanical stress also disappears.

The **uni-nozzle body** for simple machining operations or for specialised tools rounds out the MHT assortment.

ELEMENT 3

THE COMFORT FACTOR.

Tool changers in their element.

Every expert knows: each tool demands an optimal working environment. With this in mind, we produce nozzle bodies that are precisely adapted for each tool holder.
The nozzle body along with the suitable tool holder are placed in the tool changer and then switched out together into the spindle. This can be done any way you desire: directly from the spindle or by way of a gripper.

ELEMENT 4

AUTONOMY.

Micro-spray pumps of your choosing.

High-pressure pumps direct the lubricant to the nozzle body. We recommend using our micro-spray pump that has been specially designed for use with the Medium Distributor. It works with most standard lubricants, making it a true jack of all trades.
As a standard practice, we provide you with our certified and tested Emulsion/KS-MP-250 lubricant.
Depending on the material in question, we also recommend using fatty alcohol or hydrocarbons.

You can, of course, also continue to use your own tried-and-trusted lubricant. Set the desired amount using a frequency generator.

Reference values for the application of lubricants:
approx. 5 g/hour (for roughing)
approx. 2 g/hour (for smoothing)

THE MEDIUM DISTRIBUTOR.

AN IDEAL SOLUTION FOR VARIOUS APPLICATION AREAS.

TOOL AND MOULD CONSTRUCTION

Application
- Graphite, copper, steel

Objective
- Fully automatic processing of various materials using a machine with the highest level of precision and process reliability

Uses
- Changeover from wet to dry processing
- Service life of the tools increases by 50 per cent
- Reduction of personnel costs
- Marked increase in automation efficiency

AUTOMOTIVE SUPPLIERS

Application
- Aluminium series production

Objective
- Improving production performance with dry milling

Uses
- 20 per cent longer service life for the milling tool
- Processing time boosted by 15 per cent
- Improved size accuracy, superior surfaces, less burr formation
- Oil consumption reduced by 99 per cent compared to previous minimum quantity lubrication
- 2.5 hours saved in cleaning time for all 19 milling systems, per working day per system
- Higher process reliability, less scrap

TOOL/MOULD CONSTRUCTION

Application
- Headlight manufacturing/optical milling

Objective
- Boosting precision

Uses
- Optimal surface accuracy (< Ra 0.03 µ)
- Dry milling
- Increased tool service life

AUTOMOTIVE SUPPLIERS

Material
- Steel, aluminium, ureol

Objective
- Dry processing for mixed operations using various materials

Uses
- Stability throughout the milling process
- Reduced set-up times through complex manufacturing in a clamping process
- Significantly lower maintenance times on account of dry cutting

AUTOMOTIVE SUPPLIERS

Material
- Aluminium series production

Objective
- Changeover from wet to dry processing

Uses
- Complete 30 components per shift rather than just 22
- Now 12,000 pieces with one tool set, up from 3,500
- No scrap parts parts as a result of jammed shavings
- No burr formation on the work item

TECHNOLOGY COMPANIES

Material
- Copper

Objective
- Process reliability and increase in productivity

Uses
- 70 % increase in tool service life
  approx. 20 % faster processing time

VENTILATION TECHNOLOGY

Material
- Aluminium, steel, copper

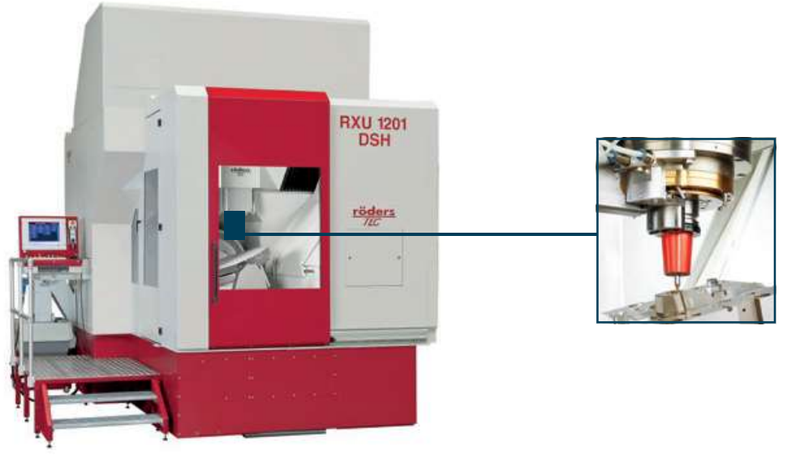
Objective
- Changeover from wet to dry processing, increased productivity

Uses
- 30 % increase in tool service life
- Reduction of personnel costs through improved unmanned processing while maintaining the same level of process reliability
- Marked increase in automation efficiency

MEDICAL TECHNOLOGY

Objective
- Processing of special materials

Uses
- Dry cutting without residue
- Processing of titanium, molybdenum, zirconium and many other materials



THE MEDIUM DISTRIBUTOR.

WE INVITE YOU TO FIND OUT MORE.

WALTHER WOLF GMBH, OUR PRACTICE AND REFERENCE CENTRE

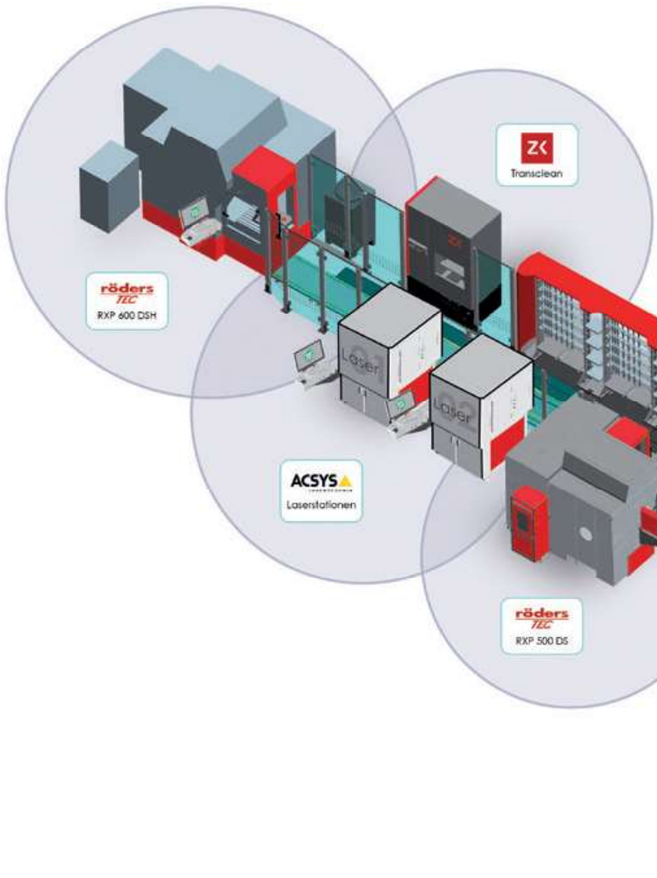
The medium-sized enterprise Walther Wolf GmbH from Wendelstein, Germany is a high-tech company specialised in mould construction, measurement technology and engraving. As a traditional company with a history of more than 100 years, Walther Wolf GmbH has always embodied innovation and flexibility. For over 50 years, Walther Wolf has been a specialist in complex and highly precise components in the area of free-form surfaces.

The MEDIUM DISTRIBUTOR in real-life use

Come and get a first-hand impression! Back in 2013, Walther Wolf equipped his production line, comprised of two Röders milling machines, the RXP 600 DSH and RXP 500 DS, as well as a Chameleon by Zimmer+Kreim, with our Medium Distributor. The production line is also equipped with two 5-axle machining centres from Hermle (C 32 U HSK 63 and C 400 V HSK 63):

all milling machines are completely outfitted with the Medium Distributor, including nozzle bodies. Contact your MHT customer service representative to make an appointment and come experience the Medium Distributor in action!

Customers from all over the world are always invited to witness the functionality and technology on site during real operations with our reference partner, Walther Wolf GmbH. In parallel, participants of our regularly held workshops at Walther Wolf can also experience the possibilities of perfect automation.



TECHNOLOGY PARTNERSHIP BETWEEN SOLIDCAM AND MHT.

A WIN-WIN PARTNERSHIP AMONG PROFESSIONALS.

The technology partnership between SolidCAM GmbH and MHT has proven its worth. SolidCAM is the leading CAM Software that is integrated in SOLIDWORKS and Autodesk Inventor. The combination of the highly efficient, patented iMachining milling technology by SolidCAM together with the benefits of the Medium Distributor allows for incredible savings in the area of CNC milling work. iMachining and the Medium Distributor come together to form a perfect pair for boosting productivity and process reliability in CNC production.

The modern SolidCAM technology centre offers the ideal space for testing and presenting the latest production technologies. Here, where high-tech meets a passion for research, you can experience the optimal interplay between iMachining and the Medium Distributor live and in person, whether you are a customer or simply an interested party.

Workshops, training sessions and webinars offered by the SolidCAM technology centre provide you the opportunity to become familiar with the impressive capacities of the SolidCAM CAM software in real-world applications. The CAD/CAM application technicians from SolidCAM use a Medium Distributor to cut benchmark and customer parts on a Hermle C30U. The synergy effects achieved by iMachining and the Medium Distributor are readily apparent from the very outset. We invite you to come join us!

An advantageous pair: iMachining and the Medium Distributor

With the one-of-a-kind iMachining processing technology, highly developed algorithms are used to calculate spiral trochoidal toolpaths. Additionally, the patented iMachinging technology wizard, exclusively available through SolidCAM, always ensures optimal rotational speeds and feed rates. The result is extremely high cutting speeds and optimum infeed, even for hard and demanding materials or for use with smaller tools.

- More productivity made possible by the shortest processing times with time savings of 70 % or more!
- Significantly extended service lives
- Masters even the hardest materials without difficulty and offers impressive performance when used with smallertools
- Supports multi-sided machining and turn milling
- A clear and easy-to-use user interface noticeably improves productivity in CNC programming
- iMachining + the Medium Distributor: the new art of milling

Die einzigartige, revolutionäre Frästechnologie
imachining®
patent by SolidCAM

TOOL HOLDERS.

PERFECTLY SUITED FOR THE MEDIUM DISTRIBUTOR.

SHRINK FIT CHUCK

For optimal processing with the Medium Distributor, MHT offers shrink fit chucks of various shapes and sizes. We recommend using holders that are as thin as possible. This approach not only offers quality advantages, it also optimises the milling process itself. All holders are "Made in Germany" in accordance with the highest precision standards, DIN69893 and DIN69871, and finely balanced to G 2.5 gmm at 30,000 1/min. The shrink fit chucks are offered as hollow shaft cones with the dimensions HSK 25, HSK 32, HSK 40, HSK 50 and HSK 63. MHT offers the SK 40 size for its taper shanks, and other holders can be customised in accordance to the needs of our customers.

SWINGSTOP

The SwingStop is a unique item among the holders. This new, patented technology reduces oscillations in the tool holders and contributes to creating excellent surfaces and ensuring a longer service life. A rubber-like mass, which is pressed with a screw fitting in the shaft, dampens oscillations while the selection of long holders improves smooth operations. And, of course, SwingStop holders are perfectly suited for use with the standard nozzle bodies on the Medium Distributor.

The SwingStop application offers numerous benefits...

- High operational smoothness
- Longer unclamping for the milling cutters
- Oscillation component is absorbed at the core
- High frequencies are absorbed
- Oscillation amplitude is reduced at its peak
- Available for HSK25 to HSK63
- Holders are fully compatible with the Medium Distributor nozzle bodies.

...and boosts efficiency:

- Increased milling cutter service life
- Improved surface quality
- Less reworking required
- Minimised tooling costs
- Faster return on investment

COMPATIBLE MILLING TOOLS.

MHT exclusively offers high-quality, tried-and-tested milling tools from select precision tool manufacturers which we recommend for combined use with the Medium Distributor. For example:

Ball nose cutter	122256 / 122456
End mill	022256 / 022456
	052456 / 050456

IMPROVED MILLING.

USEFUL MHT OPTIONS.

SHRINKING DEVICES

The solid induction shrinking devices from POKOLM Milling Technology, known for their outstanding ergonomics, have impressed users in Germany and abroad for years. They have been optimally designed for the broad range of MERZ shrinking holders. MHT also has various devices in its catalogue:

- the fully automatic TSI11000WKS shrinking station with the latest comfort equipment
- the TSI3510 induction shrinking device – an economic entry into shrinking technology
- the semi-automatic TSI11000WKT table device

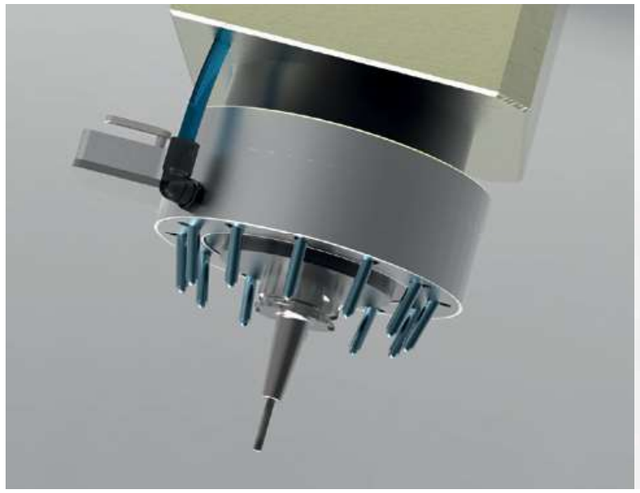
TOOL CAMERA/Q-DOC

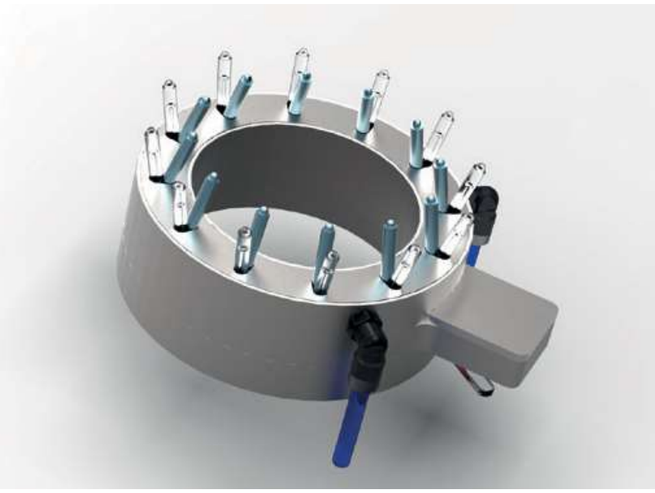
In milling, the cut of the tool always plays a decisive role for the ultimate quality of the component being made. If you wish to clarify questions such as the grinding pattern of your new tool, its corner radius, or the coating, we recommend acquiring Q-Doc: a tool-inspection microscope for quickly monitoring your milling tool directly at the machine.
Use Q-Doc to inspect your tool for process reliability – ideally before mounting the milling cutters!

KBS-RING

With its KBS ring, a simple variant of the Medium Distributor, MHT offers customers a logical "small" solution for dry milling. Although it does not achieve quite the same level of performance as its larger counterpart, the KBS ring is a reliable alternative for machine centres and for use with manual milling, drilling and coordinate sanding machines.

Similar to the Medium Distributor, the KBS uses air instead of water to cool and lubricate the cutting edge. Swarf is safely, reliably and permanently removed from the cutting edge just the same





WOULD YOU LIKE TO KNOW MORE ABOUT THIS MILLING TECHNOLOGY OF THE FUTURE?

Then visit our website at **mht-gmbh.de**, inquire about our top-notch references, find out about our workshops or simply schedule a personal consultation with us without commitment!

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