

M.+M. MAI GMBH  
PRÄZISIONS-RUNDSCHLEIFMASCHINEN



# UNIVERSAL PLATFORM FOR INDIVIDUALISTS

System platform for universal & production cylindrical grinding machines



# THE PLACE WHERE ANYTHING IS POSSIBLE

Imagine a very compact precision cylindrical grinding machine that is built especially for you - either as a universal machine or as a highly specialized production device. Despite the small dimensions, you can have a double spindle installed with up to 15 kW of power per spindle. But that's not all: all other components and structures are exactly as you need them for your grinding task. In addition, the manufacturer keeps spare parts in stock for your individual model for years and is available to help and advise you if you have any problems.

Now imagine if you got all of this at an extremely economical price. Then you have a rough idea of what is behind the MaiBase platform. Welcome to the world of endless possibilities.

**MAIBASE**  
SYSTEMPLATFORM

Individually designed  
universal and production  
cylindrical grinding machines

- large production output
- compact design
- economical price





# IF THE TASK OF THE CUSTOMER BECOMES YOUR OWN

**External cylindrical grinding, surface grinding, internal cylindrical grinding: no two grinding tasks are the same.** As a result, a separate grinding solution should be developed for each grinding task. Sometimes a universal solution is needed, sometimes a highly specialized version is necessary. Sometimes it's nuances that make the difference, sometimes it's basic things. We at M.+M. Mai have developed a principle to which we have been loyal for years: "Break down the customer's grinding task into its individual parts – and then rebuild it as an individually designed grinding solution."



## Size always plays a role

Knowing that the costs of the products manufactured on a machine are made up of material costs, production costs and area costs, we build extremely compact grinding solutions on our platform that require little floor space - without compromising on performance and flexibility.



## It's nice when you can stay in one operating world

Constantly switching from one operating logic to another logic not only takes up a lot of time, but can also lead to serious and often costly errors. For this reason, all machines in our platform follow the same operating concept. As a result, your employees can work in one operating world and reliably operate both production machines and universal machines reliably.



## In the end, it's always about the money

The costs for a cylindrical grinding machine do not only consist of the purchase costs. These also include costs for training staff and maintenance costs. In order to keep all of this to a minimum, we rely on many years of experience, proven components and maximum customer involvement. And that always pays off in the end.





# JUST GREAT THE SMALL ONES

Machine operators benefit from the compact design of the M.+M. Mai machines in two ways: Viewed individually, each machine can be equipped with powerful drive solutions, which means they have an outstanding ratio between needed floor space and production output. But the M.+M. Mai machines also impress as a group. Through the possibility of a denser arrangement the same number of machines can be realized on a smaller total area.





**LESS SPACE  
REQUIRED**

compared to machines with  
comparable performance data





# TECHNOLOGY THAT OFFERS MANY POSSIBILITIES

In order to be able to develop high-precision universal cylindrical grinding machines as well as tailor-made grinding solutions for straight or angled grinding, technically outstanding individual components are required that can be combined into a unit as required. And that's exactly what you'll find on the MaiBase platform.



## CNC CONTROL Fanuc Oi-F Plus

- 19" LCD color screen with touch function
- M.+M. Mai software with guidelines for an easy program creation on the workpiece
- IPC operating system Windows 10 IoT
- Hand panel with axis & speed selector switch



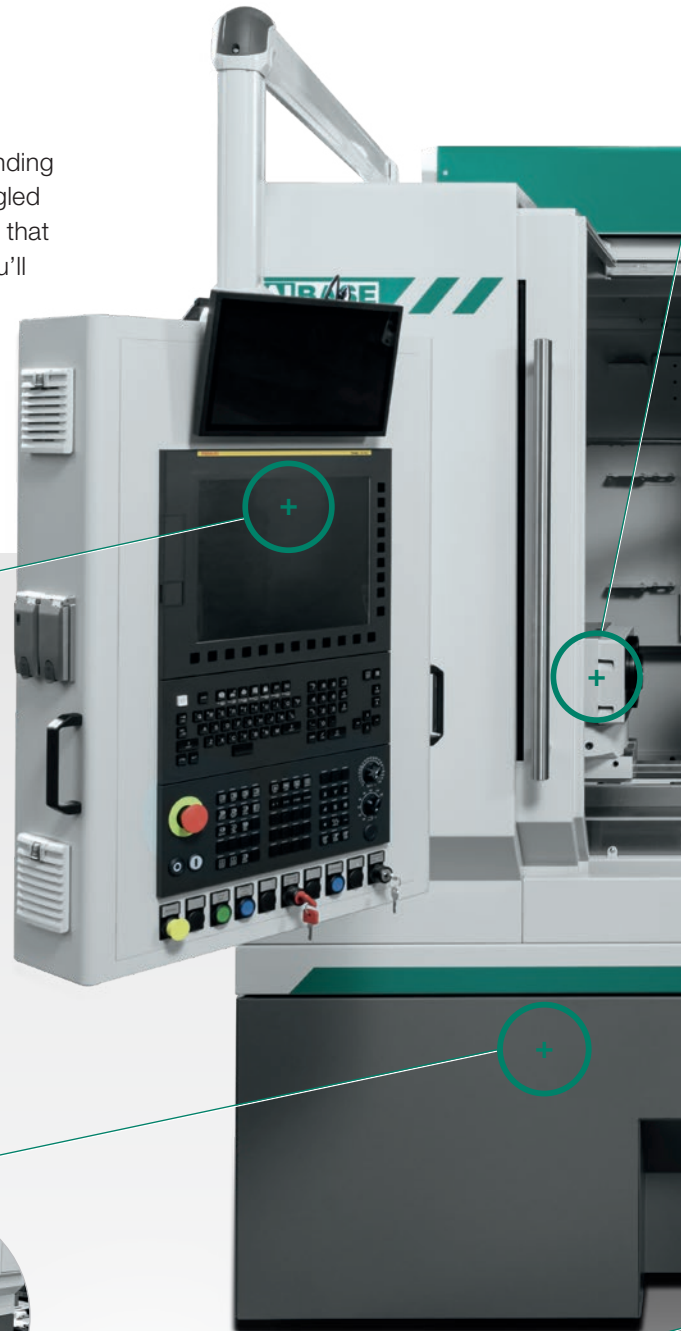
## Base

- FEM-optimized mineral cast bed for highest stability and longevity
- Mechanical separation from machine and peripherals for thermal stability and minimization of vibration influences



## Ergonomics

- Good overview of the grinding process
- Centrally and easily accessible interfaces for table structures
- Well-thought-out accessibility for cost-effective maintenance and service
- Optionally with automatic door opening







### Universal workpiece headstock

- Applications with standing or rotating spindle
- Speed range 1 – 1,000 min<sup>-1</sup>
- Roundness accuracy  $\leq 1 \mu\text{m}$  (opt.  $\leq 0.5 \mu\text{m}$ )
- Oriented spindle stop
- MK4, MK5 and MK6 available



### Load

- Flying 100 Nm
- Between tips up to 100 kg (depending on variant)



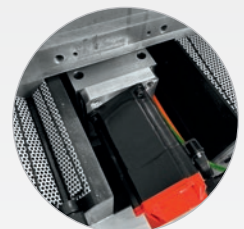
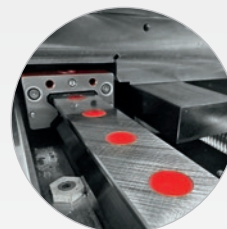
### Swivel grinding headstock (B-axis)

- Significant reduction in non-productive times thanks to rapid swiveling of the fully automatic welding headstock
- Highest positioning and repeatability thanks to the use of Hirth gearing



### Tailstock

- Up to 100 kg workpiece weight
- MK3 and MK4
- Stroke 20 mm (optional 60 mm and 120 mm)
- Adjustment range  $\pm 30 \mu\text{m}$
- Pneumatic and hydraulic lifting



### Slides

- Linear guide for X-axis, low-maintenance, high-precision
- Low-wear sliding guide for Z-axis
- Optical position measuring systems in X- and Z-axis
- High dynamics due to speed of up to 8 m/min in Z-axis and 8 m/min in X-axis

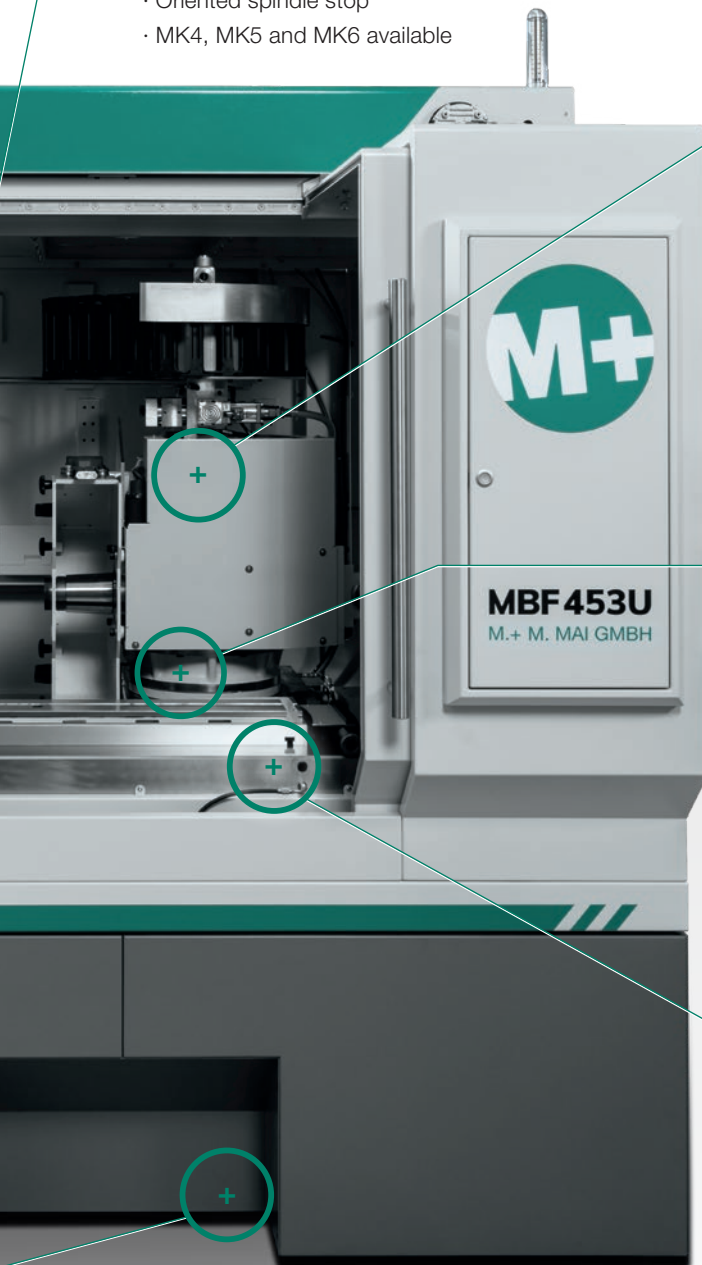
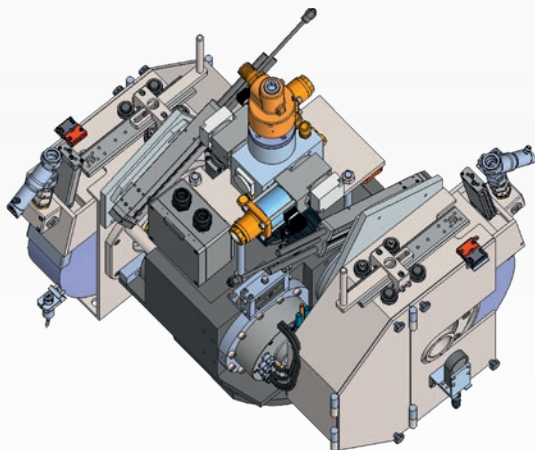
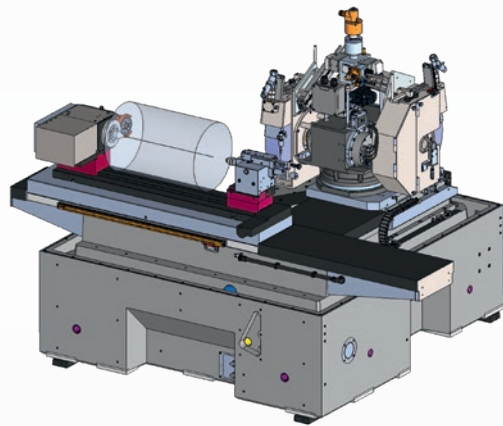
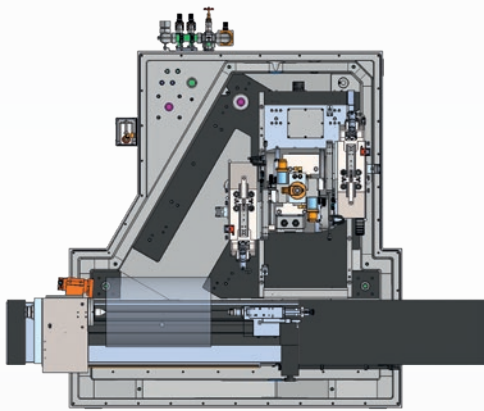


Illustration:  
Cylindrical grinding machine  
MBF453U

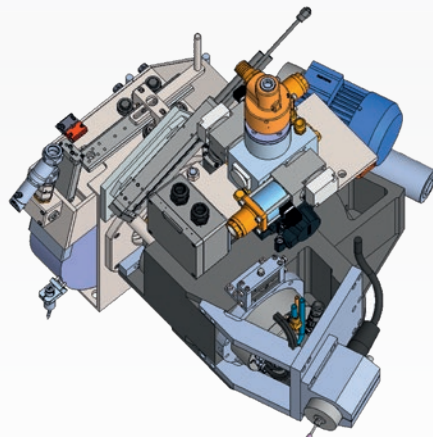
# STRAIGHT INFEEED, ANGULAR INFEEED OR UNIVERSAL: THE CHOICE IS YOURS

## MACHINE TYPES UNIVERSAL

The universal versions from the MaiBase platform have a rotating tower with various spindle configurations, whose precise rotation is made possible by a rotary table with Hirth gearing.



Version with two external grinding spindles

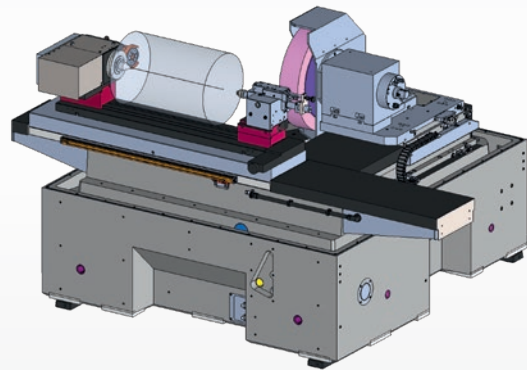
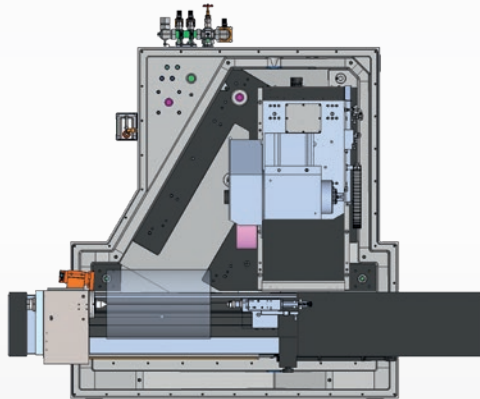


Version with two external grinding spindles and one internal grinding spindle



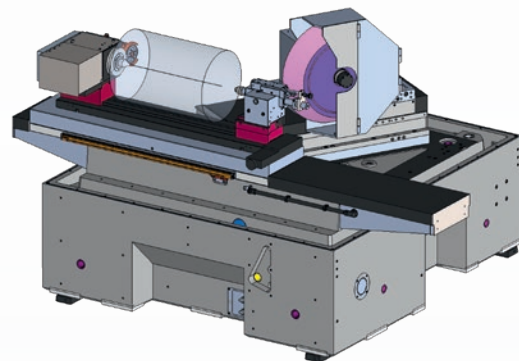
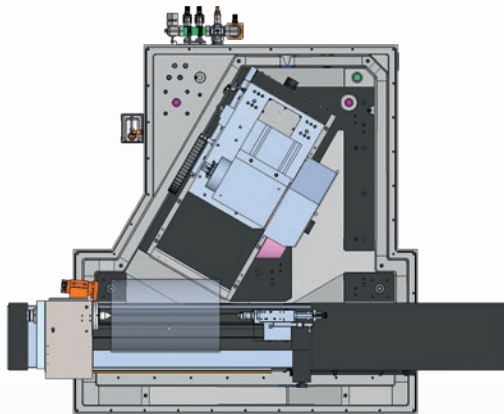
### MACHINE TYPES STRAIGHT INFEEED

The cylindrical grinding machines for straight infeed grinding enable high-precision production of cylindrical components and offer customers the advantage of efficient, precise machining with shortened production times.



### MACHINE TYPES ANGULAR INFEEED

These designs are ideal for angular infeed applications, offering customers the benefit of precise angular machining and increased surface finish.

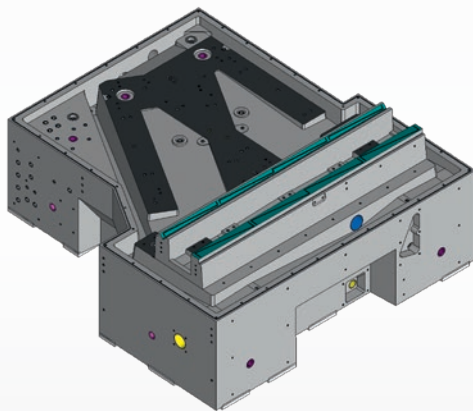


# LOTS OF DETAILS FOR FREE CHOICE

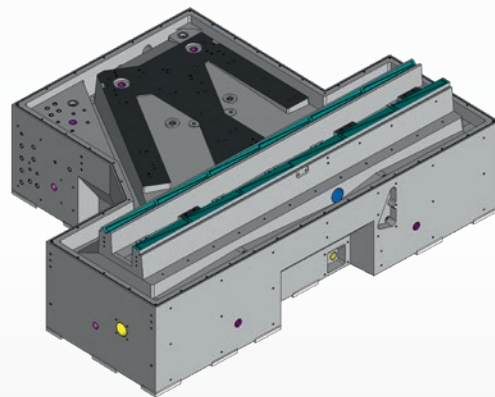
Machine bed, connection technology, media guidance, drive unit, guides:  
With the new MaiBase platform, everything has been questioned and prepared in such a way that users enjoy the greatest possible flexibility when putting together their individual solution.

## MACHINE BED VERSIONS

The newly developed machine bed made of mineral cast not only ensures maximum stability, but also maximum flexibility: In addition to the standard version, you will also find an extended version on the MaiBase platform.



Standard bed  
for grinding lengths 400 mm + 600 mm



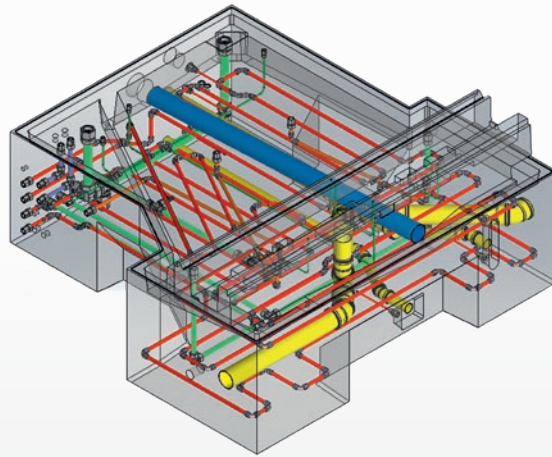
Standard bed  
for grinding lengths 1.000 mm



## MACHINE BED DETAILS

The machine bed of the MaiBase platform was designed in such a way that subsequent adjustments and technical expansions can be easily implemented.

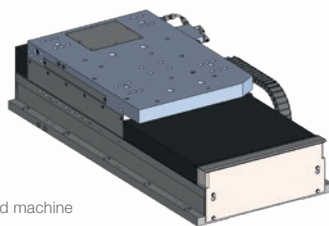
- Numerous cable ducts, hydraulic, coolant, lubrication lines, etc. cast in the bed
- Bed can be heated using two heating coils
- Drain channels for cooling lubricant
- Bed flush integrated



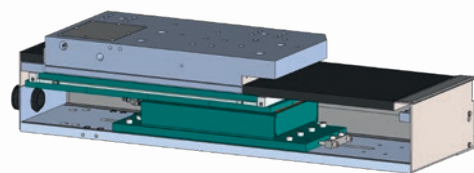
## X-AXIS CONSTRUCTION

Depending on the machine variant, the X-axis is customised and assembled from mostly identical components.

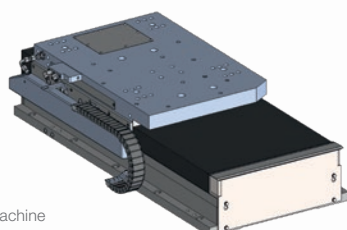
The right solution for every requirement: The X-axis is available offered and realised in two different drive variants and realised.



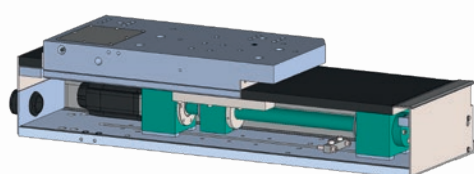
X-axis for straight infeed machine



Linear motor



X-axis for angular infeed machine



Ball screw drive

# **SAME OPERATING LOGIC**

for universal machines  
and production machines





# **YOU CAN DO ONE, YOU CAN DO ALL**

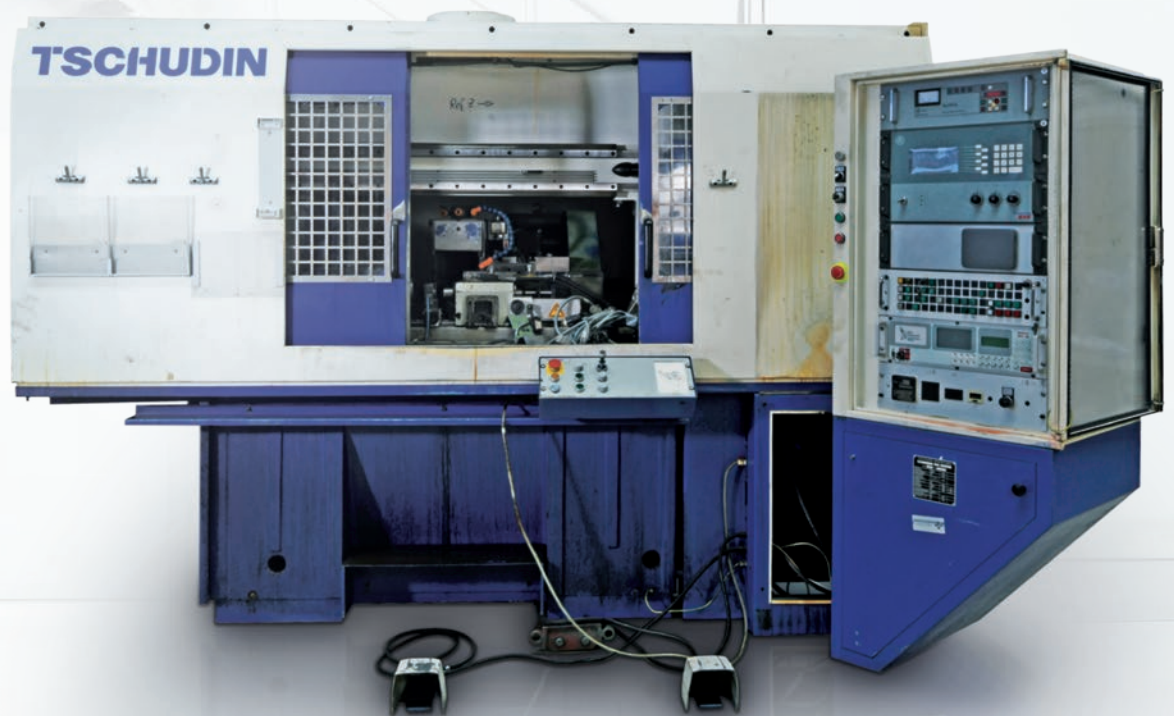
All machines on the new MaiBase platform follow the same the same operating concept, i.e. the look and feel of production machines and universal machines are identical. For the operating personnel, this means: no loss of time, no need for changeover, no potential errors.



**YOU WANT TO  
CONTINUE USING YOUR  
TSCHUDIN TOOLING?  
NO PROBLEM**







**Product-specific tools and devices, such as grinding wheels or clamping and measuring devices, are specially developed for processing specific workpieces or product groups and account for a significant proportion of the total costs of a machine.**

As a certified retrofit and repair company and globally recognised expert for TSCHUDIN cylindrical grinding machines, we have ensured that the tooling-relevant components are compatible with those of TSCHUDIN cylindrical grinding machines when developing our cylindrical grinding platform. For owners of such machines, this means that they can continue to use TSCHUDIN standard tools and fixtures on an M.+M. Mai cylindrical grinding machine.







# SERVICE THAT PROVIDES SAFETY

**When it comes to service, we have followed a simple principle since our foundation: service provides security, otherwise it is not worth to be called service.** Regardless of whether you need a service technician to look at and rectify a problem that has arisen, whether a spare part needs to be brought to site quickly or whether subsequent adjustments need to be made to your machine: We at M.+M. Mai have the right people, the right spare parts, the brilliant ideas and the absolute will to do everything to ensure that your machine always runs smoothly.



## We are there when you need us

One call is all it takes and you can be sure that the responsible machine supervisor will be there for you and your concerns. The problem or the need for action will, if possible, be discussed on the phone and then the necessary steps are taken. The necessary steps will be taken to offer you the right solution as quickly as possible. offer you a suitable solution as quickly as possible. If a visit to your premises is necessary, an appointment will be arranged as soon as possible.



## We have everything you need

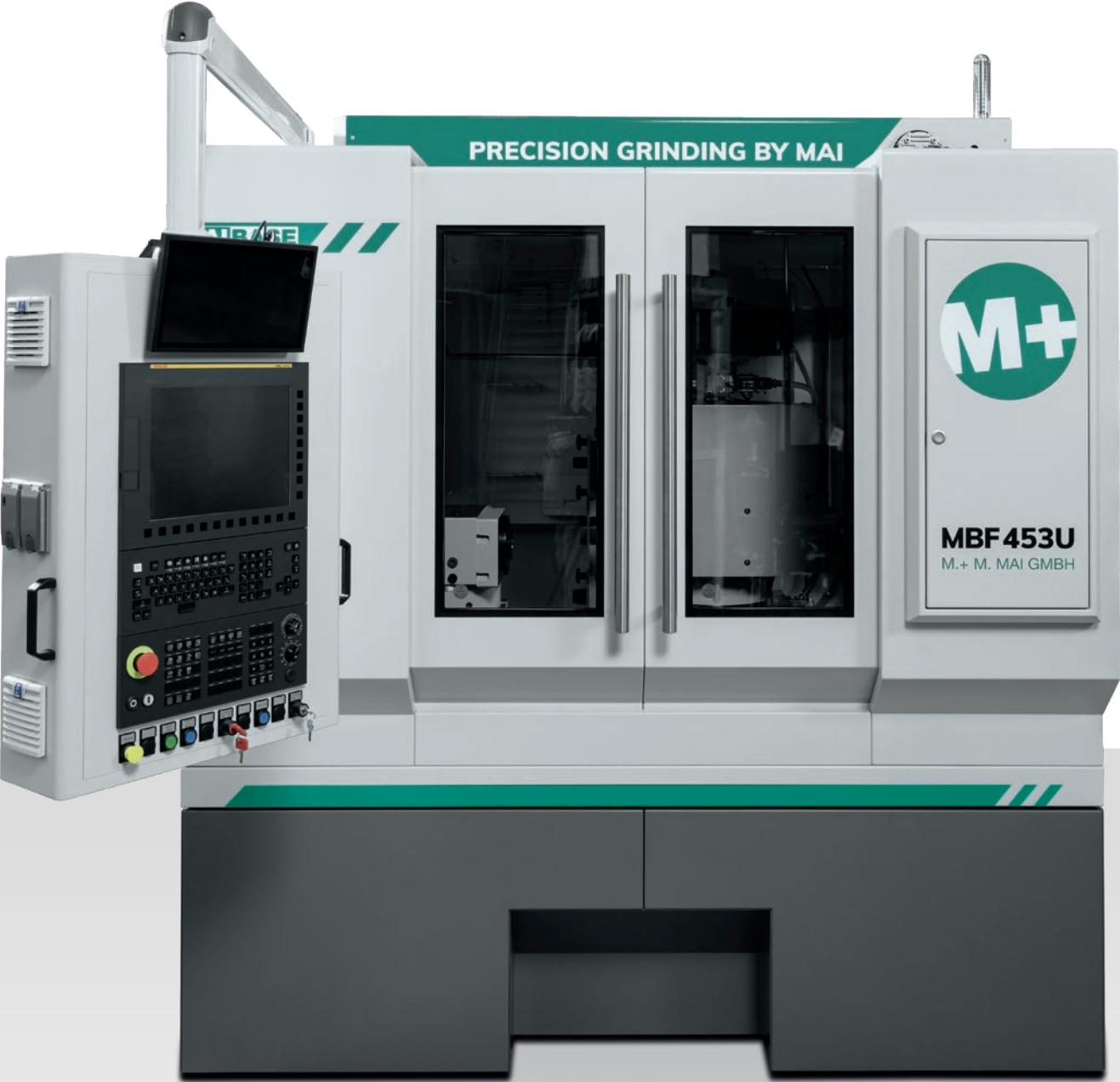
We have been manufacturing customised grinding solutions for over 30 years and have the experience and knowledge of which standard spare parts are required over the years. And that's exactly what we keep in stock - customised for each machine. A damaged additional grinding device or worn slides are therefore no cause for concern for you.



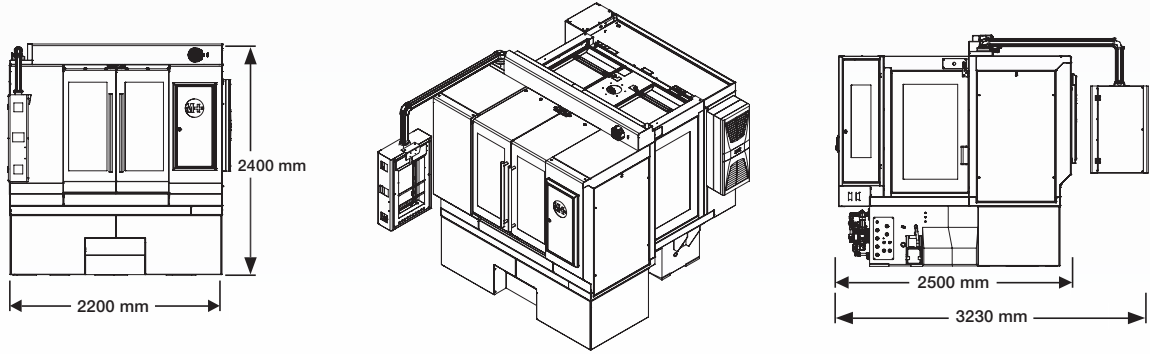
## We do everything you need

So that you can continue to use your machine without restrictions, a mechanical or electronic upgrade may be necessary over time. But even in such situations, you can rest assured: Our team will be on hand with help and advice. And until your machine is ready for use again, we can provide you with a loan unit by arrangement.





DIMENSIONS



# UNIVERSAL MACHINE WITH A HEAD OF OWN

Our universal machine for high-precision internal and external cylindrical grinding, based on the **MaiBase platform**, is the ultimate solution for single-piece, small-batch, and large-scale production. It is designed to produce small to large workpieces that meet exceptionally high standards of accuracy, surface finish, and form tolerance.

Illustration:  
Cylindrical grinding machine MBF453U

Main data	
Distance between centres	430 mm
Centre height standard	200 mm
Grinding length	400 mm
Grindable workpiece diameter	
Max. workpiece diameter with new disc standard	398 mm
Min. workpiece diameter with used disc	1 mm
Max. workpiece weight between centres	100 kg
Max. load during fly grinding	80 Nm
Grinding headstock	
Grinding disc diameter	500 mm
Engine performance	15 KW
Grinding wheel circumferential speed	45 m/s
Division B-axis	1°
Adjustment path X-axis	385 mm
Max. speed X-axis	8000 mm/min.
Input fineness X-axis	0,001 mm
Resolution X-axis	0,001 mm
Workpiece headstock	
Recording cone	MK5 / MT5
Pivoting range	+30° / -45°
Speed range	0 - 800 min-1
Tailstock	
Recording cone	MK3 / MT3
Quill path (option)	20 mm (60 mm / 120 mm)
Longitudinal slide	
Adjustment path Z-axis	550 mm
Max. speed Z-axis	8000 mm/min.
Input fineness Z-axis	0,001 mm
Resolution Z- axis	0,001 mm
Max. pivoting workpiece table	+/- 9°
General data	
Total electrical connection value approx.	28 KW
Machine weight with electrical cabinet	ca. 7.000 kg
Length x depth x height	2200 x 3230 x 2400 mm





# QUESTIONS? INTEREST? LET'S GET IN TOUCH

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## YOUR CONTACT PERSON

### **Michael Mai**

Managing Director

The industrial engineering graduate took over the management of the family business together with his brother Manuel in 2023 and has been responsible for product development ever since. In his eyes, the MaiBase platform is the only logical response to the market's increasing demand for high-performance yet affordable sanding solutions.

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✉ **michael.mai@mai-gmbh.com**

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**“WE BREAK DOWN YOUR GRINDING  
TASK INTO INDIVIDUAL PARTS. AND THEN  
REBUILD IT AS A GRINDING MACHINE.”**

# THE PERFECT FIT FOR YOUR GRINDING TASKS

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[www.mai-gmbh.com](http://www.mai-gmbh.com)

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