

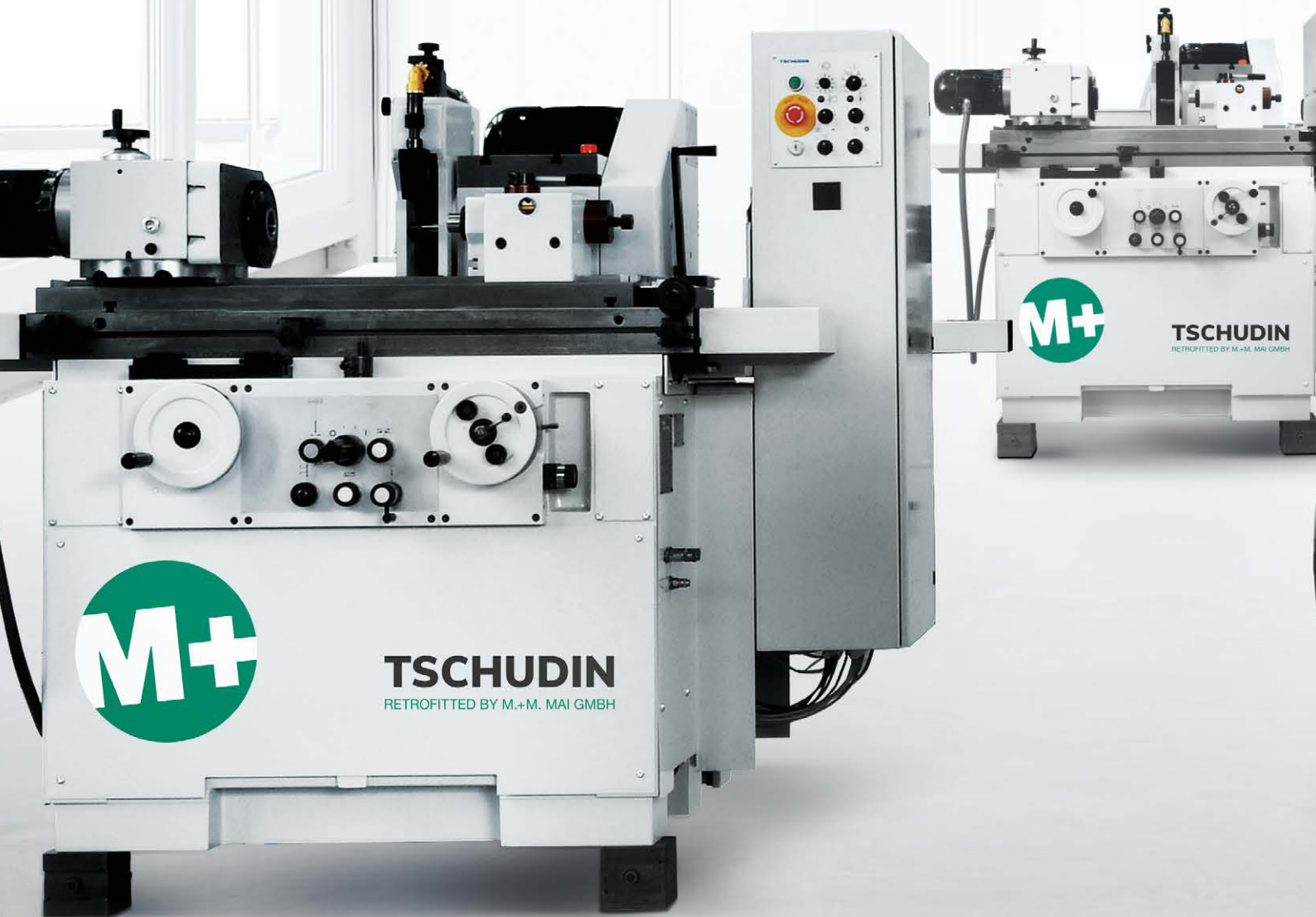


M. + M. MAI GMBH
PRÄZISIONS-RUNDSCHLEIFMASCHINEN



RETROFIT WITH ADDED VALUE

Retrofit & functional extensions for cylindrical grinding machines



NEW PEAK VALUES WITH OLD MACHINES.

There are many reasons why companies may prefer modernizing an old cylindrical grinding machine rather than purchasing a new one: the robust design, the fact that their personnel can avoid having to adapt to using a new machine, but also the significantly lower overall costs compared to a new purchase.

A proven retrofit and modernization expert, M.+M. Mai GmbH has been carrying out retrofitting cylindrical grinding machines for over 25 years. Comprehensive services that go beyond the norm help companies around the world achieve new peak performance values with their old machines.



RETROFIT

OVERVIEW OF RETROFIT BENEFITS

- + Lower costs
compared to new purchases
- + Minimal changeover
requirements for the operating personnel thanks to new software
- + Significant increase in value
through the integration of state-of-the-art functions
- + No production restrictions
thanks to hired equipment service





RETROFIT PRINCIPLE: MORE BRINGS MORE.

For us, retrofitting is not limited to restoring a machine to its former condition and capacity. The goal of our retrofit projects is rather to prepare an old machine in the best possible way to meet current requirements. To this end, we offer you a wide range of additional services that ultimately provide you with the decisive added value.



More stability

Our reuse of the basic machine bed ensures lasting machine stability as part of our retrofit measures. To increase the process stability, we take additional measures, such as grinding in the geometry.



More precision

Our retrofitting process includes the complete renewal of all mechanical components as well as the entire control and drive technology. This means that when we overhaul a machine it can easily compete with a new machine in terms of precision.



More safety

Older machines have major deficits, especially when it comes to safety. In order to ensure unrestricted safety for man and machine, we carry out safety upgrades and only use components and technologies from renowned suppliers.



More user friendliness

We retain the old machine's tried and tested functional principles and operating elements so that the operator does not have to readapt. We also offer enhancement of user-friendliness by revising the individual elements and/or by using new products.



TSCHUDIN
RETROFITTED BY M.+M. MAI GMBH





OUR RETROFIT OFFER: EVERYTHING FROM A SINGLE SOURCE.

Whether in a simple stand-alone version or as a complex, interlinked system:
we offer comprehensive services for each machine type in terms of modernization,
extended functions and process design.



GENERAL OVERHAUL WITH ATTENTION TO THE DETAILS.

Only the best is good enough: For the general overhaul we use original quality parts from renowned manufacturers only, such as Heidenhain, Siemens or Rittal as well as our own constructions made of quality components from renowned manufacturers. Doing so provides the machines with the greatest possible reliability and durability.



Mechanical modernization

- Complete disassembly of the machine including all assembly groups
- Measuring and scraping the guides
- Replacement of bearing, sealing and wear parts
- Replacement of the drawing parts (e.g. ball screw, worn grinding spindles, tailstock, quills, etc.)
- Replacement of pneumatic lines and components
- Replacement of all hydraulic lines and overhaul of the hydraulic system
- Complete repainting of the entire machine
- Reassembly
- Grinding in the geometry
- Extensive function tests and documentation



Electrical modernization

- Rebuilding the control cabinet
- Replacement of all electrical equipment
- Installation of new connection and line technology
- Comprehensive electrical documentation
- Remote maintenance service (optional)



Safety-relevant retrofitting

- Installation of protective doors
- Integration of safety guard systems
- Implementation of safety switches
- Safety Integrated (only with CNC)
- CE certification (optional)

FUNCTIONAL EXTENSIONS FOR EVERY NEED.

What doesn't fit is made to fit: Our retrofit service includes either the customization of individual components to meet your individual specifications or even designing and building as well as integrating completely new components into the machine. All such adaptations are of course professionally documented.



Automation

- Installation of loading and robot systems (both in-house and third-party products)
- Option of developing and integrating customer-specific solutions for loading and unloading the machine



Design

- New development, design and manufacture of functionally relevant components
- Manufacturing of various components to meet customer specifications
- Further development and modification of existing components
- Extensive documentation



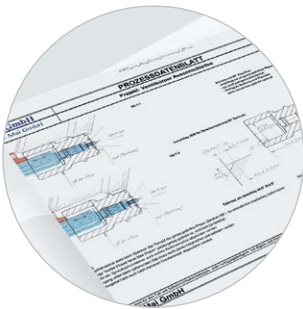




GRINDING PROCESSES WITHOUT IFS OR BUTS.

We make sure that everything runs smoothly: Do you want to manufacture a certain component and the right machine along with relevant grinding process? Or do you need support with optimizing processes on your current machines? In both cases, M.+M. Mai GmbH is the company you're looking for.

We help you design technically and economically optimized grinding processes – from defining the task to the machine concept to implementation and support during operation.



Process design

- Comprehensive requirements analysis
- Deriving the necessary process steps
- Formulating the specific automation solution (machine, control system, etc.)
- Defining and looking for the right clamping devices
- Identifying the right grinding and dressing tools
- Selecting the coolant system



Process optimization

- In-depth analysis of the existing grinding process, taking into account customer-specific requirements
- Revision of the machine concept and automation
- Defining and looking for new clamping devices (centers, chucks, new clamping devices, etc.)
- Identifying new grinding and dressing tools
- Redesign of the cooling system (filter system, nozzles, pipes, etc.)
- Procurement and installation of optimizations

SERVICES FROM THE START TO FINISH.

Can't be done — is not an option: Our idea of a fully successful retrofit includes not only a perfectly reconditioned machine, but also an optimally supported customer. That's why M.+M. Mai GmbH's retrofit service goes by many names: hired machine service, staff training, remote maintenance, telephone consultation, spare parts delivery, etc.



Transport & commissioning

- Collection of your machine
- Transport back to the site of use
- Commissioning by M.+M. Mai fitters



Hired equipment service

- Delivery of hired equipment avoids production downtime



Customer service

- Instruction of operating personnel
 - Customer service
 - Technical support by phone
 - Regular training courses, including on-site at your request
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SPECIAL MACHINE CONSTRUCTION
RETROFIT
REPAIRS
SPARE PARTS SERVICE
USED MACHINES
TSCHUDIN SPECIALIST

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