

# MFP 30

Compact solution  
for high productivity



## Key Data

Top performance in a compact space

Tool diversity and process flexibility

Long service life with hydrostatics

Swiss precision

## Mägerle AG Maschinenfabrik

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Precision, quality and flexibility are key attributes of the products manufactured by Mägerle AG Maschinenfabrik. A technology leader for high-performance surface and profile grinding systems, the company founded in 1929 primarily specializes in customized solutions.

At the heart of the international success of our high-quality Swiss machinery is the unique design principle of the MÄGERLE modular system. Thanks to state-of-the-art technology, MÄGERLE can offer customers from many branches of industry reliable grinding centers. The high machining precision of the custom special-purpose machines ensures that our customers remain competitive.

Alongside decades of accumulated expertise, our highly motivated and dedicated employees play a key role in the success of the company.

As part of the UNITED GRINDING Group, MÄGERLE is a strong member of this globally leading engineering company of grinding machines. All over the world, this gives MÄGERLE customers access to an extensive network of experienced service and engineering technicians.

# MFP 30

Compact design · Automatic tool changer · Flexible machining options · Highest grinding and cooling capacity · Powerful drive for high speeds · Table dressing device with wide profile roll · Hydrostatic guideways · Maintenance-friendly

# Characteristics

## Dimensions

- Driving power: 26 kW from 1750 rpm
- Torque: 140 Nm
- X-axis - longitudinal stroke: 500 mm
- Y-axis - vertical stroke: 450 mm
- Z-axis - transverse stroke: 500 mm

## Hardware

- Tool changer with 12 or 24 positions
- 5 or 6-axis system
- Spindle speeds up to 12,000 rpm
- Tool internal cooling
- Grinding, milling and drilling in a single clamping





## Software

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- Pre-programmed grinding and dressing cycles
- User-specific programmable interface
- Intuitive operation
- Focus on work and production safety



The compact MFP 30 5-axis grinding center from MÄGERLE is ideally suited for grinding complex geometries, particularly those of blades and vanes or heat shields for aviation turbines. The workpieces to be machined are ergonomically loaded into the work area directly from the front. Heavy workpieces with a clamping fixture can be loaded from the top using a crane. The compact and space-saving design allows optimal use of the available production area and enables an effective production flow.

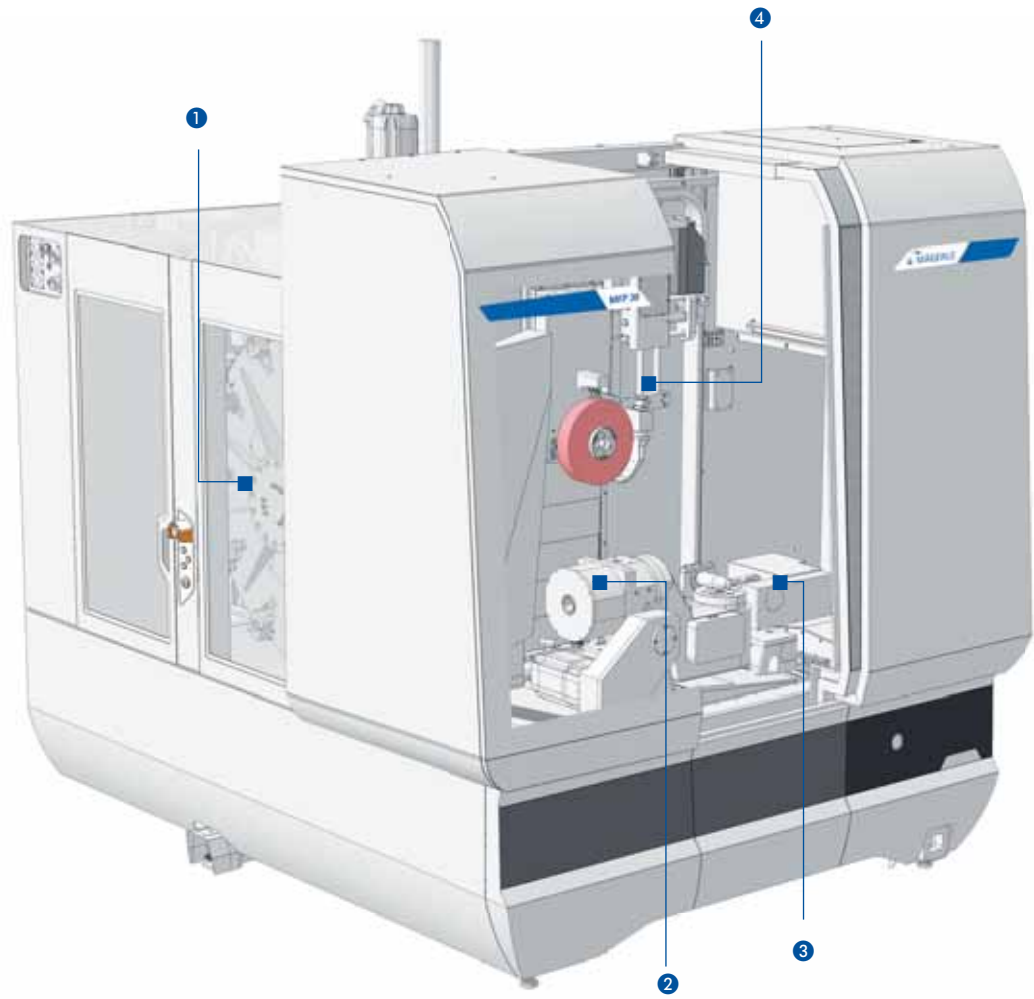
The powerful drive of the high-performance spindle enables different grinding processes to be combined, such as creep feed grinding with aluminum oxide or grinding with CBN. The full performance and a high torque are available even at low spindle speeds. The robust tool holding fixtures enable wide machining contours to be achieved, together with high removal rates. The grinding process can use emulsion or oil. The high-performance spindle offers optimal machining conditions for demanding grinding and high speed milling processes in a single clamping.

Like the larger models from MÄGERLE the MFP 30 also comes equipped with a vertical axis on hydrostatic bearings, enabling it to withstand high stresses free of wear throughout its lifetime.

Easy access for servicing and maintenance work supports the excellent ergonomics of the MÄGERLE grinding center.

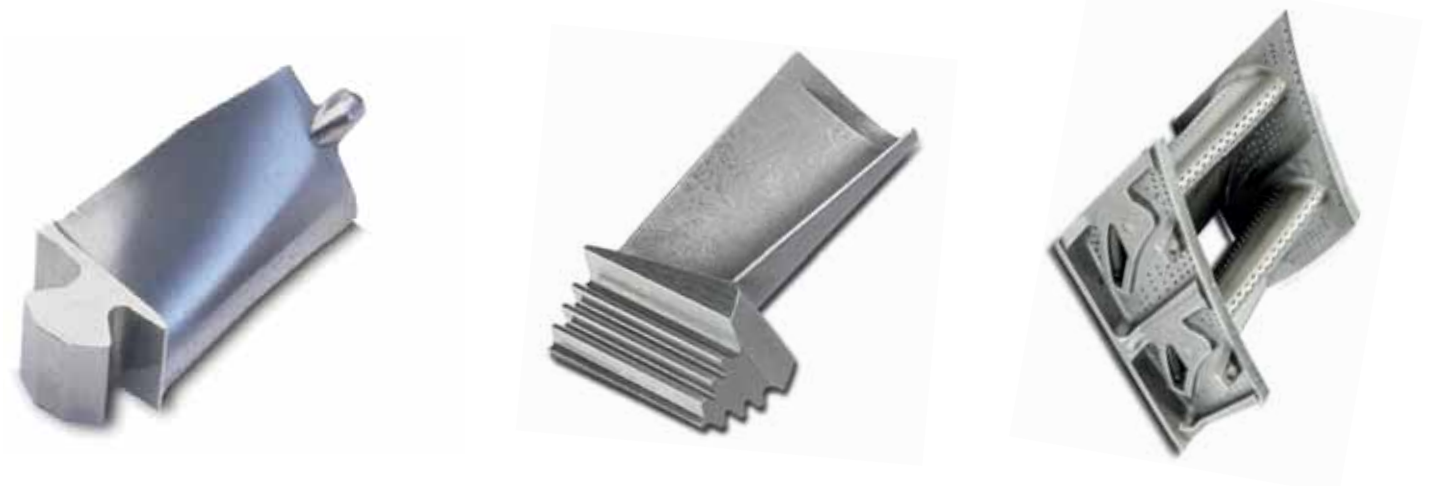
# Machine Configuration

## MFP 30 machine concept



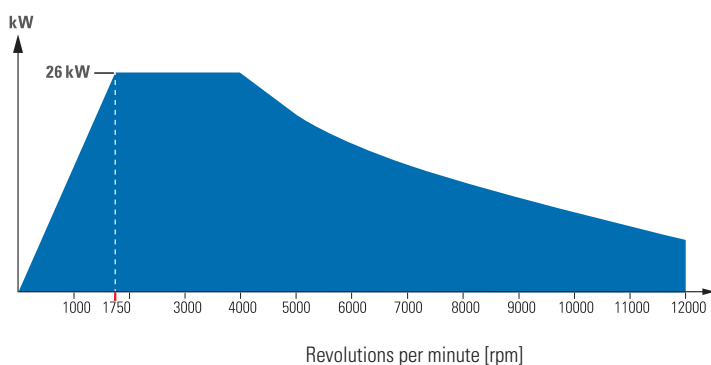
- ❶ Tool magazine
- ❷ NC indexing head
- ❸ Table dresser
- ❹ 2-axis NC coolant nozzle

## Applications



## High performance and high torque

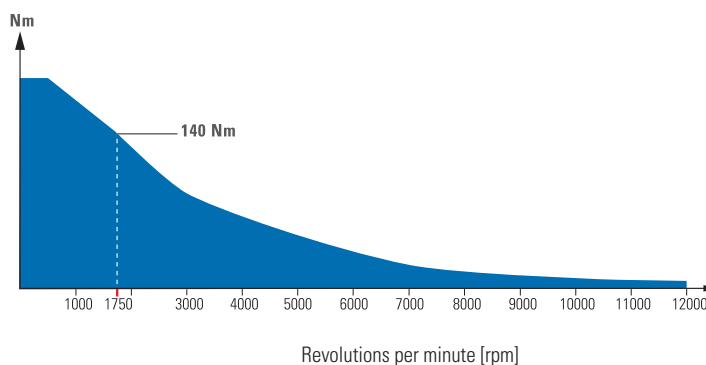
### Spindle capacity



S6 at 40% duty cycle

The direct drive motor for the grinding spindle enables high performances and torques across the entire speed range. This leads to outstanding results in terms of removal rates.

### Torque

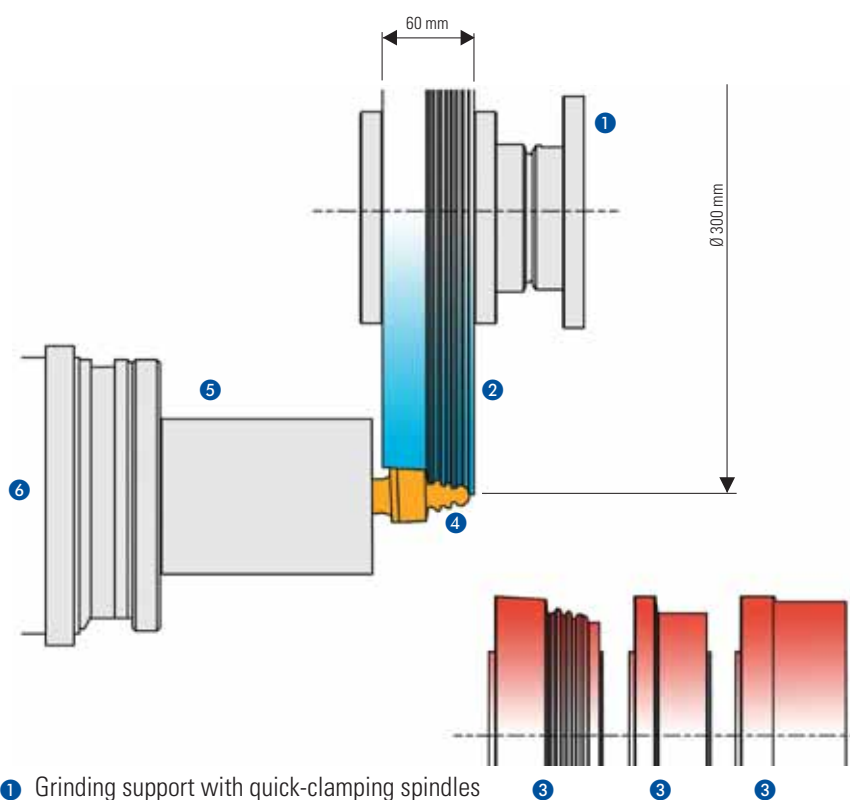
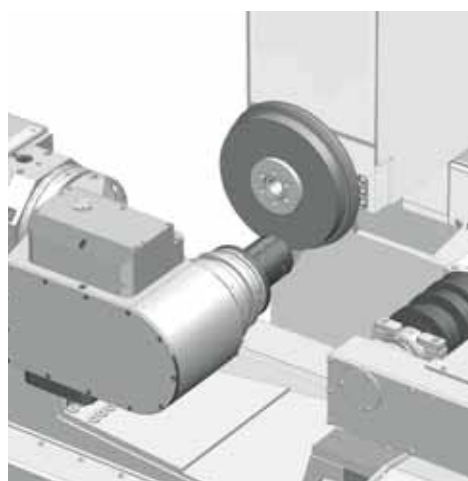


The high speeds of up to 12,000 rpm offer optimal conditions for CBN grinding processes and milling operations, which significantly increases the machining clearance for complex workpieces.

## Large grinding wheel dimensions

The powerful drive is designed for wide grinding wheels up to 60 mm. Operations can thus be combined with wide machining profiles. The maximum diameter of 300 mm allows a long service life of the grinding wheel and reduces the number of grinding wheel changes.

The HSK-B80 flange mountings guarantee a high rigidity, thanks to the generous support on the tool holding fixture via the collar. They are also the key to quick tooling changes with absolute repeatable precision.



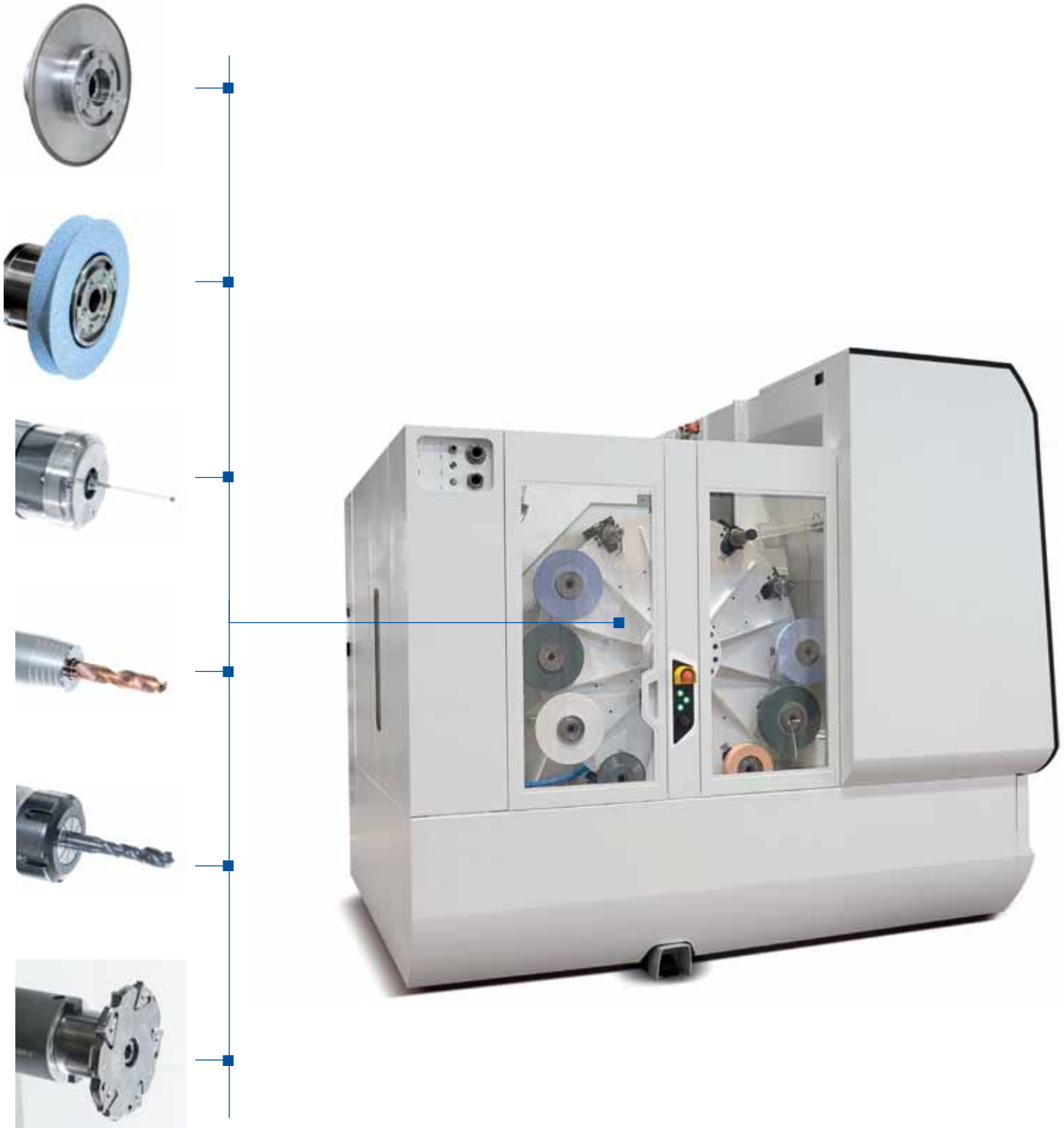
- ① Grinding support with quick-clamping spindles
- ② Grinding wheel
- ③ Diamond dressing roll sets
- ④ Workpiece
- ⑤ Zero point clamping system, Fixture
- ⑥ NC indexing head

# Automatic Tool Changer

## Flexible loading options

The tool changer includes 12 or 24 positions. It can be equipped with different grinding wheels according to the process requirements. The grinding process can be supplemented with the machine's drilling and milling

capability, which supports a flexible machining platform for complex workpieces. In addition, the magazine can be loaded with a measuring probe which allows for dimensioning or workpiece position checks.

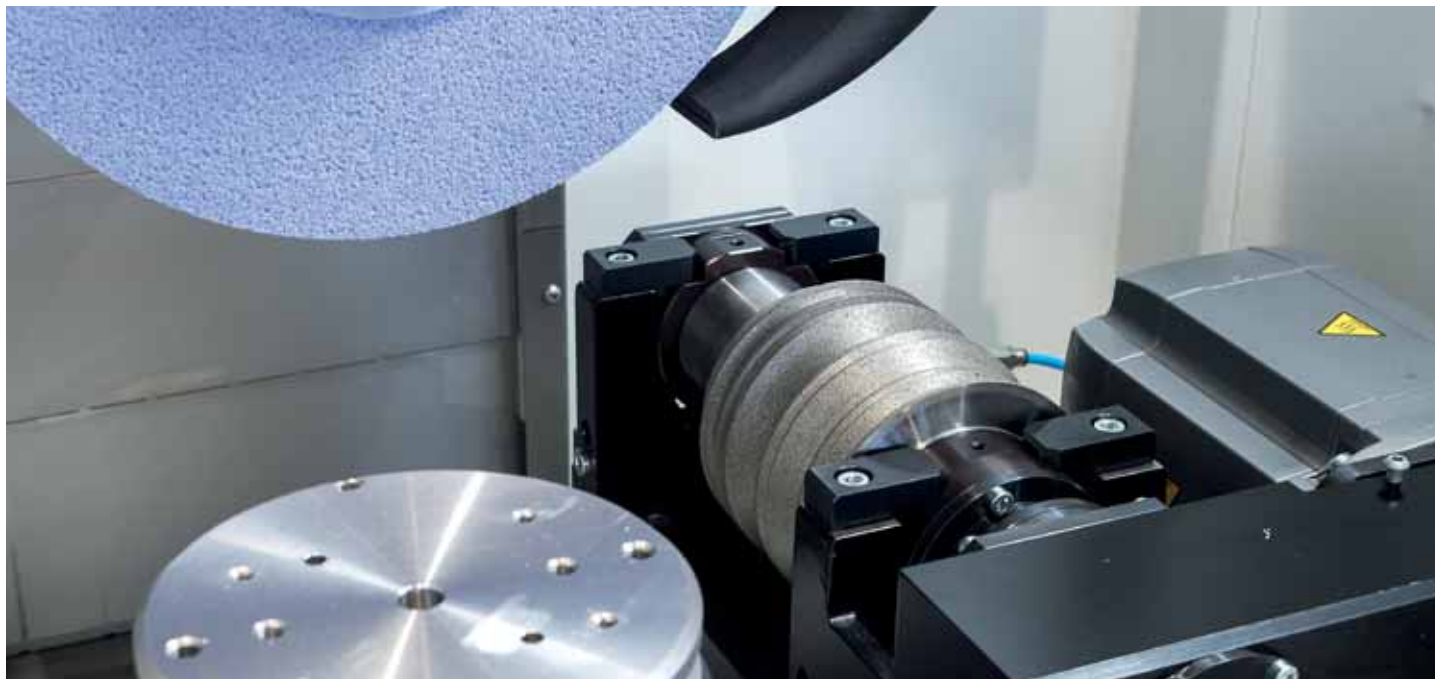




# Hydrostatic System and Powerful Drives

## Table dressing for a multitude of profiles

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The large table dressing device enables the mounting of wide diamond rolls with a multitude of machining profiles for different workpieces and makes a significant contribution to minimizing changeover times.

The two bearings and the servo motor drive enable reliable dressing across the entire speed range.

## Wear-free guide concept

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The unique design principle of MÄGERLE machining centers forms the basis for the overall machine quality. The vertical axis is supported by hydrostatic wrap-around guideways on a thin oil film and is completely separated from the column's upper section. This principle enables the machines to withstand very high stresses free of wear, even in long-term use. The oil film also has a vibration-damping effect and guarantees high-precision machining of simple or complex workpieces.

# Cooling Intelligence

Optimal grinding and machining results

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The NC controls of the MÄGERLE grinding centers enable precise positioning of the coolant supply, taking into account the respective grinding wheel geometry. Nozzles are available on the grinding support for milling/drilling tools, and a coolant supply can be optionally provided through the



spindle. Labyrinth seals with a sealing air arrangement protect all bearings in the machining area from impurities and contribute to the long working life of the overall system.

## Grinding wheel cleaning

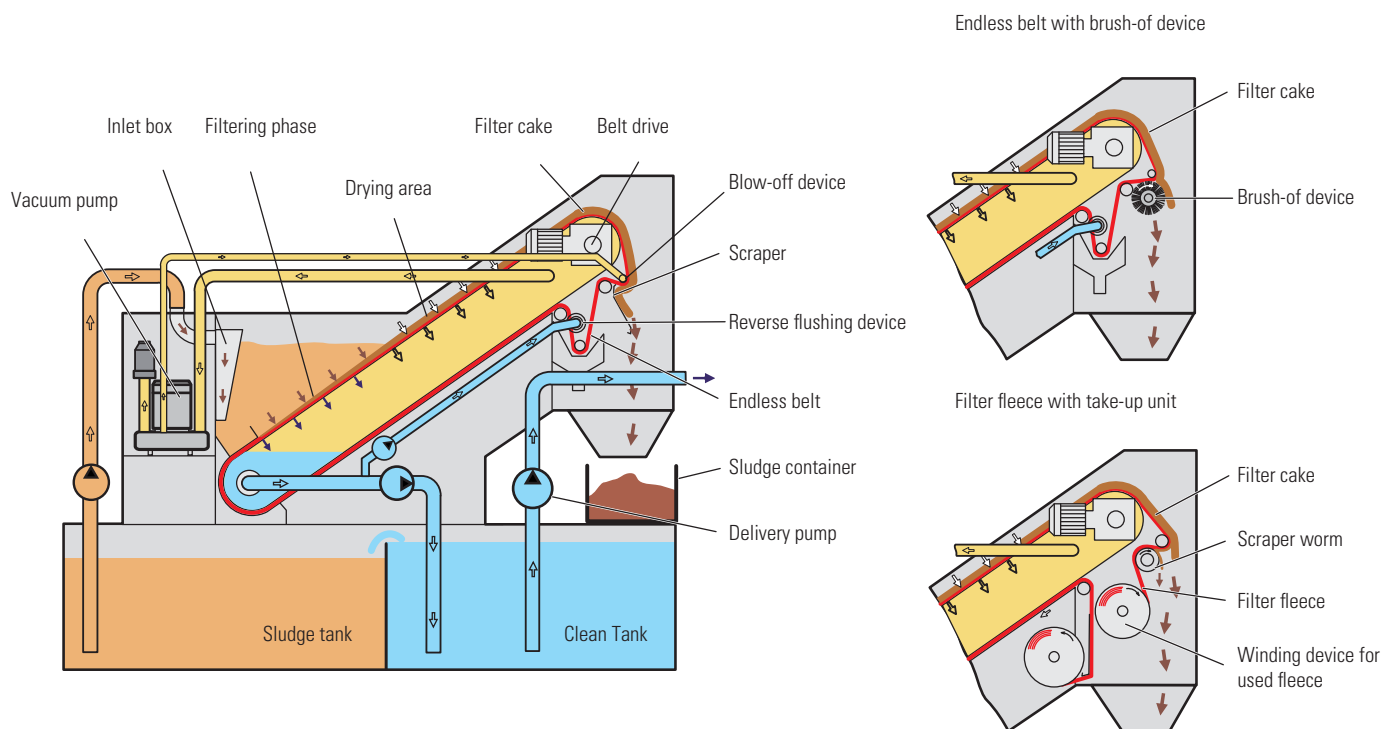
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Integrated grinding wheel cleaning ensures that the grinding wheel remains clean and sharp for longer during the grinding process. This increases removal rates and at the same time reduces grinding wheel wear.

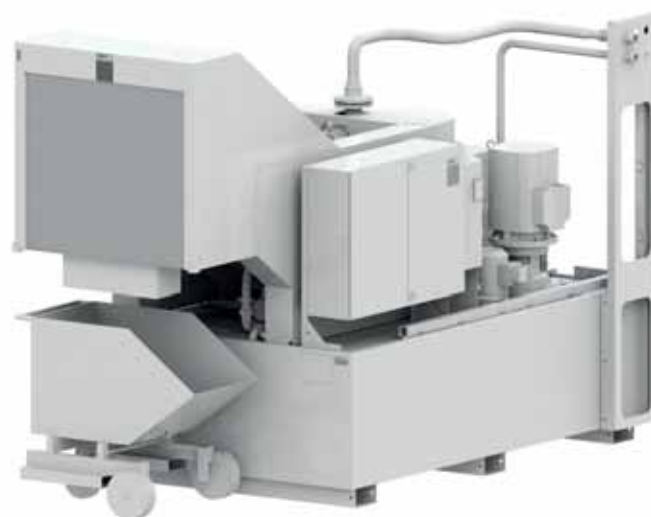


# Coolant Cleaning Units

The optimal solution for every application

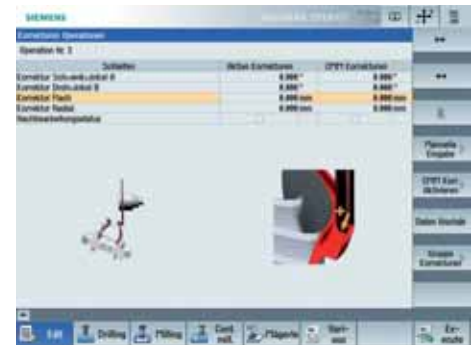
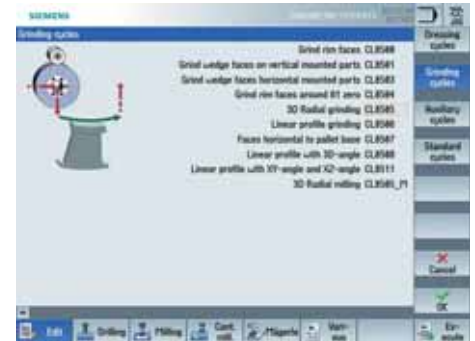


MÄGERLE considers the grinding process as a system of different components and thus creates the necessary conditions for a high cost effectiveness. The system concept for coolant supply and cleaning is of central importance. Correct dimensioning is essential for utilization of the full coolant potential with low disposal costs. Taking account of these economic and ecological aspects, MÄGERLE, in conjunction with the coolant system supplier, matches integrated solutions to the customer-specific requirements.



# Control Systems

Operational safety and user-friendliness



The grinding center is operated by means of the SIEMENS Sinumerik 840D Solution Line control unit. This system fulfills all industrial requirements in terms of safety and performance. Individually visualized and pre-programmed grinding

and dressing cycles are available for efficient workpiece programming. 3D grinding and auxiliary cycles can be programmed for milling and drilling operations in 5-axis machining. Additional tasks such as complete tool management

and multiple measuring programs are displayed on the touch screen in a clear and user-friendly manner.

## CAD/CAM connection



A SIEMENS NX postprocessor is available for CAM process development. The generated NC programs take account of the MÄGERLE grinding cycles. As a result the programs can be easily edited on the machine control unit via operator guidance. MÄGERLE provides a Vericut package for simulating and checking the programs.

# Customer Care

MÄGERLE surface and profile grinding machines should fulfill the customer's requirements for as long as possible, work cost-effectively and function reliably. From "start up" through to "retrofit" – our Customer Care is there for you throughout the working life of your machine. Three professional helplines and trained service technicians are available in your area, wherever you are in the world.

- We will provide you with fast, uncomplicated support.
- We will help to increase your productivity.
- We work professionally, reliably and transparently.
- We will provide a professional solution to your problems.



## Start up

Commissioning  
Warranty extension



## Qualification

Training  
Production support



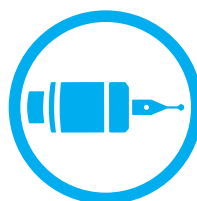
## Prevention

Maintenance  
Inspection



## Service

Customer service  
Customer consultation  
HelpLine  
Remote service



## Material

Spare parts  
Replacement parts  
Accessories



## Rebuilt

Machine overhaul  
Assembly overhaul



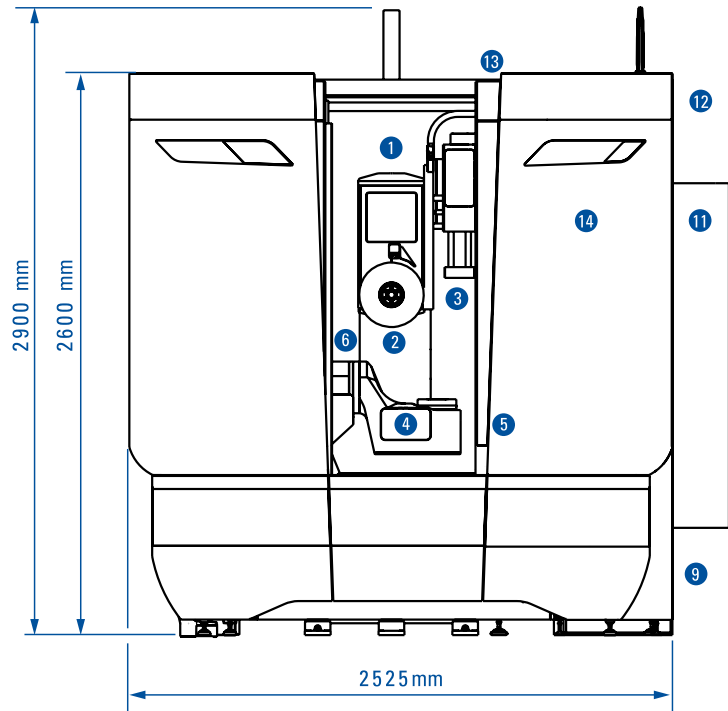
## Retrofit

Modifications  
Retrofits

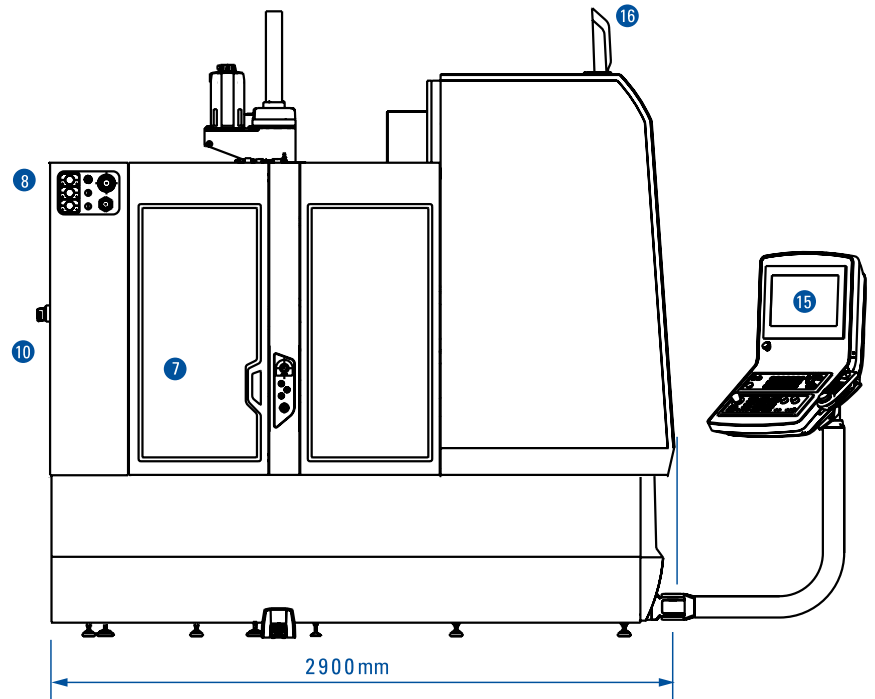


# Layout

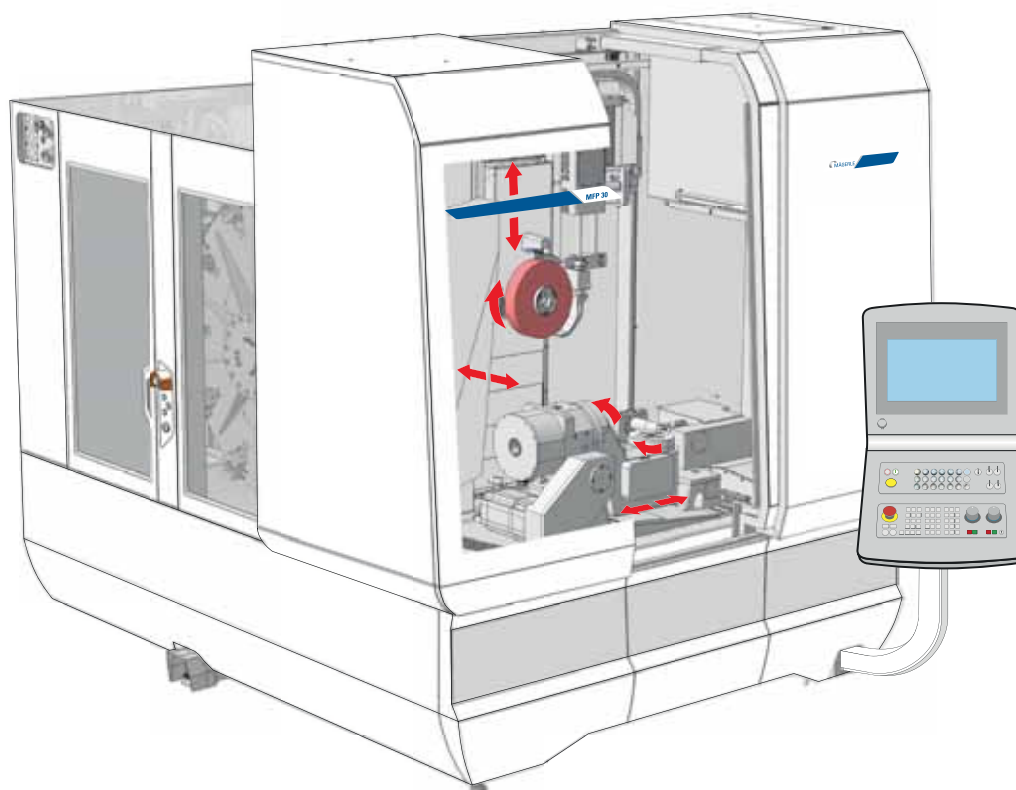
## MFP 30 Machine configuration



- ① Working area
- ② Quick-change spindle for machining tools
- ③ Automatic coolant nozzles
- ④ NC indexing head 2/3 axes
- ⑤ Dressing device
- ⑥ Gripper
- ⑦ Tool change magazine
- ⑧ Interface to coolant processing system
- ⑨ Hydrostatic/Hydraulic unit
- ⑩ Centralized lubricating system
- ⑪ Electrical cabinet
- ⑫ Mist extractor (interface)
- ⑬ Automatic door drive
- ⑭ Safety splash guard cabin
- ⑮ Sinumerik 840D controller
- ⑯ Machine status lamp



# Technical Data



## Technical data for MFP 30

X-axis	longitudinal stroke	mm	500
	travel speed	mm/min	0...50.000
Y-axis	vertical stroke	mm	450
	travel speed	mm/min	0...30.000
Z-axis	transverse stroke	mm	500
	travel speed	mm/min	0...30.000
Power grinding wheel drive S6-40% ED		kW	26
Rpm range max.		rpm	0...12.000
Quick-clamping spindle		n	HSK-B80
Tool changer positions		n/pos	12/24
Tool length max.		mm	180
Profile dressing device, roll width, max.		mm	307
Profile dressing device, roll diameter, max.		mm	200
Grinding wheel dimensions (D x T x H)		mm	300 x 60 x 76,2
NC-combination – rotary/swivel axes		n/axes	2/3
Measuring system with measuring probe (optional)			

We reserve the right to make technical changes



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