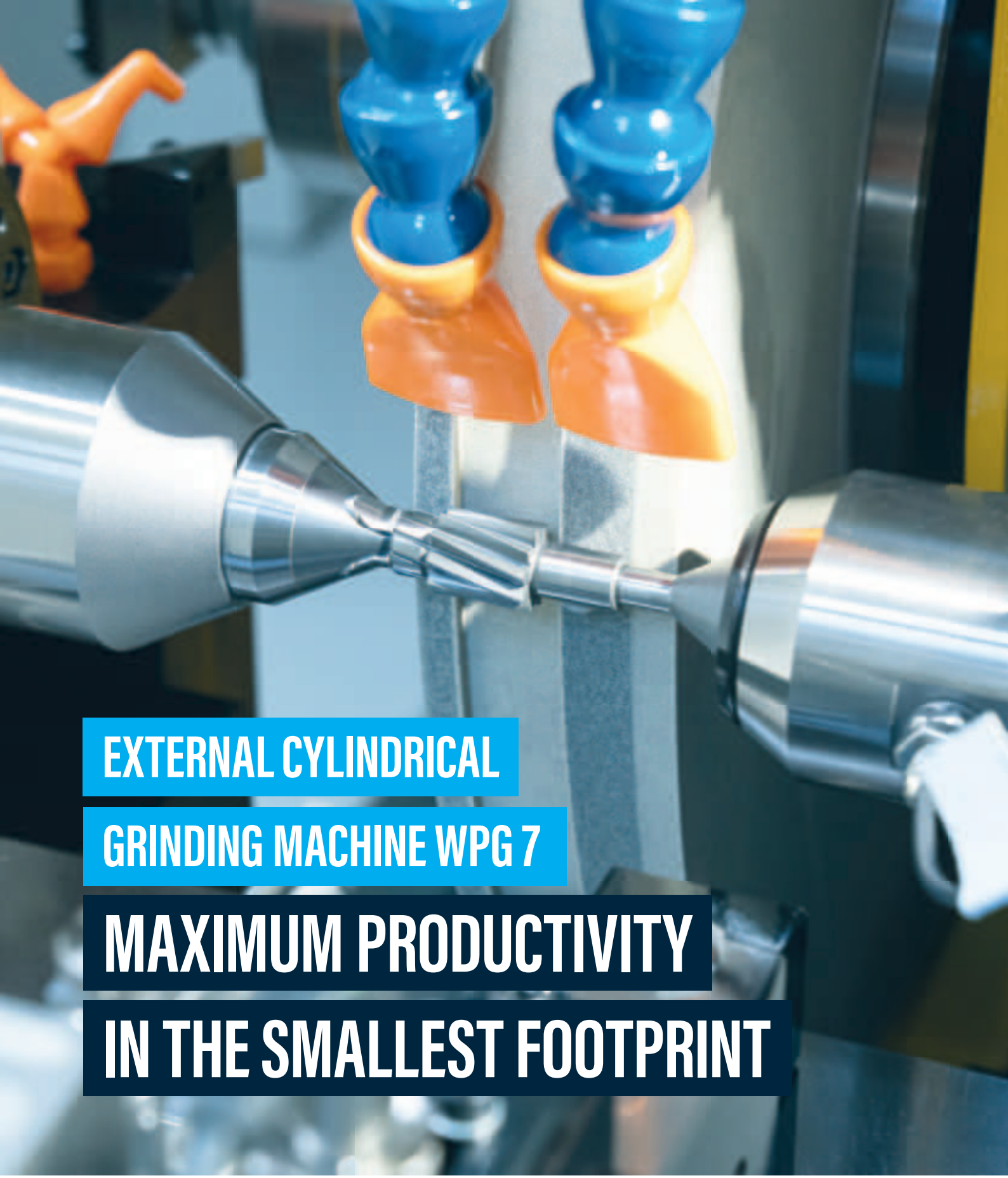


EXTERNAL CYLINDRICAL GRINDING MACHINE WPG 7

MAXIMUM PRODUCTIVITY IN THE SMALLEST FOOTPRINT

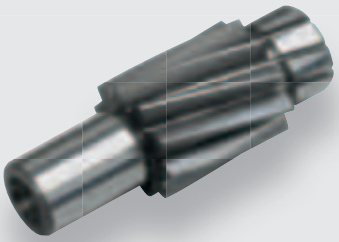
For straight or angle plunge grinding processes

EMAG

THE WPG 7

ensures high-precision processes in many applications – made possible by its very rigid design, with optimized thermal stability and in-process measuring.

Many small shafts or pinions (up to a workpiece length of 250 mm) are completed on the WPG 7 in a matter of seconds.

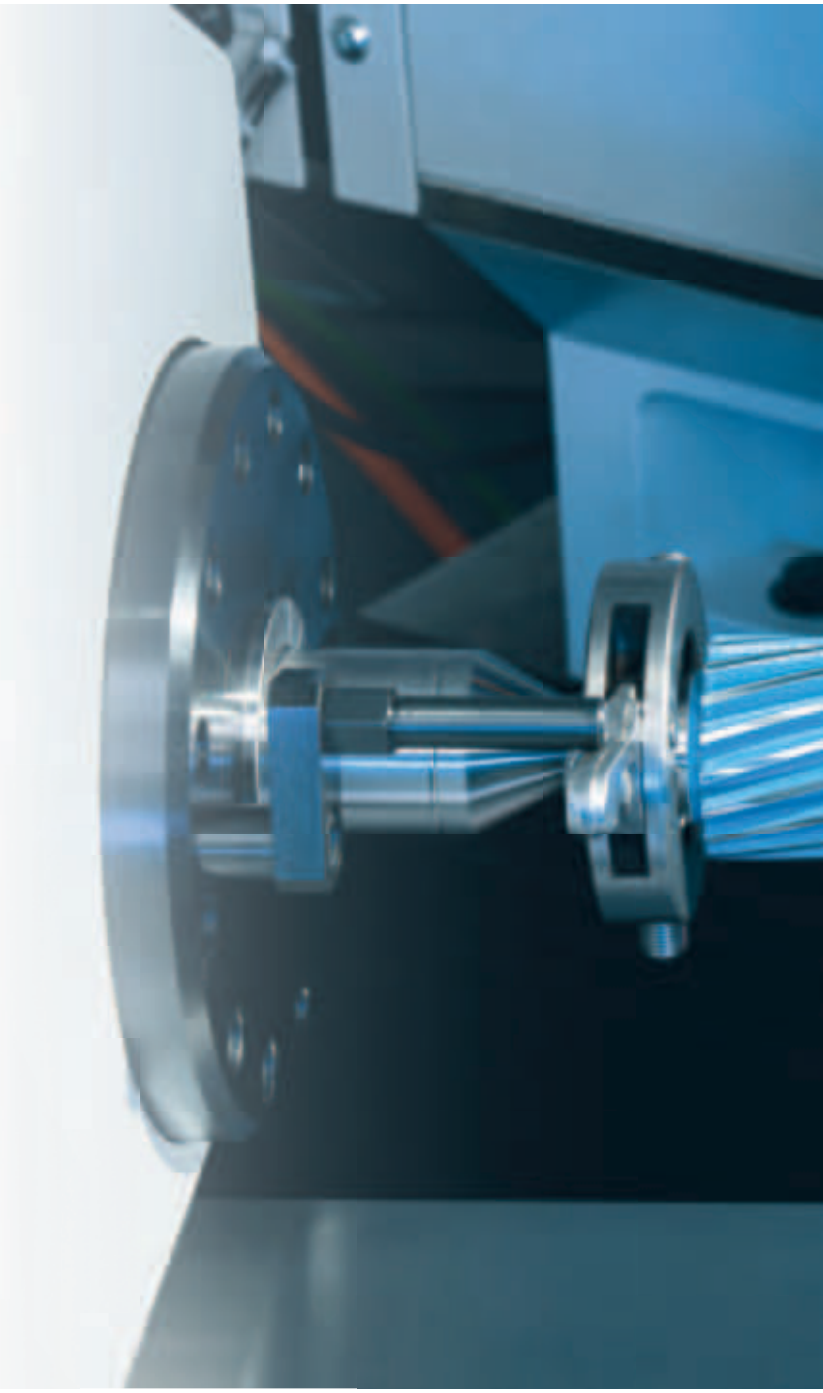


CONTENTS

Introduction:
Small cylindrical grinding machine - high productivity

High precision, small footprint, attractive price - the WPG 7 external cylindrical grinding machine from EMAG WEISS delivers leaps in productivity in the production of smaller shafts and pinions.

Using water soluable fluid or cutting oil, the WPG 7 is perfect for external cylindrical grinding with CBN or corundum wheels. A special feature in this field of application is the oversized grinding wheel diameter of 500 mm. As a result, the grinding process is very fast and productive. In addition, it takes a relatively long time before the disc needs to be dressed (which also increases productivity).



Left: Small pinions and shafts can be finished with this machine in a matter of seconds.

Right: Water soluble fluid or cutting oil can be used for the cooling system during the process.

TECHNICAL DATA WPG 7

Workpiece length max.	mm	250
Center height	mm	100
Workpiece weight max.	kg	30 kg between the tips

MANUAL OR AUTOMATED LOADING

EMAG WEISS offers this solution with manual or automated loading versions. Our specialists integrated our own linear gantry, including a gripper, within the machine enclosure, making it easy to connect additional automation.

On the following pages, we present this highly flexible dynamo for external cylindrical grinding in detail.

Compact design:
“All in one” ensures a quick start

One major advantage of this machine can be seen at first glance: The WPG 7 is an extremely compact production solution. EMAG WEISS integrates all relevant components into the housing.

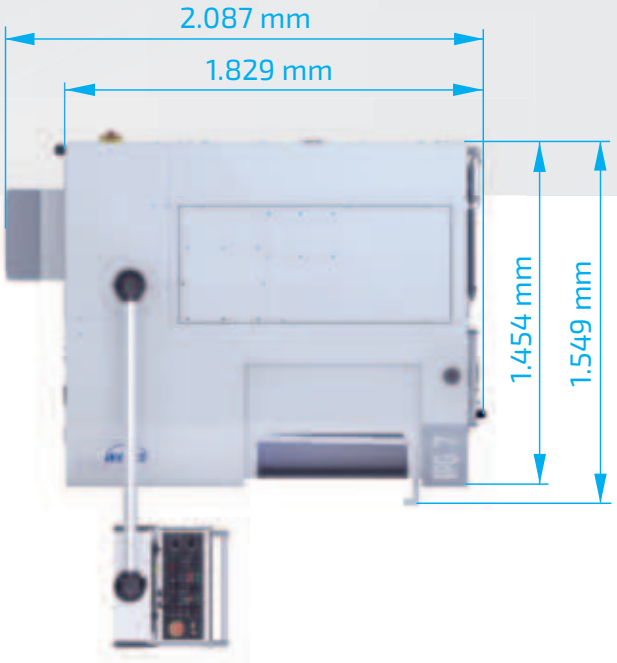
In many areas of application, it is uneconomical to use oversized universal cylindrical grinding machines for the external machining of smaller components - a lot of floor space is lost and the functionality is not fully utilized. The WPG 7 demonstrates that there is another way to grind workpieces externally, and every user benefits from these advantages:

- Electrical cabinet, cooling system, lubrication and co - everything is located within this housing.
- The initial machine installation at the customer's premises is setup at lightning speed: Simply connect the power and compressed air and off you go! This process usually takes less than four hours.
  No major adjustments or new settings inside the machine are necessary.

What's more, the WPG 7 fits easily on two standard pallets and can be placed on-site with an over head crane. It couldn't be quicker or easier to find a new production solution!

ADVANTAGES OF THIS SPACE-SAVER

- Minimal footprint of only 1,800 x 2,400 mm
- Electrical cabinet and peripherals fully integrated
- Installation in less than 4 hours



Dimensions of the machine at a glance: Everything is installed in an area of around four square meters.

Different variants:
Tailor-made solutions for special tasks

The WPG 7 is available in two different versions: for straight or angular plunge-cut grinding. Customers must decide on one of these configurations in advance.

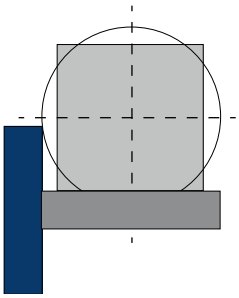
Conversely, this means that the grinding head is fixed and cannot be swiveled. Users therefore have either a machine with a straight plunge cut (0 degrees) or an angled plunge cut (30 degrees), whereby the grinding wheels can also be profiled depending on the task. Overall, the WPG 7 is a state-of-the-art solution including highly dynamic axes, a powerful and controllable grinding wheel drive with speeds of up to 50 m/s and a workhead with a stationary or live center MK4.

The workhead is available with a stationary or driven centers.

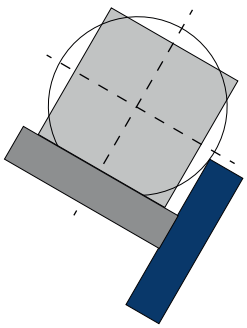
SUCCESS THROUGH PERFORMANCE

- Available as a straight or angle plunge grinding machines
- Adjustable peripheral grinding wheel speed up to 50 m/s
- Maximum grinding wheel size 500 x 80 mm
- Tailstock with fine adjustment MK3
- Workhead with stationary or driven center MK4

POSSIBLE TOOL CONFIGURATIONS OF THE WPG 7



with straight plunge from the left



angle plunge from the right

Handling solutions:
Automated for success

Whether chain conveyor, pallet circulation or robot - many individual connections can be integrated with this machine at the customer's request. Thus medium quantities are produced at high speed.

The decisive factor here is that the specialists at EMAG WEISS have developed their own linear gantry, which can be integrated into the machine's enclosure at the customer's request.

The gantry removes the raw-parts from the chain conveyor (or another solution) and then feeds them from the side into the work area at high speed. Once the process is complete, the finished parts are returned to the conveyor belt by the gantry. This process is controlled by a machine panel. Incidentally, the operator can still load and unload smaller batches by hand.

Left: The associated automation solutions also take up very little space.

Right: The components are positioned with precision before being picked up.

MINIMUM CHANGEOVER TIME

The entire solution is easy to program and guarantees a fast changeover time of approx. 6 seconds - a minimal value that fits perfectly with equally fast sgrinding cycles that only last a few seconds.

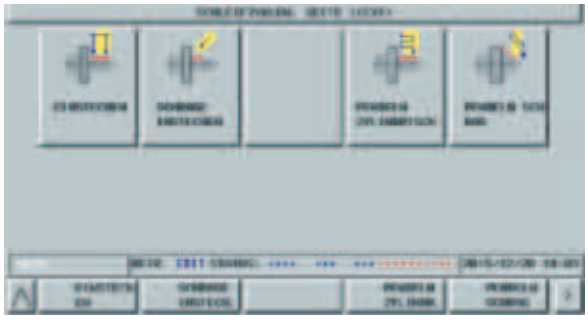
The linear gantry is a proprietary development from EMAG WEISS.

CNC control and programming:
Focus on simple operation

FANUC technology is used for the machine's CNC control (0i-D series). Users benefit from intuitive user interfaces and dialogs during programming.

The dialog interface of the control panel greatly simplifies the input of technology parameters for a specific cycle. Even the basic version of the software contains all common grinding cycles.

Basic menu of the WPG 7: Set-up processes, approaching the zero point or datums can be called up by "touch."



Process at a glance: All "normal" cylindrical grinding cycles are already integrated into the control system.

Examples of programming a grinding cycle with straight (l.) and angled plunge cut (r.): The operator only enters a few parameters.

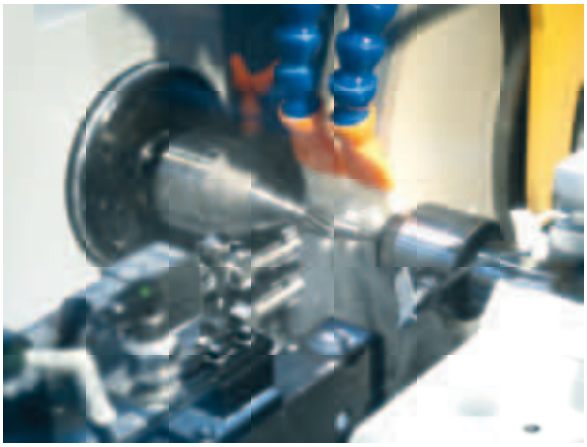
Measuring system and Co:
Built-in quality

The WPG 7 is characterized by a rigid design and optimal heat transfer, which ultimately ensures special qualities during grinding. Added to this is a high degree of process reliability thanks to various monitoring and control systems.

Continuous in-process measurements (Marposs) of the component diameter guarantee minimum tolerances - despite the water or spark out phase. Overall, the machine achieves a circular accuracy with deviations of less than one micrometer!

Further benefits include shoulder location gage, an automatic balancing system and GAP and crash control.

The cooling system uses water soluable fluid or cutting oil - in both cases Marposs measurement technology guarantees the necessary process reliability.



TECHNICAL DATA

		WPG 7 CNC
Swing diameter	mm in	200 8
Grinding diameter max.	mm in	80 3
Maximum grinding length	mm in	250 10
Center height	mm in	100 4
Maximum part lenght between centers	mm in	380 15
Longitudinal axis (Z) Longitudinal travel	mm in	390 15,5
Longitudinal axis (Z) Feed speed	m/min ipm	10 394
Longitudinal axis (Z) Table adjustment	Grad	± 10°
Transverse axis (X) Transverse travel		
» Straight wheel	mm in	290 11,4
» Angled wheel	mm in	190 7,5
Transverse axis (X) Feed speed	m/min ipm	10 394
Grinding wheels-Ø	mm in	400 / 500 15,5 / 19,5
Grinding wheel width max.	mm in	80 3
Grinding wheel bore	mm in	127 / 203 5 / 8
Grinding wheel peripheral speed	m/s	50
Workpiece headstock Tailstock		MK4 MK 3
Workpiece headstock speed	m/s	0 – 2.000

CONCLUSION

Do you want to cylindrically grind small shafts or pinions in a matter of seconds - and with a machine without a large footprint? Here is the perfect solution:

The WPG 7 from EMAG WEISS scores points with a very powerful grinding wheel drive, a large grinding wheel, simple operation and optional automation.

At home all over the world.

All EMAG Locations

EMAG

www.emag.com