WEMA GLAUCHAU
A MEMBER OF THE NSH GROUP

WOTAN® S3A

External cylindrical grinding machine
for the cost-effective production
of highly precise small and medium-
sized parts with a compact design.

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grinding unlimited

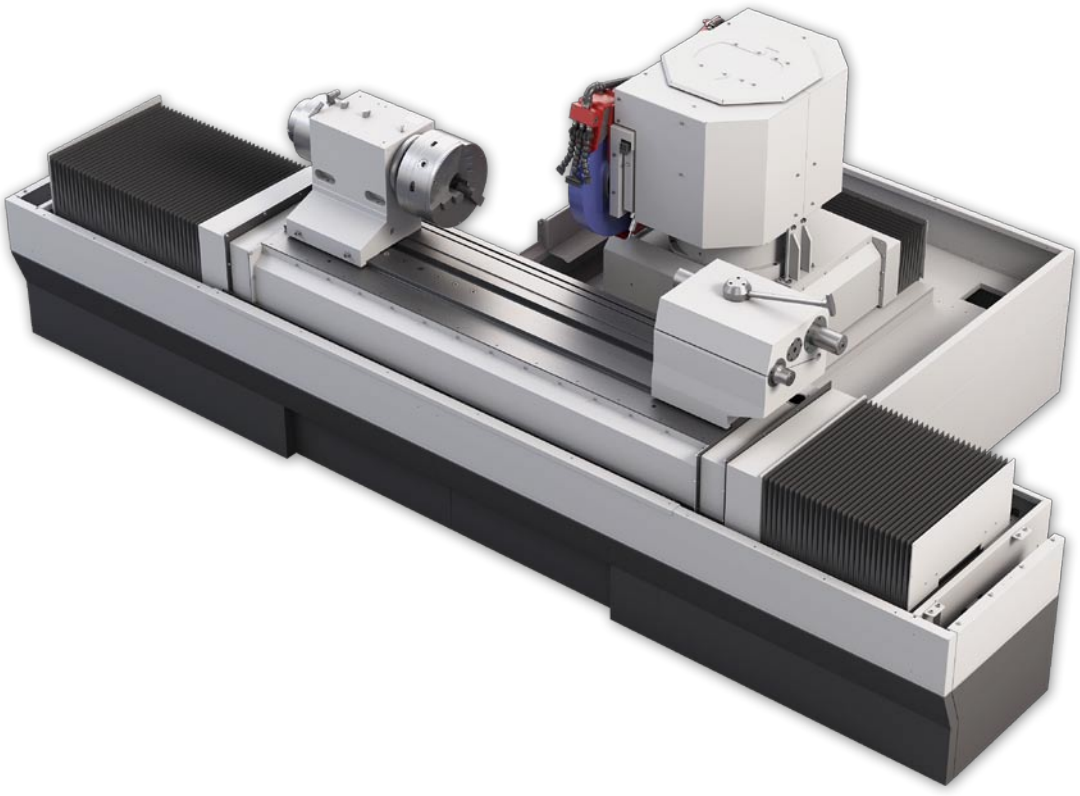
The compact machine for cost-effective production

With its WOTAN® S3A series, WEMA Glauchau completes its offer to have all grinding jobs performed by a compact external cylindrical grinding machine. Thanks to its intelligent machining strategy and the small design, the machine is particularly suitable for the cost-optimized processing of small and medium-sized workpieces.

The machine's center height reaches 225 mm when using a steady rest or 275 mm for self-supporting components that do not require a steady rest. Depending on the job, you can select between 1 000 mm or 1 600 mm as the distance between centers.

As regards the weight of the workpieces, our currently smallest machine is in no way inferior to our ›large‹ machines – a massive and very rigid machine base allows workpiece weights up to 600 kg without causing any problems.

Our modular strategy makes it possible to optimize every machine for its future grinding jobs, thus creating an optimal combination of flexibility and efficiency.



A MACHINE COVERING EVERYTHING:

- chuck parts
- ›between-center parts‹
- wave-shaped parts, which can be supported optionally by a steady rest
- and much more.

You need to have external diameters and external plane surfaces processed? No problem – the **S3**A offers the ideal solution.

Our modular and flexible machine design makes it possible to accomplish the most diverse processing jobs without long set-up times.

The machine's basic configuration is made up of two CNC-controlled linear axes. The Z-axis and the X-axis rest on a hydrostatic bearing and are driven directly by a linear motor. These components make it possible to perform fast and very precise movements. Nor are the axes subjected to the typical wear and tear as the result of the guidance and drive concept, as this happens with ball screw drives or motion rolling guide units.

Apart from the workpiece spindle, further modules – such as tailstock, steady rests or in-process measuring systems – are located on the Z-axis (machine table).

The grinding unit which – based on the known WEMA principle – can be individually configured is also put up on the X-axis.

LARGE SELECTION OF SPINDLES

Depending on the accuracy requirements, the workpiece spindle can be designed as belt-driven or directly driven spindle or as spindle with a hydrostatic bearing. If the workpiece spindle is equipped with a measuring system (C-axis), you can perform high-precision non-round & surface grinding operations in various facets on a cylindrical grinding machine.

THE TAILSTOCK CAN BE INDIVIDUALLY CONFIGURED

Of course also the tailstock can be individually configured in accordance with your requirements and needs. In order to do so, you can choose between three variants, i.e. a spring-loaded and manually unlocking tailstock, a hydraulically unlocking tailstock and a synchronous tailstock.

WITH OR WITHOUT GRINDING SPINDLE REVOLVER

The grinding unit can be equipped, in its basic version, with one grinding tool – without swiveling spindle revolver.

The efficiency and productivity can be considerably increased, when a variably swiveling grinding spindle revolver (directly driven round table) is put up on the X-axis which can be fitted with up to 4 grinding tools. You can decide all by yourself on the proportion of external to internal grinding wheels (i.e. their number) that you wish to use in accordance with your current and future scenarios.

GRINDING SPINDLES ACCORDING TO YOUR NEEDS

Flexibility is also the guiding principle, when it comes to designing the grinding spindles. Depending on your specific grinding job, you can choose, in the case of each individual spindle, between a directly driven and a belt-driven one.

DRESSING OPTIONS

We can offer you different dressing equipment that is suitable for the grinding wheel required for the job to be done.

Ideal for conventional grinding wheels are our stationary dressing tools that will quickly get your wheel back into shape.

We can also offer you a dressing spindle with a driven dressing tool, so as to enable you to sharpen your crystalline boron nitride (CBN) grinding wheels.

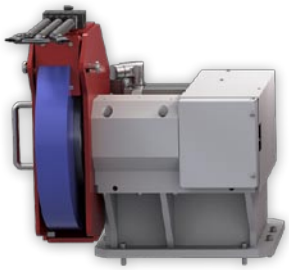
NUMEROUS OPTIONS AVAILABLE

To further optimize processes, you can complement your individually configured machine with numerous options:

- measurement sensor for zero point detection (determination of the workpiece position in Z-direction)
- in-process measuring system
- automatic workpiece changing system
- spark-in control during grinding (e.g. by way of a fluid sensor system) and dressing (e.g. by way of acoustic emission (AE) sensors)

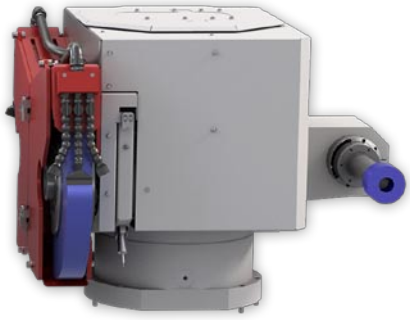
Define your production job and we shall configure your individual optimal solution together with you. Alternatively, you may also make inquiries about the specific setup you have planned.

Examples of a **WOTAN® S3**A configuration



› 1 × external grinding wheel (ø 500)
› 1 × measurement sensor

› 2 × external grinding wheels (ø 500)
› 1 × measurement sensor



› 2 × external grinding wheels (ø 500),
› 1 × internal grinding spindle
› 1 × measurement sensor

WOTAN® S3A at a glance:

	WOTAN® S3A
Working area of the machine	
Distance between centers	1000 / 1600 mm
center height with/without steady rest	225 / 275 mm
Workpiece weight	600 kg
Workpiece spindle headstock	
belt-driven workpiece spindle	
› concentric run-out external taper and plane surface	1 µm
› concentric run-out internal cone	2 µm
› maximum speed	500 / 2000 rpm
› measuring system	none
› spindle nose of the short taper	short taper A5
› Internal cone of the spindle	MK 6
› driving power	3.7 kW
Directly driven workpiece spindle	
› concentric run-out external taper and plane surface	1 µm
› concentric run-out internal cone	2 µm
› maximum speed	500 / 2000 rpm
› measuring system (C-axis)	integrated
› spindle nose	Short taper A6
› Internal cone of the spindle	MK 6
› driving power	3.6 kW
Directly driven & hydrostatic bearing workpiece spindle	
› concentric run-out external taper and plane surface	0.3 µm
› concentric run-out internal cone	Without internal cone
› maximum speed	500 / 1000 rpm
› measuring system (C-axis)	integrated
› spindle nose	Short taper A6
› Internal cone of the spindle	Without internal cone
› driving power	1.8 kW
tailstock	
› spring-loaded manually unlocking	standard
› spring-loaded manually and hydraulically unlocking	option
› synchronous tailstock (rotating)	option
› cylinder correction	±0.080 mm
› sleeve travel	80 mm
› sleeve diameter	80 mm
› tailstock center	MK 5

	WOTAN® S3A
Z-axis (workpiece)	
guidance system	hydrostatic
driving system	directly driven
axis travel	1300 / 1900 mm
speed	15 m/s
resolution of the scale	0.000 01 mm

X-axis (grinding unit)	
guidance system	hydrostatic
driving system	directly driven
axis travel	450 mm
speed	15 m/s
resolution of the scale	0.000 01 mm

	WOTAN® S3A
Grinding unit	
number of possible tools	up to 4
infinitely adjustable speed setting	standard
processing with Corundum grinding wheels or CBN-grinding wheels	standard
measurement sensor for zero point detection	option
grinding spindle revolver (directly driven round table)	option
swiveling range	270°
resolution in the control	0.000 1°
External grinding	
taper mount of the external grinding spindles	1:7
driving power	
› belt-driven external grinding spindle	14.6 kW
› directly driven ext. grinding spindle	15 kW / 20 kW
› further ones on request	
grinding wheel dimensions	
› 55 m/s	Ø500 x 80 x 127 mm
› 63 m/s	Ø500 x 50 x 127 mm
automatic balancing system	option
Internal grinding	
› internal grinding depth (more on request)	currently 350 / 450 mm
› spindle type	directly driven/ belt-driven
The internal grinding diameter and the grinding depth depend on the component‘s wall thickness and the dresser.	

Other items	
spark-in control	
› spark-in control via power shut-down	standard
› spark-in control via acoustic emission	option
In-process measuring system	option
steady rest	option
automation / loading portal	option
preservation facility etc.	option
laser measurement of the machine in the factory	standard
laser measurement at the customer's	option
maintenance contract	option
spare and wear part package	option
operator training / flanking production support	option

Please do not hesitate to get in touch with us, if you require further information about the specifications.

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Our experts will accompany you on the way from the first inquiry to the after-sales service thus ensuring the daily operations of your machine, so that you will get an optimal grinding machine from us.

- exact agreement of the requirements
- individual offer for a grinding machine
- individual design
- production
- quality assurance
- test grinding
- pre-acceptance of the machine
- delivery & installation
- training & familiarization
- after-sales service

We will be pleased to demonstrate the potential of all our WOTAN® machines at our headquarters in Glauchau, where we also accept grinding jobs for test purposes and on a contract basis.

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