

WEMA GLAUCHAU
BRAND OF THE NSH GROUP

WOTAN® S3I

INTERNAL CYLINDRICAL GRINDING MACHINE

with compact design, flexible and
precise like the ›big ones‹,
for light and small components



WOTAN® S3I INFO



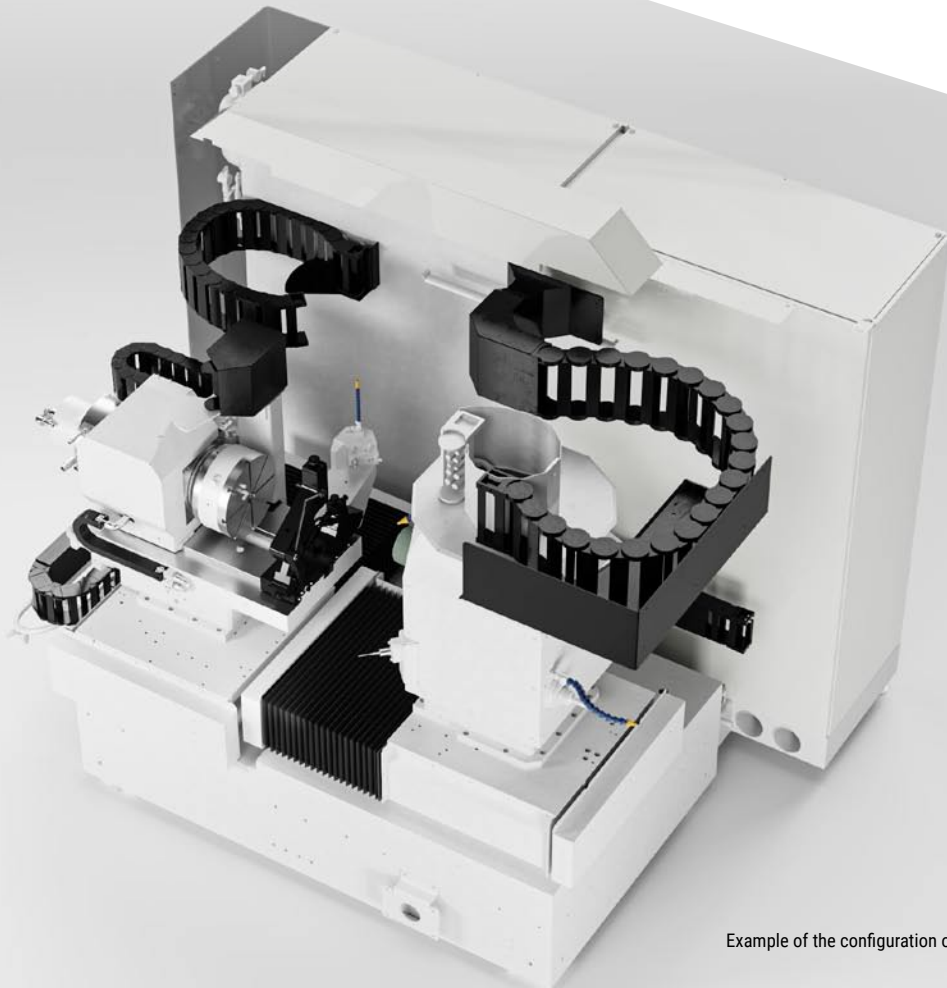
THE NSH GROUP

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The small machine with lots of options...

Internal cylindrical grinding machines of the WOTAN® S3I series are designed for processing small and medium-sized workpieces. The workpiece spindle can hold loads of up to 400 kg. Our flexible machine design enables us to optimize each machine for your specific grinding jobs.

The WOTAN® S3I is suitable for high-precision cylindrical grinding to process internal diameters of chuck parts with a swing diameter of up to 360mm and a workpiece length of 400mm that are clamped on one side only ("flying") without additional support – especially suitable for grinding internal front surfaces as well as internal diameters.



Example of the configuration of a WOTAN® S3I

...for internal cylindrical grinding and much more.

WORKPIECE SPINDLE

On the workpiece side, the WOTAN® S3I is equipped with a manual angle adjustment (with angle measuring system) for cylinder correction. Optionally, the machine can be equipped with a [steplessly swiveling round table](#) (B1 axis) for turning the workpiece spindle. This allows optimum implementation of [taper grinding](#) .

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 grinding](#) operations in various applications on a cylindrical grinding machine.

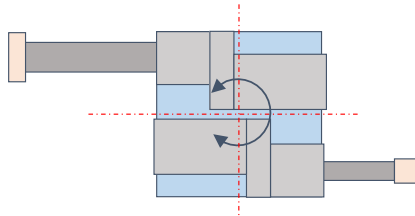
The machine is equipped with a Z-axis and an X-axis (cross table). The internal grinding unit is mounted on these two axes, which are positioned on the right side of the machine bed. With an internal rotary table, up to four grinding spindles – available as belt-driven or motor spindles – can be used, enabling [cost-effective and efficient](#) grinding of components in a [single setup](#).

More flexibility through intuitive WOP™ interface

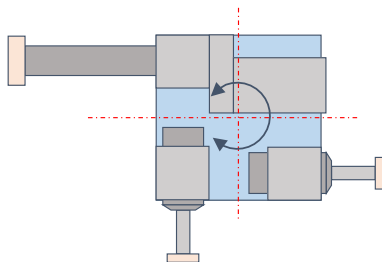
FLEXIBILITY THROUGH SPINDLE TURRETS

The optional equipment of the machine with a **grinding spindle turret** (B2 axis) with up to **4 grinding spindles** can considerably increase both its flexibility and diversity – without exchanging the spindles. It is either **belt-driven grinding spindles** or **high-frequency grinding spindles** that are used for this purpose. Belt-driven spindles can be manually exchanged which increases the variability even more.

EXAMPLE OF THE CONFIGURATION FOR THE B2 AXIS



2 belt-driven spindles



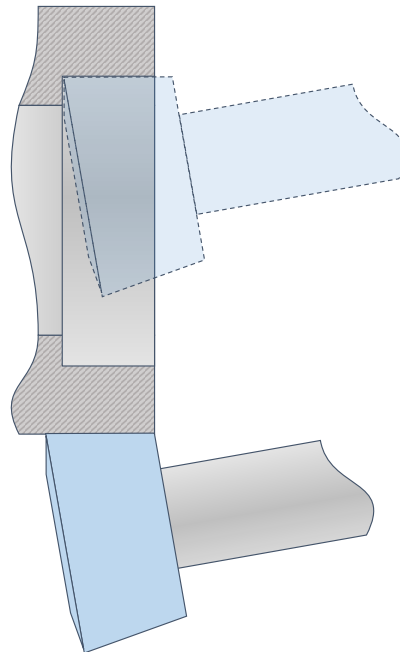
1 belt-driven spindle +
2 high-frequency spindles

EXTERNAL AND PLANE GRINDING IS ALSO POSSIBLE

The machine will also allow the **additional external cylindrical and plane surface grinding** of short seats. In order to do so, a belt-driven grinding spindle equipped with an external and plane grinding wheel (“vector disk”) that is profiled on both sides will be positioned on the grinding spindle turret (B2 axis). A wide range of internal diameters can then be processed with further grinding spindles that are positioned on the grinding spindle turret.

VECTOR DISKS

Allows the grinding of internal front surfaces and internal diameters as well as the grinding of external front faces + external diameters



...parameterize instead of programming

VARIOUS DRESSERS CAN BE SELECTED

The dressing unit can be equipped with **stationary and driven dressing tools**, which will allow working not only with conventional corundum grinding wheels but also with Cubic Boron Nitride (CBN) grinding wheels.

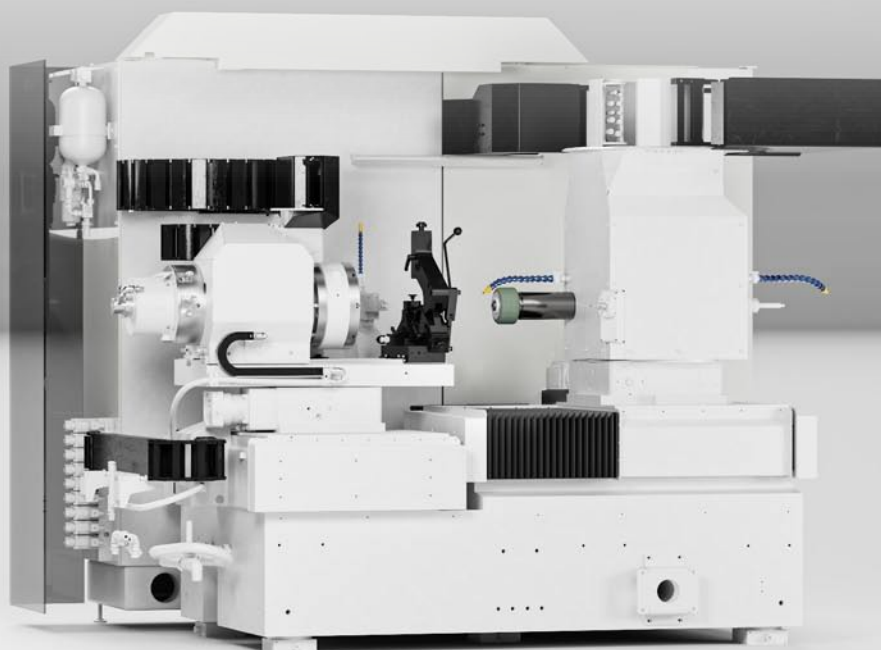
NUMEROUS OPTIONS AVAILABLE

Depending on the grinding job to be performed, we also integrate a spark-in control & incision detection via a fluid sensor system, more measuring equipment, re-tooling systems and much more.

MODERN CONTROL AND EASY USER INTERFACE

The drive package is based on a **SINUMERIK 840 D** control – SOLUTION LINE – from SIEMENS with the latest generation of servo motors.

All machines are equipped with our own, user-friendly **operator interface with workshop oriented programming (WoP-Touch™)**, that allows an uncomplicated, menu-guided **operation of the machine and its programming without CNC knowledge**. All operations necessary for the process allow the continuous handling of the machine, regardless of its operating status. The standard interface of SIEMENS is also available at the same time.



WOTAN® S3I at a glance:

WOTAN® S3I

Dimensions / Weight

machine dimensions without coolant system, etc. (WxDxH)	2680 x 2320 x 2200 mm
machine weight at the installation site with workpiece, etc.	approx. 9000 kg

Work area of the machine

center height	180 mm
max. workpiece diameter	360 mm
max. workpiece diameter with steady rest	200 mm
workpiece weight	400 kg
grinding depth for internal grinding	400 mm
grinding diameter for external/surface grinding	on request
grinding length for external/surface grinding	on request

Workpiece side / workpiece spindle headstock

workpiece spindle	
> belt-driven	standard
> directly driven	option
> with hydrostatic bearing	option
automatic angle adjustment via B1 axis (CNC)	standard
> swiveling range	+90° / -30°
C axis for out of round grinding	option
adjustment of the workpiece spindle headstock in Z-direction	470 mm
option to use steady rests	yes
coolant flow in through the workpiece spindle	option
incision detection/spark-in control via the fluid sensor system when grinding	option

Z-axis (CNC) tool side

guidance system	hydrostatic
driving system	directly driven
axis travel	480 mm
speed	15 m/s
control resolution	0,0001 mm

X-axis (CNC) tool side

guidance system	hydrostatic
driving system	directly driven
axis travel	480 mm
speed	15 m/s
control resolution	0,0001 mm
minimum adjusting increment (on radius)	0,0005 mm

WOTAN® S3I**Grinding unit**

number of possible tools	up to 4
continuously adjustable setting of the spindle speed	standard
processing with Corundum grinding wheels or CBN-grinding wheels	standard
measurement sensor for zero point detection	option
grinding spindle turret	option
› swiveling range	270°
› resolution in the control	0,000 1°
external grinding	option
driving power	customized
automatic balancing system	option

Dressing unit

designed to operate with stationary dressing tools	standard
designed to operate with driven dressing tools	option
spark-in control via acoustics emission (AE) sensors during dressing	option

Measuring instruments

measurement sensor for zero point detection	option
further measuring equipment	on request

Machine control & operation

SIEMENS control SINUMERIK ONE	yes
proprietary operating system WoP-Touch™	yes
option of remote diagnosis	yes
CNC knowledge required to operate the machine	none

Other items

spark-in control	
› spark-in control via power shut-down	standard
› spark-in control via acoustic emission	option
steady rest	option
automation / loading portal	option
laser measurement of the machine in the factory	standard
laser measurement at the customer's	on request
maintenance contract	on request
spare and wear part package	on request
operator training / flanking production support	on request

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



WOTAN®-I
INTERNAL GRINDING



WOTAN®-U
UNIVERSAL GRINDING



WOTAN®-A
EXTERNAL GRINDING



special solutions
CUSTOMIZED PRODUCTS


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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CURRENT INFO
YOU WILL FIND
ON OUR WEBSITE.