



**Internal cylindrical grinding**  
machine for small and medium-  
sized components with flexible  
machine design for a maximum  
of economic viability.

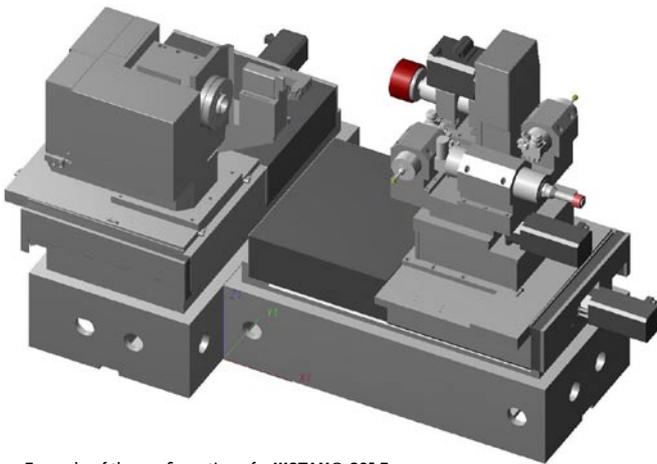


# The small machine with lots of options...

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

The **WOTAN® S3I** in its configuration as **WOTAN® S3I-F** is suitable for high-precision cylindrical grinding to process internal diameters of chuck parts with a **swing diameter of up to 400mm** 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.

As an alternative, the machine can be configured with an **extended work area** as **WOTAN® S3I-L**. This version makes it possible to process shaft-type components with a length of up to 750mm and a diameter of up to 250mm, apart from chuck parts clamped on one side only, for which, due to their geometry, a **steady rest** needs to be added.



Example of the configuration of a **WOTAN® S3I-F**

# ...for internal cylindrical grinding and much more.

## WORKPIECE SPINDLE

On the machining side, both machines are equipped with a manual angle adjustment device (with angle measuring system) for correcting the cylindricity. Alternatively, the machine can also be equipped with a [continuously swiveling round table](#) (B1 axis) for turning the workpiece spindle. This will allow [taper grinding](#) in an accurate way.

## 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.

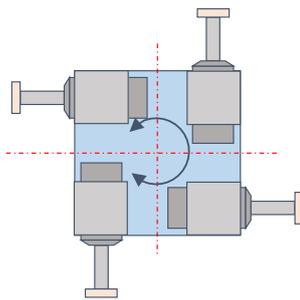
The machine is equipped with a Z axis and an X axis (cross table) on the side of the grinding spindle. The grinding unit is mounted on the cross table (X axis rectangular on the Z axis). This configuration will allow the economical and efficient processing of internal diameters and front surfaces in [one clamping](#).

# Always on the move for you —

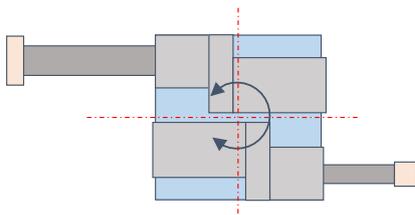
## FLEXIBILITY THROUGH SPINDLE TURRETS

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.

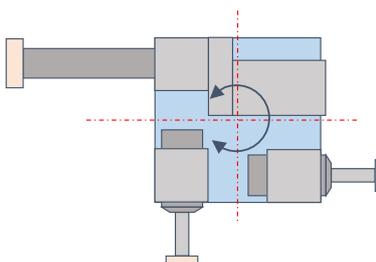
## EXAMPLE OF THE CONFIGURATION FOR THE B2 AXIS



4 high-frequency spindles



2 belt-driven spindles



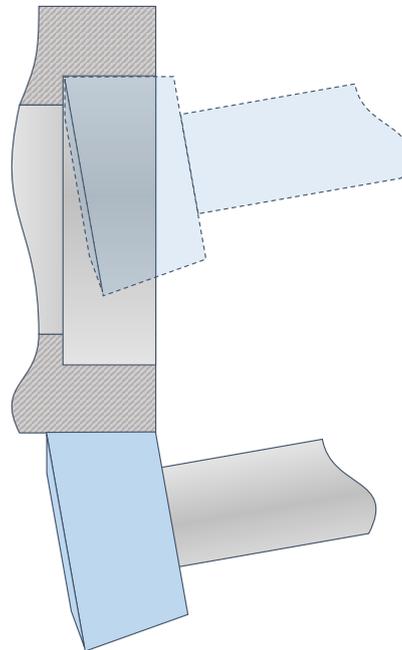
1 belt-driven spindle +  
2 high-frequency spindles

## EXTERNAL AND SURFACE GRINDING IS ALSO POSSIBLE

The machine will also allow the **additional external and surface grinding** of short seats. In order to do so, a belt-driven grinding spindle equipped with an external and surface 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



# Options for more flexibility.

## 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.

## 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)**, 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.

## 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.

## WOTAN® S3I-L

The **WOTAN® S3I-L** offers an extended work area. The entire workpiece spindle headstock will be placed onto a longitudinal guide (L-adjustment) on the side of the workpiece spindle, so that the headstock can be moved towards the Z-direction, which will also allow using a steady rest on the same longitudinal guide.

# WOTAN® S3I at a glance:

	<b>WOTAN® S3I-F</b> (without longitudinal adjustment)	<b>WOTAN® S3I-L</b> (with longitudinal adjustment of the workpiece spindle headstock)
<b>Work area of the machine</b>		
swing diameter/workpiece diameter	mm (max.) 400	400
workpiece diameter in the steady rest	mm (max.) –	250
workpiece length	mm (ca.) 400	750
grinding diameter during internal grinding	mm (max.) 350	350
grinding depth during internal grinding	mm (ca.) 400	500
grinding diameter during external/surface grinding	mm (max.) o.r.	o.r.
grinding length during external/surface grinding	mm (max.) o.r.	o.r.
load-bearing capacity at the spindle head (200 mm from the spindle nose)	kg (max.) 400	400
<b>Workpiece side/workpiece spindle headstock</b>		
workpiece spindle		
› belt-driven	standard	standard
› directly driven	option	option
› with hydrostatic bearing	option	option
manual angle adjustment (with angle measuring system)	standard	standard
› swiveling range	from/to ° +8 / -1	+8 / -1
automatic angle adjustment via B1 axis (CNC)	option	option
› swiveling range	from/to ° +30 / -20	+20 / -10
C axis for out of round grinding	option	option
adjustment of the workpiece spindle headstock in Z-direction	mm (max.) –	1.000
option to use steady rests	no	yes
coolant flow in through the workpiece spindle	option	option
incision detection/spark-in control via the fluid sensor system when grinding	option	option
<b>Dressing unit</b>		
designed to operate with stationary dressing tools	standard	standard
designed to operate with driven dressing tools	option	option
spark-in control via acoustics emission (AE) sensors during dressing	option	option

	<b>WOTAN® S3I-F</b> (without longitudinal adjustment)	<b>WOTAN® S3I-L</b> (with longitudinal adjustment of the workpiece spindle headstock)
<b>Grinding unit</b>		
Z axis (CNC)		
› travel	mm (max.) 1.000	1.000
› resolution	mm 0,0001	0,0001
› minimum adjusting increment	mm 0,001	0,001
› maximum speed	m/min 15	15
X axis (CNC)		
› travel	mm (max.) 300	300
› resolution	mm 0,0001	0,0001
› minimum adjusting increment	mm 0,0005	0,0005
› maximum speed	m/min 15	15
grinding spindle turret (B2 axis)	option	option
stationary grinding spindles with / without grinding spindle turret	max.Pcs. 1 / 4	1 / 4
continuously adjustable setting of the spindle speed	standard	standard
grinding with conventional corundum grinding wheels	standard	standard
grinding with CBN grinding wheels	option	option
<b>Measuring instruments</b>		
measurement sensor for zero point detection	option	option
further measuring equipment	on request	on request
laser measurement of all CNC linear axes (at the WEMA)	yes	yes
<b>Machine control &amp; operation</b>		
SINUMERIK 840 D control SOLUTION LINE from SIEMENS	yes	yes
proprietary operating system WOP Glauchau®	yes	yes
option of remote diagnosis	yes	yes
CNC knowledge required to operate the machine	none	none
<b>Automatic re-tooling system</b>		
for grinding tools, measurement sensors etc.	option	option
<b>Other items</b>		
maintenance contract	on request	on request
spare & wear part package	on request	on request
operator training/flanking production support/etc.	on request	on request



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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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