

# BSD

UNIVERSAL CYLINDRICAL GRINDING MACHINE

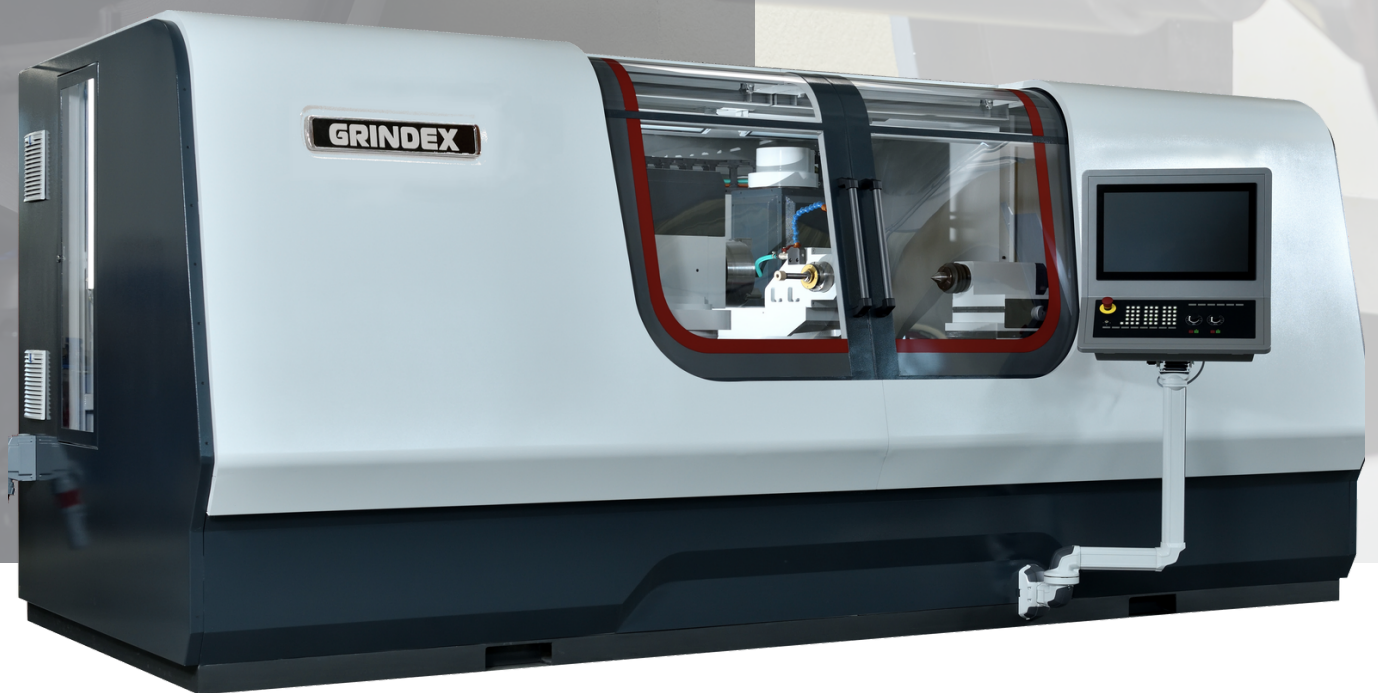
BSD 700

BSD 1000

BSD 1600

BSD 2500

BSD 3000



**GRINDEX**



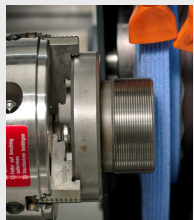
## UNIVERSAL WORKHEAD

- Live and dead center base
- Speed range 0,1-450 RPM
- Roundness accuracy 0,5  $\mu\text{m}$



## DISTANCE BETWEEN CENTERS

- 700/1000/1600/2500/3000 mm



## LOAD

- between centers 500 kg
- chucked 150 kg



## TAILSTOCK

- Morse taper 5
- Retraction of sleeve 40 mm
- Micro-adjustment  $\pm 0,125$  mm



## MACHINE BED

Machine bed made of grey cast iron. Very massive, solid, specially ribbed, naturally aged ensures thermal stability for a long life and complete stability of the process. Flat and "V" guideways hand scraped and coated with antifricition material to ensure continuous movement, high accuracy, positioning and repeatability.

## TABLE/SLIDE

X- and Z- slides driven by ball screw spindles and AC servo motors. High resolution linear scales to control the position of X- and Z- axes. Swiveling possibility with the workhead, upper table and wheel slide.

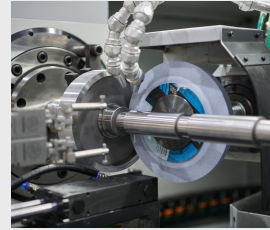


## CNC OR NC CONTROLLER

User friendly, with flexible programming options and graphical interface. Availability of input data for analysis and process improvement.

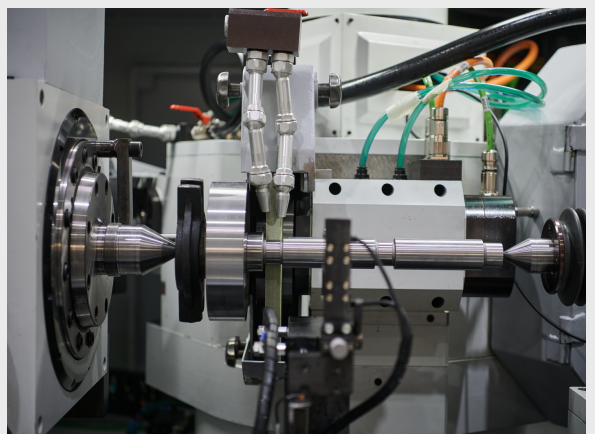
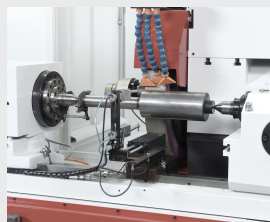
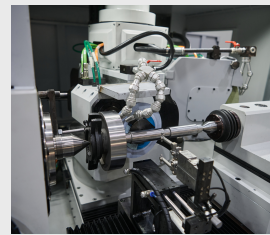
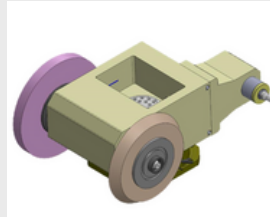
Ergonomic control panel, with touch screen, standard keyboard, USB ports.

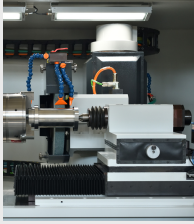
Thin Client Operator Panel 22", widescreen TFT display, capacitive touch sensor. Supported protocols: RDP, VNC, Smart Server, HTML5, etc., neutral design, Built-in unit. Alpha numeric key-board and command panel MCP 398C + EM. Protection class IP65 (Front side). Hand terminal with 10" multi-touch display (Screen ratio 16:10). System set-up through Dialogs and Menu, NC programming not required.



## WHEELHEAD

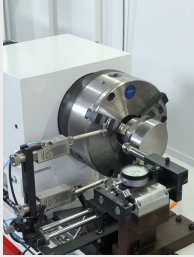
- Grinding head for external cylindrical, internal cylindrical, taper, face and complex profile grinding
- HF internal grinding spindle
- Wheel spindle can be left or right, or fixed for a specific angle. Automatic dynamic system for balancing
- Combination of grinding spindles for external, internal, taper, face, complex profile grinding. Up to four grinding wheels.
- Max. wheel diameter  $\varnothing 750 \times 160 \times \varnothing 305$  mm
- Continuous indexing function on wheelhead
- Thermal stability - water cooled motor and optimized permanently lubricated bearings





## TAILSTOCK

- CNC W-axis for precise axial positioning and quick set up



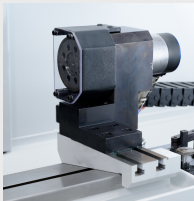
## WORKHEAD

- C-axis rotation control
- Hydrodynamic bearing
- Hydrostatic bearings
- Pneumatic or hydraulic clamping
- Custom tooling for clamping



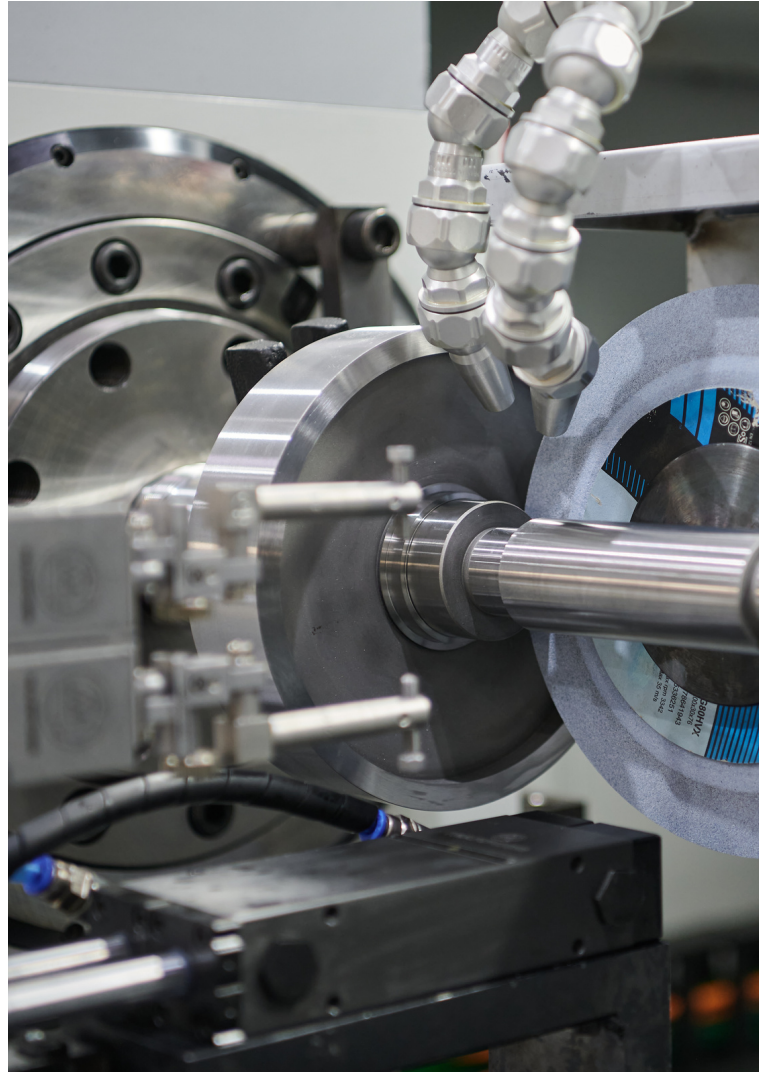
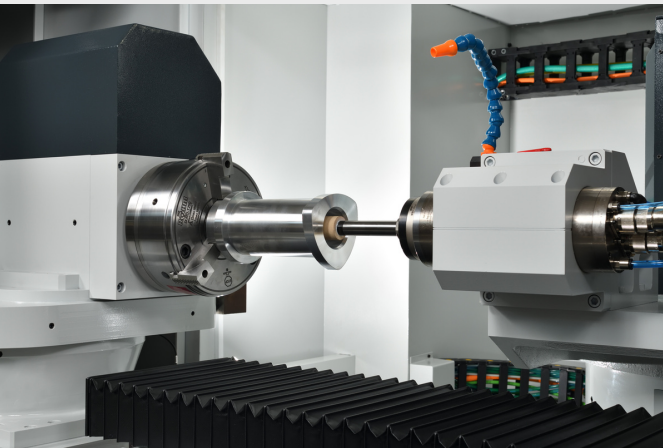
## WHEELHEAD

- Hydrodynamic, hydrostatic, hybrid ceramic bearing
- Turret wheel head (B-axis)
- Ceramic, CBN, Diamond grinding wheel



## WHEEL DRESSING

- Single point diamond
- Diamond roll/disc
- CNC wheel dresser

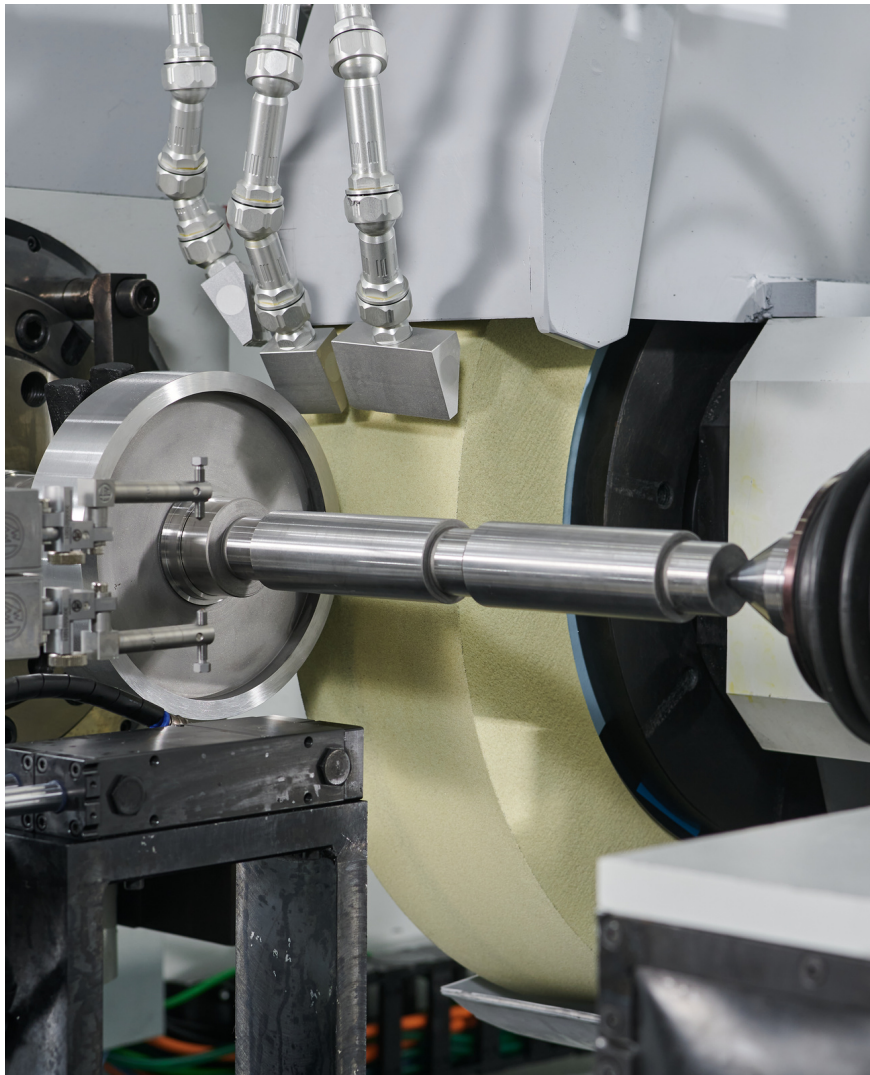


## C AXIS

The option for non-round applications. Interpolating the transverse X- and part rotation C-axes provides possibility to grind non-round applications such as polygons or eccentric forms.

## FLEXIBILITY

Combination of accuracy, process stability and flexibility. Suitable for single, prototype, small batch or fully automated production. Retooling time is minimized with only few maneuvers. With addition of internal grinding head it is possible to grind OD, ID and face in single set up.

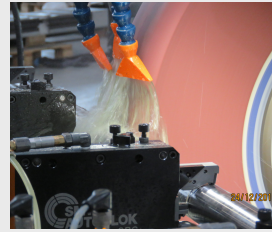


## IN-PROCESS DIAMETER GAUGING SYSTEM

The system of measuring in-time significantly improve cycle time, keep the dimensional and geometrical process stability within very narrow tolerance ranges. The machine collects data in real time so it has possibility to correct even smallest deviation immediately.

## AUTOMATIC WORKPIECE LOADING/UNLOADING SYSTEM

Requirements of completely automated processes are fulfilled with the incorporation of customised Grindex automatic loading systems e.g. integrated gantry or robot solutions or custom tailored systems. Grindex offers both internal and external loading systems.



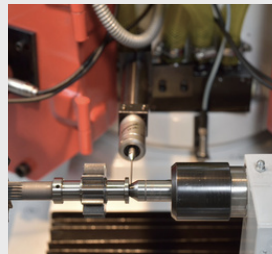
## STEADY REST

- Fine adjustment grinding steady rest ideal for follow down grinding
- Self-centering steady rest
- Commercial and Grindex steady rest



## CLAMPING SYSTEM

- Between centers
- Chuck clamping
- Face driver
- Power actuated clamping system
- Collet chuck
- Custom tooling



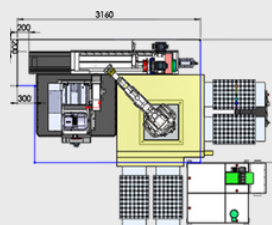
## GAUGING AND CONTROL

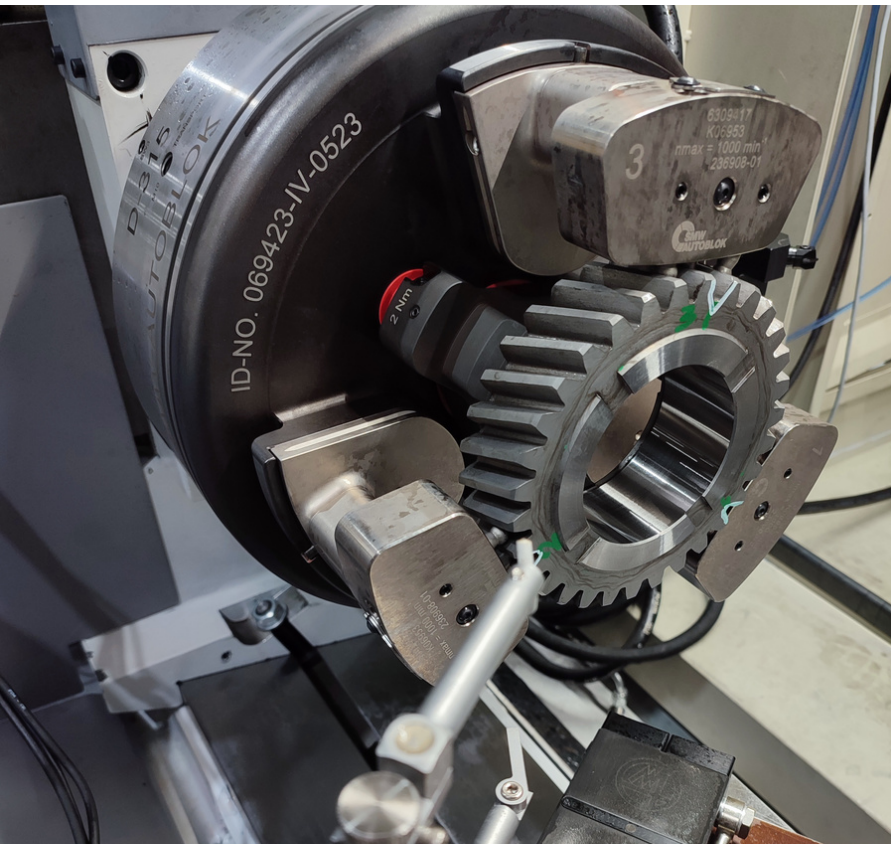
- In-process and post-process gauging system
- Touch probe for workpiece axial positioning
- Gap-crash - gap, crash, dressing and position control for grinding wheel



## AUTOMATION SYSTEM

- Robot
- Gantry loader

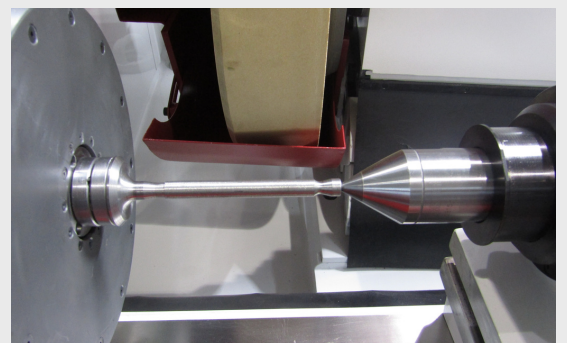
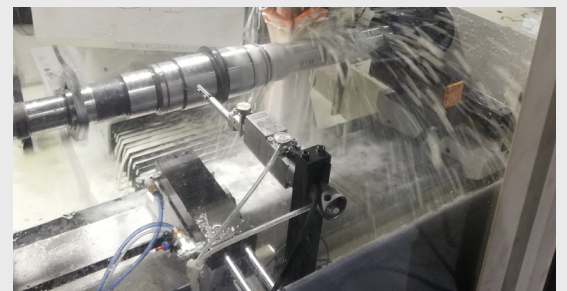
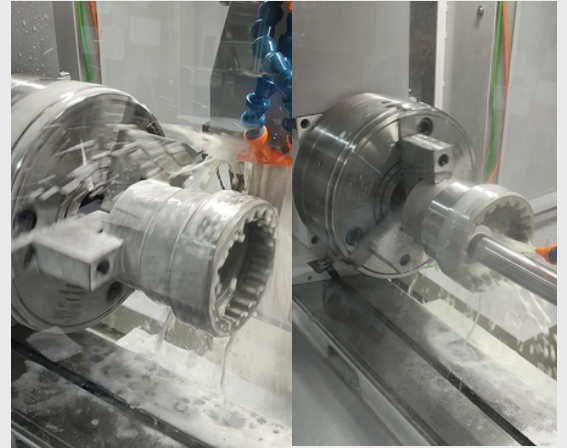




## TECHNOLOGICAL EXPERTISE

We strive to talk to the customer. Our engineers and technicians cooperate with customer in order to supply perfect machine. Grindex provides technological expertise with flow of operations, grinding and dressing method, chuck system proposal, control/gauging system proposal, automation system proposal etc. with priority to reduce cycle time and achieve the best possible workpiece quality.

## MACHINING EXAMPLES



# TECHNICAL DATA

<b>Main data</b>	
· Distance between centers	700/1000/1600/2500/3000 mm
· Center height	175/225/275/400 mm
· Max. workpiece diameter	Ø800 mm
· Max. workpiece weight (between centers/chuck)	500/150 kg
<b>Wheelslide X-axis</b>	
· Travel	220/430/460 mm
· Max. speed	up to 10000 mm/min
· Resolution	0,0001 mm
<b>Work table Z-axis</b>	
· Travel	780/1150/1750/2650/3150 mm
· Max. speed	up to 10000 mm/min
· Resolution	0,0001 mm
<b>Wheelhead</b>	
· Motor power	11 kW
· Periphearal speed	50 m/s
· Max. grinding wheel dimensions	ø600 (750)x160xø305 mm
<b>B-axis</b>	
· Swivel range	-30° /+210 °
· Resolution	1"
· Max. speed	3 600 °/min
<b>Internal grinding attachment</b>	
· ID range	Ø3 - Ø200 mm
<b>Workhead</b>	
· Rotation speed	40-450 / 0,1-450 rpm
· Motor power	1,5 / 3,4 kW
· Interface	A6DIN 55026/MT5
· C-axis resolution	20"
<b>Tailstock</b>	
· Fitting taper	MT5
· Micro adjustment	± 0,125 mm
· Controller	Siemens Sinumerik One, Siemens Simatic, NUM

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