

Machine portfolio

# PRECISION WITHOUT COMPROMISE

High-precision grinding machines  
on granite and cast iron base



# THE MATERIAL FOR ETERNITY

## Experts for precision

For more than 25 years, we have specialized in the manufacture of precision surface and profile grinding machines based on granite and cast iron. Our core competence includes the design of standardized surface and profile grinding machines as well as the design of high-precision special machines. As a family-run company from Herborn (Germany), we have been active in the grinding machine industry since 1979. Initially, the focus was on trading, overhauling and servicing grinding machines, before Stöckel built its first own granite-based grinding machines at the end of the 1990s.

Since then, the machines made of natural stone have not only impressed with their outstanding thermal properties, but also with the special long-term accuracy that comes with the stress-free material.

On the following pages you will find an overview of our current range of machines. We are also happy to work with you to develop machines for special applications.



## SURFACE AND PROFILE GRINDING MACHINES



# FD

The STÖCKEL FD is a high-precision portal grinding machine with optimum space utilization. All main machine base elements are made of natural stone. With granite as a material, we achieve very good damping properties, high temperature stability and the best possible long-term accuracy. The gantry design guarantees maximum removal rates thanks to its rigidity.

V-flat-slideways, linear guides or hydrostatic guides can be used as guide elements in the machine. As standard, the axis drives are electro-mechanical in the vertical and transverse axes and toothed belt or linear motor in the table axis.

*The FD in a small design  
(800 mm × 400 mm)*



## Specifications

In principle, the FD series can be designed according to your requirements and is ideal for special applications. The grinding lengths of the basic machines range from 800 mm to 6000 mm, while grinding widths of up to 1500 mm are possible.



*The FD with a grinding length of 6000 mm*



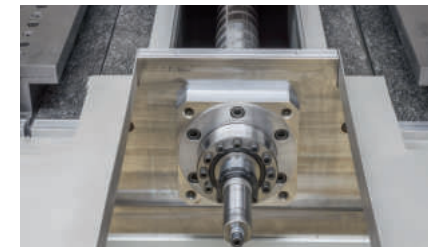
**Granite** - the material of choice for high precision. All guideways are lapped by hand and guarantee lasting accuracy.



**V-flat guide** in combination with toothed belt drive for high accuracy and low temperature influences.



**Linear guides in conjunction with linear motors** for high accelerations and speeds as well as for creep feed operations.



**Hydrostatic guideways and lead screws** operate almost wear and friction-free with positioning accuracies and backlash in the range of 0.1 µm.

## SURFACE AND PROFILE GRINDING MACHINES



# FSX

The Stöckel FSX is a surface and profile grinding machine developed according to the latest technical criteria for processing your workpieces in the high-precision range. The basis for the high precision of the machine is the machine bed and the cross table made of granite. The machine concept with moving cross table ensures maximum contour accuracy, especially when dressing profiles.

The consistent design with hand-lapped hydrostatic guides in all axles results in high rigidity with optimum damping. All main axles are also driven by hydrostatic screw drives with hydrostatic bearings.

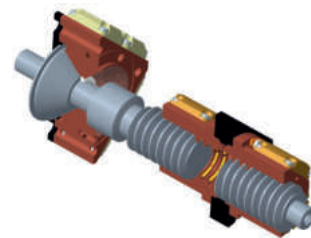
The axes can therefore position in the range of  $0.1\ \mu\text{m}$  without the influence of the stick-slip effect. At the same time, the machine achieves a high level of rigidity, which guarantees high productivity, especially when grinding creep feed operations. By using a hydrostatic grinding spindle, mirror-like surfaces can also be produced, depending on the material.

This uncompromising technical equipment makes the FSX our flagship in high-precision.

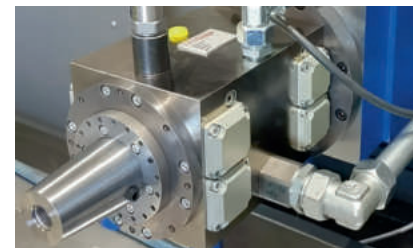


**Granite for maximum precision**

– The machine is based on a machine bed made of natural granite hard stone. This machine bed is used to hold the cross support, which is guided on the granite bed by hydrostatic guides for the cross movement.



**Hydrostatic axes** – By connecting the hydrostatic guide elements with the hydrostatic screw drives, positioning accuracies and backlash in the range of  $0.1\ \mu\text{m}$  are achieved.



**Optimum concentricity** – The heart of the hydrostatic equipment is the grinding spindle, which rotates in an oil bath in the spindle housing. The spindle unit is therefore subject to virtually no wear and enables mirror-like surfaces.



**Dressing technology** – The heart of the hydrostatic equipment is the grinding spindle, which rotates in an oil bath in the spindle housing. The spindle unit is therefore subject to virtually no wear and enables mirror-like surfaces.

## SURFACE AND PROFILE GRINDING MACHINES



# FNX

**The grinding machines in the FNX series impress with their excellent price-performance ratio. The torsion-resistant cast iron design guarantees optimum precision even at high removal rates. The longitudinal and transverse axes are arranged as a cross table under the grinding wheel and ensure additional machine rigidity with maximum space utilization.**

In the basic version, the table axis is driven by a toothed belt. However, an alternative drive for slow table speeds is also available in the form of a ball screw drive. All machines are equipped with ball screw drives and linear guides in the vertical and cross axes. This results in virtually backlash-free positioning of the axes.

Type	Grinding area l × w × h (mm)	Drive power (kW)	Grinding wheel (mm)
FNX 520	500 × 200 × 400	4	300 × 30 × 76.2
FNX 640	600 × 400 × 500	7.5	300 × 50 × 76.2
FNX 850	800 × 500 × 480	11	400 × 100 × 127

### Standard accessories

Leveling elements

Full encapsulation of the work area

Speed control of the grinding spindle

Magnetic plate with adhesive force control  
and Demagnetization

Glass scale in the vertical axis

Grinding wheel holder and grinding wheel

LED machine lights

Documentation in German or English

### Special accessories

Filter units

Dressing systems

Balancing technology

Mist extraction  
systems



## SURFACE AND PROFILE GRINDING MACHINES



# FNL

**The FNL is our cast iron-based machine for somewhat larger workpieces. The classic column design guarantees good stability for economical manufacturing with grinding widths of up to 600 mm.**

Similar to the small series, the table axis is driven by a toothed belt and guided by V-flat slideways. The heat-free and virtually maintenance-free drive eliminates the need for a heat source underneath the machine table, which can lead to a loss of precision. The machine is equipped with ball screws and linear guides in the cross and vertical axes. The flexibly selectable equipment makes the machine economically interesting for changing surface and profile grinding tasks in tool and machine manufacturing.

Type	Grinding area l × w × h (mm)	Drive power (kW)	Grinding wheel (mm)
FNL 1060	1000 × 600 × 520	11	400 × 100 × 127
FNL 1260	1200 × 600 × 520	11	400 × 100 × 127
FNL 1560	1500 × 600 × 520	11	400 × 100 × 127

### Standard accessories

Leveling elements

Full encapsulation of the work area

Speed control of the grinding spindle

Magnetic plate with adhesive force control  
and Demagnetization

Glass scale in the vertical axis

Grinding wheel holder and grinding wheel

LED machine lights

Documentation in German or English

### Special accessories

Filter units

Dressing systems

Balancing technology

Mist extraction  
systems

## SURFACE AND PROFILE GRINDING MACHINES



# FR

When it comes to surface grinding ring- or disc-shaped parts, this can only be achieved with the highest precision on a rotary table machine. Our FR series offers an economical solution for this task. The extremely stable cast iron design of the machine bed is the basis for high stock removal rates and precise machining at the same time.

Further equipment packages such as folding dressers, filter systems, balancing systems etc. can be selected or retrofitted in addition to the basic equipment. The machine is equipped with the modern NC-T control system and is available in table sizes from Ø 450 mm to Ø 1200 mm. A special feature of the FR is the inclination-adjustable rotary table, with which the machine geometry can be precisely adapted to the grinding task.

Type	Grinding area l × w × h (mm)	Drive power (kW)	Grinding wheel (mm)
FR 450	450 × 370	5.5	300 × 50 × 76.2
FR 600	600 × 250	11	400 × 50 × 127
FR 800	800 × 360	11	400 × 50 × 127
FR 1000	1000 × 450	15	500 × 50 × 203.2
FR 1200	1200 × 450	15	500 × 50 × 203.2



### Standard accessories

- Leveling elements
- Full encapsulation of the work area
- Speed control of the grinding spindle
- Magnetic plate with adhesive force control and Demagnetization
- Glass scale in the vertical axis
- Grinding wheel holder and grinding wheel
- LED machine lights
- Documentation in German or English

### Special accessories

- Filter units
- Dressing systems
- Balancing technology
- Mist extraction systems

## SURFACE AND PROFILE GRINDING MACHINES

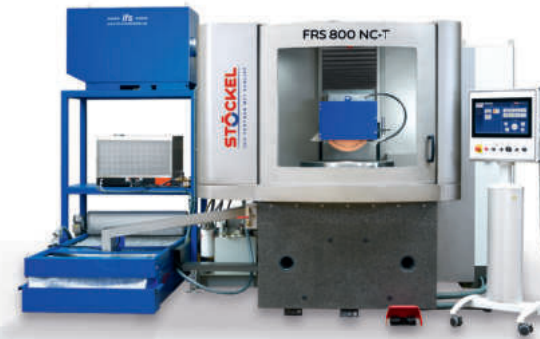


# FRS

When maximum precision is required for rotary table grinding, the FRS pulls out all the stops. The granite machine structure favors consistent and precise machining results throughout the day.

In the rotary table axis, the machine is equipped with a hydrostatic rotary table which reduces the influences of this axis to a minimum with radial and axial run-outs of less than one micrometer. Despite this uncompromising design, the machine can be adapted to special applications and can be equipped according to your requirements.

Type	Grinding area l × w × h (mm)	Drive power (kW)	Grinding wheel (mm)
FRS 800	800 × 500	11	400 × 100 × 127
FRS 1000	1000 × 500	11	400 × 100 × 127
FRS 1200	1200 × 500	11	400 × 100 × 127



*The FRS can be flexibly equipped with various accessories according to the customer's requirements.*

### Standard accessories

- Leveling elements
- Full encapsulation of the work area
- Speed control of the grinding spindle
- Magnetic plate with adhesive force control and Demagnetization
- Glass scale in the vertical axis
- Grinding wheel holder and grinding wheel
- LED machine lights
- Documentation in German or English

### Special accessories

- Filter units
- Dressing systems
- Balancing technology
- Mist extraction systems



# NC-T

**The Stöckel NC-T is the “all-rounder” of our machine control systems. It enables both the manual processing of complex individual parts and economical series production. A large touch display ensures ease of operation. All grinding operations and menus are displayed graphically, making the control system easy to learn.**

The design of the control system allows the operator to intervene in the ongoing grinding process at any time, for example to change grinding parameters during operation, to adjust individual axes using the electric handwheel or to trigger manual intermediate dressing. In addition to these options, which are familiar from conventional control systems, the Stöckel NC-T is also impressive in series production: functions such as the automatic triggering of dressing processes or the optional linking of grinding operations and subsequent saving as a program are integrated into the control system.



# CNC

**The CNC control system based on Siemens Sinumerik ONE is the all-rounder among machine control systems when it comes to the user interface. The operator is guided through the graphically supported menu in a dialog.**

The workpiece and process data are entered via the LCD flat screen. If required, geometry data can be partially entered using the teach-in method or via the keyboard. Special programming knowledge in ISO code is not necessary.

As an option, the control unit can be supplied with grinding cycles for interpolation in the table axis. This is particularly interesting if hollow, crowned or angled grinding is required in the micrometer range. The control also supports the integration of automation systems, touch probes and additional axes, making 4- or 5-axis machining possible.

# SERVICE



Our core competence includes the proven Stöckel service: we carry out maintenance, mechanical and electrical repairs as well as training on site. On request, we can also offer you maintenance contracts tailored to your needs. In this way, we ensure a smooth production process in your company. Our service is shared by all employees from the technical departments at Stöckel. This enables us to quickly dispatch qualified service technicians, especially in the event of machine downtimes.

---

E-mail [service@stoeckel.de](mailto:service@stoeckel.de)

---

Telephone

---

Mechanical service +49 27 72 / 94 00 - 39

---

Electrical service +49 27 72 / 94 00 - 40

---

Head office +49 27 72 / 94 00 - 0

---

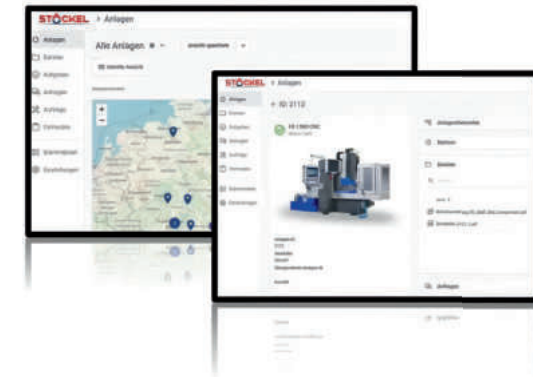


## VIDEO SERVICE

In many cases, you can also make use of our innovative video service. We support you directly at the machine via your smartphone or tablet. Our technicians see what you see on the machine and can therefore help you very effectively. In addition, you save travel time and costs and your machine is ready for use again more quickly.

## REMOTE SERVICE FOR MACHINE CONTROL

Our remote maintenance solutions are also suitable for quick fault diagnosis, allowing us to access the machine control system online. The connection is enabled via a key switch, so you always retain full control. If the machine is not integrated into the company network, connection is also possible via a Wi-Fi hotspot.



## OUR ONLINE CUSTOMER PORTAL

The Stöckel service concept is rounded off by our "SPARK" customer portal. Here you will find the digital life cycle file for your machine and have access to all operating instructions and service reports at any time. You can easily send us current service requests directly via the QR code on the machine. Alternatively, you can access it via our website.

---

Digital life cycle file of the machine

---

Access to all documents and instructions

---

Simply submit service requests online

---

and much more

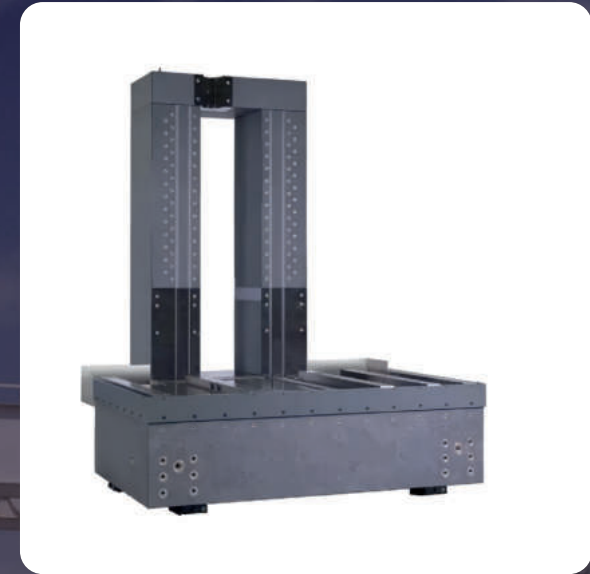
# 5 REASONS FOR THE USE OF GRANITE IN SURFACE GRINDING MACHINES



## #1 THERMAL PROPERTIES

The low coefficient of linear expansion of granite is particularly favorable in thermal terms. In fact, the rock expands only about half as much as steel and gray cast iron when the temperature rises.

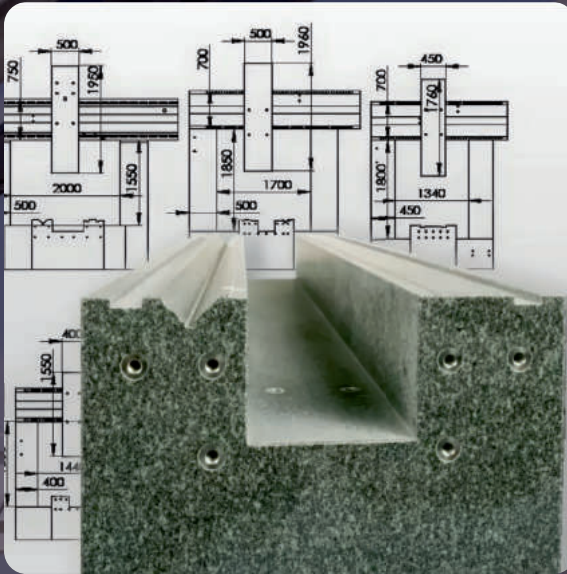
However, the thermal conductivity of granite, which is only around  $1/10$  of the value of the aforementioned metallic design materials, is at least as advantageous for the design of precise grinding machines. This makes granite-based machines extremely stable against short-term external temperature changes and thus leads directly to more precise grinding results over a longer period of time.



## #2 DAMPING

The special damping properties of granite are advantageous in the design of high-precision processing machines. The material damping of this stone is approx. 10 times higher than that of the commonly used steel and cast materials. In the operation of a grinding machine, this damping of vibrations manifests itself above all in higher achievable surface quality and lower tool wear.

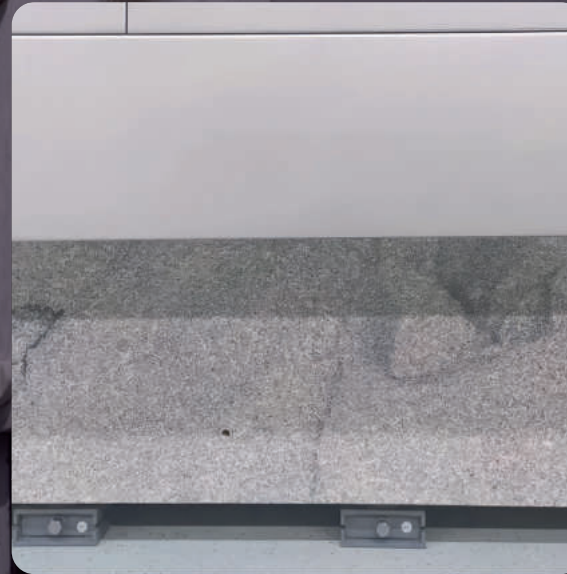
With granite as the base material, we literally lay the foundation for the high precision of our machines.



### #3 DESIGN FREEDOM

When designing our machines, we are not tied to existing casting models, but can adapt each machine individually to its intended use if required. This means that even one-offs and special machines can be produced economically.

Granite also shows its advantages over most design metals when it comes to manual processing: By manually lapping guiding and fitting surfaces, flatness and straightness can be produced with micrometer precision, which in turn form the perfect prerequisite for our precision machines.



### #4 LOW RESIDUAL STRESS

Ideally, a grinding machine should maintain its accuracy over many years. What could be a better basis for this than a machine bed that has virtually no residual stress? Unlike the casting or welding of classic machine beds, the production of a granite bed does not create any stresses in the material that have to be relieved over the years. The rock has already aged in the earth's crust over millions of years, during which time the material stresses have been relieved.



### #5 SUSTAINABILITY

The amount of energy required to manufacture our Grainit machines is many times lower than that of conventional design materials. With cast iron and steel materials, a huge volume has to be extracted in mines and then processed into the end product in several temperature-intensive processes.

The finished machine bed is also not susceptible to corrosion, which makes our granite machines with standard stainless steel cover very durable machines that maintain their precision even after years of use.

**STÖCKEL**

IHR PARTNER MIT SCHLIFF

Herborner Strasse 47  
D-35745 Herborn

Phone +49 27 72 / 94 00-0  
E-mail [info@stoeckel.de](mailto:info@stoeckel.de)

[www.stoeckel.de](http://www.stoeckel.de)