



# S12

The Efficient  
for the highest tolerances.

*The Art of Grinding.*



# Advantages

## S12 – Dimensions

- Distance between centres 150 mm (5.9")
- Height of centres 175 mm (6.9")
- Grinding wheel diameter 500 mm (20")

## Hardware

- Granitan® mineral-casting S103 machine base
- X axis configuration 0 deg or 30 deg
- Cross-slide X: hydrostatic with linear motors or anti-friction guideways with ball screws
- Longitudinal slide Z: hydrostatic with linear motors or guides with patented surface integrity and ball screws
- C axis for the workhead
- Internal grinding unit with own cross slide
- Simultaneous internal/external machine possible
- Application-specific workhead concepts (hydrostatic, motor spindle)
- Additional NC axis for profiling the grinding wheel

- Full enclosure with new door concept for optimum accessibility
- Extensive range of accessories

## Software

- Extremely easy programming with StuderWIN on a Siemens 840D/Fanuc 310i-A
- StuderGRIND programming software for producing grinding and dressing programs on a PC
- Standardized interfaces for loader and peripheral devices

# S12



The S12 production external cylindrical grinding machine is designed in a logically consistent manner for efficient series production. Highly dynamic axis drives with linear motor technology, short response times, short travels and fast integrated loading systems make the S12 the new standard for precision and productivity. This is further helped by the high-speed grinding (HSG) option with circumferential speeds of up to 140 m/s.

The X and Z axes are mounted in the form of cross slides, with the longitudinal table firmly bolted to the machine. This cross slide system has proven itself over the years for the machining of small components. With a layout of just 4 square metres, it is extremely compact and accessible.

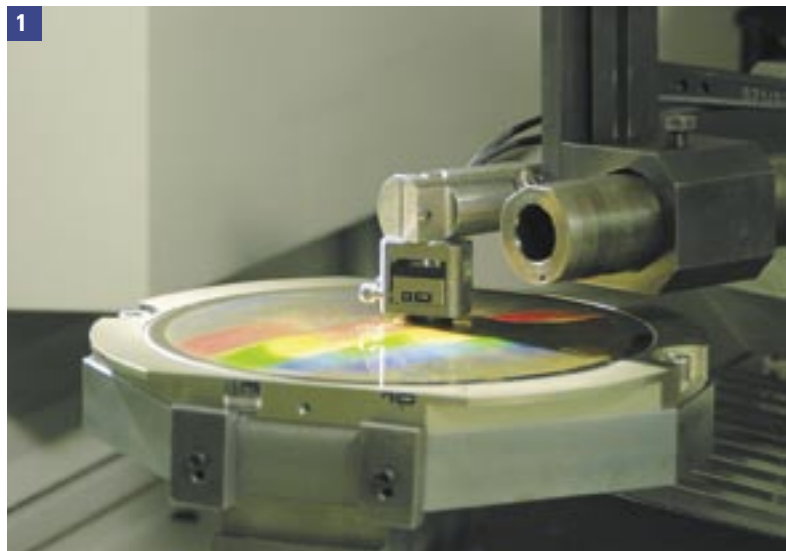
## The Efficient for the highest tolerances.

### Precision

Precision is the result of perfect interaction between a large number of different factors. The base is the Granitan® S103 machine bed with its excellent damping characteristics and favourable thermal behaviour. The modules are ideally suited to each other and produced with customary Studer precision. The large distance between the guideways and the very rigidly constructed slides form the basis for the precision and productivity of this machine. All the components that determine precision are temperature-stabilised.

### Dynamics

The patented hydrostatic guide system magnetically pretensioned via linear motors ensures the very highest dynamics and precision throughout the entire life cycle of the grinding machine. The combination of linear motors and hydrostatic guides permits axis movements of 30 m/min and resolutions of 0.01 µm. The X and Z axes can be fitted with ball screws as an option.



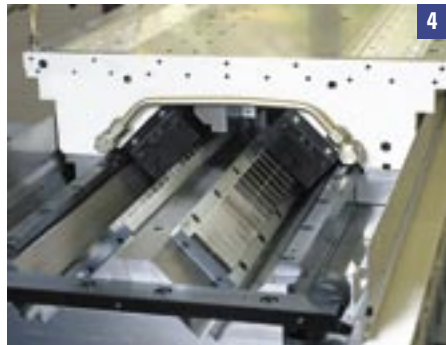


- 1 | Measures
- 2 | Large service doors
- 3 | Simultaneous machining
- 4 | Linear motors on X and Z
- 5 | Control

2



3



4



5

## Flexibility and maintaining value

The S12 is built precisely according to the customer's needs in a modular design. This results in a tailor-made machine with high quality components, such as:

- diverse dressing concepts
- additional NC axis for profiling the grinding wheel
- internal grinding spindle on a separate cross slide with arbor deflection compensation
- integrated loading unit, loading cells
- diverse in-process gauging, sensor technology

The most varied modules can be fitted and retrofitted within the life cycle of the product. The high wear resistance of the guides and drives guarantee that the value of the machine is maintained, thus protecting the initial investment.

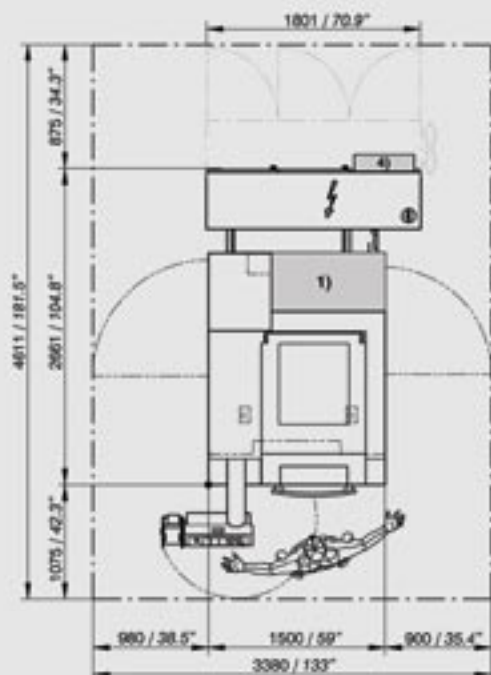
## Accessibility

The S12 is a very compact design, with a layout of just 4 square metres. Despite this, accessibility is guaranteed at all times. The wide lifting door provides optimum access to the working area. Large service doors on the left and right make the user's work easier and offer optimum possibilities for the adaptation of automated loading systems. The control cabinet can be moved back like a drawer for maintenance purposes. The pneumatics and hydraulic units are integrated into the machine in a vibration and thermally decoupled manner.

## StuderWIN / StuderGRIND

StuderWIN and StuderGRIND ensure reliable programming and efficient use of the machine. A PC is integrated into the CNC control. The possibility of fully integrating the in-process gauging and sensor technology for process monitoring as well as contact detection and automatic balancing systems in the Windows control enable standardised programming of the different systems. The software for an internal loading system is also integrated in the control. The Siemens 840D can control up to 8 axes. The driver elements are optimally adapted to the control.

Main dimensions	
Distance between centres	150 mm (5.9")
Grinding length	150 mm (5.9")
Centre height	175 mm (6.9")
Max. workpiece weight	30 kg (66 lbs)
Cross slide (X)	
Max. travel	300 mm (11.8")
Speed	0,001–30000 mm/min (0.000,04–1181 ipm)
Resolution	0,00001 mm (0.000,000,4")
Longitudinal slide (Z)	
Max. travel	350 mm (13.8")
Speed	0,001–30000 mm/min (0.000,04–1181 ipm)
Resolution	0,00001 mm (0.000,000,4")
Wheelhead	
Plunge angle	0 deg or 30 deg
Drive power	7,5/12,5 kW (10/16.7 hp)
Grinding wheel right	Ø 500 x 80 x 203 mm (20" x 3.15" x 8")
Internal grinding	High-frequency spindle dia. 100 mm (3.94")
Optional high-speed grinding	
Drive power	10,5 kW (14 hp)
Circumferential speed	up to 140 m/s (27552 sfpm)
Workhead spectrum	
Speed range	1–3000 rpm
Drive power	1–3 kW (1.3–4 hp)
Roundness accuracy MK4	< 0,0004 mm (0.000,016")
Optional	< 0,0002 mm (0.000,08")
C axis for form grinding	0,0001 deg
Tailstock	
Fitting taper	MK3 (MK4)
Travel of barrel	35 mm (1.37") [60 mm (2.3")]
Barrel diameter	50 mm (1.97")
Fine adjustment	± 40 µm (0.0016")
Control unit	
Siemens 840D / Fanuc 310i-A	
Connected loads	
Total connected loads	28 kVA
Air pressure	5,5 bar (80 psi)
Total weight	6300 kg (13860 lbs)



The information given is based on the technical levels of our machine at the time of this brochure going to print. We reserve the right to further develop our machines technically and make design modifications. This means that the dimensions, weights, colours, etc. of the machines supplied can differ. The diverse application possibilities of our machines depend on the technical equipment specifically requested by our customers. The equipment specifically agreed with the customer is therefore exclusively definitive for the equipping of the machines, and not any general data, information or illustrations.



KÖRBER  
SCHLEIFRING

Fritz Studer AG  
CH-3602 Thun  
Telephone +41-33-439 11 11  
Fax +41-33-439 11 12



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certified

