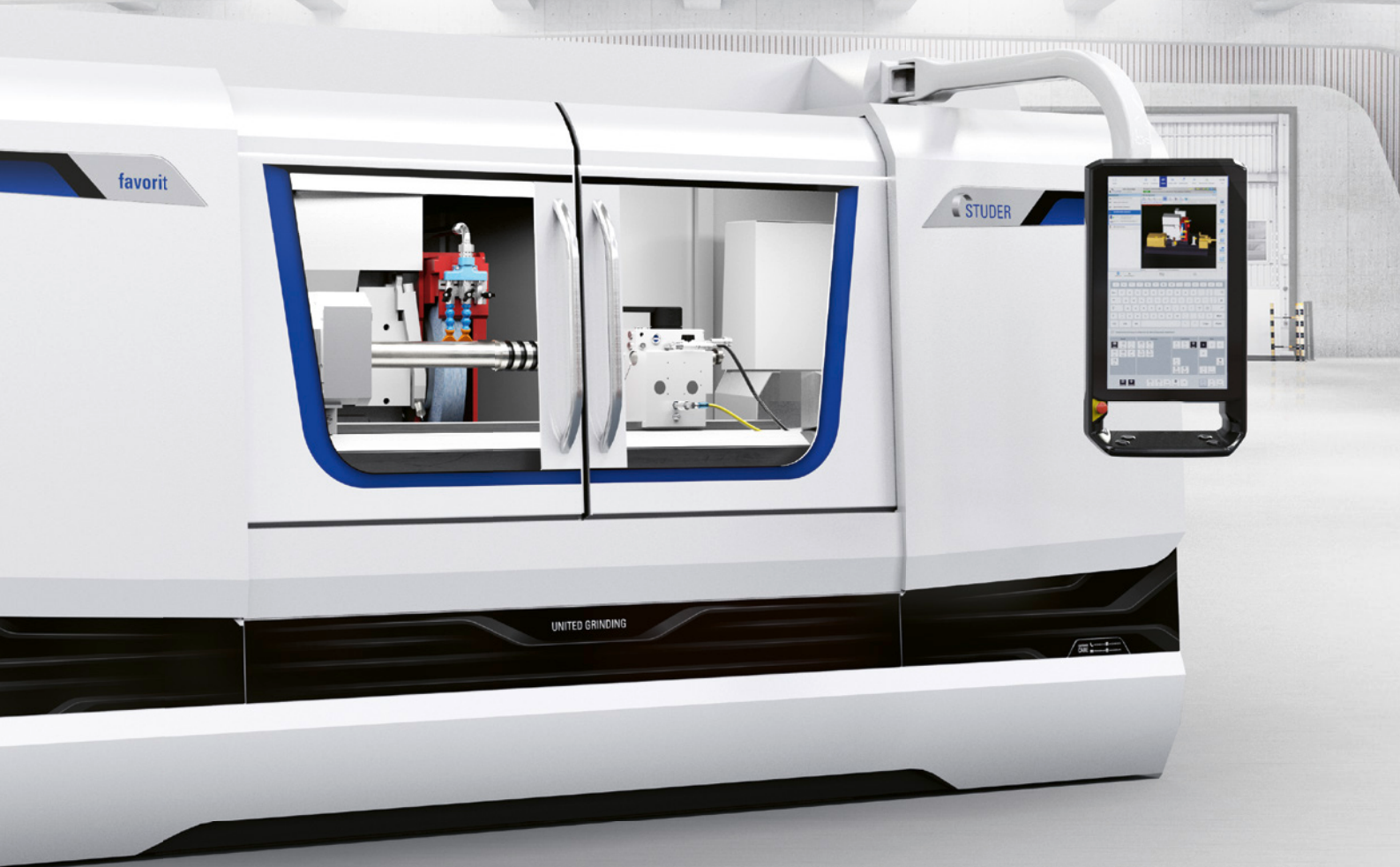
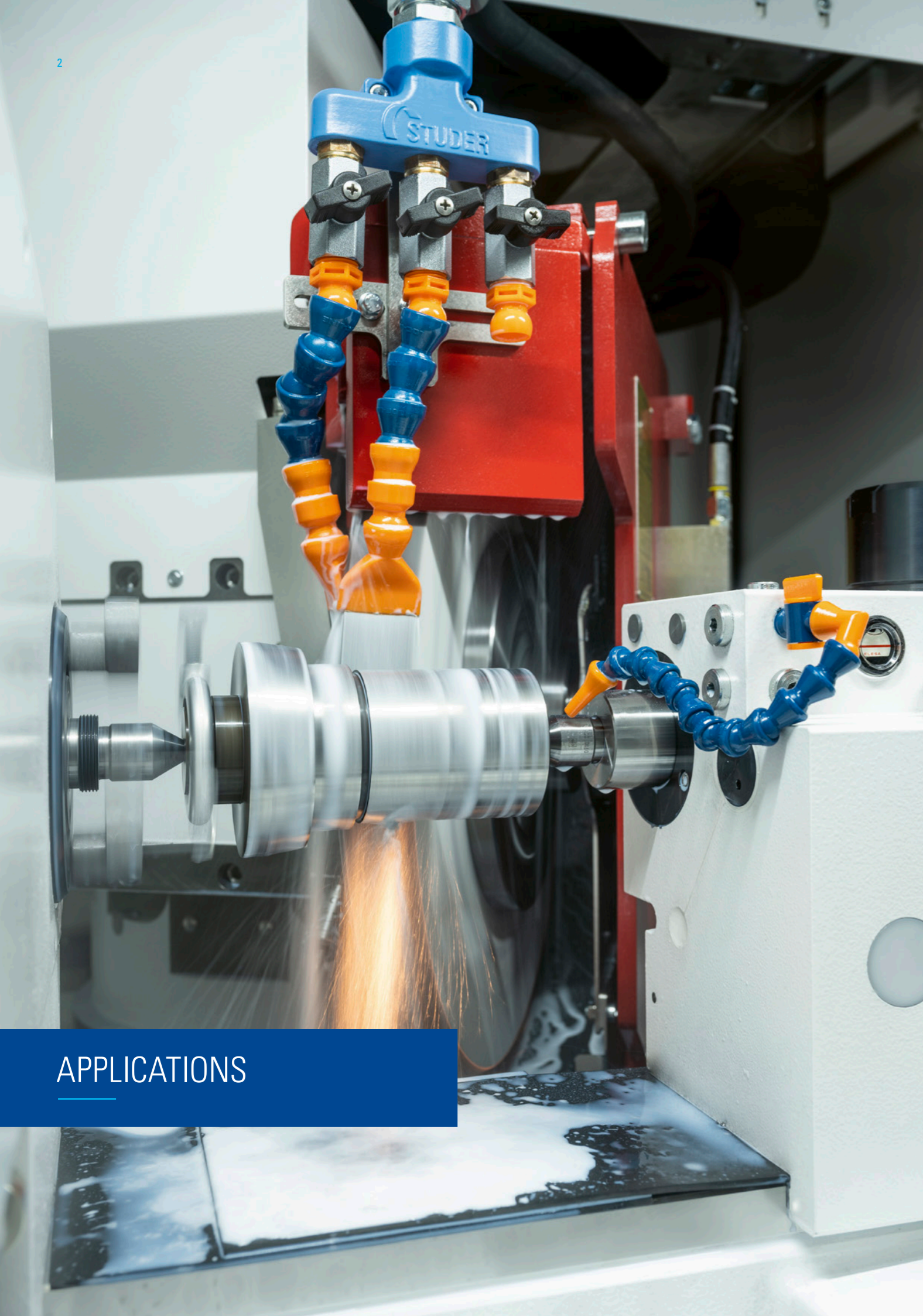


favorit

UNIVERSAL CYLINDRICAL GRINDING MACHINE



 **STUDER**



APPLICATIONS

STUDER favorit IN USE

This CNC universal cylindrical grinding machine is designed for grinding short to long workpieces in individual and batch production. Thanks to various options such as a measuring system, balancing system, contact detection, and longitudinal positioning, you can increase the efficiency of this machine even further.



favorit

DIMENSIONS

- Distance between centers 400 / 650 / 1000 / 1600 mm (15.7"/25.6"/39.4"/63")
- Center height 175 mm (6.9")
- Max. workpiece weight 150 kg (330 lbs)

HARDWARE

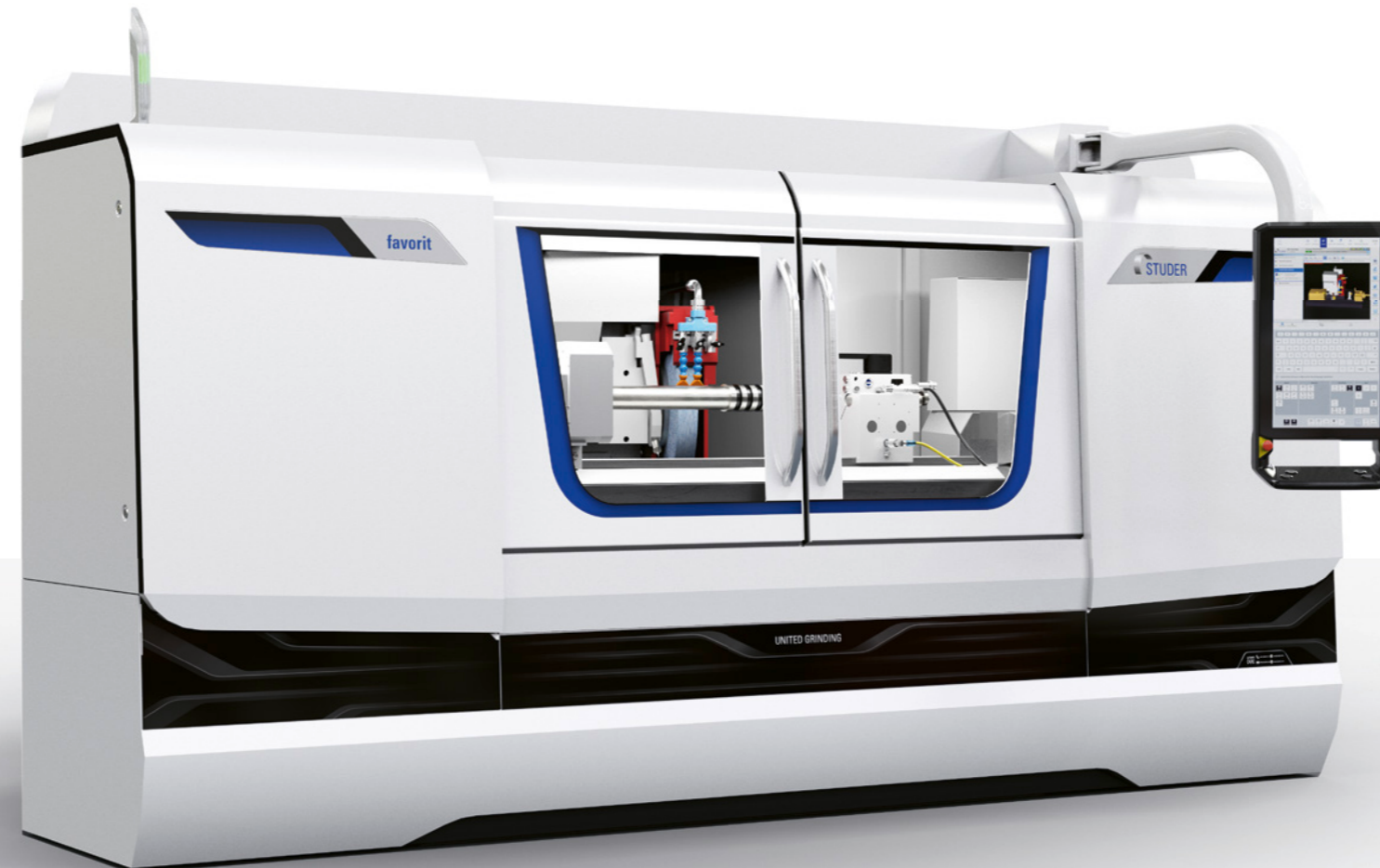
- Selectable wheelhead:
 - Universal wheelhead with grinding wheel right or left and an internal grinding attachment. Automatic swiveling with 3° Hirth serration
 - External wheelhead with grinding wheel left, 0°, or right, 0°/15°/30°
- External and internal grinding possible in one setup
- Granitan® S103 mineral-cast machine base

SOFTWARE

- Very simple programming thanks to StuderPictogramming
- StuderWIN programming software (optional) for creating grinding and dressing programs on an external PC

YOUR BENEFIT

- Short machining time thanks to complete machining
- Can optionally be equipped with a loader interface (loader provided by customer)
- Maximum precision due to perfect interplay between hardware and software
- Intuitive, user-friendly, and efficient operation
- Environmentally friendly thanks to targeted measures to reduce energy consumption
- Ergonomic thanks to large sliding doors and three service doors



“The price hit for a large range of applications.”

CONTROL AND PROGRAMMING

The machine's control system is equipped with a Fanuc Oi-TF and has a clear and ergonomic arrangement of the controls, which enables efficient operation. The "Digital Solutions Remote Service" package is available. The capacitive touchscreen (PCT) is resistant to scratches and dirt and can even be operated if the user is wearing gloves. The manual control unit facilitates set-up close to the grinding process.

Operation of the machine is easy, user-friendly, and efficient. Navigation through the machine menu and the process steps is simple and fast thanks to the intuitive design with self-explanatory icons and a modern multi-touch display. The uniform and user-friendly operating philosophy shortens the training period and increases the efficiency and quality of programming.

INDUSTRIAL
MULTI-TOUCH DISPLAY

SELF-EXPLANATORY
ICONS



INTEGRATED
FRONT CAMERA

STANDARDIZED
FUNCTION KEYS

Technical specifications

- 24" full HD multi-touch display
- Electronic key-operated switch (RFID)
- Integrated front camera
- 2x USB 3.0 ports
- Adjustable tilt

USER INTERFACE StuderWIN

The user interface StuderWIN creates a stable programming environment and contributes to the efficient use of the machine. The possibility of fully integrating the measuring system and sensor technology for process control as well as contact detection and balancing systems in the operator interface enables standardized programming of the different systems. The drive elements are optimally matched to the control system.

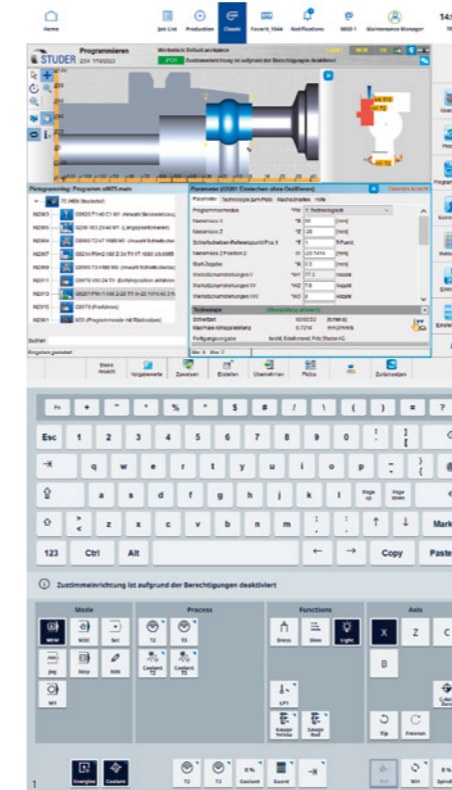
The sophisticated mechanical engineering concept of the favorite is completed by a grinding software program developed in-house by STUDER and which is continuously optimized in cooperation with users of the software. This software offers:

- StuderPictogramming: The operator strings the individual grinding cycles together – the control unit generates the ISO code.
- STUDER QuickSet: The software for grinding wheel measurement reduces resetting times by up to 90%.
- Microfunctions: Free programming of grinding and dressing process sequences for optimization of the grinding process.
- Integrated programming instructions assist safe machine operation.

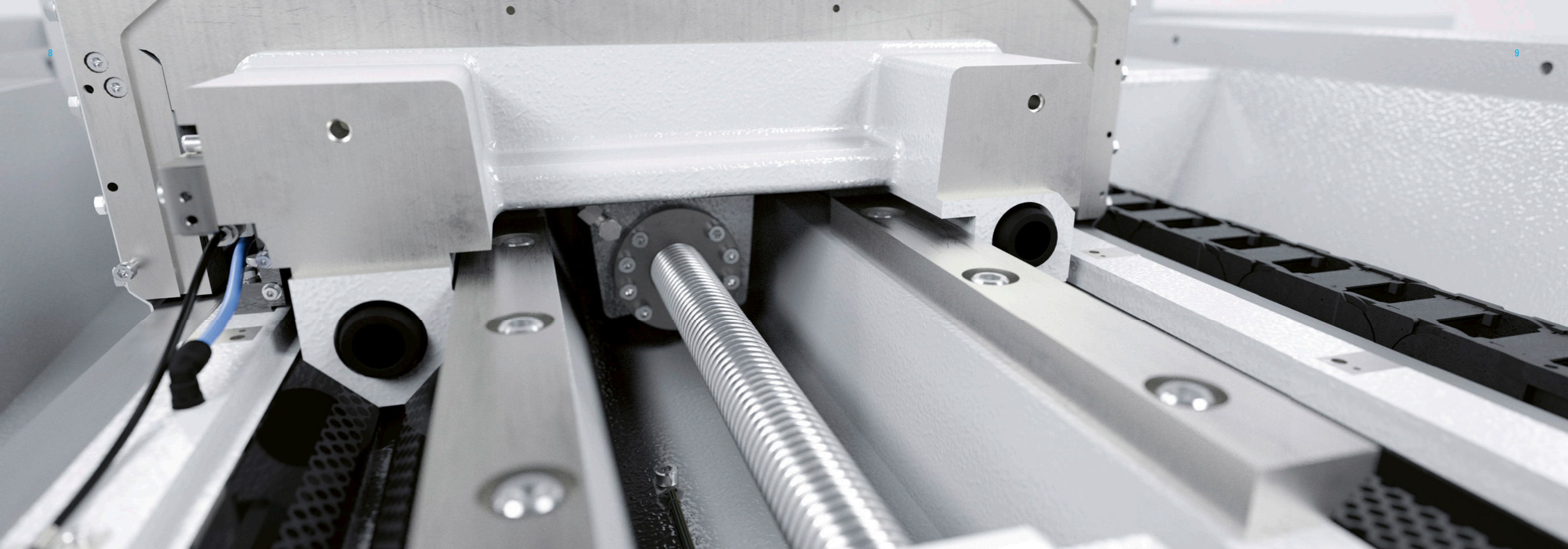
- The software options for the grinding technology calculations, optimized dressing as well as the Contour-, Thread- and Formgrinding cycles increase the functionality of the machine.

StuderTechnology Integrated – more than 110 years of expertise

StuderTechnology Integrated drastically simplifies the operation of cylindrical grinding machines. Component quality, machining time, energy efficiency – in short: all the important factors for production have massive benefits. What makes the software unique? Its history! Over 110 years of grinding experience have gone into it. It is a combination of grinding practice, empiricism, and years of expert knowledge. The program contains data from countless grinding tests, during which the best processing strategy was determined in each case for a wide range of components. StuderTechnology Integrated reverts specifically to these values depending on the use case. This integrated grinding knowledge can be further optimized as required by the individual grinding experts and can be stored as a customer-specific production specification. This also enables grinders with little experience to benefit from STUDER expertise.

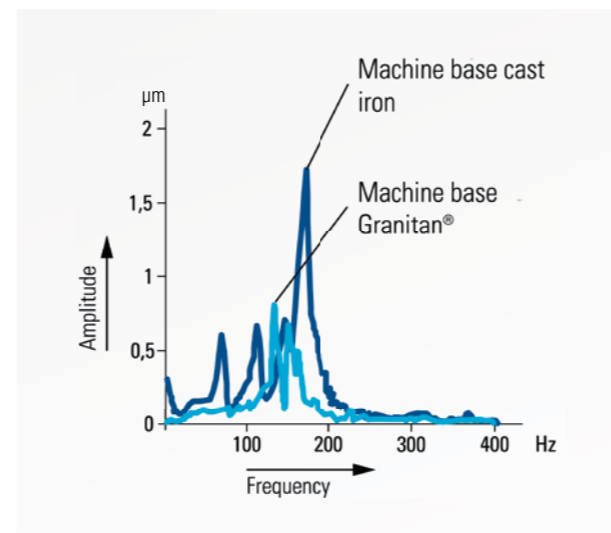


1 Programming interface with StuderPictogramming
2 External programming station



GRANITAN® S103 MINERALCASTING MACHINE BASE

The material structure developed by STUDER, which has proved its worth over many years on the basis of the company's own formula, is produced in a facility using the most modern industrial techniques. The excellent damping properties of the machine base ensure that outstanding surface quality is achieved on the ground workpieces. The service life of the grinding wheel is also increased, leading to reduced downtimes. Temporary temperature fluctuations are extensively compensated by the favorable thermal behavior of Granitan®. This results in a high level of dimensional accuracy throughout the day. The StuderGuide® guide system for the longitudinal and cross slides is moulded directly into the machine base and finished with a wear-resistant Granitan® S200 surfacing material. The guideways offer the highest possible accuracy through the entire speed range with high load capacity and dampening levels. Thanks to the robust and maintenance-free design, these excellent guideway properties are hardly subject to wear.



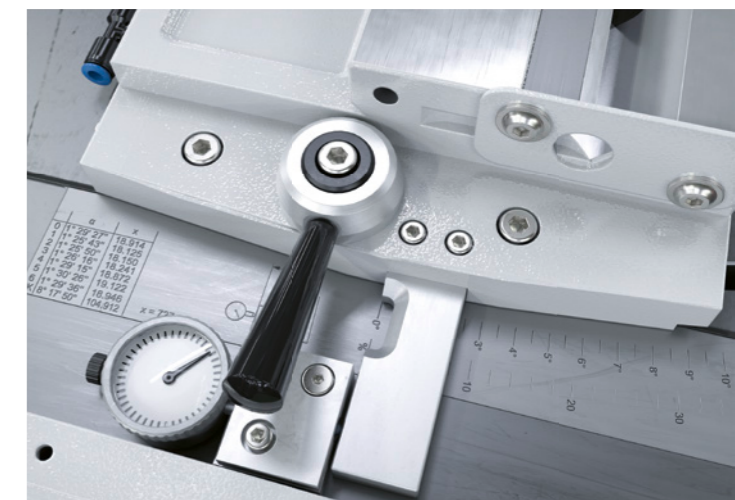
- Vibration-damping
- Thermally stable
- Wear-free

STUDERGUIDE® IN LONGITUDINAL AND CROSS SLIDES

The longitudinal and cross slides are manufactured from high-quality gray cast iron and have highly precise, ground V and flat guideways. With the distance between the guideways optimally suited to the machine's overall rigidity. The slides rest completely on the guideways of the machine bed through the entire speed range. This is the cornerstone for the excellent straightness e.g., <math>< 0.003\text{ mm}</math> (0.000,12") over 1000 mm (39.4") measured length. The top of the longitudinal slide has a surface that is ground over its entire length and acts as a support for the workhead, the tailstock, as well as accessories and devices. A setup scale, recessed in the table, makes it easy to set up and reset the units on the table. An additional double T-slot enables the optimal utilization of dressing units. The StuderGuide® guide system extends the advantages of hydrostatic systems and guideways with patented surface structure. A huge advantage of StuderGuide® over hydrostatic guideways is the damping component in the movement direction.

The slides are advanced by ball screws connected to a three-phase servomotor via torsion-resistant, bellows-type couplings.

A swiveling table with a swivel angle of +8.5° and fine adjustment is optionally available for the 650 mm (25.6") and 1000 mm (39.4") distances between centers.



- High geometrical traverse precision
- Auxiliary scale for setup and resetting
- Effective protection of guideways

WHEELHEAD

Two variants are available:

- Universal wheelhead with grinding wheel right or left and an internal grinding attachment. Automatic swiveling with 3° Hirth serration
- External wheelhead with grinding wheel left, 0°, or right, adjustable to 0°/15°/30°

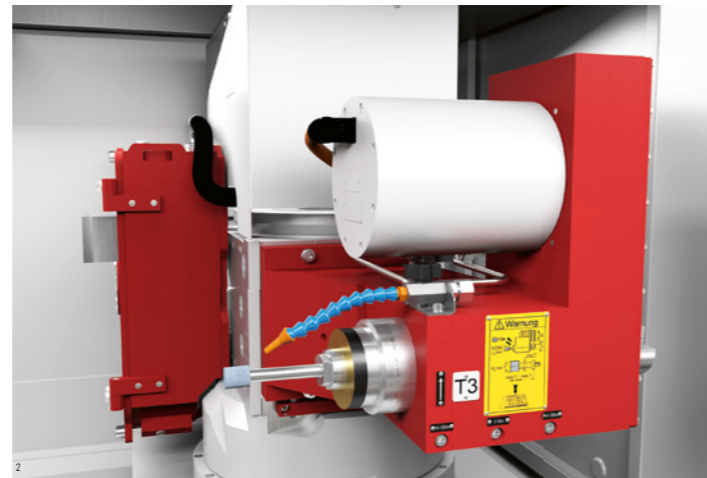
Grinding wheel size

Diameter 500 mm (20"), width 63 (80 F5) mm / 2.5" (3.15" Form5), bore 203 mm (8"). The max. drive power is 11.5 kW (15.4 hp). The cutting speed of a maximum 50 m/s (9,840 sfpm) enables efficient surface removal rates in the grinding process. The speed of the belt-driven internal grinding spindle is infinitely adjustable. Spindles with maximum speeds of 28,000, 42,000, and 60,000 rpm are available.



1 Wheelhead variants
2 Internal grinding attachment
3 Internal view

- Complete machining
- Cutting speed of up to 50 m/s (9,840 sfpm)
- Internal grinding spindle with continuously adjustable speed



WORKHEAD

All requirements are covered by wide range of workheads. They are all solidly built in the superior STUDER quality and achieve roundness accuracy of 0.0004 mm (0.000,016") (optionally even 0.0002 mm (0.000,008") in live spindle grinding. Simple cylindricity correction contributes toward perfect live spindle grinding results. Customer-specific workpiece clamping and carrier systems can be easily used.

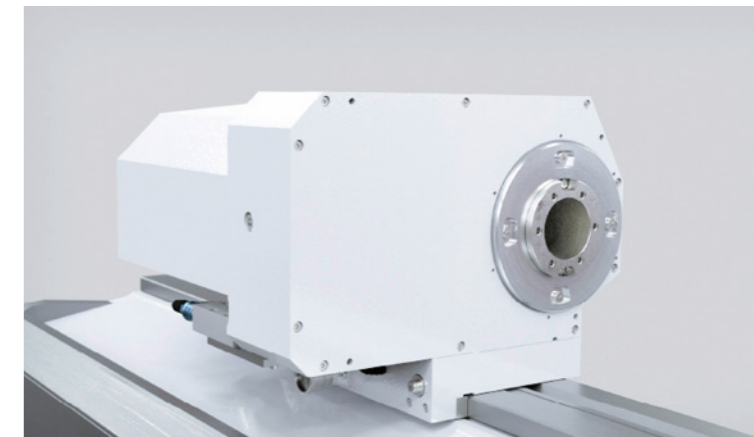
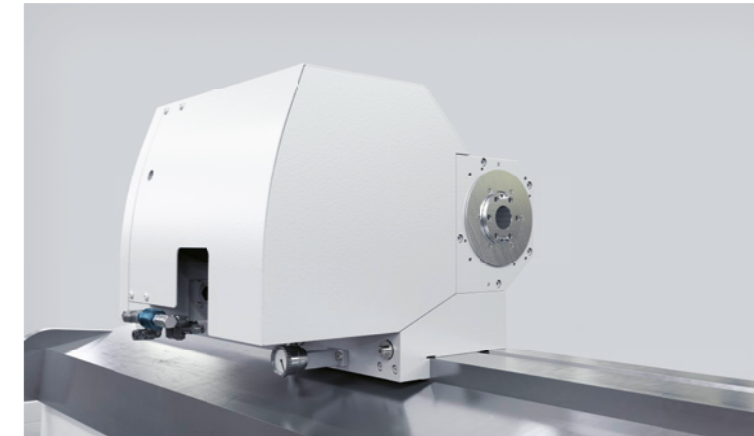
Universal workhead MT4

For external grinding with fixed centers or live spindle grinding; especially suitable for smaller workpieces. The spindle is blocked for grinding between fixed centers. C-axis applications are possible with the indirect measuring system.

Universal workhead ISO50

For external grinding with fixed centers or for live spindle grinding; suitable for larger/heavier workpieces. The large dia. 50 mm (1.97") spindle bore (bar capacity) is ideal for clamping device attachments. The spindle is blocked for grinding between fixed centers. C-axis applications are possible with the indirect measuring system.

- High roundness accuracy
- Low-maintenance
- Air lift





TAILSTOCK

The generously dimensioned barrel, designed for the use of Morse 3 or 4 taper centers, glides in the tailstock housing. The center pressure can be adjusted with the delicate precision required for grinding high-precision workpieces. The tailstock can be equipped with a hydraulically actuated barrel retraction for workpiece change-over. The fine adjustment enables taper corrections in the range below $1\ \mu\text{m}$ (0.000,040") when grinding between centers.

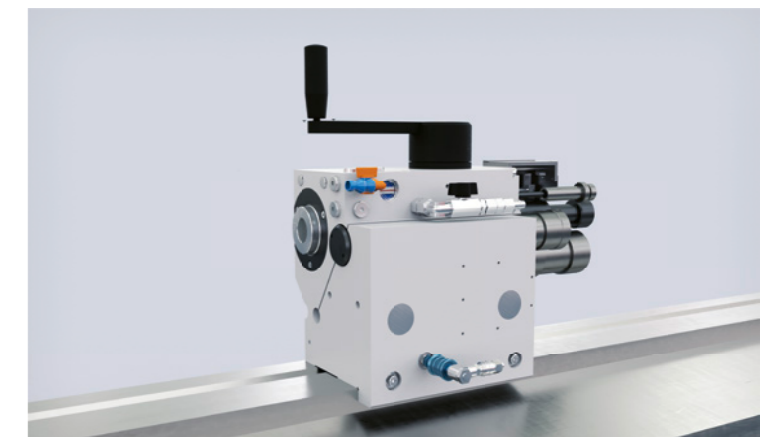
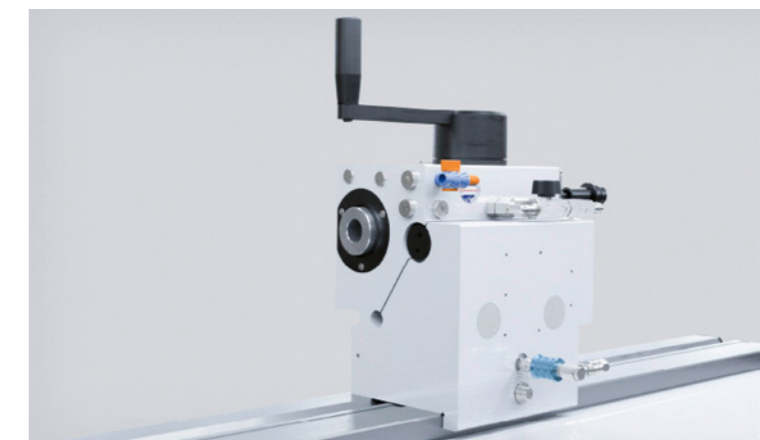
Tailstock MK3

The barrel (dia. 50mm/1.97") is clamped with the help of a spring. The stroke is 35 mm (1.38"). Barrel travel control can be mechanically adjusted. This tailstock is suitable for workpiece weights up to 150kg (330 lbs).

Tailstock MK4

This tailstock has a larger barrel (dia. 60mm/2.36") and a stroke of 60 mm (2.36"). Clamping takes place with the help of a spring. Barrel travel control can be mechanically adjusted. This tailstock is suitable for workpiece weights up to 150kg (330 lbs).

In order to guarantee optimum thermal stability, the tailstock is flooded with cooling lubricant, as are the barrel and the diamond holder.

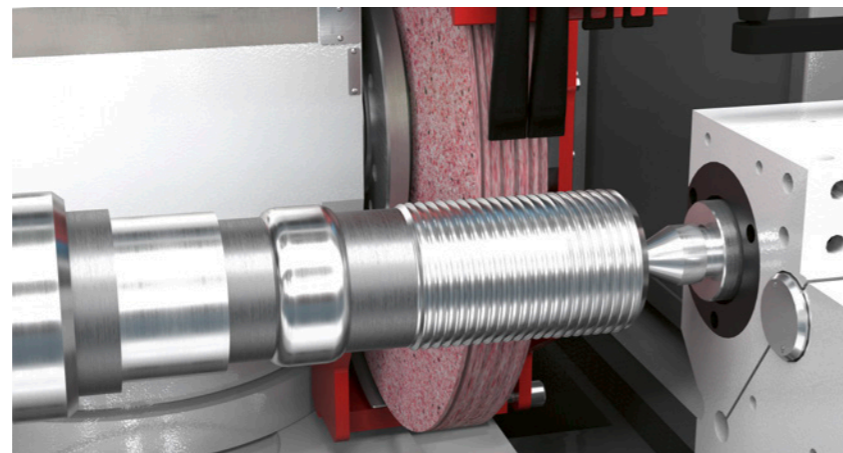


C AXIS FOR FORM AND THREAD GRINDING

Complete machining also entails form and thread grinding operations to an ever-increasing extent. These processes are made possible by the position and speed-controlled C-axis. The optional C axis is also suitable for thread grinding. With their high dynamic rigidity, the axis drives absorb the acceleration and grinding forces without any problem.

Form and thread grinding

The favorit offers axis-parallel grinding of fastening threads through to threads of gauge quality. Polygons, excenters, control cams, etc., can be manufactured cost-effectively and to the highest precision.



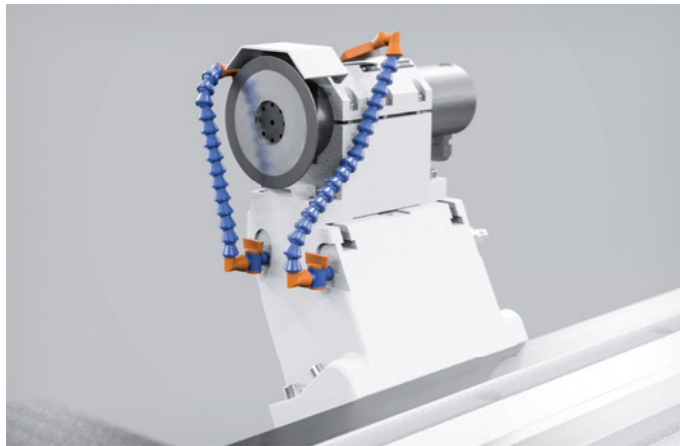
- Low-maintenance
- Air lift
- Option: hydraulic barrel actuation

DRESSING

An easy-cutting grinding wheel is essential for cost-effective and high-quality grinding. STUDER offers a large selection of dressing units, in order to coordinate the dressing process flexibly and optimally with the properties specific to the workpiece, tool, or materials. The grinding wheel profile and dressing parameters are easily defined via macros. Another STUDER specialty are the grinding wheel reference points

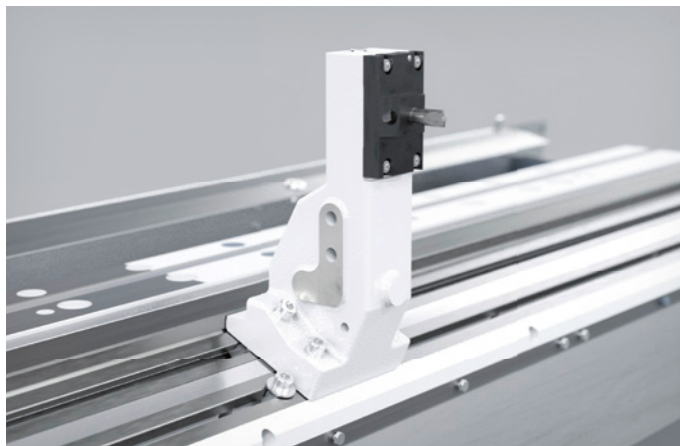
(T-numbers). This enables programming with nominal dimensions, considerably simplifying the creation of grinding programs.

A software package is available to fine tune the dressing process and includes additional dressing functions.



Rotary dressing

Rotating dressing tools are particularly suitable for dressing CBN grinding wheels.

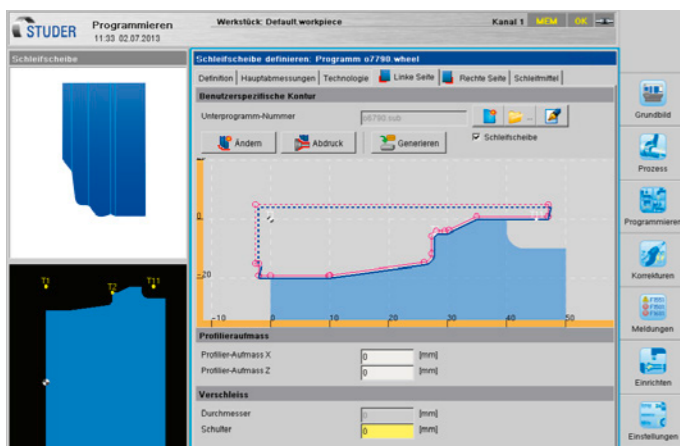


Fixed diamond holder

The double T-slot allows flexible mounting of the dressing holder along the entire length of the table. The clamping surface is suitable for various dressing tools.

Grinding wheel profile screen

Easy creation of special grinding wheel shapes from the workpiece geometry.



CUSTOMER CARE – WE ARE HERE FOR YOU

Our products are designed to meet customer demands for as long as possible, to operate efficiently, reliably, and be available at any time.

From «start up» to «retrofit» – our Customer Care is there for you throughout the working life of your machine. That's why over 200 expert service contacts working around the world in 10 different languages are available locally.

- We provide fast, uncomplicated support.
- We help to increase your productivity.
- We work professionally, reliably, and transparently.
- We provide professional solutions to your problems.

UNITED GRINDING DIGITAL SOLUTIONS™

We develop solutions to support you in simplifying processes, boosting your machines' efficiency and increasing overall productivity under the «UNITED GRINDING Digital Solutions™» brand.

We are continuously expanding our solution portfolio in the key areas of CONNECTIVITY, USABILITY, MONITORING, and PRODUCTIVITY to make your work in the digital age significantly easier.

Find out more about UNITED GRINDING Digital Solutions™ services on our website in the Customer Care section.



Start up
Commissioning
Warranty extension



Qualification
Training
Product support



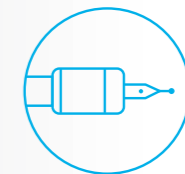
Prevention
Maintenance
Inspection



Service
Customer service
Customer consultation
HelpLine



Digital solutions
Remote Service
Service monitor
Production Monitor



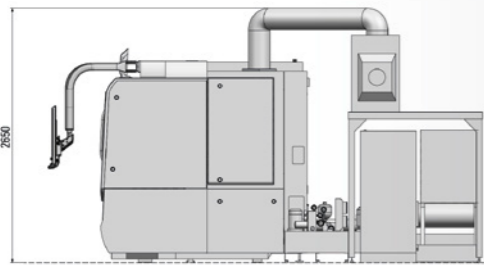
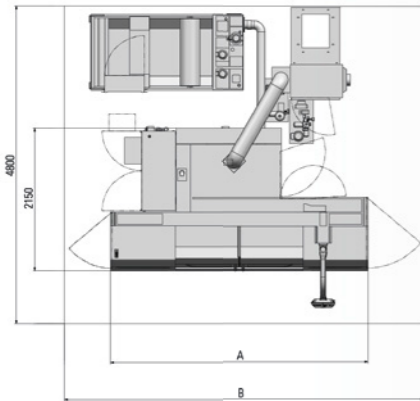
Material
Spare parts
Replacement parts
Accessories



Rebuild
Machine overhaul
Assembly overhaul



Retrofit
Modifications
Retrofits



A

B

Center distance 400 mm / (15.7")	2200 mm (86")	4600 mm (181")
Center distance 650 mm / (26")	3200 mm (126")	5100 mm (201")
Center distance 1000 mm / (39.4")	3900 mm (154")	5450 mm (215")
Center distance 1600 mm / (63")	5100 mm (201")	6650 mm (262")

TOTAL WEIGHT

Center distance 400 mm / (15.7")	7500 kg (16,500 lbs)
Center distance 650 mm / (26")	9000 kg (19,800 lbs)
Center distance 1000 mm / (39.4")	10,000 kg (22,000 lbs)
Center distance 1600 mm / (63")	11,500 kg (25,300 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.

TECHNICAL DATA

MAIN DIMENSIONS

Distance between centers	400 / 650 / 1000 / 1600 mm (15.7"/25.6"/39.4"/63")
Centre height:	175 mm (6.9")
Max. workpiece weight between centers	80 / 150 kg (176 / 330 lbs)

CROSS SLIDE: X AXIS

Max. travel	370 mm (14.5")
Speed	0.001 - 15,000 mm/min (0,004 - 590 inch/min)
Resolution	0.00001 mm (0.4 mill")

LONGITUDINAL SLIDE: Z AXIS

Max. travel	500 / 800 / 1150 / 1750 mm (19.7 / 31.5 / 45.3 / 68.9 inch)
Speed	0.001 - 20,000 mm/min (0,004 - 788 inch/min)
Resolution	0.00001 mm (0.4 mill")

GUARANTEED WORKING PRECISION

Surface straightness	
Measuring length 400 mm (15.7")	0.0020 mm (0.000,080")
Measuring length 650 mm (25.6")	0.0025 mm (0.000,1")
Measuring length 1000 mm (39.4")	0.0030 mm (0.000,120")
Measuring length 1600 mm (63")	0.0040 mm (0.000,160")

CONNECTED LOAD

Total connected load	20 kVA
Air pressure	5.5-7 bar (80-101 psi)

WHEELHEAD

	Type: external	Type: universal
Swivel range	0° / 15° / 30°	-30° to 225°
Automatic swivelling axis		3 deg Hirth
Fitting taper	Ø 73 mm	Ø 73 mm
Driving power	max. 11.5 kW (15.4hp)	max. 11.5 kW (15.4hp)
Grinding wheel, dia. x width x bore	500 × 63 (80 F5) × 203 mm (20" × 2.5"(3.15"Form5) × 8")	500 × 63 (80F5) × 203 mm (20" × 2.5"(3.15"Form5) × 8")
Circumferential Speed	up to 50 m / s (9840 sfpm)	up to 50 m / s (9840 sfpm)

Internal grinding attachment for pulley spindles

Spindle diameter	Ø 80 mm
Speeds	28,000 / 42,000 / 60,000 rpm

UNIVERSAL WORKHEAD

Speed range	1 - 1,500 rpm	1 - 1,500 rpm	1 - 650 rpm	1 - 650 min ⁻¹
Fitting taper	MT4/Ø 70 mm	MT5	MK5/Ø 110 mm	ISO50/Ø 110 mm
Spindle bore (max.bar feedthrough dia.)	dia. 26 mm (1.02")	dia. 30 mm (1.18")	dia. 38mm (1.49")	dia. 50 mm (1.97")
Driving power	1.8 kW (2.4hp)	1.8 kW (2.4hp)	2.5 kW (3.35hp)	2.5 kW (3.35hp)
Load for live spindle grinding	70 Nm (52 lbf-ft)	70 Nm (52 lbf-ft)	180 Nm (134 lbf-ft)	180 Nm (134 lbf-ft)
	0.0004 mm (0.000,016")	0.0004 mm (0.000,016")	0.0004 mm (0.000,016")	0.0004 mm (0.000,016")
Roundness accuracy during live spindle grinding	option: 0.0002 mm / 0.000,008"	option: 0.0002 mm / 0.000,008"	option: 0.0002 mm / 0.000,008"	option: 0.0002 mm / 0.000,008"
C axis standard, indirect measuring system	0,0001°	0,0001°	0,0001°	0,0001°

TAILSTOCK

Fitting taper	MT3/MT4	MT4
Travel of barrel	35 mm (1.38")	60mm (2.36")
Diameter of barrel	50 mm (1.97")	60mm (2.36")
Fine adjustment for cylindricity corrections	±40 µm (±0.0016")	±80 µm (±0.0032")

CONTROL UNIT

Fanuc 0i-TF

FRITZ STUDER AG

The name STUDER stands for more than 110 years of experience in the development and production of precision cylindrical grinding machines. "The Art of Grinding." is our passion, highest precision is our aim and top Swiss quality is our benchmark.

Our product line includes both standard machines, as well as complex system solutions in high-precision cylindrical grinding for machining small and medium-sized workpieces. In addition, we offer software, system integration, and a wide range of services. As well as receiving a complete tailor-made solution, the customer also benefits from over 110 years of know-how about the grinding process.

Our customers include companies from the machine tool industry, automotive, tool and die makers, the aerospace industry, pneumatics/hydraulics, electronics/electrical engineering, medical technology, the watch industry, and job shops. They value maximum precision, safety, productivity, and longevity. As one of the market and technology leaders in universal, external, internal cylindrical, and contour grinding, with 25,000 systems delivered, STUDER has stood for precision, quality, and durability for decades. STUDER's products and services include hardware, software, and a wide range of services in the pre-sales and after-sales sector.

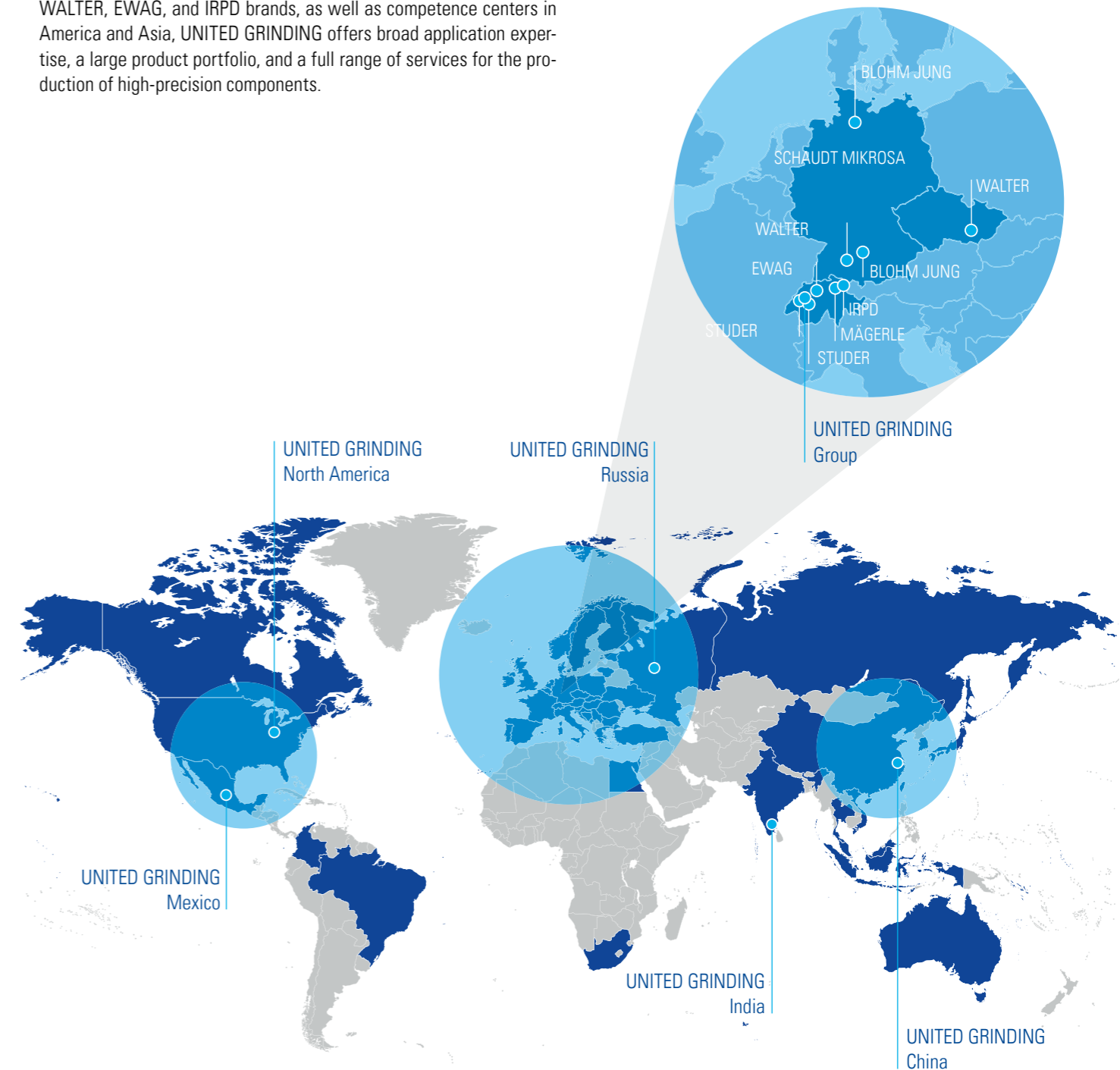


UNITED GRINDING GROUP

UNITED GRINDING Group is one of the world's leading manufacturers of grinding, eroding, laser, and measuring machines as well as machine tools for additive manufacturing. With roughly 2,500 employees at more than 20 manufacturing, service, and sales locations, the Group has an effective and customer-centric organization.

Through its MÄGERLE, BLOHM, JUNG, STUDER, SCHAUDT, MIKROSA, WALTER, EWAG, and IRPD brands, as well as competence centers in America and Asia, UNITED GRINDING offers broad application expertise, a large product portfolio, and a full range of services for the production of high-precision components.

"We want to make our customers even more successful"





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studer.com



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