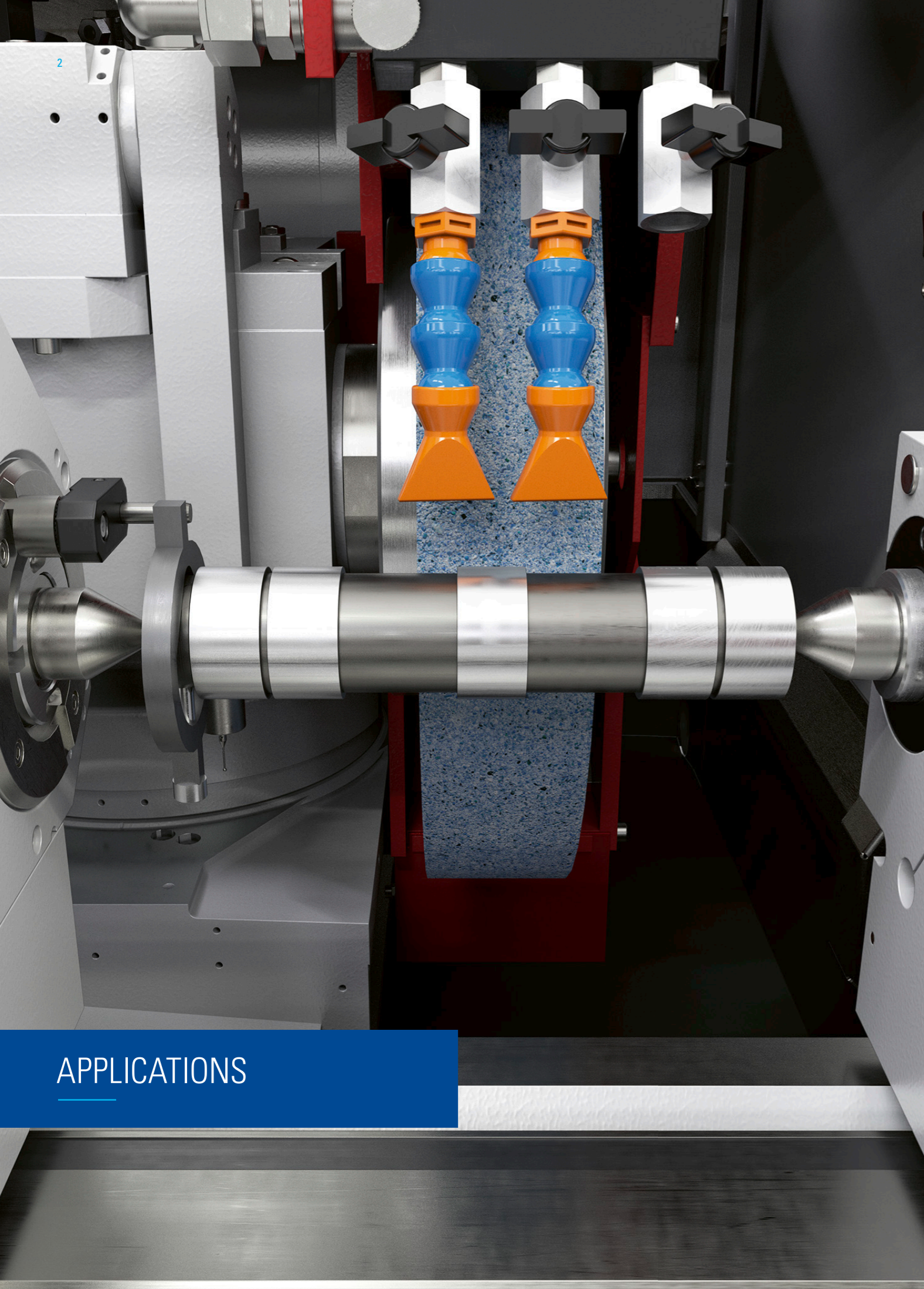


favoritCNC

UNIVERSAL CYLINDRICAL GRINDING MACHINE



 **STUDER**



APPLICATIONS

STUDER favoritCNC IN USE

The top performer in terms of value for money stands for many years of precision. The favoritCNC with 650 (25.6") or 1000 mm (39.4") distance between centers for universal use is easy and quick to program thanks to StuderPictogramming. Thanks to various options such as a measuring system, balancing system, contact detection, and longitudinal positioning, the machine can be easily adapted to other grinding tasks.



favoritCNC

DIMENSIONS

- Distance between centers 650/1,000 mm (25.6/39.4")
- Center height 175 mm (6.9")
- Max. Workpiece weight 80/120 kg (176/264 lbs)

HARDWARE

- Wheelhead with grinding wheel right and internal grinding attachment (option), manual swiveling 2.5° Hirth
- External and internal grinding possible in one setup
- Granitan® S103 mineral-cast machine base

SOFTWARE

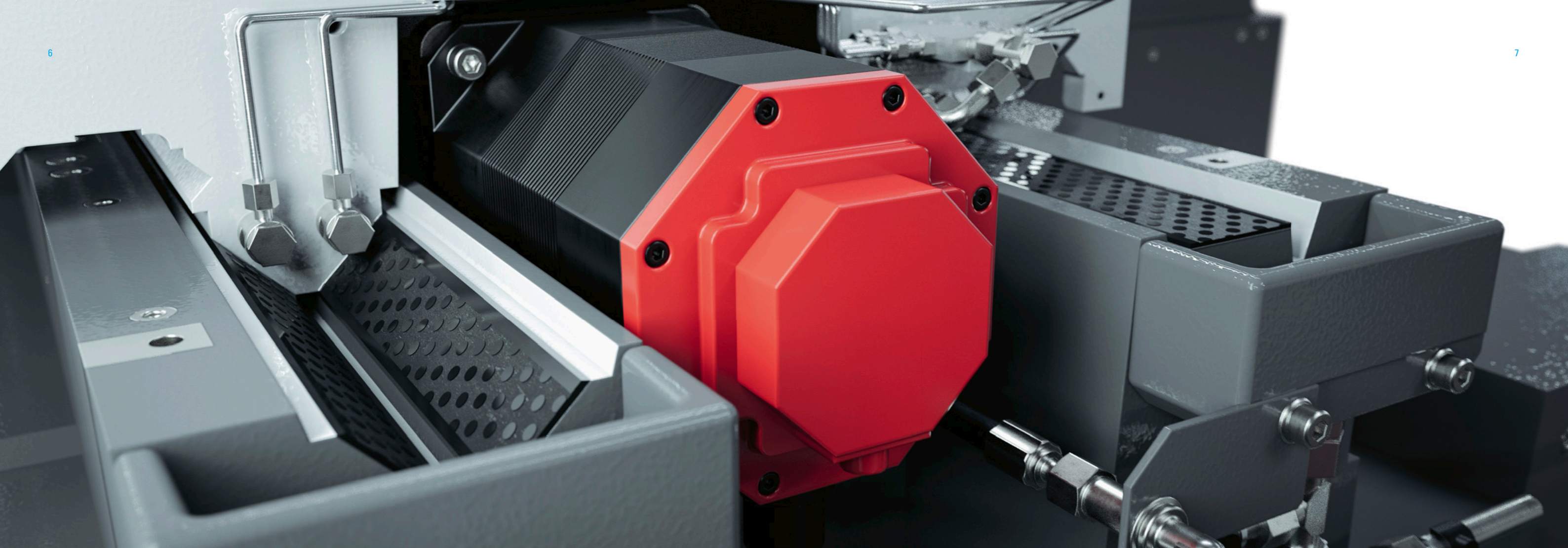
- Very simple programming thanks to StuderPictogramming
- StuderGRIND programming software (optional) for creating grinding and dressing programs on an external PC

YOUR BENEFIT

- Short machining time thanks to complete machining
- Maximum precision due to perfect interplay between hardware and software
- Intuitive, user-friendly, and efficient operation
- Ergonomic with good accessibility of grinding area
- Environmentally friendly thanks to targeted measures for reduced energy consumption and sustainable use

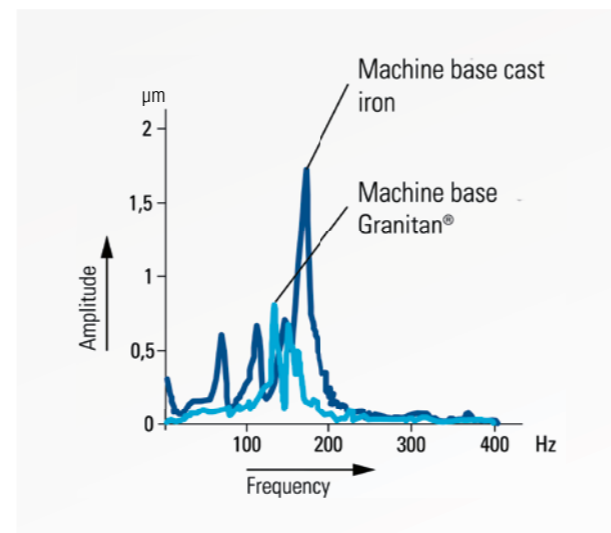


“The price hit for a large range of applications.”



GRANITAN® S103 MINERAL-CASTING 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 soon on the ground workpieces. The service life of the grinding wheel is also increased, leading to reduced downtimes. Temporary temperature fluctuations are largely offset by the favorable thermal behavior of Granitan®. This results in a high level of dimensional accuracy throughout the day. The guide system for the longitudinal and cross slides is molded directly into the machine base and coated with 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 subject to hardly any wear.



- Vibration-damping
- Thermally stable
- Wear-free

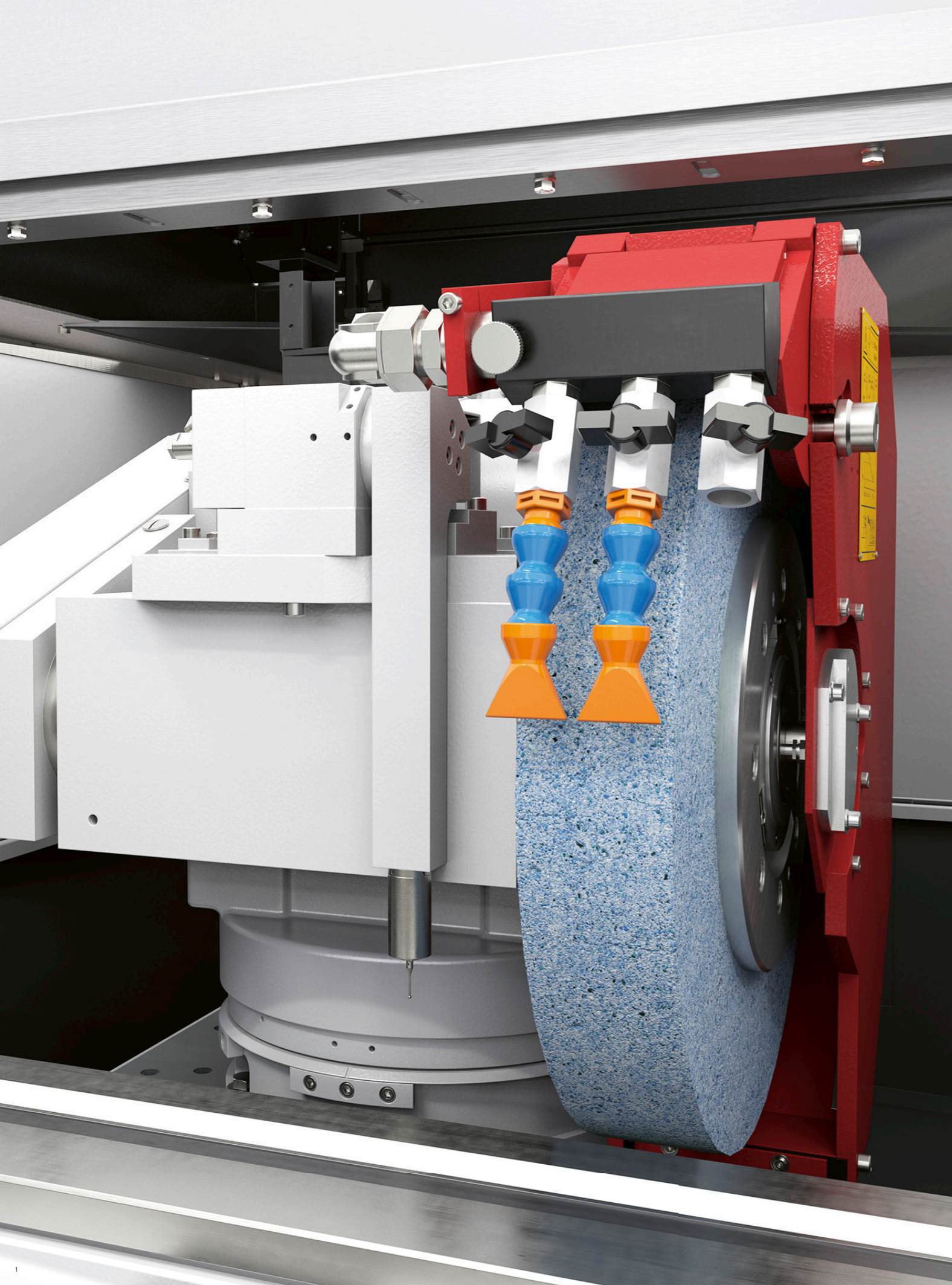
LONGITUDINAL AND CROSS SLIDES

The V and flat guideways for the cross and longitudinal slides with patented surface structure guarantee excellent accuracy and thus enables excellent straightness for long bores, for example.

The slides are advanced by ball screws connected to a three-phase servo motor via torsion-resistant couplings.



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



WHEELHEAD

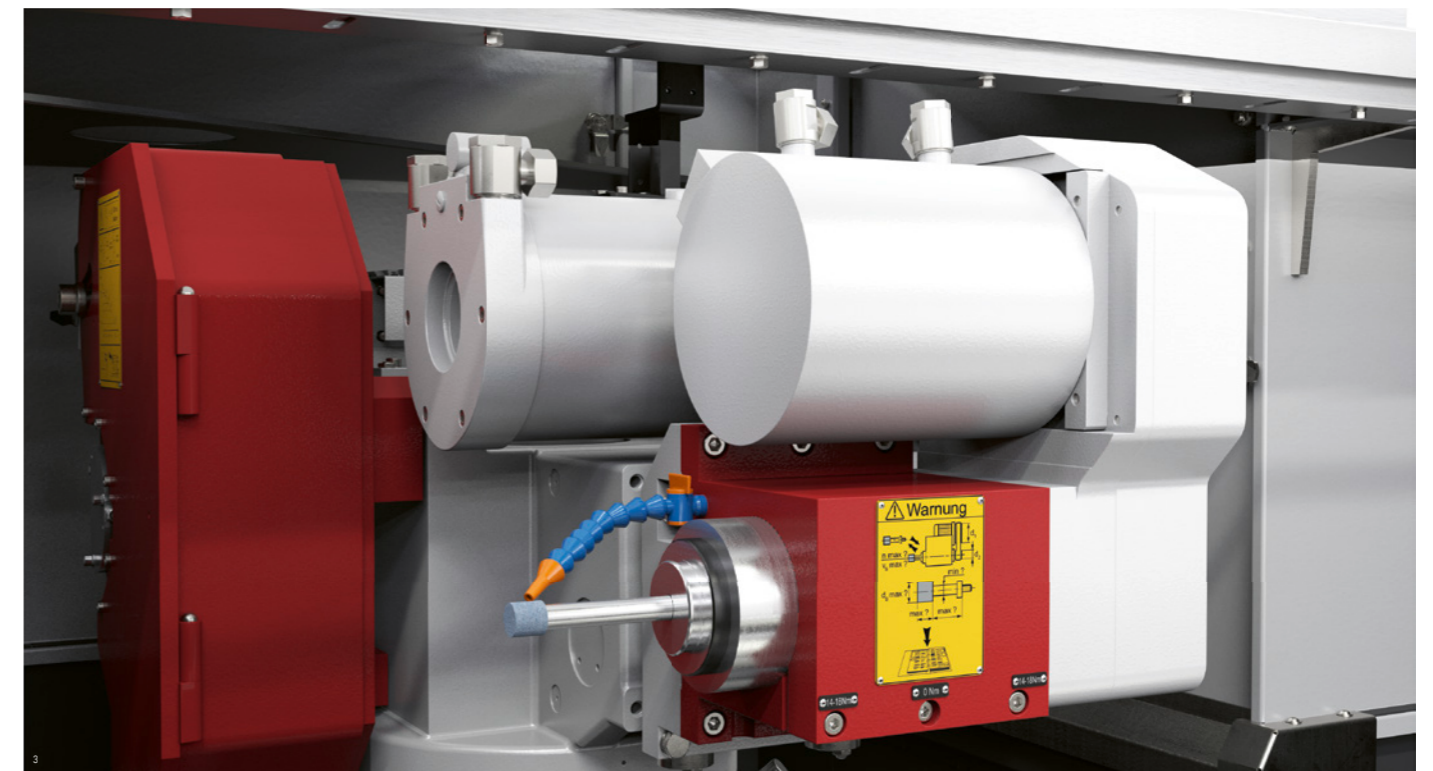
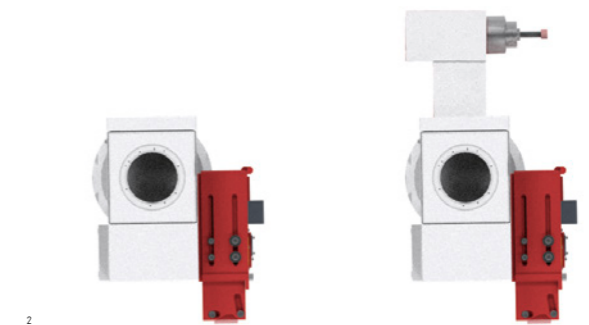
The wheelhead can be used for external and internal grinding; it can be equipped with an external grinding wheel (right) and an internal grinding spindle. Within a swiveling range of $-15^{\circ}/+195^{\circ}$, the user can manually index the wheelhead with high precision (2.5°) with a Hirth serration.

Grinding wheel size

Diameter 500 mm (20"), width 63 (80 F5) mm / 2.5" (3.15" Form5), bore 203 mm (8"). The drive power is 9kW (12hp). The cutting speed of 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 20,000, 40,000, and 60,000 rpm are available.

- Complete machining
- High power 9kW (12hp)
- Cutting speed of up to 50 m/s (9,840 sfpm)
- Internal grinding spindle with infinitely adjustable speed

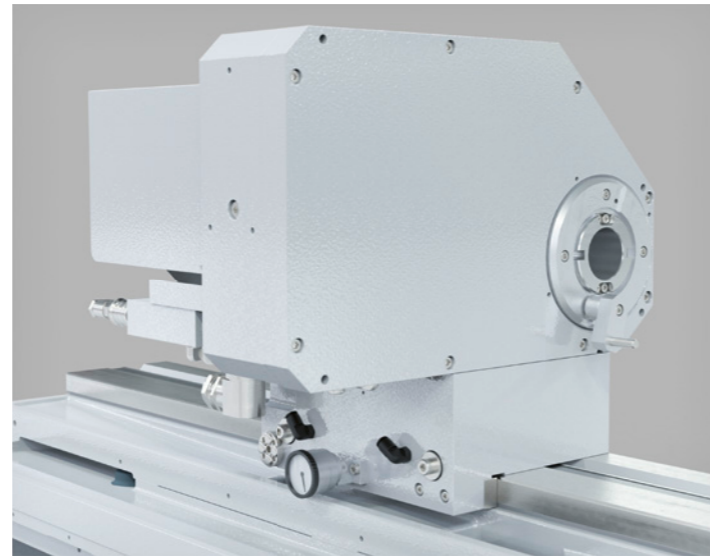


1 Wheelhead with external grinding wheel right
2 Wheelhead variants
3 Internal grinding attachment

WORKHEAD

The versatile universal workhead with MT4 or MT5 fitting taper enables both live spindle grinding and grinding between centers. The workpiece spindle is equipped with roller bearings, is low-maintenance, and has an excellent roundness accuracy of under 0.0004 mm (0.000,016"). The fine adjustment allows for cylindricity corrections in the 1 µm (40 mill") range during live spindle grinding. An air cushion lift-off facilitates movement of the workhead during setup and resetting.

- High roundness accuracy >0.0004 mm (0.000,016")
- Wide speed range 1 – 1,500 rpm
- Cylinder correction (live spindle grinding)
- Air cushion



TAILSTOCK

Designed for the use of centers with morse taper 4, the generously dimensioned barrel slides inside the tailstock housing. The center pressure can be adjusted with the delicate precision required for grinding high-precision workpieces. The fine adjustment enables taper corrections in the range below 1 µm (40 mill") when grinding between centers. To guarantee optimum thermal stability, the tailstock is flooded with cooling lubricant, as are the barrel and the diamond holder.

- Cylindricity correction
- Thermal stabilization by flooding



DRESSING

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

bers). 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.



Stationary dressing

The clamping surface is suitable for various fixed dressing tools. The diamond holder can also be optionally attached to the tailstock or workhead.



MACHINE CONTROL AND OPERATION

The Fanuc Oi-TD CNC control with active flat-panel color screen (10.4") is extremely reliable and optimally matched to the drive elements.

The control cabinet is bolted to the machine bed. The electrical equipment complies with established safety standards and is EMC-tested.

All controls are clearly and ergonomically arranged. An important role is played by the manual control unit, which facilitates setup close to the grinding process.

A special function – the Sensitron electronic contact detection device (option) – reduces downtimes to a minimum.

- Manual control unit PCU (with mechanical hand-wheel)
- EMC-tested control cabinet
- Ergonomically arranged controls
- StuderPictogramming
- StuderGRIND programming software (option)



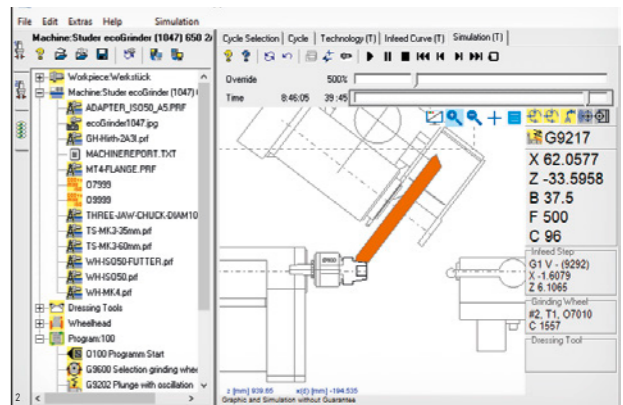
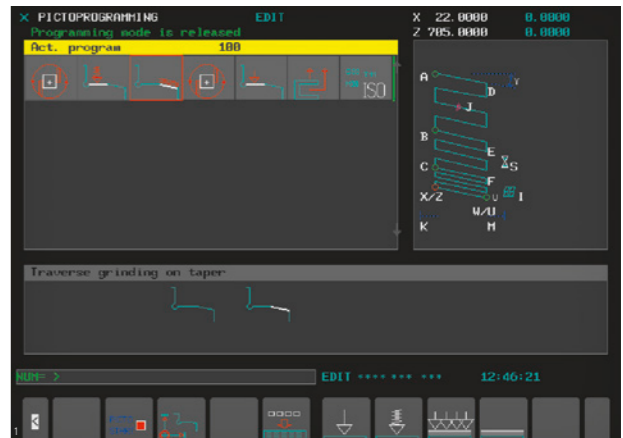
1 Machine control
2 Manual control unit

PROGRAMMING

The sophisticated mechanical engineering concept of the favoritCNC is completed by a grinding software program developed in-house by STUDER and 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.
- Free programming of grinding and dressing process sequences for optimization of the grinding process.
- StuderGRIND (option): The programming software is suitable for special applications, such as profiling the grinding wheel for complex workpiece shapes. The program is created on the PC and transferred directly to the machine control.

1 StuderPictogramming
2 StuderGRIND programming software



EXPANSION OPTIONS

The favoritCNC can be easily adapted to changing manufacturing needs. The range of applications of the machine can be expanded with options available at short notice. The following options are available:

Sensitron 6 electronic contact detection

The Sensitron 6 contact control unit automatically switches from the infeed to the grinding feed. The air gap between the set allowance and the contact point is bridged in the shortest possible time at a high infeed speed.

- Flexibly configurable
- Retrofitting possible
- Diameter measuring head
- Length positioning measuring head

Dynamic balancing system

An optimally balanced grinding wheel is a prerequisite for good grinding results. The dynamic balancing system indicates the unbalance and the grinding wheel can be balanced directly on the machine by manually moving weights.

Measuring unit

This accessory kit has two measuring circuits, which control the automatic grinding cycle, depending on the workpiece dimensions, during grinding of the external diameter. It thus contributes to a further increase in process reliability, productivity, and quality.

Length positioning

This allows the workpiece zero point to be recorded in the Z axis.



CUSTOMER CARE

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



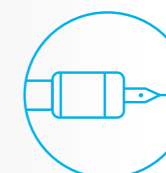
Prevention
Maintenance
Inspection



Service
Customer service
Customer consultation
HelpLine



Digital solutions
Remote Service
Service monitor
Production Monitor



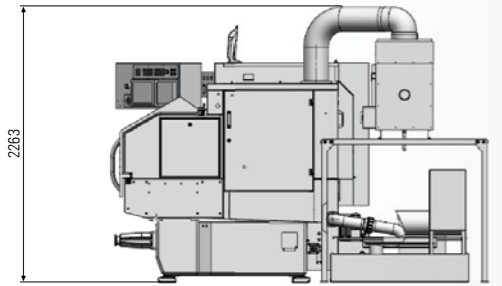
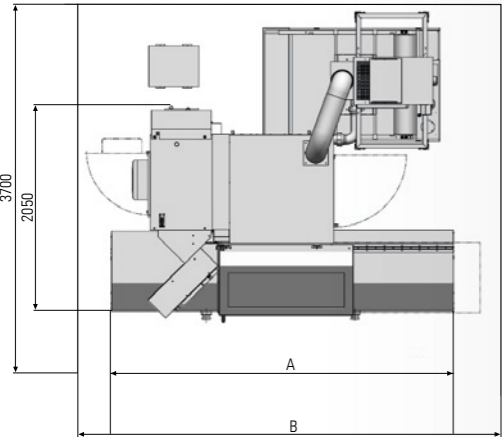
Material
Spare parts
Replacement parts
Accessories



Rebuild
Machine overhaul
Assembly overhaul



Retrofit
Modifications
Retrofits



	A	B
Distance between centers 650 mm / (26")	3200 mm (126")	5200 mm (205")
Distance between centers 1000 mm / (39")	3900 mm (154")	5900 mm (232")

TOTAL WEIGHT

Center distance 650 mm / (26")	4200 kg (9,260 lbs)
Center distance 1000 mm / (39")	5300 kg (11,685 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	650 / 1000 (25.6" / 39.4")
Centre height:	175 mm (6.9")
Max. workpiece weight between centers	80 / 120 kg (176 / 264 lbs)

CROSS SLIDE: X AXIS

Max. travel	285 mm (11.2")
Speed	0.001 – 10.000 mm/min (0,004 – 394 inch/min)
Rotary measuring system resolution	0.0001 mm (0.000,004")

LONGITUDINAL SLIDE: Z AXIS

Max. travel	800 / 1150 mm (31.5" / 45.3")
Speed	0.001 – 20.000 mm/min (0,004 – 788 inch/min)
Rotary measuring system resolution	0.0001 mm (0.000,004")
Machine table swivelling range	8,5°

WHEELHEAD

Swiveling range	-15° to +195°
Manually swiveling	2.5° Hirth
Fitting taper	dia. 63 mm (2.48")
Driving power	9kW (12hp)
Grinding wheel, Ø x width x bore	500x63 (80F5)x203 mm (20" x 2.5" (3.15" Form5)x8")
Circumferential Speed	50 m/s (9,840 sfpm)
Internal grinding attachment for pulley spindles	dia.100 mm
Speeds	20,000/40,000/60,000 rpm

UNIVERSAL WORKHEAD

Speed range	1 – 1,500 rpm	1 – 1,500 rpm
Fitting taper	MT4:	MT5:
Spindle bore (max. bar feedthrough dia.)	dia. 26 mm (1.02")	dia. 30 mm (1.18")
Driving power	1.8 kW (2.4 hp)	1.8 kW (2.4 hp)
Load for live spindle grinding	70 Nm (52 lbf-ft)	70 Nm (52 lbf-ft)
Roundness accuracy during live spindle grinding	0.0004 mm (0.000,016")	0.0004 mm (0.000,016")

TAILSTOCK

Fitting taper	MT4:
Travel of barrel	35 mm (1.38")
Diameter of barrel	50 mm (1.97")
Fine adjustment for cylindricity corrections	±40 µm (± 0.0016")

CONTROL UNIT

Fanuc 0i -TD

GUARANTEED WORKING PRECISION

Surface straightness	
Measuring length 650 mm (25.6")	0.0025 mm (0.001")
Measuring length 1 000 mm (39.4")	0.0030 mm (0.0012")

CONNECTED LOADS

Total connected load	19 kVA
Air pressure	5.5 bar (80 psi)

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.

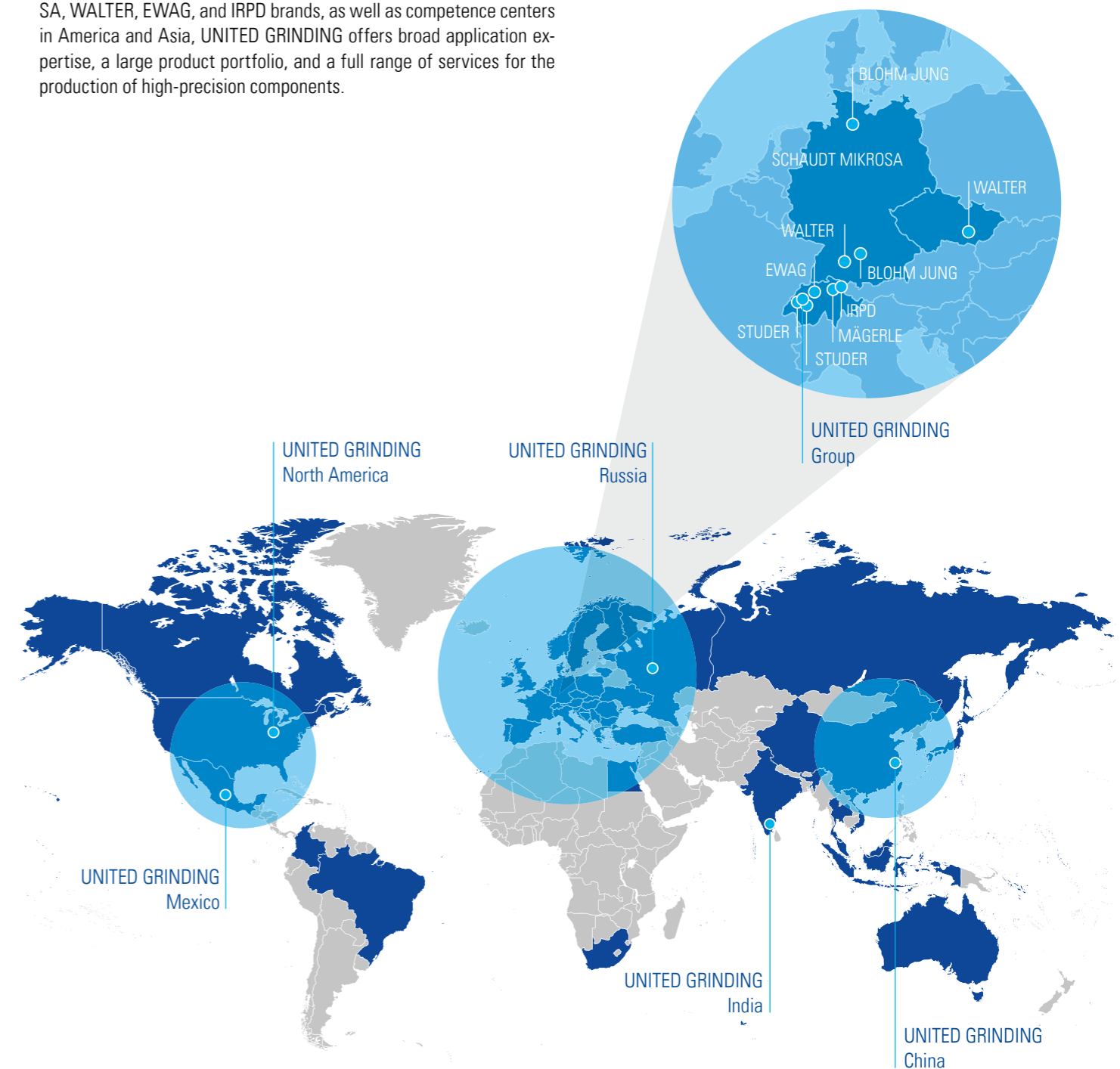


UNITED GRINDING GROUP

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"





Fritz Studer AG
3602 Thun
Switzerland
Phone +41 33 439 11 11
info@studer.com
studer.com



ISO 9001
VDA6.4
certified

