KELLENBERGER 100

The universal platform for cylindrical grinding

KELLENBERGER
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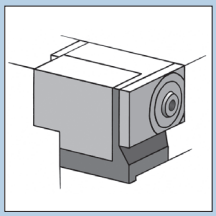
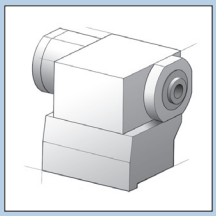
KELLENBERGER 100



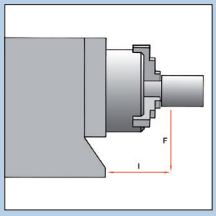
UNIVERSAL WORKHEAD

- Applications with fixed or rotating spindle
- n 1-1'000 min-1
- Roundness accuracy < 0.4 µm (optionally 0.2 µm)
- Integrated fine adjustment ± 0.01°



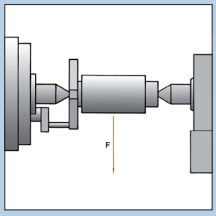
WORKHEAD WITH DIRECT DRIVE AND C AXIS

- For high-precision non-circular grinding n 1-1'000 min-1
- Roundness accuracy < 0.4 µm
- Base with fine adjustment ± 0.01°



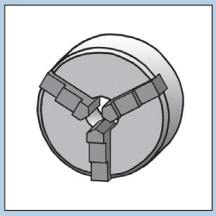
LOAD WITH CHUCKED WORK

- 100 Nm
- 200 Nm with direct drive



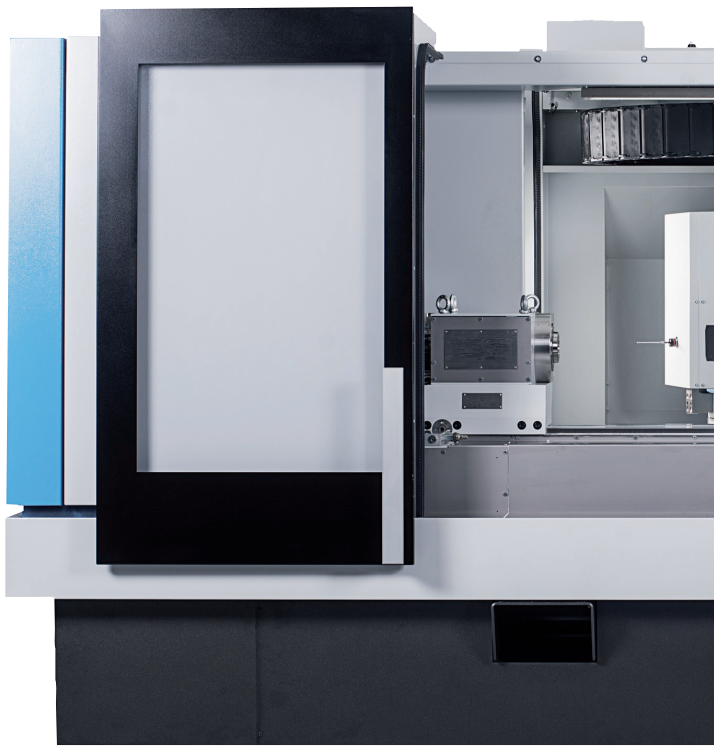
LOAD BETWEEN CENTERS

- 100 kg
- 150 kg with direct drive



POWER CLAMPING SYSTEM

- Clamping force 2'000–9'000 N
- Power-actuated chuck
- Spring collets



CNC-CONTROL SYSTEM FANUC 31i

- 19" LCD color monitor with touch operation, height-adjustable
- BLUE Solution teach-programming with OBJECT Guide for guided and easy creation of programs on the workpiece
- IPC Windows Embedded Standard 7 operating system
- Hand-held panel with axis & speed selector
- Ethernet (RJ45) and USB 2.0 connections

BASIS

- FEM-optimized cast machine bed for high stability and longevity
- Mechanical separation of machine and peripherals, for thermal stability and prevention of vibrations

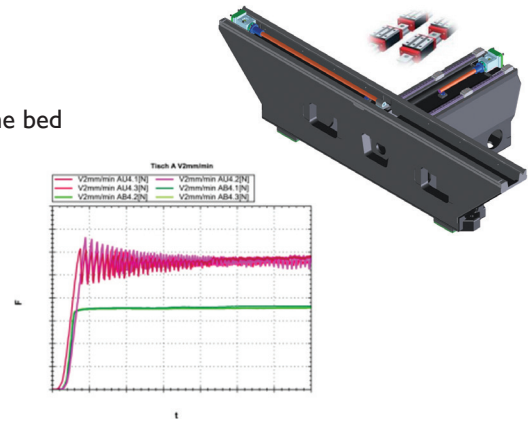


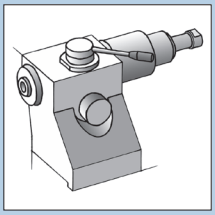
TABLE / SLIDE

- Linear guide for X axis, low maintenance, high precision, proven a 1'000 times over
- Low-wear slide guide for Z-axis with special anti-stick-slip coating, for high-precision machining of contours
- Glass measuring devices on X- and Z- axes
- High dynamics due to speeds of up to 20 m/min. in Z- and 10 m/min. in X-axis

THE NEW DEFINITION OF A CNC CYLINDRICAL GRINDING MACHINE

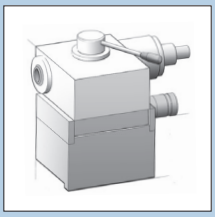
TAILSTOCK 100

- Up to 100 kg workpiece weight
- Morse taper 4
- Retraction of sleeve 49 mm
- Adjustment range ± 60 µm / Ø
- Pneumatic lifting



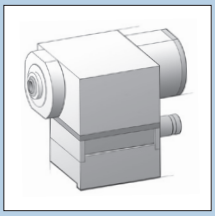
TAILSTOCK 150

- Up to 150 kg workpiece weight
- Morse taper 4
- Retraction of sleeve 49 mm
- Adjustment range ± 150 µm / Ø
- Pneumatic lifting



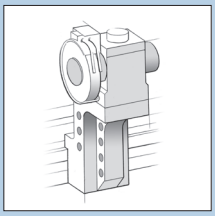
SYNCHRONIZED TAILSTOCK

- Machining of shaft parts without driver
- Sleeve with MT4 and 49 mm retraction
- Adjustment range ± 150 µm / Ø
- Automatic cylinder correction (optional)



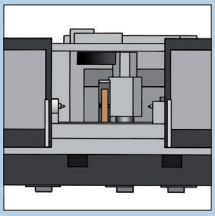
HF DRESSING DEVICE

- For rotating dressing tools
- Behind table assemblies
- On the table



AUTOMATED SLIDING DOORS

- Relief for the operator
- Faster workpiece changeover times

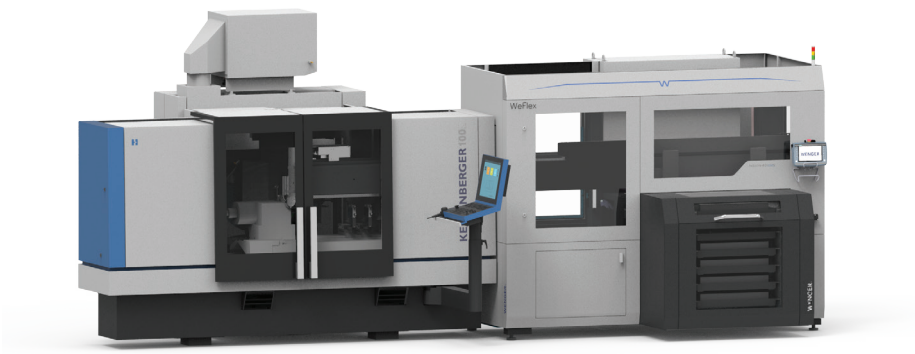


ERGONOMICS

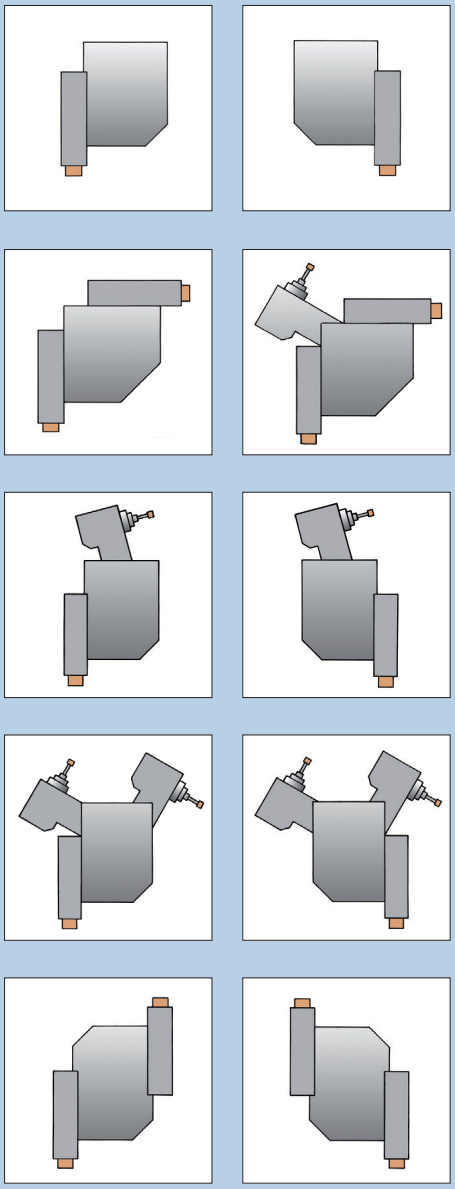
- Advanced optical and ergonomic design
- Good overview of the grinding process
- Interfaces for table assemblies arranged centrally and for ideal access
- Swiveling and height-adjustable control panel for optimized operating convenience
- Cleverly designed accessibility for low-cost maintenance and service

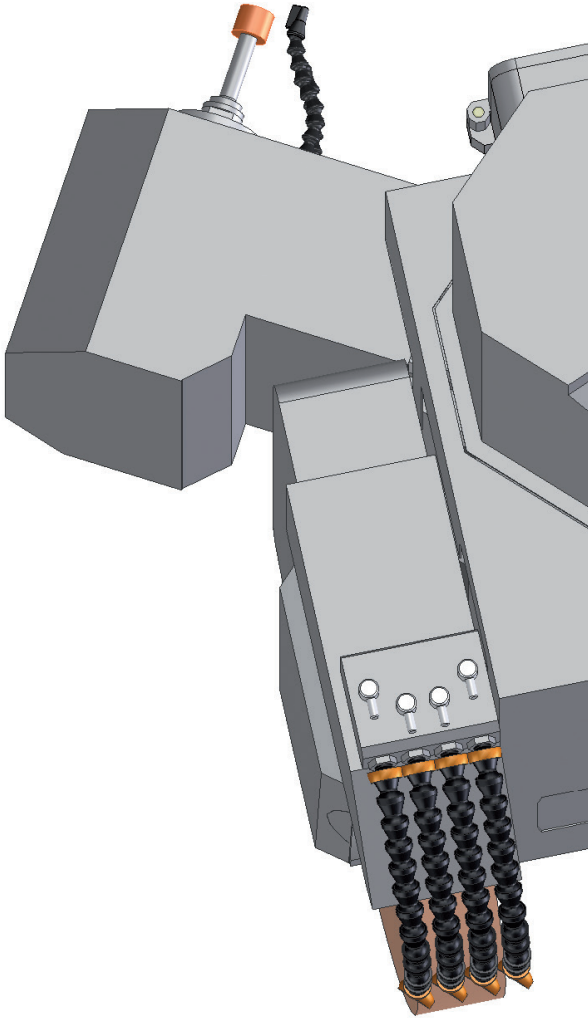
AUTOMATION

- PROFIBUS interface and prepared mechanical infrastructure
- Synchronous tailstock for complete machining of shafts
- Loading cell with highly autonomous operation and quick setup times
- Project-specific solutions can be realized by request



MODULAR WHEELHEAD SYSTEMS – COMPACT AND INNOVATIVE



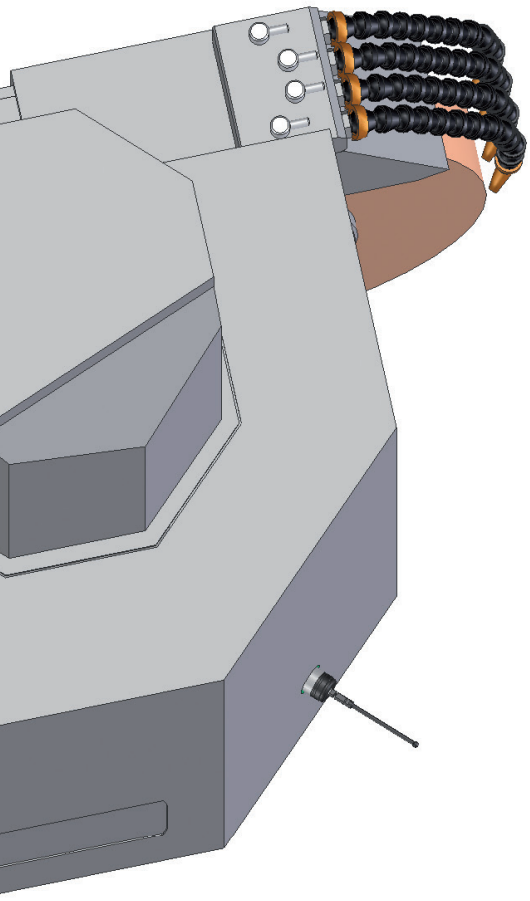


WHEELHEAD

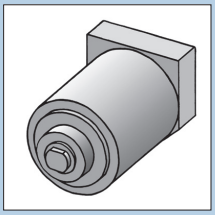
The ingenious concept of the modular wheelhead allows 10 different wheelhead variants with up to 3 tool positions and one measuring head position. Each individual position is arranged in such a way that a maximum in collision-free operation is guaranteed. Combined with large axis paths, an optimum in flexibility is achieved in the machining of workpieces of different sizes.

- External grinding with water-cooled motor spindles and 11.5 kW power
- Special oil lubrication guarantees long service life
- Grinding wheel dimensions up to Ø 500 x 100 mm
- High-frequency internal grinding spindles, available as grease-lubricated or oil-air-lubricated models
- 150 mm mounting bore allows internal grinding spindles with large radial rigidity

INTERNAL GRINDING / SWIVEL DEVICES / ACCESSORIES

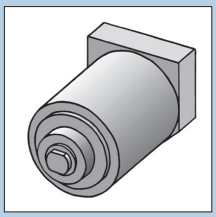


INTERNAL GRINDING ATTACHMENT



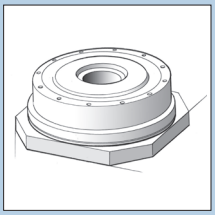
- Grease-lubricated HF internal grinding spindle 6'000 - 40'000 min^{-1} 10'000 - 60'000 min^{-1}
- Inexpensive and compact

INTERNAL GRINDING ATTACHMENT



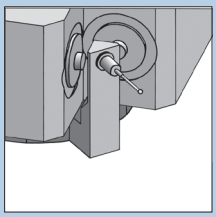
- Oil-air lubricated HF internal grinding spindle 4'500 - 45'000 min^{-1} 8'000 - 60'000 min^{-1} 12'000 - 90'000 min^{-1}
- Powerful and universal

SWIVEL DEVICES



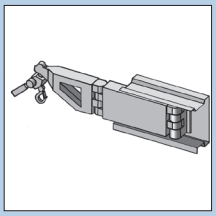
- Automatic indexing 1°
- B axis with direct drive (optional)
- Quick tool changeover time and high-precision positioning

TACTILE MEASURING HEAD



- Active measurement on external machining
- Orientation of the workpiece position in Z- and C-position
- Mounted on wheelhead

INTEGRATED LIFTING SYSTEM



- Ergonomic lifting system for table assemblies and grinding wheels

SWIVEL DEVICES

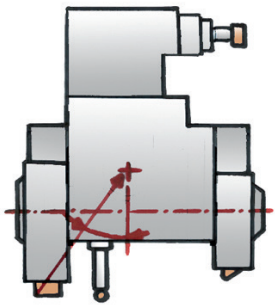
Two versions are available for positioning the wheelhead (tool change time approx. 5s):

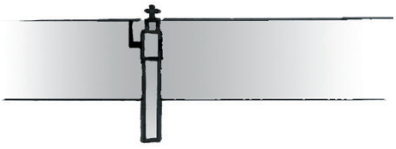
- 1° indexing with automatic drive or
- B-axis with direct drive with resolution on of 0.00003° and distortion-free clamping incl. KEL-SET (patented grinding wheel measurement)

ACCESSORIES

- Tactile measuring head, fastened rigidly on wheelhead, for active measuring tasks
- Integrated lifting system for grinding wheel changeover and for lifting table assemblies; saves having a crane at the machine
- Various steady-rests, also including guiding steady-rests for grinding

KEL-SET





FANUC CONTROL SYSTEM 31i – WITH KELLENBERGER HMI

BLUE SOLUTION

FEATURES
- No G-codes
- Object Guided
- Automated Technology Processor

ADVANTAGE
- No G-code programming knowledge needed
- Safe
- Quick set-up and grinding results

BENEFIT
- Ideal for simple parts
- Minimize faults
- Less downtime

RED SOLUTION

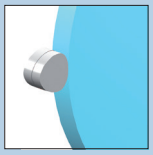
FEATURES
- Icon Guided
- Graphic guide with automated technology processor

ADVANTAGE
- Unlimited G-code programming
- Interactive
- Visualized part programming
- Quick set-up and results

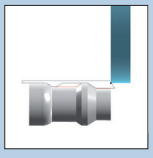
BENEFIT
- Complex parts at minimized cycle time
- No G-codes needed
- Less downtime

BLACK CAM SOLUTION

FEATURES
- Full project management
- Simplified creation of Out of round and profile contours
- Integrated technology processor
- Simple CAD system features
- Create contours and profiles or import DXF and step-files
- Error Analysis and Simulation



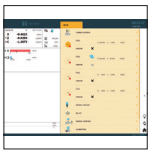
ADVANTAGE
- No separate CAD system necessary
- Creation of complex contours and profiles no more challenging
- Grinding process technology available at a click



BENEFIT
- Complex parts at minimized cycle time
- Use of the machine at its maximum performance
- Minimized risk of machine or process errors

HOME SCREEN
- 19″ touch display
- One interface for all tasks
- No DIN-ISO skills necessary

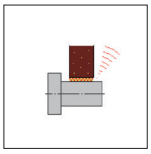
SETUP
- Tool definition
- Grinding wheel measuring
- Manual grinding
- Calibration



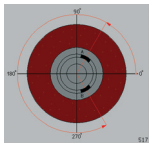
PROGRAMMING
- Tool
- Position
- Form
- Grinding cycle

PRODUCTION
- Corrections
- Re-grinding
- Single-block grinding
- Monitoring

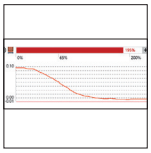
GAP CONTROL
- Gap control with up to 6 sensors
- Operating system and display integrated in the controls



BALANCING
- Semi-automatic or automatic balancing of the grinding wheels
- Operation and display integrated in the control system



IN-PROCESS GAUGE SYSTEM
- Up to 4 gauge heads
- Interrupted diameters
- Non-interrupted diameters
- Passive longitudinal positioning



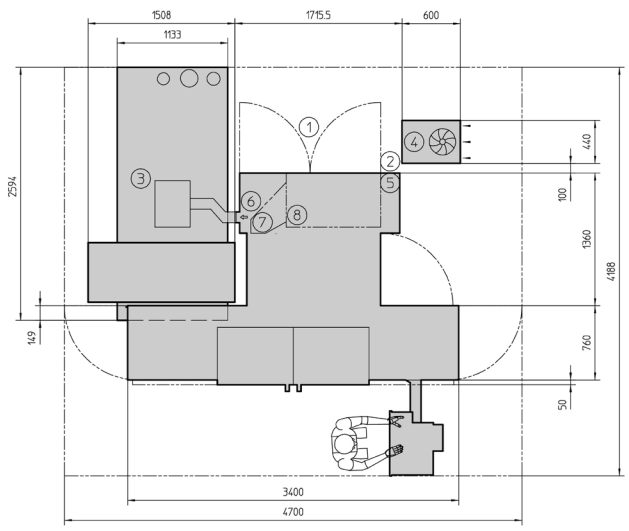
SECURITY INTERFACE / REMOTE DIAGNOSTICS
- Highest IT security standard
- Ready for Industry 4.0
- Reduced standstill and maintenance times
- Cost reduction for service and maintenance
- Preventive Maintenance

TECHNICAL DATA

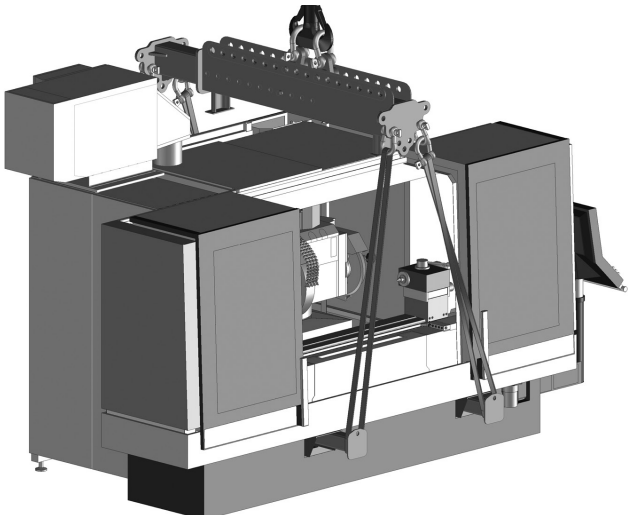
Main Specifications		
Distance Between Centers	mm	600/1,000
Center High	mm	200
Loading capacity, between centres:	kg	100 / 150
Spindle loading capacity, chucked:	Nm	100 / 200
Mains Voltage Required	V	400 / 460
Power Consumption	A	35-63
Space Required / length x width	m	2620 x 2170 / 3400 x 2170
Total Weight	kg	3,600 /4,000
Longitudinal / Slide Z-Axis		
Travel	mm	750 mm / 1150 mm
Rapid Traverse Speed	m/min	20 m/min
Resolution	mm	0.00001
Wheelside X-Axis		
Travel	mm	365
Rapid Transverse Speed	m/min	10 m/min
Resolution	mm	0.00001
B-Axis		
Swiveling Range	Grad	280°
Swiveling Time	Sec	1
Automatic Indexing	Grad	1
Resolution B-Axis	Grad	0.1 Seconds
Wheelhead		
Water-Cooled Motor Spindle	KW	11.5
Peripheral Grinding Wheel Speed	m/s	50 / 63 (option)
Grinding Wheel Dimensions	mm	Ø500
Internal Grinding Attatchment		
Bore for Spindle	mm	150
Power, HF 51 Spindles	KW	4.2 - 15
Rotation Speed	min-1	4,500 - 90,000
Workhead		
Resolutions C-Axis	Grad	0.00003
Rotation Spindle Speed	min-1	1 - 1,000
Drive Torque	Nm	bis 63
Interface		ISO 702-1, Gr .5/MK5
Roundness Accuracy in Chucked Work	µm	optional 0
Tailstock		
Internal Taper		MK4
Retraction of Sleeve	mm	49
Option micro-adjustment	µm	+/- 60 and +/- 120

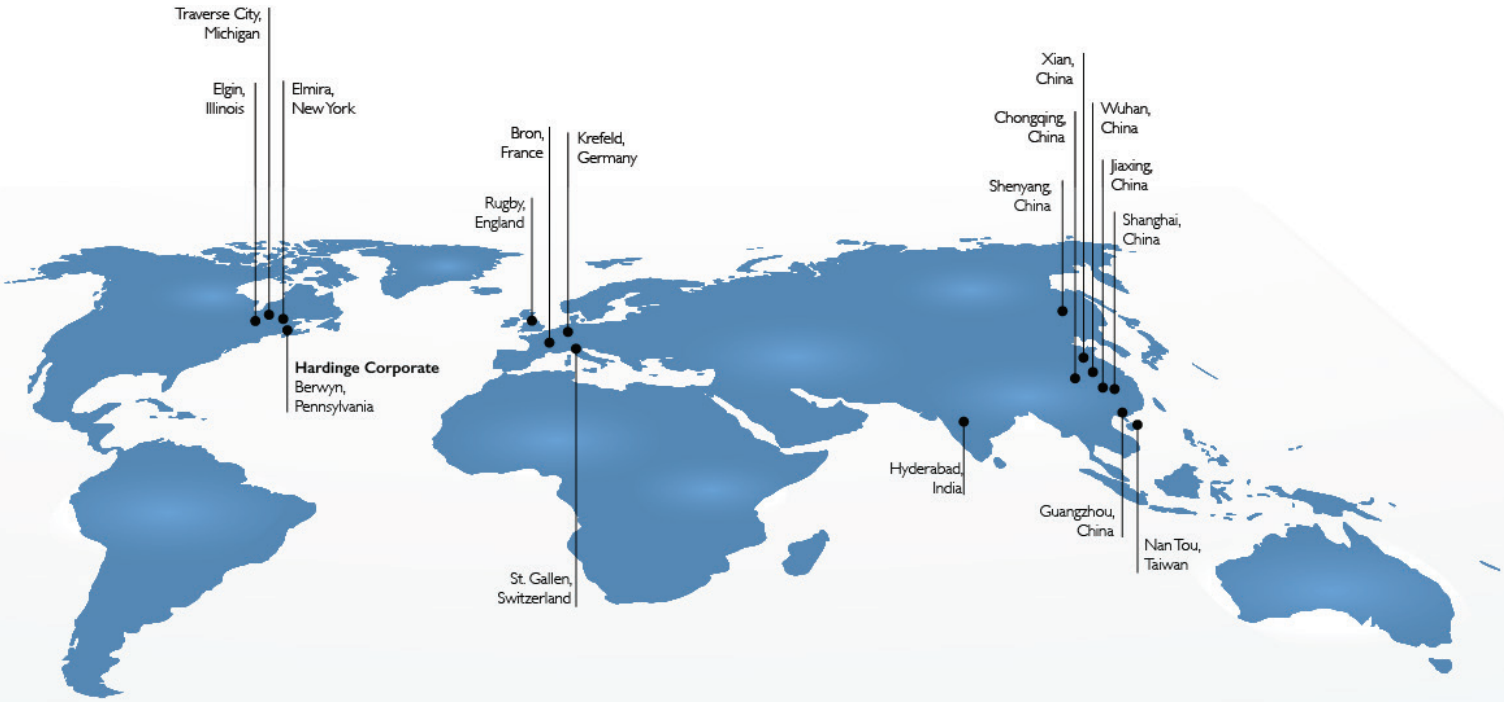
All specifications and designs are subject to alterations without notice

SETUP PLAN 600/1000



EASY TRANSPORT





HARDINGE WORLDWIDE

Hardinge is a leading international provider of advanced metal-cutting solutions. We provide a full spectrum of highly reliable CNC turning, milling, and grinding machines as well as technologically advanced work-holding accessories.

The diverse products we offer enable us to support a variety of market applications in industries including aerospace, agricultural, automotive, construction, consumer products, defense, energy, medical, technology, transportation and more.

We've developed a strong global presence with manufacturing operations in North America, Europe, and Asia. Hardinge applies its engineering and applications expertise to provide your company with the right machine tool solution and support every time.

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