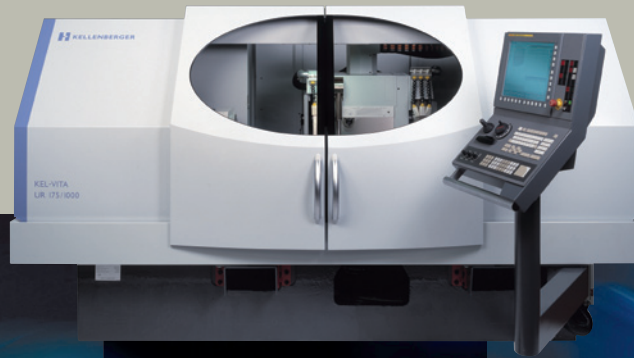


GRINDING



KEL-VITA

The Perfect Universal
CNC Grinding Machine



www.kellenberger.com

 **KELLENBERGER**

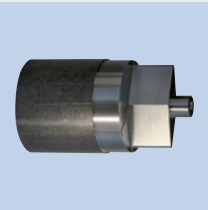
KEL-VITA — The Perfect Universal CNC Grinding Machine

2



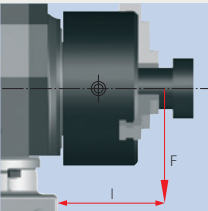
Workhead

- n 1-1000 min-1



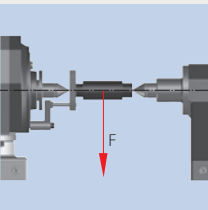
C-axis light

for lightweight, unround components and threads



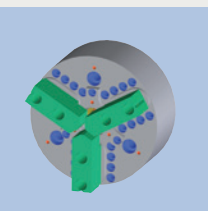
Load with chucked work

- 100 Nm



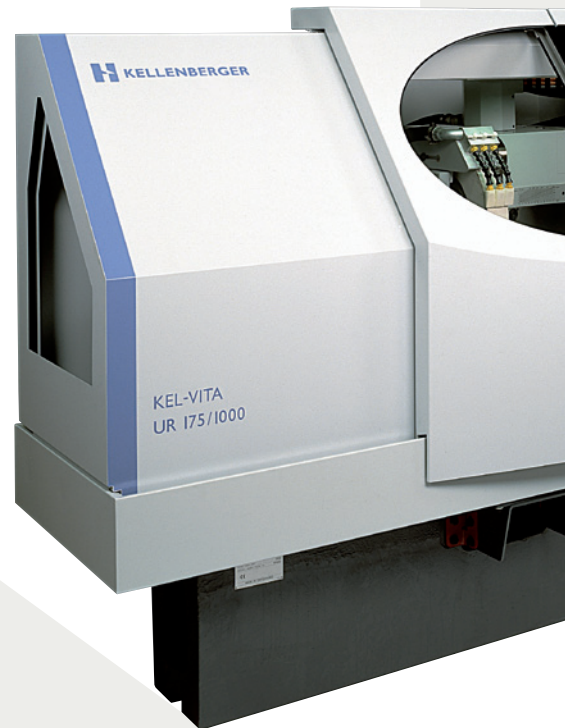
Load between centres

- 100 kg



Power-actuated clamping device

- Clamping force 5'000–20'000 N
- Power-actuated chuck
3 KCHP 160



Perfection at a glance



CNC control system

GE Fanuc 310is

- The latest generation control system with Windows CE
- Graphic programming with DXF import
- User guided ISO programming with expanded functionality
- Tool administration for a maximum of 99 grinding wheels
- Display of process data with various display variations
- USB, flash card and network connections

Wheelhead

- 8 different wheelhead variations for every application
- Required power 10 kW
- Grinding wheel diameter up to 500 mm
- Peripheral speed of the grinding wheel up to 63 m/s
- HF internal grinding spindle up to 8 kW


Table / slide

- Low-friction X-guide for the best infeed precision




Tailstock

- morse taper 4
- retraction of sleeve 48 mm



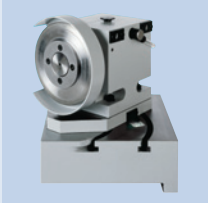
Micro-adjustment of tailstock

- adjustment range +/- 60 µm




High frequency dressing device

- for rotating dressing tools



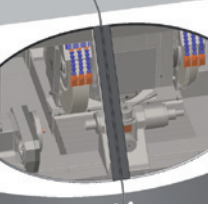
Equipment

- Arobotech-steady-rest



Automatic sliding doors

- Relief of Operator
- Faster workpiece change time



- Low-wear Z-guide with circulation lubrication
- Glass measuring devices on X and Z axes
- High dynamics with rapid traverse speeds of 20 m/min. on the Z axis and 10 m/min. on the X axis

Ergonomics

- Good visibility of the grinding process thanks to a generous viewing window
- Advanced optical and ergonomic design
- Clearly arranged, central interfaces on lower table for all table assemblies

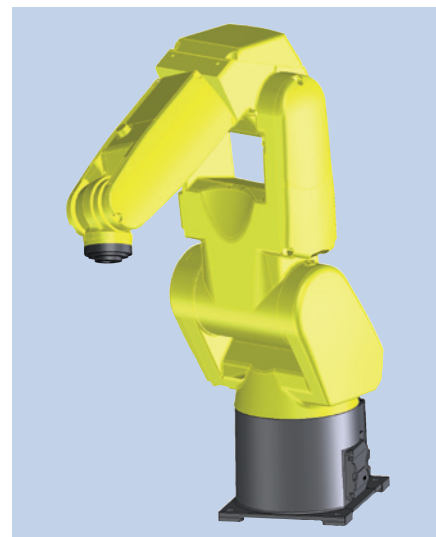
- User-friendly and swivelling operator panel

Costs

- Cost-optimised CNC – universal – grinding machine
- Economical C axis for light workpieces
- High utilisation of floor space

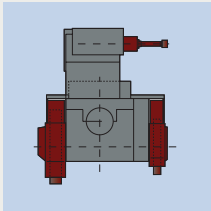
Automation

- Standard solutions with mid-range autonomy
- Integrated loading cell with quick changeover times
- Flexible system thanks to robotic solution



KEL-VITA – Wheelheads

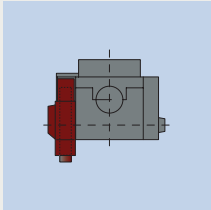
4



UR-wheelhead

for external, internal and face grinding

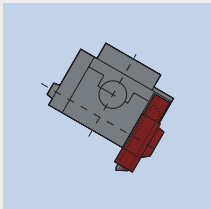
- v-constant for external grinding
- infinitely variable drive for external grinding



R-wheelhead

for external cylindrical grinding

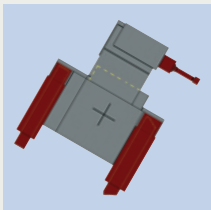
- v-constant



RS-wheelhead

for Angular infeed grinding

- grinding lengths 400 / 800 mm
- v-constant



URS-wheelhead

for Angular infeed grinding, internal and face grinding

- grinding lengths 400 / 800 mm



Spindle bearings

- high accuracy spindle bearings pre-stressed



Ring sensor at the workhead

Internal grinding

The noise is picked up with a ring sensor at the workhead and evaluated using a separate channel. Internal grinding is made more productive and process-reliable using the visual presentation of the signals.

Bore holes and also internal shoulders can be automatically sensed in an easy way using interplay with the Travelstick. The set-up time is shortened significantly as a result.

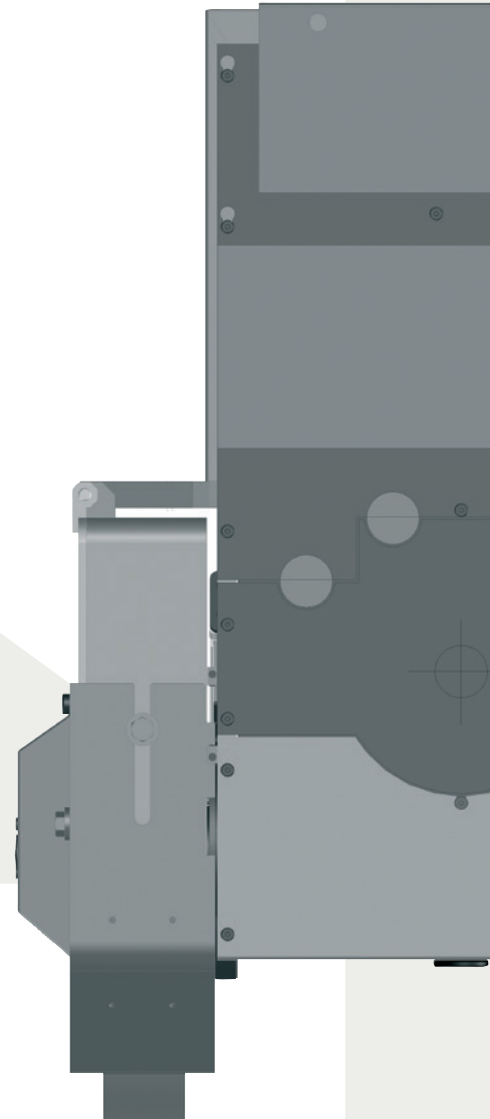
UR/URS-Wheelhead

- Wheelhead for external and internal cylindrical, and for face grinding
- Internal grinding with variable peripheral wheel speed
- Thermal stability, thanks to optimized spindle bearings and a water-cooled motor
- Motor output 10 kW

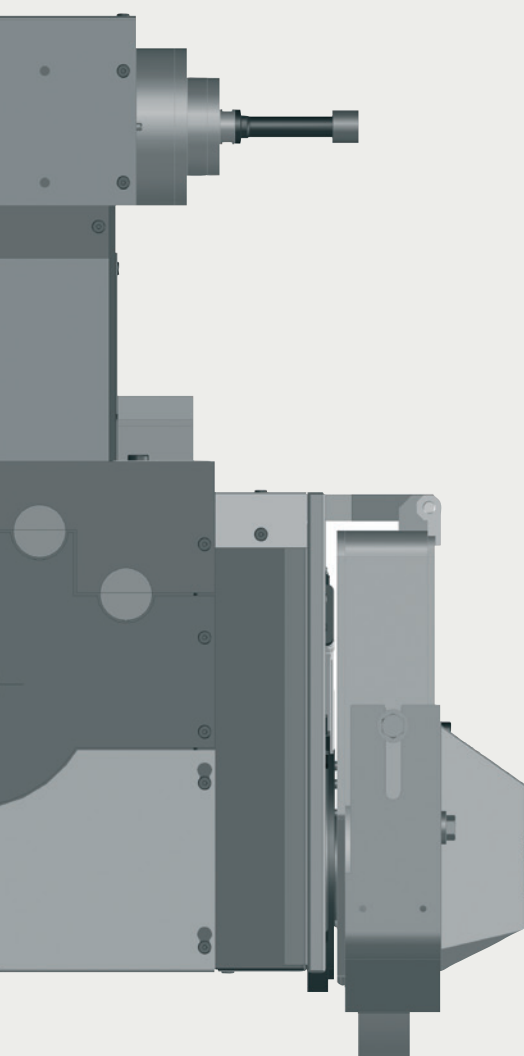
- Grinding wheel dimensions $\varnothing 400 \times 63 \times 127$ mm or $\varnothing 500 \times 80 \times 203$ mm

RS/R-Wheelhead

- Wheelhead for external cylindrical- or angular infeed grinding
- Thermal stability, thanks to optimized spindle bearings and a water-cooled motor
- Motor output 10 kW
- Grinding wheel dimensions $\varnothing 500 \times 80 \times 203$ mm



Internal Grinding / Swivelling System / Accessories



5

Internal grinding attachment

- Belt-driven internal grinding spindle
 - 828 = max. 28'000 min⁻¹
 - 842 = max. 42'000 min⁻¹
 - 860 = max. 60'000 min⁻¹



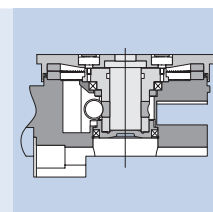
Internal grinding attachment

- Internal grinding spindle
 - 1230 = max. 30'000 min⁻¹
 - 1260 = max. 60'000 min⁻¹
 - Frequency converter



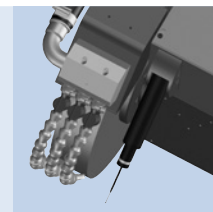
Indexing

- manual indexing 2.5°
- automatic indexing 1°



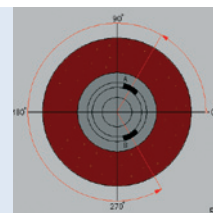
Active flagging device KEL-POS

- determines component position in Z-axis
 - mounted on wheelhead



KEL-BALANCE

- semi-automatic balancing for 1 or 2 wheels
 - automatic balancing for 1 wheel



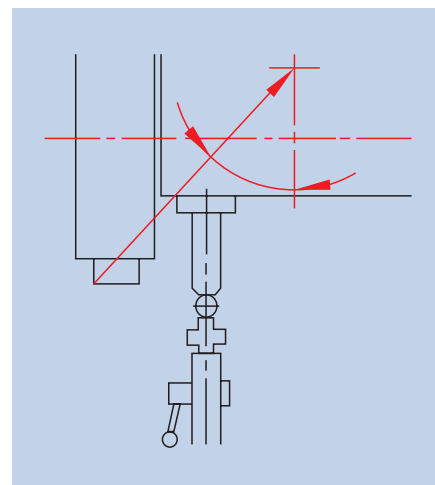
Indexing axis

The Hirth coupling with indexing ensures excellent positioning and repetition accuracy. Depending on the application, swivel devices for manual or automatic positioning of the wheelhead can be supplied.

- Manual swivelling of the wheelhead, 2.5° indexing
- Automatic swivelling of the wheelhead, 1° indexing

KEL-SET

The conversion time is reduced thanks to the application of KEL-SET. After changing the work-piece, it only has to be calibrated with a grinding wheel. In addition tapers and faces can be machined rationally in the KEL-ISO model/program. The Hirth coupling defines the location precision with a pitch of 1°.



Grinding wheel measurement system

GEFanuc Control System 310is

6



Monitor

- 15" TFT
- Softkeys
- Expanded process data display



Keypad

- Handwheel with confirmation key
- Travel stick
- Mobile handpanel as an option



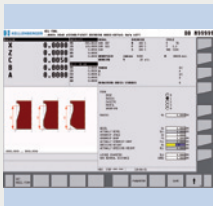
KEL-PROG

- Operator-controlled ISO programming
- Cycle selection via Softkeys
- Form editor



KEL-GRAPH

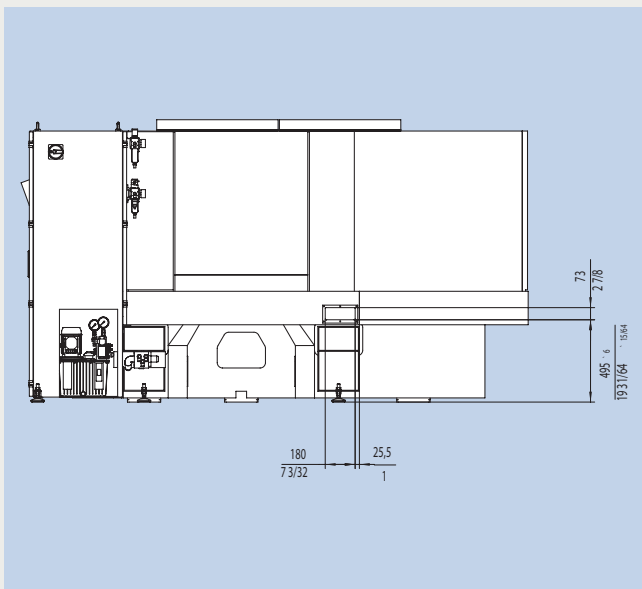
- Graphic programming
- Cylinders, radii, facets, tapers and contours
- DXF import via KEL-ASSIST



KEL-TOOL

- Tool administration
- Local and global dressing devices
- Standard wheel definition with multiple reference points

Coolant outlet



Technical data

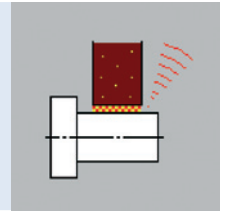
Machine type		1000
Main specifications		
Distance between centres	mm	1000
Grinding length	RS / URS	800
	R / UR	1000
Centre height	mm	175
Weight of workpiece between centres	kg	100
Load on chucked work	Nm	100
Mains voltage required		3 x 400 V / 50 Hz / 3 x 460 V / 60 Hz
Power consumption depending on equipment	A	35 – 80
Space required / length x width	mm	3000 x 2000
Table / slide: Z-axis		
Travel	mm	1150
Rapid travers speed	m/min	20
Resolution	um	0.1
Swiveling range of upper table	degree	9
Wheelslide: X-axis		
Travel	mm	350
Rapid travers speed	m/min	10
Resolution	um	0.1
Swivel devices		
Autom. indexing	Hirth coupling	degree
		1
Man. indexing	Hirth coupling	degree
		2,5
Swiveling range of upper table	degree	240
Wheelhead general		
Drive motor water-cooled	kW	10
Peripheral grinding wheel speed	m/s	35 / 45
Wheelhead R / UR		
Grinding wheel dimension lefthand side	mm	400 / 500
Options	mm	different dimensions
Grinding wheel dimension righthand side	mm	300 / 400
Options	mm	different dimensions

Control System / KEL-ISO / Accessories



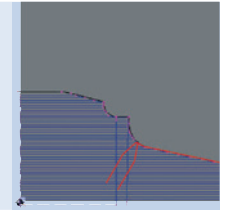
KEL-TOUCH

- GAP control with up to 3 sensors
- Operation and display integrated in the control system



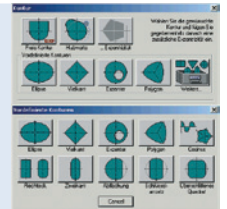
KEL-ASSIST

- SW package for the preparation of contour-grinding or profile-dressing programmes
- DXF-import, threads, cleaning cycles



KEL-POLY

- SW package for the preparation of unround-grinding programmes
- Correction of deviations in heights of centres



Movomatic

- Control unit ESZ 400
- Maximum 4 digital measuring heads
 - Display and operation on ancillary panel



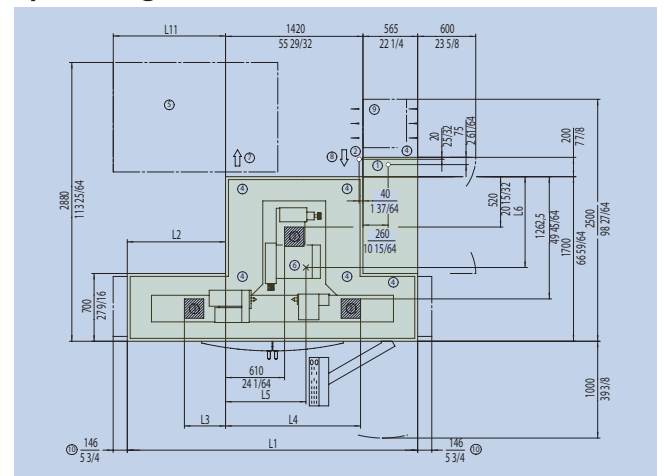
Marposs

- Control unit P7 ME
- Max. 4 analogue measuring heads
 - Display and operation on ancillary panel



Wheelhead RS / URS		
Grinding wheel dimension righthand side	mm	400 / 500
Options	mm	different dimensions
Grinding wheel dimension lefthand side	mm	400
Options	mm	different dimensions
Internal grinding attachment		
Bore for spindle	mm	80 / 120
Rotational spindle speed, motor infinitely var.	min-1	6000 - 21'000
Motor output	kW	3
HF-spindles Option MFV	kW	5.2 / 8
Rotational speed HF spindle MFV I230	min-1	30'000
Rotational speed HF spindle MFV I260	min-1	60'000
Workhead		
Rotational spindle speed	min-1	1 - 1000
Driving torque spindle	Nm	24
Spindle nose / internal taper		MT 5 / DIN 55026 #5 / ASA 5
Swiveling range	degree	110
Tailstock		
Internal taper		MT 4
Retraction of sleeve	mm	48
Micro-adjustment optional	um	+ / - 60
CNC control system		
GE Fanuc		310 is
Measuring systems		
Gap Control		KEL-TOUCH
Active longitudinal positioning		Movomatic / Marposs
Passive longitudinal positioning		Movomatic / Marposs
In-process gauging		Movomatic / Marposs
Balancing		KEL-BALANCE

Space-assignment



Distance between centres in mm

Type	L 1	L 2	L 3	L 4
600	2400	615	225	1395
1000	3000	1015	425	1395

Competence and a world-wide partnership



First-class sales and service organization for all the major international markets with local well-trained staff. **KELLENBERGER** guarantees expert advice and support for evaluation, purchase, installation and services of our high-quality grinding systems.

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