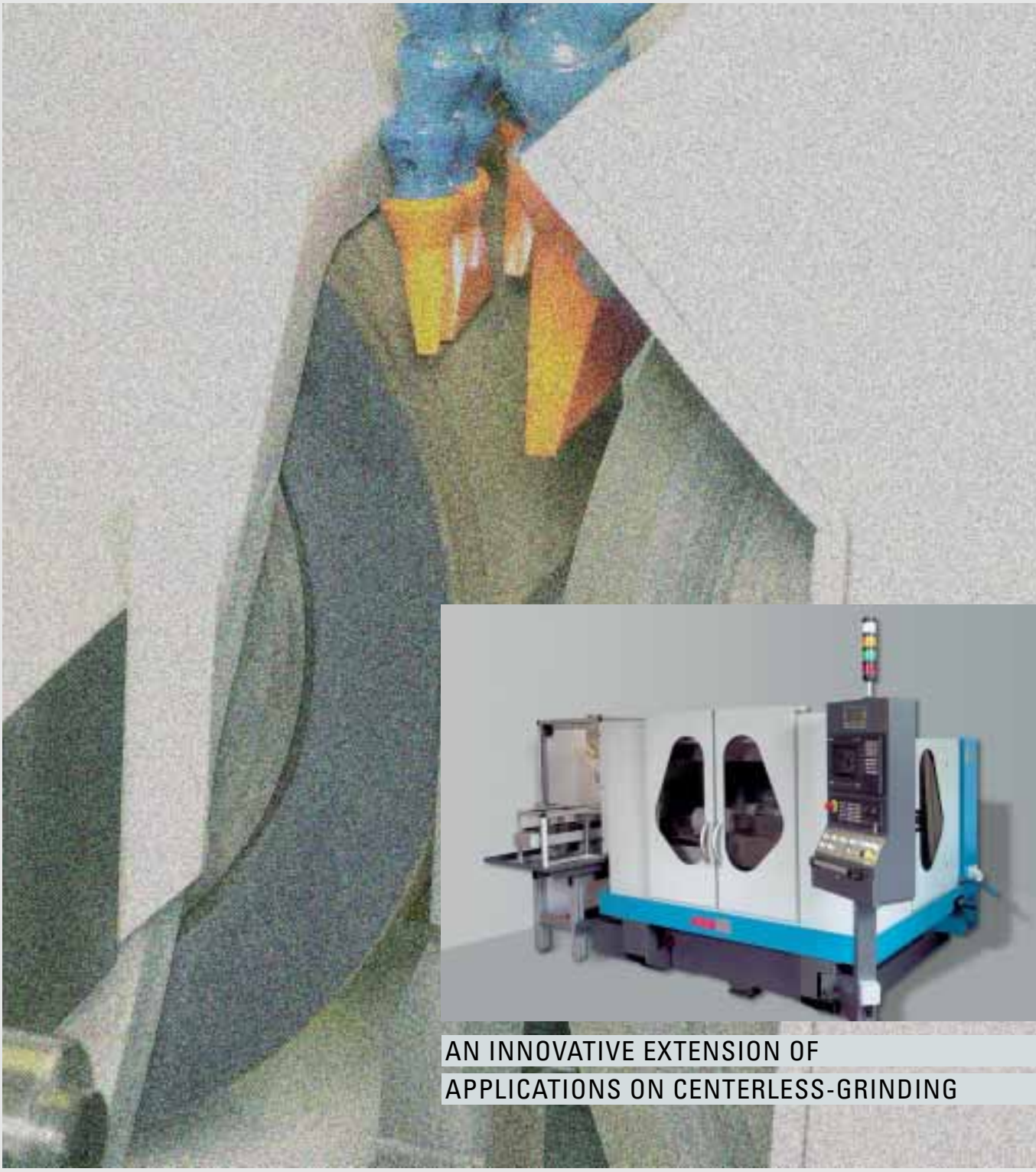
KEL-CURTIS®

THE NEW CNC-UNIVERSAL-CENTERLESS-GRINDING-MACHINE



AN INNOVATIVE EXTENSION OF
APPLICATIONS ON CENTERLESS-GRINDING

KELLENBERGER

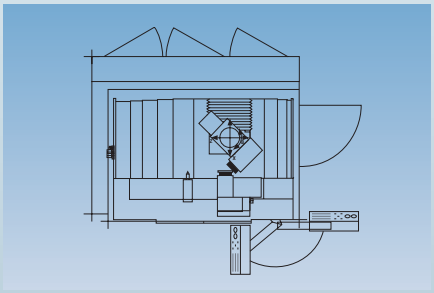
Precision Grinding Machines and Systems A HARDINGE® Company

KEL-CURTIS®

CNC-Centerless-Grinding-Machine

Machine Concept

The wheelhead is mounted on a cross-slide configuration (x-/ z-axes) and can thus be moved between grinding and dressing positions. This allows dressing to take place at the front of the dressing wheel whereby a perfect contact line between the grinding wheel and the component is guaranteed. Optionally: can be delivered with automatic B-axis as an option.



Grinding Wheel
Dressing Unit

Machine Base

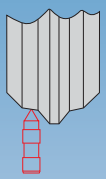
The KEL-CURTIS uses the same base as the well-proven KEL-VISION range of machines: X- and Z-slides with recirculating ball screws and absolute measuring system, resolution 0,1 µm. The machine base is completely separated from the machine enclosure and from the complete infrastructure. So it remains entirely free from effects of heat or vibrations.

Loader (Optional)

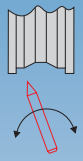
For automatic feeding a range of automatic loading units are offered with access to both ends of the workrest. There is also space capacity within the loading area for additional operations to be linked to the loader such as wash/dry, deburring, postprocess measuring etc.

Dressing Options for the Grinding Wheel

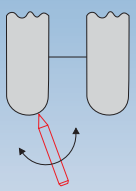
Six different dressing units, which can easily be exchanged against one another, can alternatively be mounted on to a rigid and fixed supporting plate on the machine.



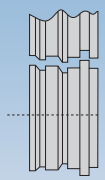
Dressing unit with two single-point diamonds, rough and finish-profiling



Swivel-type dresser for profiling up to 90° on both sides of the grinding wheel



Radius dresser e.g. for ball bearing production



Dressing unit for diamond rollers (for high-volume production)

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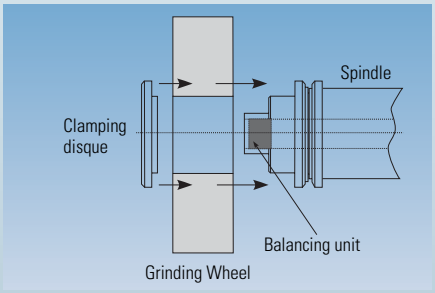
CNC-Centerless-Grinding-Machine



KEL-CURTIS Clamping-concept for Grinding Wheel

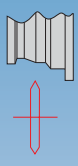
The new clamping-concept without flanges is designed for a fast and easy change-over of wheels, without the use of a lifting device. The spindle incorporates automatic grinding wheel balancing with GAP and crash control.

Operator Control Panel

A Siemens 840-D-control panel is mounted on a supporting arm which can be swivelled by 180°. The programming can thus be performed both from the front side and the righthand of the machine. A user-friendly designed software surface is allowing an easy and reliable parameter setting for the grinding process.

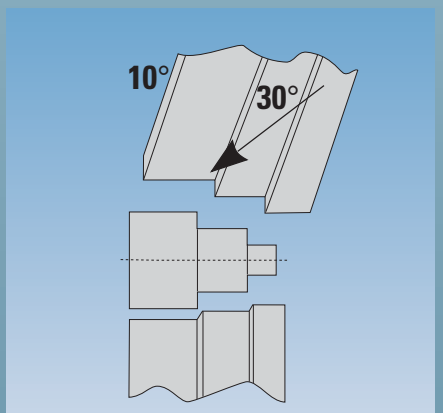
Concentric Grinding

The component is clamped by means of an attachment in a way which is guaranteeing that the center line of the component is being held at the level of the control wheel. The concentric areas of the component can then be ground using single- or multiple plunge cycles, also oscillating operations. With the automatic B-axis option tapers can equally be ground.



Unit with rotary dressing tool, for hard grinding wheels or for larger batches of components

Unit with diamond or silicon-carbide-dressing wheels for diamond or CBN-grinding wheels



Combined Angle-approach Grinding

By setting the grinding spindle into an angled position external diameters and shoulders can be ground in one operation, using a specially-profiled grinding wheel.

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Technical Data

Component capacities		
Component diameter	mm	0,5 – 50
Plunge grind length using a full wheel	mm	160
Plunge grind length using „Sandwich“ wheel	mm	250
Cross-slide: X-axis		
Travel	mm	320
Infeed rate	m/min	0,005 – 10
Resolution	µm	0,1
Cross-slide: Z-axis		
Travel	mm	650
Traverse speed	m/min	0,005 – 10
Resolution	µm	0,1
Workrest		
Horizontal adjustment range	mm	0 – 57
Resolution	µm	1
Wheelhead		
Swivelling range	degrees	- 10 / + 50
Grinding wheel dimensions	mm	250 – 350 × 160 × 127
Motor output	kW	9,2
Spindle speed max.	min-1	5500
Control wheel		
Swivelling range	degrees	+ / -5
Dimensions	mm	180 – 250 × 160 × 127
Motor output	kW	2
Spindle speed max.	min-1	500
Machine dimensions and weights		
Space required	mm	2500 × 2000
Weight incl. standard equipment	kg	4800
Power requirements		
Voltage		3 × 400 V / 50 Hz.
Power consumption	kW	15 kW
Compressed air consumption	l/min	60
Required air pressure	bar	5 – 6

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