KELLENBERGER VARIA
Cylindrical Grinding Systems

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STANDARD FEATURES

Machine

• The new VARIA from Kellenberger combines functional design with high-precision technology.
• Hydrostatic guides guarantee maximum dimensional accuracy in grinding tasks with interpolating axes.
• High positioning speeds and accuracies are assured by direct drives for the rotary axes.
• Generous X and Z axes strokes in combination with the platform concept for grinding head positions and dressing systems ensure universality and allow application-specific configurations.
• The proven integral transportation concept (hook machine) has been retained and reduces machine commissioning times and ensures a compact installation area.
• Durable hydrostatic guides and energy-efficient concepts guarantee a highly secure capital investment.

Designed and built in Switzerland

VARIA – evolution

Systematically optimised proven elements, e.g., the hydrostatic guide concept, combined with newly developed components such as the automatic cylinder correction system and synchronous tailstock provide a contemporary platform for flexibly satisfying all the varied requirements of our customers.
Hydrostatics
The hydrostatic guideways and the systematic separation of the machine base from heat and vibration-generating components guarantee the highest in precision and productivity.

All movements in the X and Z axes are practically friction-free at all speeds.

Hydrostatic B axis
Full-fledged NC axis with pre-tensioned hydrostatic guideway and direct drive. The pre-tensioned hydrostatics are the basis for higher accuracy and better surface quality. Steps of 0.0001 degrees can be traveled with ease.

Direct Drive System
The drive system based on a water-cooled high-torque motor guarantees a high level of torque.

A high-resolution rotary encoder is integrated in the absolute measurement system and requires no referencing.
LARGE WORK SPACE – UNIQUE TABLE CONCEPT

The machine table has been considerably extended so it allows unmatched, optimal positioning of the grinding wheel and a larger travel distance, but also many machining options and application-specific configurations.

FUNCTIONAL MACHINE CASING

The increased sheet metal thickness means even more process reliability, allowing larger internal grinding wheel diameter of up to 125 mm. With their large viewing windows, the generously-sized doors allow optimum control over the work process and make it easier to access the work space. The genuine glass laminated safety panes require very little maintenance.

COMPACT AND MAINTENANCE-FRIENDLY

Elements such as the power supply, electrical cabinet, and a central connection point for lubricating coolant, water cooling system, and compressed air were all integrated into the casing. Service and maintenance doors for unimpeded access to machine components are integrated into the back.

OPTIMIZED ENERGY MANAGEMENT


EASY COMMISSIONING

The integrated transportation concept (hook machine) shortens commissioning times considerably.

HEIDENHAIN GRINDplus 640 / KEL-SOFT

The perfectly coordinated interaction between the 3D KELSOFT software and the hardware produces optimal results for out-of-round grinding.

NON-ROUND GRINDING

Out-of-round grinding of any shape is even more productive, with increased precision at the same time due to hydrostatic guide-ways and direct workhead. This applies to small and large workpieces alike.

WORKHEAD

Robust, rigid construction on a strong base. Powerful drive performance. Infinitely variable spindle speed. Direct drive for heavy chuck parts. The airlock seal prevents the penetration of dirt and water and the formation of condensation.

TAILSTOCK

The construction of the tailstock is generous and sturdy in its dimensions. The nitried sleeve is mounted in robust linear bearings. Further options are a synchronous tailstock and a automated cylindricity corrections.
Universal Wheelheads
The universal wheelhead makes it possible to cover the different needs of users. In addition to external cylindrical, face and internal grinding, today there is an increase in demand for the use of 2–3 internal grinding spindles or the option of thread or out-of-round grinding. Grinding in one setting allows shorter throughput times and considerably raises the quality of the workpieces at the same time.

Diagonal Wheelheads
Diagonal wheelheads offer the option of rough and finish-grinding in one setting. With the additional use of HF internal grinding spindles even universal external, face and internal grinding are possible.

Tandem Wheelheads
The tandem wheelheads are designed to allow straight and angular plunge grinding work all in the same setting, without any collisions. With an additional internal grinding spindle, it is even possible to machine bore holes. Applications even exist with up to 4 grinding wheels.

Pivotable Dressing System
Flexible and optimum dressing process for workpiece, tool and material-specific coordination. Sharp grinding wheels are essential for high quality. New concepts for reducing setup time.
Heidenhain GRINDplus 640

The newest in Heidenhain hardware is the basis for meeting future requirements. Higher computing power produces higher productivity and quality.

- Kellenberger user interface with graphic programming and diagnostic support, including integrated remote servicing.
- 15” TFT monitor with softkeys and enhanced display of process data.
- Heidenhain interface with user-controlled ISO programming and selective help graphics.
- Reduction of cycle times by up to 40%.
- Axis control in the nano-range.
- Higher machining speeds for non-circular grinding with improved accuracy.
- Diagnostic possibilities for axis measurement systems, converters and bus systems.
- The height-adjustable keyboard also has a mobile hand panel with handwheel improving ergonomics.

Fanuc 3li

Optionally, the VARIA can be equipped with the Fanuc 3li.

KEL-PROG
Dialog-guided ISO program/cycle selector via softkeys.

KEL-GRAPH
Graphic programming/cylinder, cones/ DXF-import via KEL-ASSIST/collision monitor and visualization of the grinding process.

KEL-TOOL
Tool administration/local and global dressing devices/standard wheel definition.
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Distance between centres</th>
<th>39.37” / 62.99”</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(1000 / 1600mm)</td>
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<tr>
<td>Travel: Z-axis</td>
<td>46.06” / 65.75”</td>
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<tr>
<td></td>
<td>(1170 / 1670mm)</td>
</tr>
<tr>
<td>Travel: X-axis</td>
<td>14.37” (365mm)</td>
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<tr>
<td>Z-axis Rapid speed</td>
<td>20 m/min</td>
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<tr>
<td>X-axis Rapid speed</td>
<td>10 m/min</td>
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<tr>
<td>B-axis Swiveling range</td>
<td>240°</td>
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<tr>
<td>B-axis Rapid speed</td>
<td>0.5 (1/sec)</td>
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<tr>
<td>Motor output Wheelhead</td>
<td>13.41HP (10 kW)</td>
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</tbody>
</table>

| Motor output Internal grinding | 20.11HP (15 kW) |
| Center height                  | 7.87” / 9.84” / 11.81” |
| Weight of workpiece between centers | 330.69 / 661.39 lbs |
| Load on chucked work           | 118 / 236.02 / 553.17 ft lb |
| Space required                  | 145.67” x 86.61” / 185.04” x 86.61” |

All specifications and designs are subject to alterations without notice.

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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 workholding 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.