RIGIDITY AND PRECISION

HORIZONTAL BORING MACHINE › KB
EFFICIENT MULTI-FACE BORING MACHINE

The new generation of SORALUCE KB is the expression of SORALUCE’s values: reliability, precision and competitiveness. Within these concepts, customers find huge improvements in maintenance, ergonomics, high dynamics and safety in the work environment.

The SORALUCE KB-150-W range is the T type boring machine for efficient multi-face machining of large sized work pieces weighing up to 40,000 kg / 88,184 lb.
The design of the machine structure and dimensions have been optimised by an analysis based on “Finite Element Method” (FEM) simulation technique, optimising:

- Stiffness
- Antivibration
- Stress absorption
- Complete mechanical stability

High feed forces of the cross axis and quill spindle, resulting in high stock removal capacity.

Its heavy duty design and high dynamics provides optimum power and cutting speed capacity.

Full cast iron, enabling:

- Accuracy: long lasting precision
- Stiffness: proven physic stability
- Productivity: high cutting capacity

Thanks to the unique mechanical features of the cast iron and the optimised design, the precision and robustness of the machine are ensured for all the machine’s life.

The highly rigid structure and boring spindle design, using the latest technologies for thermal stability, ensure long term machine precision.

The T type configuration guarantees high rigidity of the machine and optimum machining efficiency. The machine undergoes specific reliability and precision testing, pursuant to the demanding SORALUCE standards.
COMBINED GUIDING AND DAMPING SYSTEM

SORALUCE is a pioneer in the use of linear guiding systems in high machining capacity equipment and heavy duty applications.

› The system combines our own specially developed hydrostatic damping elements with INA guiding systems on each axis

› The system guarantees immense stability eliminating any vibration during machining processes

› Using linear guiding systems since 1992

› More than 1500 references in the market working with this system

› It guarantees high precision and dynamics, low friction, low heat levels, minimum maintenance and reduced grease consumption

HIGH ACCURACY
Optimised machine structure and guiding system that guarantee the precision along the machine’s life.

INCREASED PRODUCTIVITY
High dynamics on the axes and machine’s stability provide the right features to ensure stable machining on demanding applications while enables the high performance tools to give their best.

ENERGETIC EFFICIENCY

› Low maintenance costs
› Low heat levels
› Reduced grease consumption
THE NEXT LEVEL OF INNOVATION

DAS SYSTEM
(DYNAMICS ACTIVE STABILISER)

Beyond machine tool limits

The DAS system is a device capable of actively increasing the dynamic rigidity of the machine, which reduces the risk of chatter and increases the cutting capacity by up to 300% improving dramatically the production time during the roughing process.

The DAS system measures the vibrations during the machining process and generates, in real and time, by means of ram built-in actuators, an oscillation force that opposes the vibration.

› Allows the use of maximum power throughout the whole working area
› Up to 300% improvement of productivity
› Better surface quality of the machined part
› Extends lifetime of the tools
› Avoids premature aging of machine components

Awarded with Quality Innovation of the Year 2015 and Best of Industry 2015
DYNAMIC HEAD CALIBRATION

Even more accuracy in the working area

Thanks to specific SORALUCE developments, head articulation positioning deviations have been reduced to a minimum. This system allows the compensation of head’s kinematic values on the whole working area.

› Automatic calibration for any type of head
› Transparent for the user: Automatic calibration of the head without the need to use specific programming functions
› Calibration of the head for any working area
› Offset error compensation due to thermal expansion
› Easy-to-use interface, 100% integrated with HEIDENHAIN and SIEMENS
QUILL

- Rigid quill spindle provided by quill body mounted on Ø 200 mm / 7.87” angular contact ball bearings lubricated with air-oil
- It includes a linear guiding system with an integrated measuring system
- Maximum thermal stability due to a complete cooling system of the gearbox and spindle motor systems
- High power transmission, guaranteeing high stock removal capacity
- Great feed force
- Quill orientation by direct encoder
In order to cater to the diverse needs of each customer, SORALUCE’s contrasted head technology is fundamental and provides the necessary customisation for an optimal configuration, with the possibility of including a large variety of standard heads and special solutions.

**ADDITIONAL MILLING AND BORING HEADS**

**IN-HOUSE MANUFACTURED**

**HIGH RELIABILITY**

**BROAD RANGE**

**UNIVERSAL HEAD**

- 41 kW / 53 kW / 54 kW
- 2.5° X 2.5° / 1° X 2.5° / 0.001° X 0.001°
- 4000 / 5000 / 7000 min⁻¹

**ORTHOGONAL HEAD**

- 40 kW / 41 kW / 53 kW / 54 kW
- 1° X 1° / 1° X 0.001°
- 4000 / 6000 min⁻¹

**FIXED HORIZONTAL BORING HEAD**

- 46 kW / 60 kW / 70 kW
- 3000 / 4000 / 5000 min⁻¹

**NC FACING AND BORING HEAD**

**AUTOMATIC ANGULAR ROTARY HEAD WITH MANUAL TOOL CHANGE**

**FACING HEAD**
HORIZONTAL BORING MACHINE › KB
### TECHNICAL SPECIFICATIONS AND LAYOUT KB

#### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>KB-150-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quill Ø mm / in</td>
<td>150 / 5.9&quot; * 130 / 5.1&quot; available upon request</td>
</tr>
<tr>
<td>Quill traverse, “W” axis mm / in</td>
<td>700 - 800 / 27 - 31&quot;</td>
</tr>
<tr>
<td>Ram traverse, “W” axis mm / min</td>
<td>7500 - 15000 / 295 - 590</td>
</tr>
<tr>
<td>Ram traverse, “V” axis (option) mm / in</td>
<td>1000 / 39&quot;</td>
</tr>
<tr>
<td>Thrust, “W / V (option)” axes N / lbf</td>
<td>40000 - 20000 / 8992 - 4496</td>
</tr>
<tr>
<td>Spindle power kW / Hp (S1) Up to</td>
<td>54 / 72</td>
</tr>
<tr>
<td>Spindle torque Nm / lbf.ft</td>
<td>2344 - 4490 / 1728 - 3311</td>
</tr>
<tr>
<td>Spindle speed min⁻¹</td>
<td>3500</td>
</tr>
<tr>
<td>Spindle nose ISO-50</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>KB-150-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitudinal traverse, “X” axis mm / in</td>
<td>3000 / 118&quot;</td>
</tr>
<tr>
<td>Rapid traverse, “X” axis mm/min</td>
<td>20000 / 787</td>
</tr>
<tr>
<td>Table size / loading weight mm-kg / in-lb</td>
<td>2000x2000 - 20000 / 78&quot;x78&quot; - 44092</td>
</tr>
<tr>
<td>Table rotation, “B” axis degrees</td>
<td>0,001°</td>
</tr>
<tr>
<td>Vertical traverse, “Y” axis mm / in</td>
<td>2600 - 3200 / 102&quot; - 126&quot;</td>
</tr>
<tr>
<td>Cross traverse, “Z” axis mm / in</td>
<td>2000 - 2500 - 3000 - 4000 - 5000 / 78&quot; - 98&quot; - 118&quot; - 157&quot; - 196&quot;</td>
</tr>
<tr>
<td>Rapid traverse, “Y/Z” axes mm/min / in/min</td>
<td>17500 - 35000 / 689 - 1378</td>
</tr>
<tr>
<td>Thrust, “Y/Z” axes N / lbf</td>
<td>40000 - 20000 / 8992 - 4496</td>
</tr>
<tr>
<td>Heads Manual / Automatic / NC facing / Seat pocket tools / Ejector drills</td>
<td></td>
</tr>
<tr>
<td>CNC system HEIDENHAIN TNC 640 / SIEMENS 840 D sl</td>
<td></td>
</tr>
<tr>
<td>Coolant External coolant system / Internal coolant system up to 70 bar / 1015 psi</td>
<td></td>
</tr>
<tr>
<td>Tool magazine No. tools</td>
<td>40 / 60 / 80 / 100 / 120 / 150</td>
</tr>
<tr>
<td>Machine weight kg / lb</td>
<td>36500 / 80468</td>
</tr>
</tbody>
</table>

#### Dimensions

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>W</th>
<th>V (option)</th>
<th>A</th>
<th>H</th>
<th>J*</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000 / 157&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5000 / 196&quot;</td>
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</tbody>
</table>

Dimensions in mm / in | J*: 1100 / 1350 table width
ROTARY TABLE

› Unique highly robust design
› Prime technological precision and stability parameters
› Accurate positioning repeatability
› High dynamics with rotation speeds up to 4.2 rpm (S1) and 6.7 rpm (S6)
› Rotation by high precision bearing and low friction surfaces for tables up to 10,000 kg / 22,046 lb loading capacity. Rotation by hydrostatic bearings for tables up to 40,000 kg / 88,184 lb loading capacity
› Rotary encoder with up to 36,000 signals, guaranteeing extremely precise angular positioning and perfect precision. Infinitely variable positioning (360,000) in each angular position and NC-axis controlled for rotary milling
› Rotation by dual drive system through a large external crown gear with helical gearing and zero backlash precision gearbox
› Hydraulic clamping system up to 140,000 Nm / 103,244 lbf.ft tangential clamping force
› High load rate, handles components of up to 40,000 kg / 88,184 lb. A very large encoder in relation to table size ensures long term precision
› Locator pins for each 90º increment ensuring high accuracy (option)
SORALUCE has developed an automatic head changing system with adapter flanges. The system consists of a specially prepared machine ram and a specific head adapter flange in each head.

Accurate ram and the head fitting is achieved by hirth couplings, with each milling head clamped by several hydraulic clamping cylinders. Fluid and electricity supplies are provided via quick release couplings.

A fully enclosed pick-up station is provided to protect heads from pollution from the machining processes and workshop environment when not in use.

The automatic head changing system developed by SORALUCE allows for automatic changing of facing heads, angular heads, rotary couplings, seat pocket tools, ejector drills or any special heavy tooling.

› Experience since 1996
› Fully modular system
› More than 400 machines working with this system
TOOL MAGAZINE

Installed on a separate closed area, the tool magazine is located out of the working area at one side of machine. The protection between the working area and the magazine is equipped with an automatic window which allows tool change. Different alternatives are offered such as chain-type tool magazines for 40 / 60 / 80 / 100 / 120 / 150 tools or robot based tool changer with up to 250 tools.

CNC UNITS

HEIDENHAIN TNC 640
The TNC 640 NC high-end control by Heidenhain boasts the qualities demanded by highly technological machines now including multitasking capabilities.
› Wide variety of milling and turning cycles
› Time and cost saving
› HEIDENHAIN conversational or DIN/ISO programming with the simple Klartext dialogue

SIEMENS 840 D SL
The SINUMERIK 840D SL is a premium class CNC, with a superior system flexibility. It is the CNC of choice when opening up completely new technology fields.
› Modular and scalable
› Benchmark in open architecture
› Communicative at all levels
VERSATILITY
HIGHLY CONFIGURABLE

SORALUCE KB machines can be fitted with a single table, with automatic pallet changing system or integrated in a FMS (Flexible Machining System) cell with high levels of automation.
KB-150-W-RAM (RAM OPTION)

Horizontal boring machine integrating ram with 1000 mm / 39". It allows for deep bore machining, using the complete column, ram and quill traverses.

The spindle nose reaches the centre of the table with the ram traverse, without the need of the quill traverse.

The ram horizontal boring machine is a highly rigid solution assuring no vibrations and providing high quality machining results.
[1] Inconel machining
[2] High feed forces of the cross axis and quill spindle, resulting in high stock removal capacity