BED TYPE MILLING CENTRE

HIGH PERFORMANCE IN A COMPACT MACHINE

PROVIDING ACCURATE COMPLEX MILLING

The TR milling centre is a bed type milling machine notable for its optimum stiffness and mechanical stability. It stands out on account of its long-lasting precision, resulting from a strict design and assembly process. The ideal machine for high precision mould and die manufacturers, and medium sized workpiece subcontractors.
Robust design, high performance

BACKGROUND CONCEPTS

Long lasting high precision
Rigid and stable design for the highest precision: all main machine elements made from cast iron; GG30.

Heavy machine
A heavy machine compared to other bed type milling centres on the market, supports workpiece loads up to 16500 kg.

HIGH DYNAMICS

High dynamics
High dynamics with speeds up to 35 m/min, acceleration of $2 \text{ m/s}^2$ in longitudinal, vertical and cross axes, resulting from a combination of linear guiding and double rack and pinion driving systems. Working feed force of 16000 N on all axes.

CONSTRUCTION CHARACTERISTICS

Eco-design machine
SORALUCE is the first company in the Machine Tool sector to gain certification for its Product Design and Development Process Management System (Eco-Design) in accordance with UNE 150.301:2003 standard (ISO 14006). This standard specifies requirements for organisational product and service improvement design and development processes, through an environmental management system.

SORALUCE was granted certification through its redesign of the TR milling machine, producing an overall environmental impact reduction in excess of 18%:

LCA (Life cycle analysis) before and after redesign.

- 11% less consumption during manufacturing.
- 16% less electricity consumption during use.
- 21% less lubricant during use.

Driving system
The longitudinal axis is driven by two servomotors, two gearboxes and a double rack and pinion. The vertical and cross axes are driven by preloaded ball screws with double recirculating nuts.
SORALUCE MILLING-BORING HEADS

SORALUCE Milling-Boring Heads are well known for being first class thanks to their reliability.

The broad range of SORALUCE heads (Universal, Orthogonal, Horizontal, Modular Quill, Angular, etc.) are distinguished by their precision and high performance, enabling accurate complex milling, boring, drilling, reaming and taping operations.

Complete design, manufacturing, assembly and verification processes are conducted in-house, under the same roof, by an experienced team of highly skilled designers and assembly engineers.

To ensure high quality heads, the workshop is equipped with state-of-the-art, temperature and humidity controlled, high precision manufacturing machinery and assembly equipment.

With strict in-process quality controls and exhaustive run-off on specific test benches, SORALUCE certifies the highest quality for the most critical elements on this kind of machines.

MILLING HEAD RANGE

Universal head
32 kW
2.5° x 2.5° / 1° x 2.5° / 0.001° x 0.001°
3000 / 4000 / 5000 / 6000 rpm

Compact orthogonal head
32 kW
2.5° x 2.5° / 1° x 1°
4000 / 5000 rpm
Thanks to the specific SORALUCE developments, head articulation positioning deviations have been reduced to a minimum. These allow for the compensation of head kinematic values and orthogonal position offsets (M10 functions), for any position in the work area.

Some advantages of the system developed by SORALUCE:

- Calibration for any type of head.
- Calibration for any position in the work area.
- Calibration for any angle, not just orthogonal.
- Offset error compensation due to thermal expansion.
- Measure distance between different head spindle noses (head changing system machines).
- Easy-to-use interface, 100% integrated with HEIDENHAIN iTNC530 HSCI and SIEMENS 840D SL.

A TR machine equipped with the head calibration system is the best choice for high precision and reliability.

The TR milling centre can be equipped with the Soraluce orthogonal head, with its compact design specially conceived for machines with an in-line motor. It allows the simultaneous positioning of both head articulations, reducing non-production time. This head enables the end user to take advantage of full machine travel: eliminating the need for additional workpiece support fixtures, due to close to table head spindle accessibility for both frontal and lateral milling.

**Inverse machining:**
An extra feature on orthogonal heads is machining in negative positions. The machine enables the orthogonal head to be positioned for inverse machining, up to -45°. This eliminates the necessity for additional set-ups, resulting in improved overall cycle times and finish quality with less component manipulation. Such advantages, and very easy indexing head programming, make this a very popular option amongst our customers.
RESPONDING TO CUSTOMER NEEDS

COMPACT AND ERGONOMIC

The TR milling centre has been designed to be compact and ergonomic. The machine is equipped with a full enclosure with two sliding doors at the front and one at the back on the left, providing easy access to the work area from the front and rear.

The CNC control is contained in a CNC pendant that can be positioned at the front or rear-side of the machine, depending on customer preference, to provide proper operational control.

HIGH PERFORMANCE

High precision and efficiency provided by a high torque direct drive spindle motor, which also guarantees low heat, reduced noise and no maintenance.
Option detail: Full splash guard.
### TECHNICAL SPECIFICATIONS TR

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>TR-25</th>
<th>TR-35</th>
<th>TR-45</th>
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<td>mm 2860 x 1200</td>
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<td>Vertical traverse “Y” axis</td>
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<td>Cross traverse “Z” axis</td>
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### LAYOUT TR

- **Universal head**
- **Compact orthogonal head**

### Dimensions in mm.

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<tr>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>A</th>
<th>B</th>
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</table>
Convex mould milling using a compact orthogonal head. Thanks to its inverse machining capability, all component interpolation finishing can be carried out in a single setup.

For complex angle machining, the machine can be equipped with a universal stepless positioning head, so that any angular position in the work area can be reached.

Railway gearbox boring operation. TR machine equipped with rotary table, clamping fixtures and cutting tools.
A machine with an universal mechanical head is the perfect solution for both rough and finish machining.

High precision finishing of moulds by using electro spindles adapted to the automatic head. Electro spindles are fully integrated both mechanically and into the NC System for correct operation.

Repetitive drilling operations can be carried out in any position in the work area by using reliable through-spindle coolant systems for emulsions that include high performance filtering units or MQL systems.
By the customer's side from the start:

- Local sales service team at your disposal.
- Production process analysis by local product engineers.
- Feasibility analysis.
- Technical & financial studies.

Custom solutions:

- Custom machining solutions.
- Machining process improvement studies.
- Tooling.
- Fixturing.
- Software.
- Customer part machining acceptance trials.

Project management:

- Machine set-up & commissioning.
- Personnel training.
- Production assistance.

Together throughout a machine's life:

- Technical assistance by local service engineers.
- Telephone support.
- Hotline.
- Service contracts.
- Preventive maintenance.
- Spare part management.

MORE INFORMATION ABOUT SORALUCE TR BED TYPE MILLING CENTRE AT www.danobatgroup.com

If your mobile phone has the QR code reader tool you will be able to go directly to our site at www.danobatgroup.com