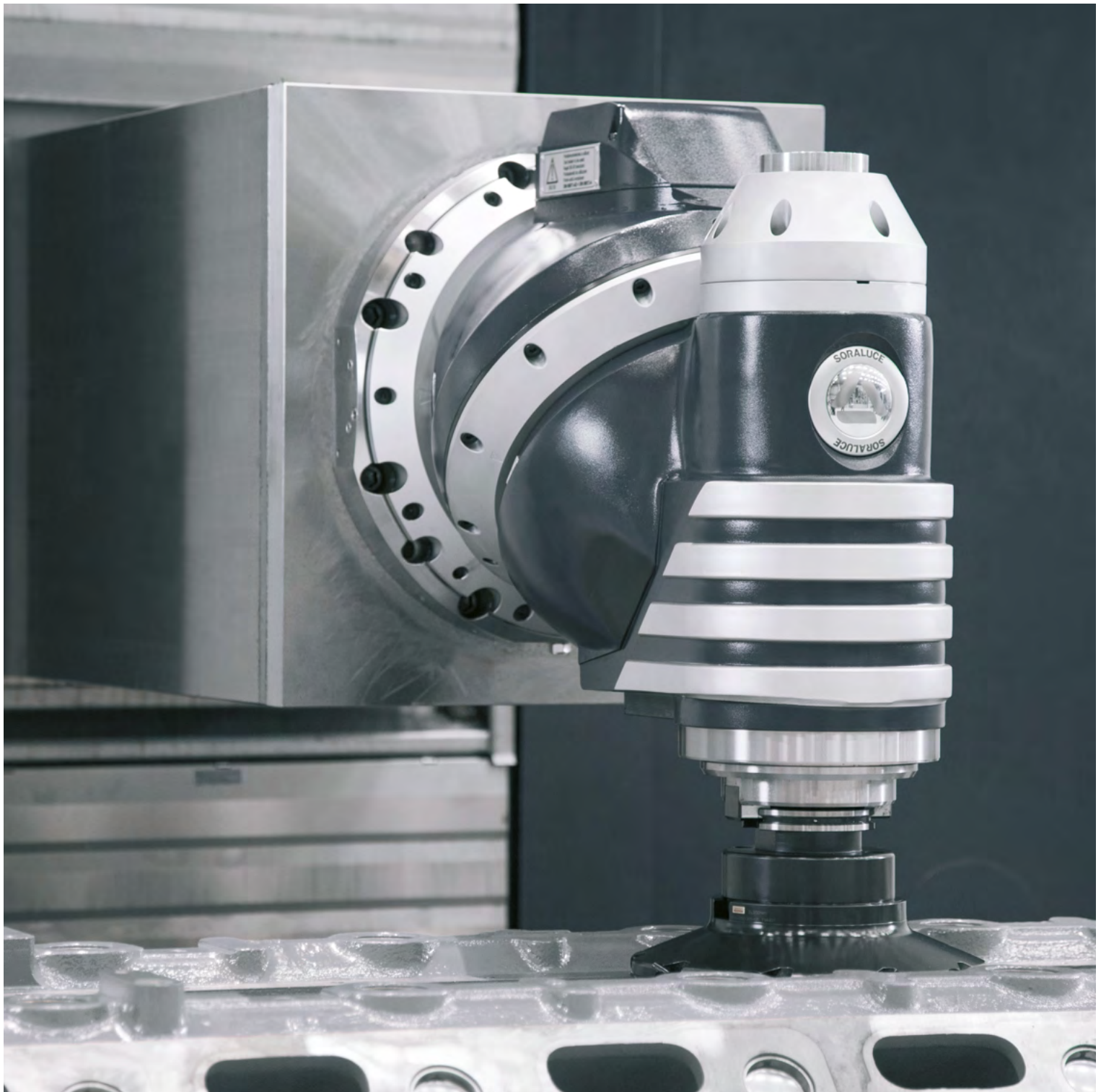


HIGH PERFORMANCE IN A COMPACT MACHINE

**BED TYPE MILLING
MACHINES › TR**





ACCURATE AND COMPLEX MACHINING

The new generation of SORALUCE TR brings the customer important improvements in maintenance, ergonomics, high dynamics and safety in the work environment.

The SORALUCE TR is a bed type 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 SORALUCE TR is a high performance machine designed in a compact and ergonomic format.

It is the ideal machine for high precision mould and die manufacturers and medium sized precision engineering workpieces, ensuring highest precisions and efficiency results.



BACKGROUND CONCEPTS

DESIGN

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 DYNAMICS

The SORALUCE TR milling machine is a cutting-edge solution:

- › Speeds: up to 35 m/min on all axes
- › Accelerations of 2 m/S² on all axes
- › Working feed force: 16000 N on all axes
- › High capacity for chip removal
- › Stable working conditions
- › No maintenance

The longitudinal axis is driven by two servomotors, two gearboxes and a double rack and pinion. This ensures the best dynamics for the workload on the table, ensuring an optimum interpolation independently to the component's weight.

LONG LASTING PRECISION

Full cast iron, enabling:

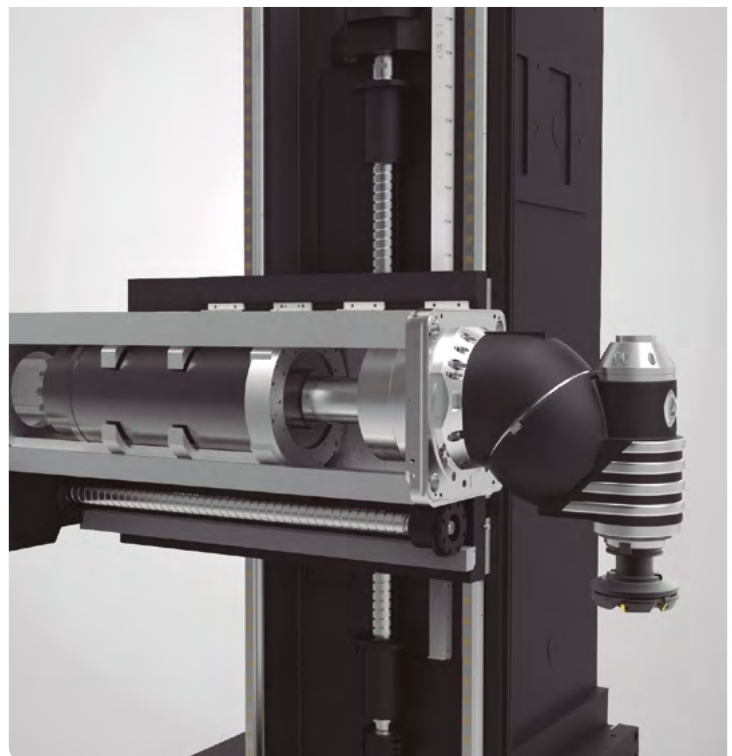
- › Accuracy: long lasting precision
- › Stiffness: proven physic stability
- › Productivity: high cutting capacity

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.

HIGH PERFORMANCE

High torque direct drive spindle motor inside the ram, with a built-in cooling system, providing:

- › Great precision
- › High efficiency
- › Low heat
- › Reduced noise
- › No maintenance
- › No losses in the transmission
- › Stable working conditions



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

**PATENT
PENDING**



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



TOTAL MACHINE

THE COMPLETE WORKING AREA ANALYSED FOR AN OPTIMAL RESULT

The new SORALUCE TR Generation is based on a complete revision of the machine from the user's point of view focusing on improving operation efficiency and developing a Total Machine Concept.

The Total Machine Concept takes into account the machine but also the complete working area. All the interactions of the operator with the different machine elements are analysed for an optimal implementation.

Not only the machine, but the work area and its surroundings are analysed as a whole in order to guarantee an optimal final result. All of the interactions are studied to optimise from the clamping and loading of the workpiece to its removal once machined and its subsequent cleaning. The environment and its processes must be linked to the machine's own work, making all parts of the entire process as simple, safe and ergonomic as possible.

With this new design concept, SORALUCE has added to its equipment large number of innovations not only with the aim of facilitating work and making them a safer environment, but also to simplify maintenance and to minimise stoppage times, thus increasing the productivity and profitability of the machine.



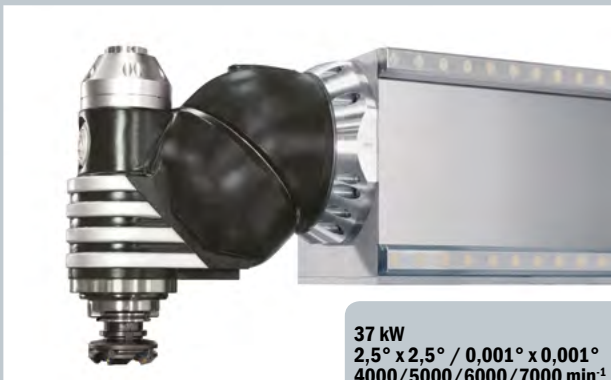
MILLING AND TURNING HEADS

IN-HOUSE MANUFACTURED
HIGH RELIABILITY
BROAD RANGE

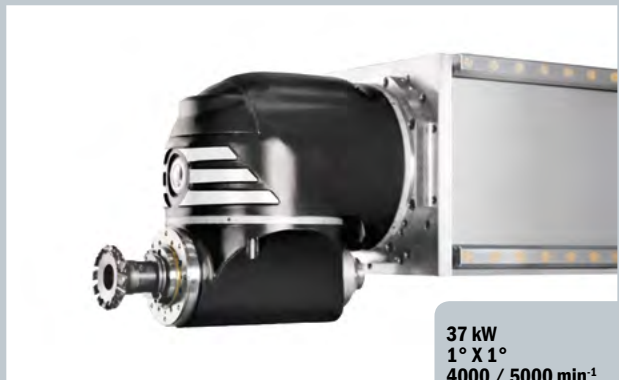
In order to cater to the diverse needs of each customer, SORALUCE's contrasted head technology is fundamental and provides the necessary customisation for an optimal

configuration, with the possibility of including a large variety of standard heads and special solutions.

UNIVERSAL HEAD



ORTHOGONAL HEAD

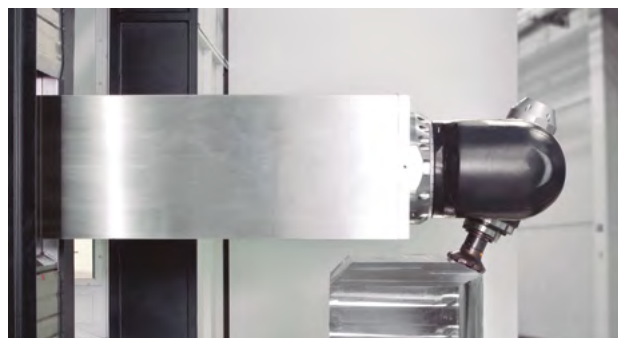


COMPACT ORTHOGONAL HEAD

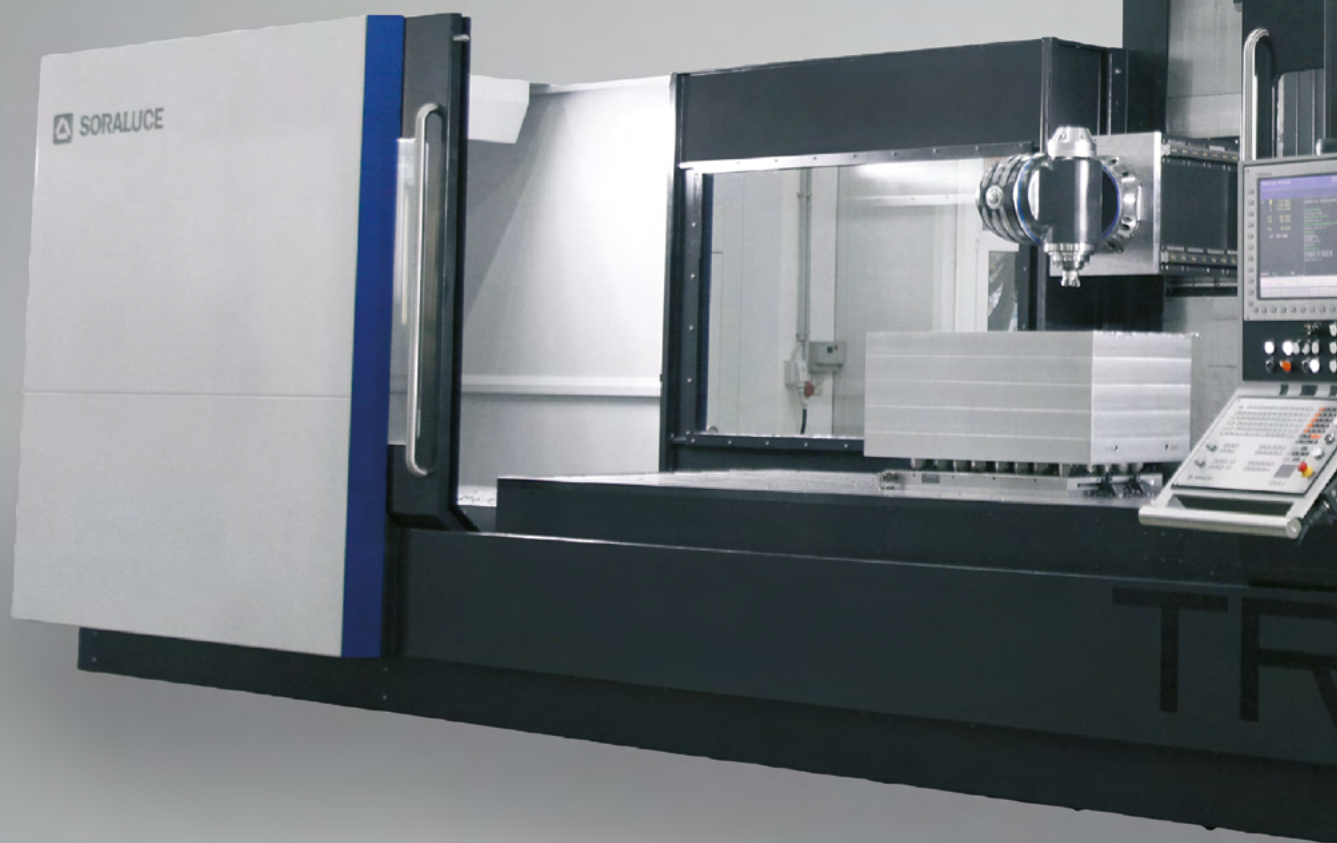
The SORALUCE TR milling machine can be equipped with the SORALUCE orthogonal head indexing at 1° x 1°, with its compact design specially conceived for machines with an in-line motor. It allows the simultaneous positioning of both head articulations, reducing non-production time.

Inverse machining capability:

- › Up to -45°
 - › No additional setups
 - › Improved cycle time
 - › Better finishing quality
 - › Minimum manipulation
-
- › Full advantage of machine travel
 - › No need for additional work piece support fixtures
 - › Close to table head spindle accessibility for both front and lateral milling



HIGH PERFORMANCE
IN A COMPACT
MACHINE › **TR**



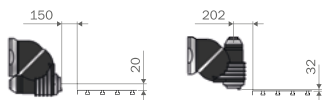


TECHNICAL SPECIFICATIONS AND LAYOUT TR

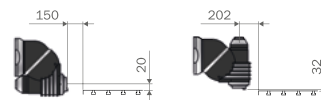
CHARACTERISTICS		TR-25	TR-35	TR-45
Longitudinal traverse "X" axis	mm	2500	3500	4500
Vertical traverse "Z" axis	mm	1600		
Cross traverse "Y" axis	mm	1300		
Table area	mm	2860 x 1200	3860 x 1200	4860 x 1200
T slots	mm	1 x 22H8 + 7 x 22H12		
Maximum table capacity		7500	10500	13500
Heads	kg	Universal / Orthogonal		
Spindle power		43		
Spindle nose taper	kW	ISO-50 / HSK-100		
Spindle speed range		4000 / 5000 / 6000 / 7000		
Rapid traverse	min-1	35000		
CNC system*	mm/min	Heidenhain TNC 640 / Siemens 840 D SL		
Coolant system		External coolant system over a ring / Internal coolant system up to 70 bar		
Tool magazine		20 / 30 / 40 / 60		
Machine weight	No. tools	21000	23000	25000

* Other CNC systems under request

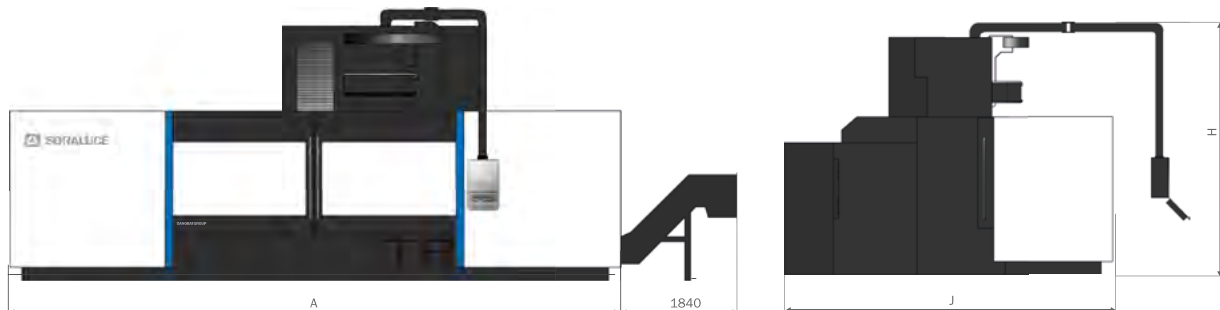
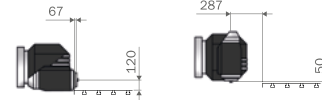
UNIVERSAL HEAD



STEPLESS HEAD



COMPACT ORTHOGONAL HEAD



	X	Z	Y	A	H	J
TR-25	2500	1600	1300	7100	4093	4870
TR-35	3500	1600	1300	9100	4093	4870
TR-45	4500	1600	1300	11100	4093	4870

Dimensions in mm.

VERSATILITY HIGHLY CONFIGURABLE

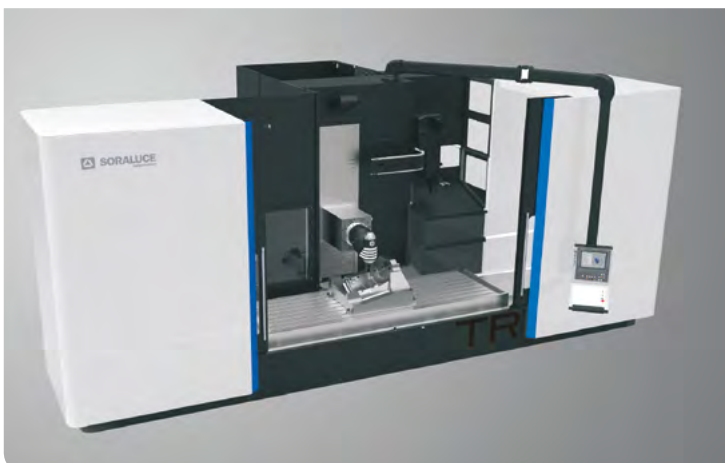
GUARDING SYSTEMS

The machine is equipped with a full peripheral 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. Optionally machine can be equipped with total enclosure.



TOTAL ENCLOSURE OPTION

WORKING FROM THE REAR SIDE



TOOL MAGAZINE

- › Tool magazine for 40 / 60 / 80 tools
- › The storage area is protected from chips and coolant
- › Simple and ergonomic tool loading/unloading system
- › Advanced tool management options available on request



CNC UNITS

Heidenhain TNC 640

The TNC 640 NC system 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



HUMAN MACHINE

SORALUCE has created a new range of machines that will revolutionise the market thanks to the creation of a more human and ergonomic environment, while also significantly increasing the safety and ergonomics parameters.

COMFORT, SAFE AND ERGONOMIC

- › Better accessibility to the machine table area
- › Working area perfectly lightened
- › Signalling: better identification of elements
- › More flexible control panel arm; operator can fix it the most suitable position
- › Enhanced visibility, ample glass surface
- › Higher rigidity of the enclosure provided by a thicker plate and lateral supports
- › Integration of the hydraulic group inside the enclosure, affording clean machine environment

Accessible
table area

Work area
lightening

Front position
of CNC panel

Back position
of CNC panel



TOOL MAGAZINE

- › Full visibility of tool magazine
- › Storage area's closure protecting sensitive items inside it from chips and coolant
- › Sliding shutter to ease tool loading / unloading

MAINTENANCE

- › The intervention areas are now more accessible
- › Sliding shutters and doors to avoid the disassembly of panels
- › Improved protection of the critical areas of the equipment
- › Gauges and levels visible from the outside the machine without removing panels
- › Ample areas to ease the maintenance tasks
- › Specific signals to indicate maintenance and service points

Signaling

Full visibility
of tool
magazine

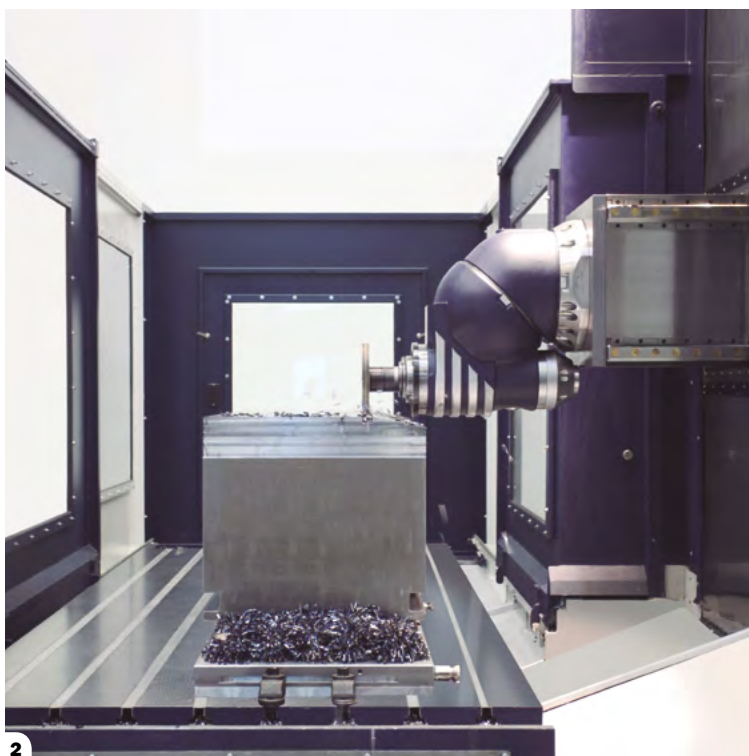
Sliding shutters to
easy tool loading /
unloading

Critical areas
protection



LEADING THE MOST DEMANDING INDUSTRIES

The SORALUCE TR provides high stock removal capacity and precision machining on multiple kind of pieces of different sizes and shapes with proven efficiency.



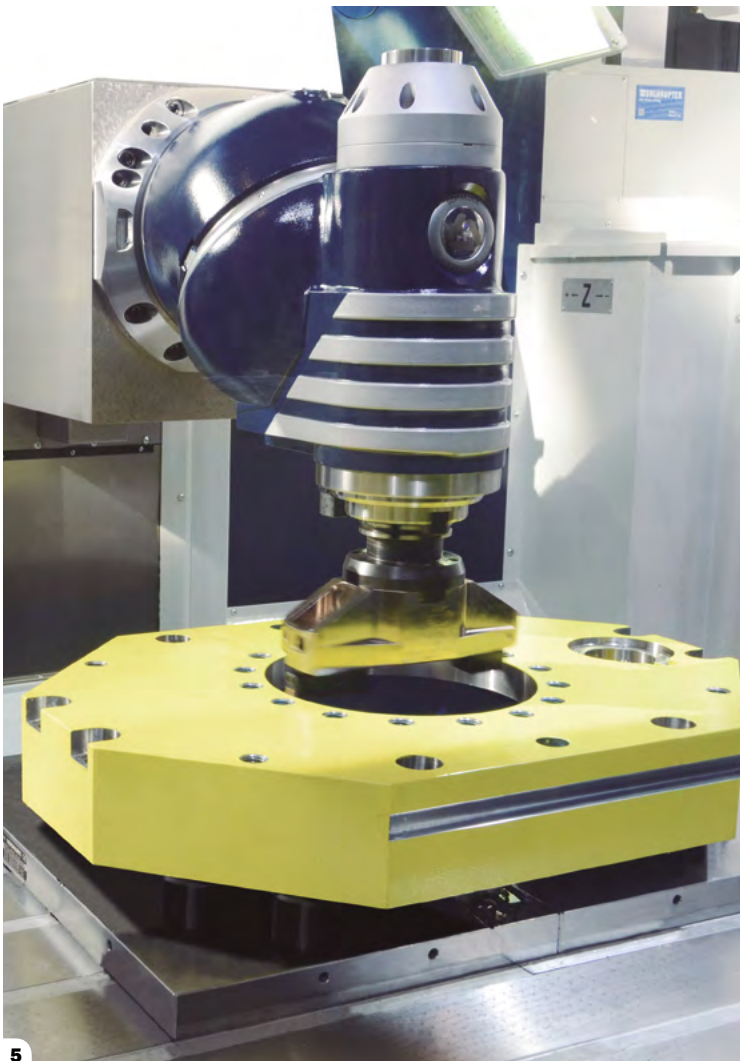
- [1] Block preparation with a porcupine tool
- [2] Block slotting
- [3] Fine boring operation in a high precision gearbox
- [4] Die finishing operation with a orthogonal head with a ball mill
- [5] Fine boring operation with a precision tool on a bearing support
- [6] Mould finishing operation with stepless positioning head
- [7] Repetitive drilling operation on a stainless steel part



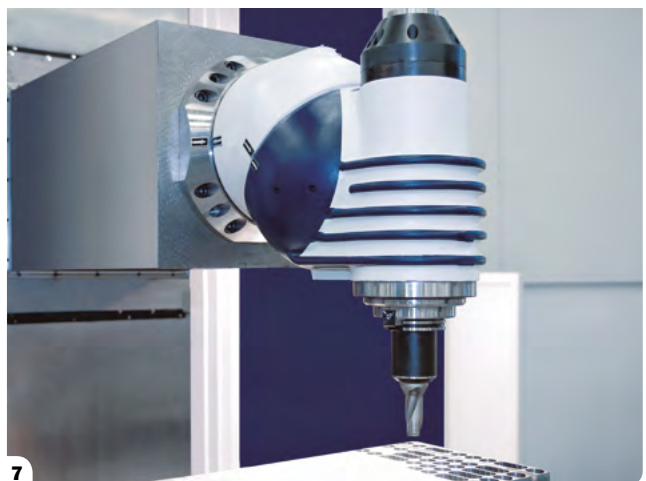
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DANOBATGROUP

SORALUCE
Osintxu auzoa
P.O. Box 90
E-20570 BERGARA (Gipuzkoa) Spain

Tel.: +34 943 76 90 76
Fax: +34 943 76 51 28
soraluce@soraluce.com
www.soraluce.com

