

JUARISTI

Th 5 Series

**HIGH SPEED
MACHINING CENTERS**



HORIZONTAL

5-AXIS & UNIVERSAL MACHINING CENTER

JUARISTI undergoing a deep development of their boring and milling centers, sets a new milestone with the manufacturing of the new Th5 series: high production machining centers.

This new center is designed to ensure high dynamic properties as well as utmost stability and durability, having 40 m/min rapid feed and 3 m/s² acceleration on XYZ axes. The travels can reach 4000-2500-2500 mm respectively and rotary table capacity up to 12,000 kg.

The Th5 architecture is symmetrical with centered headstock in the column: 4 vertical guides (2 front + 2 rear) ensure the perfect behavior from the thermal and mechanical point of view, being all structural elements made of cast iron.

The ergonomics that allows to the operator a perfect control of the operations as well as a careful arrangement of the main components for easy monitoring and maintenance, have been taken into account in the design phase.



ING CENTERS

LARGE WORK AREA

MAXIMUM PRODUCTIVITY

HIGH PERFORMANCE



Th5-K: 5-axis continuous rotation head

Th5-K

5-axis twist type continuous head, according to the customer's application, can be done in 2 versions, with following main specs:

- Mechanical head: 6000 min⁻¹ / 950 Nm
- Electerspindle: 12000 min⁻¹ / 300 Nm
- A-axis range: +/- 105°
- Tool taper: BT-50 / HSK-100 / HSK 63
- High pressure coolant through spindle up to 80 bar
- A-axis clamping torque: 20.000 Nm
- A-axis positioning accuracy: 3 arc sec



Th5-D: Universal head 0,001°x0,001°

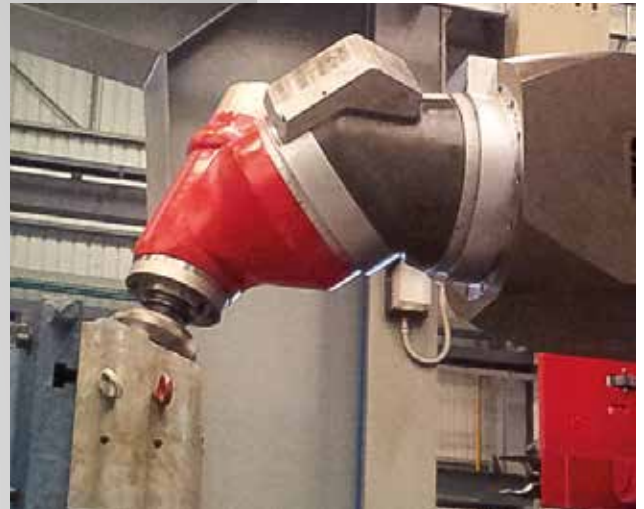
Th5-D

Universal Horizontal/Vertical head with stepless indexing 0,001x0,001° is another breakthrough on the company's product evolution.

It gathers all technical development and experience accumulated in the last years in different kind of milling heads and the result is a strong, accurate and reliable head able to work at any position by combining 2 movements: 45° and vertical planes.

A backlash free driving system in addition to the double direct encoder on each plane, ensures a highly accurate positioning in every angle on the space.

- Spindle speed / power: 6000 min⁻¹ / 37 (46) kW
- Indexing 0,001°x0,001°
- Tool taper: BT-50 / HSK-100
- High pressure coolant through spindle up to 80 bar



Th5-S: Boring Bar

Th5-S

This machining center optionally can be supplied with a nitrited and precision ground moving boring bar.

A refrigerated spindle cooling system maintains a constant temperature for high accuracy, regardless of the ambient temperature or cutting conditions. Cooling oil is circulated through jackets in the spindle head and also through the gearbox.

- Spindle diameter: 130 / 150 mm
- Axial travel (W): 800 / 1000 mm
- Spindle speed: 4000 / 3000 min⁻¹
- High pressure coolant through spindle up to 80 bar



Th5: Horizontal fixed spindle

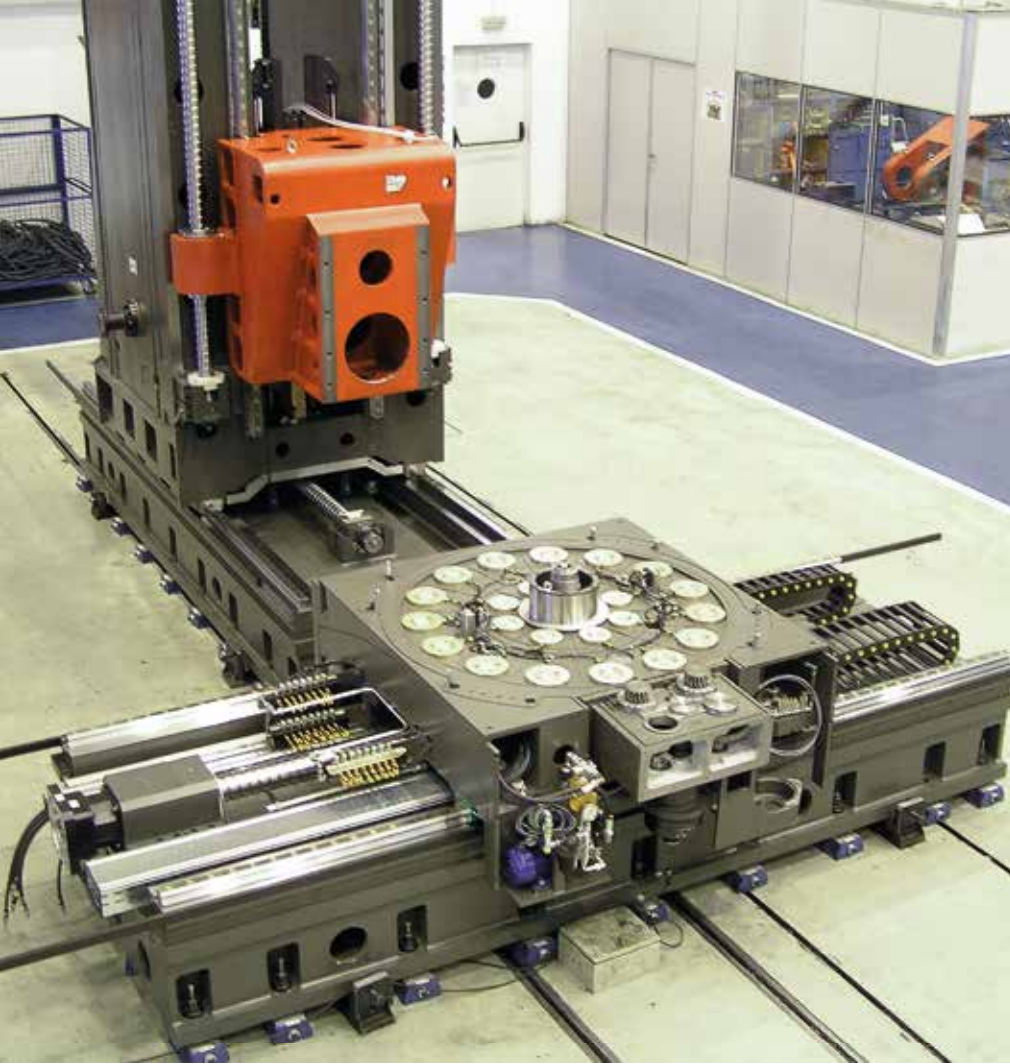
Th5

A fixed horizontal spindle is available when pure horizontal machining operations are required.

The long and rigid nose design helps keep the workpiece close and ensures high-speed, heavy-duty and high-precision machining.

- Nose dimensions (mm): 280 diameter x 550 length
- Spindle speed: 6000 min⁻¹ (option 12000)
- Tool taper: BT-50 / HSK-100
- High pressure coolant through spindle up to 80 bar



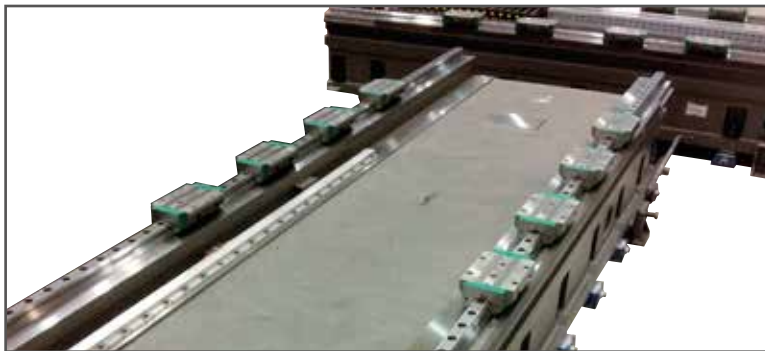


MACHINE STRUCTURE WITH SUPERIOR RIGIDITY

Main structural components as beds, column, headstock, table, etc. are built in cast iron and designed with a detailed F.E.M. analysis in order to minimize vibrations and achieve high in-process dynamics.

Highlights:

- Guiding on X-Y-Z is done with high precision roller guides.
- Oversized driving system: transmissions and ball screws.
- Hydrostatic guiding on table rotation.
- Backlash-free system by double pinion on B axis.
- 4 guides on vertical travel.
- 2 drives + 2 ball screws on vertical travel
- Direct counterweight: headstock balance with hydraulic cylinders.

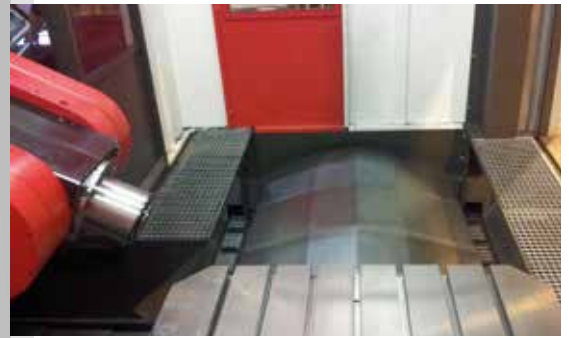
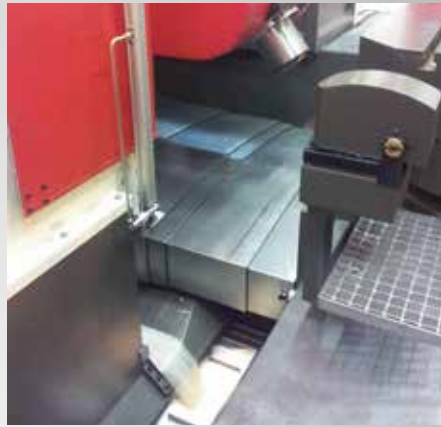


Ergonomics and Accessibility

Full enclosure around the machine

Its wrap around design, integrating protection enclosure with bed and chip conveyors, allows complete collection of chips and cutting fluids that are discharged without ever fouling or polluting the shop floor.

The enclosure includes automatic doors for loading/unloading pallets, roof with lights and workpiece washers with coolant jets.



Automatic tool changer

High performance and smart tool change

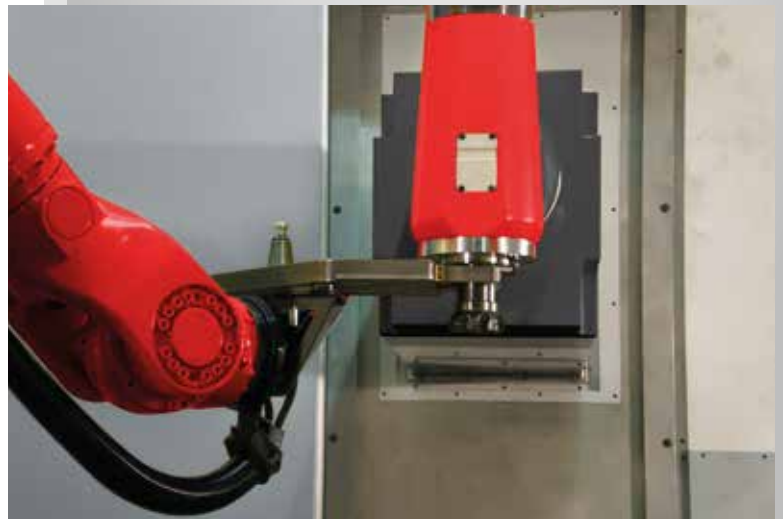


Tool magazine can be supplied either chain type (up to 160 tools) or tower-rack type up to 400 tools or more.

In all cases a fast cam-controlled double gripper is used, which allows a very efficient and quick tool change.

Maximum reliability and high storage capacity can be achieved by using a robot type tool changer providing maximum flexibility.

BT-50 or HSK-A100 tool shanks are available with maximum tool weight 50 kg and 800 mm tool length.



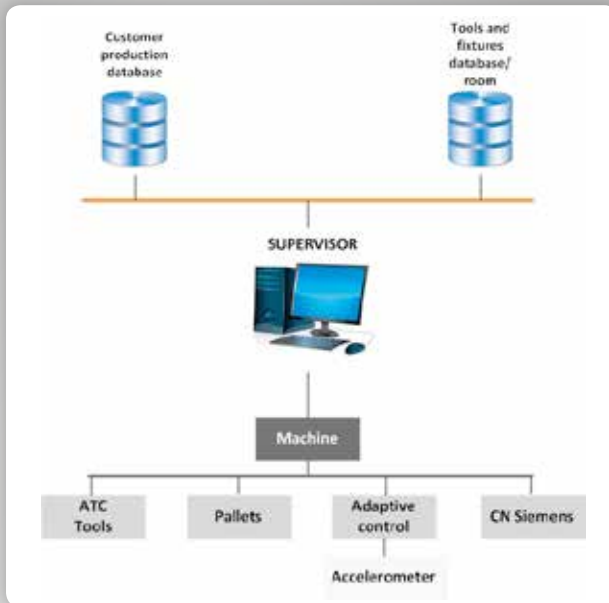
Quick tool change and high reliability



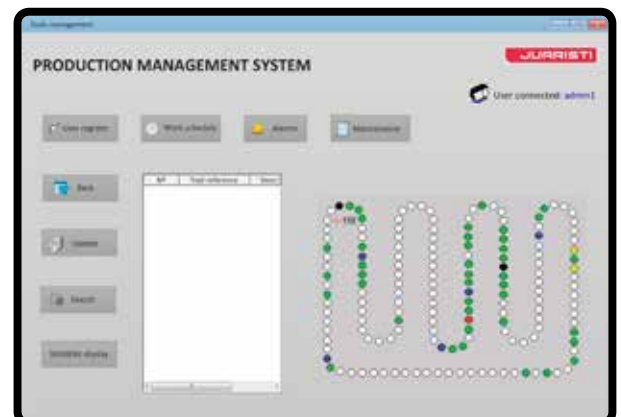
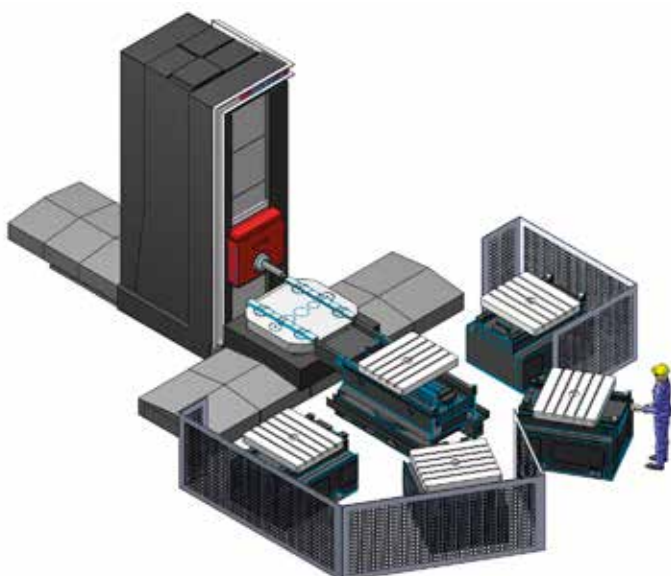
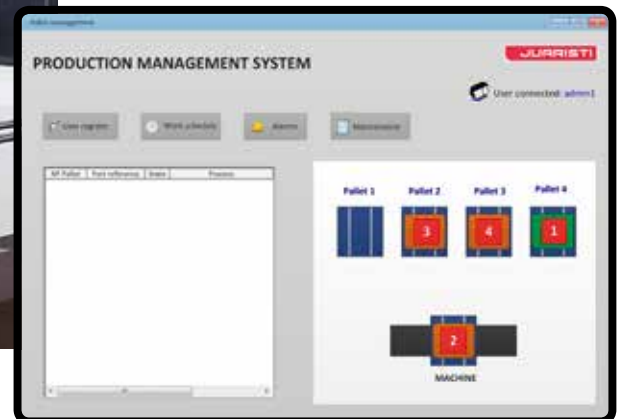
The cam controlled double gripper saves time while making various arm movements at same time. Thanks to the mechanically driven system, less electrical/hydraulic components are required and therefore a higher reliability is achieved.

COMPREHENSIVE PRODUCTION MANAGEMENT

Flexible manufacturing system



- Pallets management
- Workpiece management
- Unmanned machine operation
- Tools management
 - Twin tools management.
 - Monitoring of tool life and usage.
- Adaptive control
 - Automatic monitoring and adjustment of machining conditions in response to variations in operation performance.
- Predictive maintenance for milling heads
 - Detection of anomalies before machine breakdown.
 - Improvement of machine up time.



PRODUCTIVITY ENHANCEMENT THROUGH AUTOMATION

Orientable nozzles for flood coolant and high pressure through spindle coolant.



Wide range of options available for different applications



Tool management system.



Oil-mist collection system.



Automatic Attachment Changer.



Tool presetting touch probe.



In-process workpiece measuring touch probe.



Tool wear and calibration laser system.



4 pallets with safe loading-unloading area and rotary pallet changer unit.

APPLICATIONS IN MOST DEMANDING SECTORS



Marine propeller



Bevel gear



Mining equipment



Hydraulic equipment



Aircraft components



Construction equipment



Molds & Dies

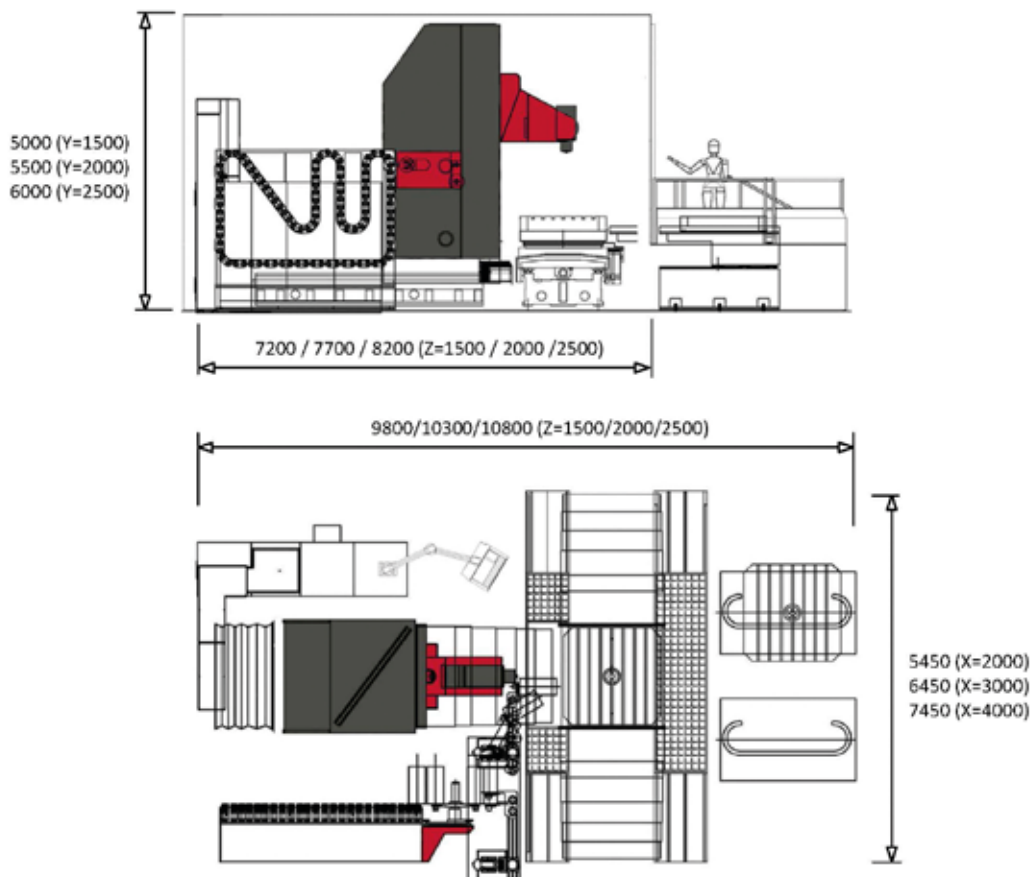


Gear box

TECHNICAL SPECIFICATIONS

UNIVERSAL MACHINING CENTERS Th5 Series

X-axis Travel	mm (inch)	2000 - 4000 (78.7" - 157.5")		
Y-axis Travel	mm (inch)	1500 - 2500 (59.1" - 98.4")		
Z-axis Travel	mm (inch)	1500 - 2500 (59.1" - 98.4")		
Rapid Rates	mm/min (inch/min)	40000 (1575)		
HEADSTOCK		S - Boring Spindle	D - Universal Milling Head	K - 5-Axis
W-axis Boring Bar Travel	mm (inch)	800-1000 (31.5" - 39.4")	-	-
Boring bar diameter	mm (inch)	130 - 150 (5.1" - 5.9")		
Auto indexing head			2,5° x 2,5° / 1° x 1° / 0,001° x 0,001°	A (±105°)
Power S1	kW (hp)	37 - 51 (50 - 69)	37 - 46 (50 - 62)	30 (40)
Torque S1	Nm (ft-lb)	1650 - 2700 (1217 - 1991)	1300 - 1700 (959 - 1254)	300 - 950 (221 - 700)
Spindle Speed	min ⁻¹	4000 - 3000	5000 - 6000	12000 - 6000
ROTARY TABLE				
Pallet Dimensions	mm (inch)	1450 x 1600 - 2000 x 2500 (57" x 63" - 78.7" x 98.4")		
Pallet Capacity	kg (lb)	12000 (26400)		
AUTOMATIC PALLET CHANGER	N°	2 - 4 in parallel or more with FMS system		
AUTOMATIC HEAD CHANGER	N°	2 - 4		
AUTOMATIC TOOL CHANGER				
Tool storage Capacity	Chain type Rack/Robot type	N°	40 - 160	
		N°	150 - 400	
Max. Tool size	Diameter	mm (inch)	300 (11.8")	
	Length	mm (inch)	600 - 1000 (23.6" - 39.4")	
	Weight	kg (lb)	35 - 50 (77 - 110)	
Tool change time	s	6 - 12		
COOLANT THROUGH SPINDLE	bar (psi)	20 - 80 (294 - 1176)		
CNC CONTROLLER	SIEMENS 840D-SL / HEIDENHAIN iTNC 530 / FANUC 31iB / FAGOR 8065			



BORING AND MILLING EXPERTS



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