HURON

TACHYON Series

Vertical drilling and tapping centre
3 to 5 axes, high speed machining

Tachyon Series

Dynamic, Accurate, Compact, machine dedicated to drilling, tapping and milling 3 and 5 axes, high performances.

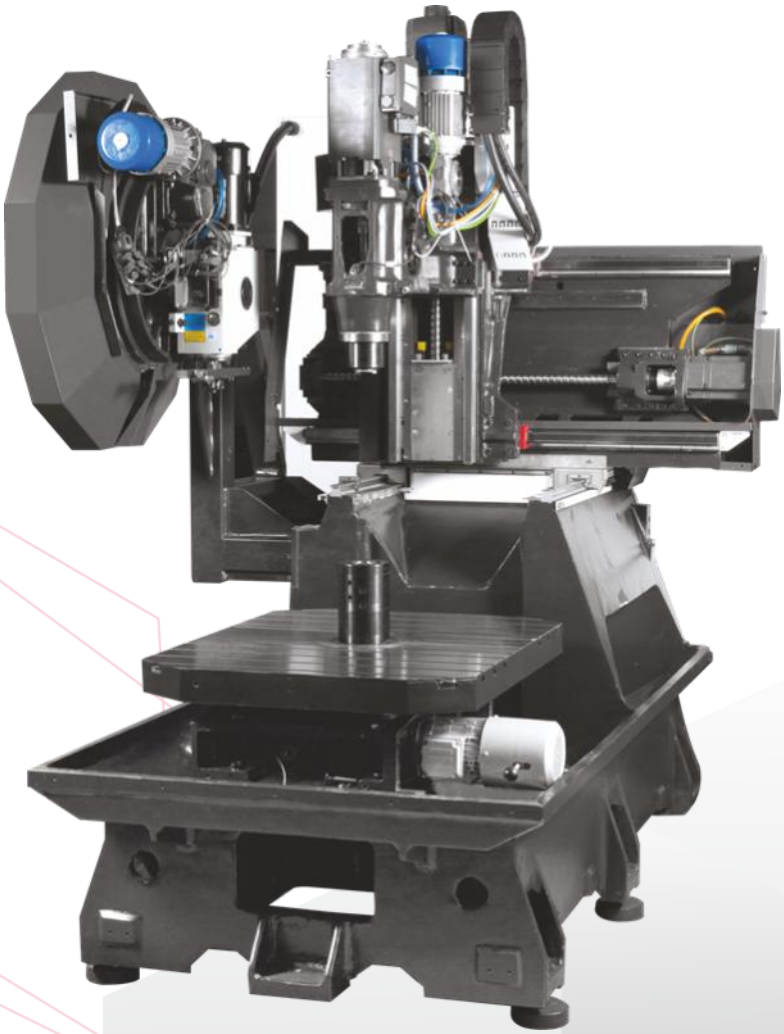
The TACHYON series is suitable for drilling, tapping and milling for the production of small and medium series of components for precision mechanics, watchmaking, medical technology, electronics and general mechanics.

These compact vertical milling centres on a fixed bed and with a small footprint have all the characteristics to be among the best in their category.

These machines, a combination of dynamics and machining precision, are adapted for series production, in particular thanks to the integrated rotopallet (R version), as well as for one-off production requiring precision and dynamics.

Compact and accurate

- Very compact machine with reduced footprint
- Bed and fixed table structure with traverse, saddle and mobile spindle carriage for high dynamics and accurate machining
- Fixed structure and 3 linear axes on tools to allow high rigidity and dynamism
- Optimized workpiece volume compared to travels
- Decrease of unproductive time due to high spindle acceleration, feedrate, high acceleration on axes, as well as particularly fast tool changing time. In the R version, the rotopallet eliminates waiting times when loading and unloading the workpiece
- Chips evacuation integrated in bed structure
- Protected electrical cabinet IP54



Linear axes

- 3 linear axes on tool allowing constant accuracy with rapid feedrates by reducing the moving masses
- Automatic lubrication of ballscrews and guide rails
- Absolute measurement scales on 3 axes

Spindle (Version FT and R)

- High speed spindle
- Thermally stable
- Possibility of machining small parts with high accuracy and dynamism thanks to the acceleration of the spindle
- Direct coupling of the motor to the spindle for better transmission of forces
- Direct drive for increased positioning accuracy and reduced maintenance

	Siemens *BRO508*	Fanuc *BRO509*
Taper	BBT 30	
Rotating speed	24.000 rpm	
Power (S6/S1)	20 / 7,7 kW	6 / 4,5 kW
Torque (S6/S1)	21 / 8 Nm	7,3 / 5,4 Nm
Characteristic speed	9.000 rpm	8.000 rpm

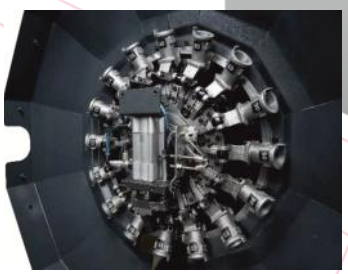
Electrospindle (Version Five)

- Versatile electrospindle that allows high chip removal during roughing
- Machining of accurate and high-quality parts
- Greater flexibility when machining various metals and complex shapes
- Guaranteed axial/radial rigidity of the tool

	Siemens / Fanuc *BRO5011*
Taper	BBT 30
Rotating speed	24.000 rpm
Power (S6/S1)	5,86 / 5 kW
Torque (S6/S1)	7 / 6 Nm
Characteristic speed	8.000 rpm

Tools changer

- High-speed servomotor tool changer for very fast tool changes
- The automatic tool load/unload is made in vertical position



Qty of housings	24
Taper	BBT 30
Tool size : – Ø – Length – Weight	 80 mm 200 mm 3 kg
Tool to tool changing time	0,8 sec

Numerical control

- Possibility to drive up to 5 axes
- Great ergonomics, color screen and complete alfanumerical keyboard
- Connexions and communication interfaces completely integrated and easily accessible
- High memory and calculation capacities
- Interactive programing
- Graphical simulation before machining for optimum safety

Environment - Ergonomics

- Lower moving masses for a longer service life of the machine
- Machine with complete safeguard providing protection of the machine, the operator and its environment
- Large accessibility to the workpiece loading/unloading area
- User-friendly, swivel control panel
- Chips conveyor at the rear of the machine, optimised to save floor space
- Maintenance platform to facilitate access for maintenance work

Tachyon Series

Configuration of the workspace according to activities, workpieces and requirements

The Tachyon offers a wide range of possible configurations, as a 3-axis version (with or without rotopallet) or as a 5-axis version for machining more complex workpieces.
Huron accompanies you in the definition of your investment project, taking into account your needs and constraints. Based on an ongoing and high-quality dialogue, you will be offered a unique and tailor-made solution.
In addition, you can get the most out of your Tachyon with the help of our experts and customer service:

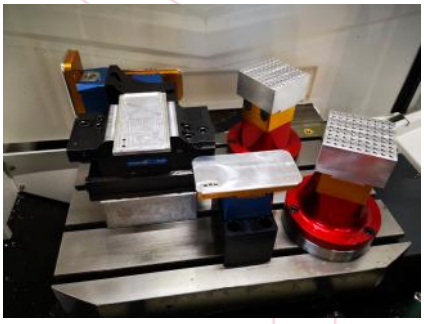
- Technical recommendations according to your technical specifications
- Training to optimise the technical and dynamic performance of the machine
- Training and skills acquisition in part machining and programming
- Implementation of a preventive maintenance plan

Your advantages : ✓Performance ✓Security ✓Serenity ✓Competitiveness

Tachyon FT

Fixed table with maximum machining volume

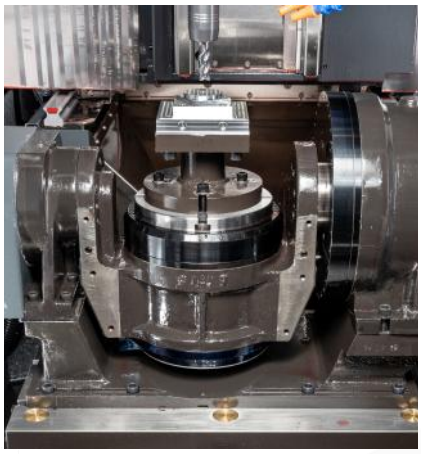
Tachyon R

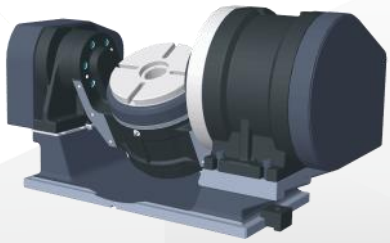


Each pallet can be set up in different configurations:

- ✓ 4th or 4th/5th axis divider plate
- ✓ Possibility to clamp several small parts

Tachyon Five





Replacing the fixed table with a 2-axis divider plate

Simplicity : Tachyon FT - Fixed table

Ideally suited for small series or single part production.

- Excellent ratio between investment and profitability
- Simple, user-friendly and intuitive production tool
- Optimisation of the working area to obtain a machinable workpiece volume of up to 550 x 400 mm and a maximum weight of 400 kg
- Excellent combination of machine size, large workpiece volume and production functions

Your advantages : ✓Simplicity ✓Profitability

Flexibility : Tachyon R - Rotopallet

Ideally suited to the mass production of complex parts. This version is particularly suited to developing the flexibility of a small company and the responsiveness of production in terms of deadlines.

- Rotopallet integrated into the machine structure
- Electromechanical drive system for accurate and repeatable positioning
- High-speed rotopallet (rotation in 5 seconds)
- Tool changer outside the machining area enables optimum utilisation of the Z axis travel
- Maximum machining volume for each working area with each workpiece of up to 750 x 400 mm and a weight of 300 kg
- Central rotary union for the energy connection
- Reduction of non-productive times with possibility of complex workpieces set up contemporaneously of machining time
- Facilitates the changeover of part production.
- Increases productivity and production rates

Your advantages : ✓Flexibility ✓Reactivity ✓Adaptability ✓Profit

Technology : Tachyon Five - 5-axis machining

By replacing the fixed table with a 2-axis rotary table, you can transform your Tachyon into a 5-axis machining centre, ideal for the production of complex small parts with 3 to 5 simultaneous axes (general mechanics, watchmaking, medical, etc.).
5-axis machining is a growth accelerator and enables to respond to requests that arise for the machining of new complex parts or innovative projects.

- Machining of complex shapes
- Table driven by torque motors
- 1 single workpiece clamping
  - Time savings and fewer manual operations
  - Save money thanks to fewer multiple clamping operations
- Optimisation of the cycle time thanks to continuous machining
- Higher returns and productivity
- Improved quality, accuracy and finishing of parts :
  - High axis rotation speeds
  - High positioning accuracy
  - Less vibration thanks to the use of short tools

Your advantages : ✓Technology ✓Speed ✓Accuracy ✓Adaptability

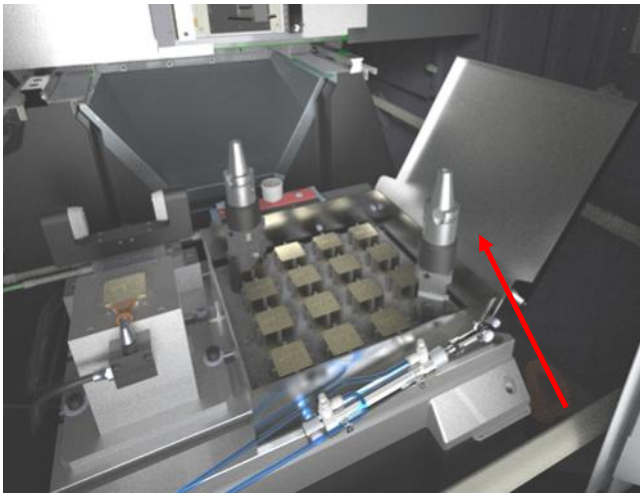
Automated loading/ unloading of parts

Option available for Tachyon FT or R versions for even greater production autonomy!

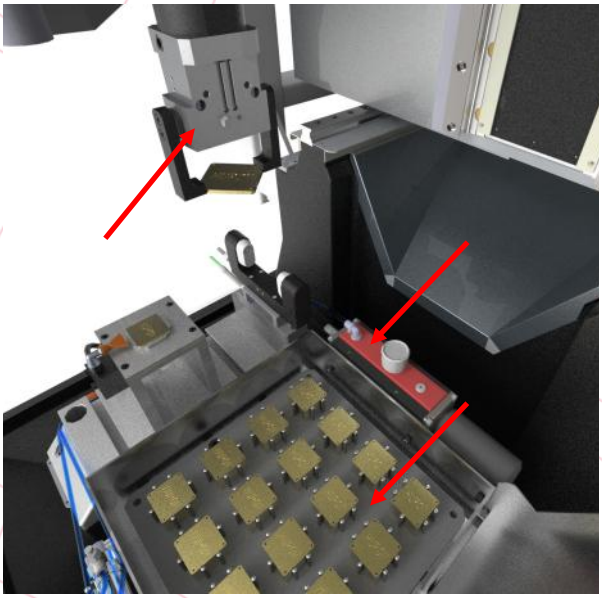
Automatic loading / unloading of parts fully integrated into the machine work enclosure to ensure maximum autonomy without operator intervention.

A simple, effective solution comprising :

- 1 storage box
- 1 part manipulator
- 1 part cleaning nozzle
- 1 pneumatically clamped workpiece machining table

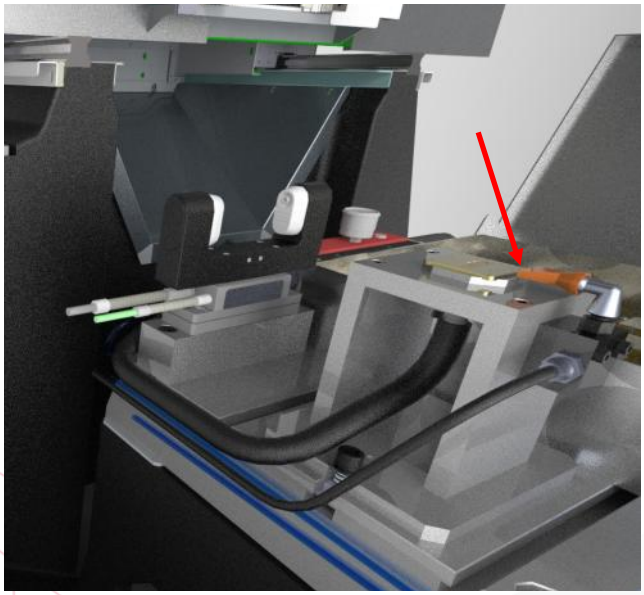


- **Storage box** fixed to the table
- Retractable stainless steel protective cover



Example of support plate: stack of 16x 15 plates measuring 45x45x2 mm,
a total of 240 parts

- **Pneumatic part manipulator** positioned in the spindle
- **Vacuum pump** for workpiece clamping
- Interchangeable **workpiece support** plate for significant time savings



- **Cleaning nozzle** for the new part before clamping

Your advantages !

- ✓ **Increased autonomy**
- ✓ **Optimisation of cycle times**
- ✓ **Reduction in unproductive machine downtime costs**
- ✓ **Simple, reliable solution**
- ✓ **Automation without increasing floor space**

Technical characteristics

Linear axes X / Y / Z		Tachyon 3 axes				Tachyon 5 axes
		Tachyon 4 FT	Tachyon 5 FT	Tachyon 5 R	Tachyon 7 R	Tachyon 4 Five
X travel	mm	400	550	550	750	400
Y travel	mm	400	400	400	400	400
Z travel	mm	450	450	450	450	450
Rapid feedrates	m/min	60	60	60	60	60
Acceleration per axis	m/s²	12/8/15	12/8/15	12/8/15	12/8/15	12/8/15
Machining area		**Structure FT Fixed table**		**Structure R - Rotopallet 2 integrated tables**		**Structure Five Roto-tilting deviding device**
Table size	mm	600x400	600x400	2x 600x400	2x 800x400	Ø of plate = 200
Max. load on table	kg	400	400	250, each table	300, each table	**A axis : Tilting axis** = ± 110°
Qty of slots, each table		4	4	4	4	• Clamping force = 500 Nm
Slots size	mm	14	14	14	14	• Rotating speed = 150 rpm
Distance between slots	mm	100	100	100	100	**C axis : Rotating axis** = 360°
Distance floor / top table	mm	804	804	804	804	• Clamping force = 150 Nm
Max. workpiece size						• Rotating speed = 250 rpm
– width x depth	mm	400 x 400	550 x 400	550 x 400	750 x 400	**Max. workpiece dimension** = Ø 200 x 170 mm
– height	mm	500	500	350	350	**Max. admissible weight** = 30 kg
Workpiece changing time	sec	-	-	4	5	
Spindle						
Rotating speed	rpm	24.000				24.000
Taper		BBT 30				BBT 30
Power / Torque	kW / Nm	Siemens : 20 - 21 / Fanuc : 6 - 7,3				5,86 / 7
Characteristic speed	rpm	Siemens = 9.000 / Fanuc = 8.000				8.000
Accuracies (VDI DGQ 3441)						
Linear axes (X/Y/Z)						
– Positioning (P)	mm	0,006				0,010
– Repeatability (Ps medium)	mm	0,004				0,005
Rotating axes (A, C)						
– Uncertainty (P)	arcsec					± 10
– Repeatability (Ps medium)	arcsec					10
Tools changer						
Qty of housings		24				
Tool length	mm	200				
Tool Ø	mm	80				
Tool weight	kg	3				
Tool to tool changing time	sec	0,8				
Over-all measurements *(Doors opened + conveyor)*		**Tachyon 4 FT**	**Tachyon 5 FT**	**Tachyon 5 R**	**Tachyon 7 R**	**Tachyon 4 Five**
Width	mm	1.510	1.610	2.210	2.330	1.510
Depth	mm	2.900	3.060	4.357	4.357	2.900
Height	mm	2.540	2.540	2.620	2.620	2.540
Weight of the machine	kg	3.550	3.700	4.500	4.800	3.550

Optional equipments

Coolant medium pressure 20 bar - Air blast - Workpiece probe - Tool probe - Dividing plate 4th axis - Oil extraction system - Pressurization of measuring scales - Oil skimmer - HR Camera

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2025-04 - TACHYON Series / English / HURON