

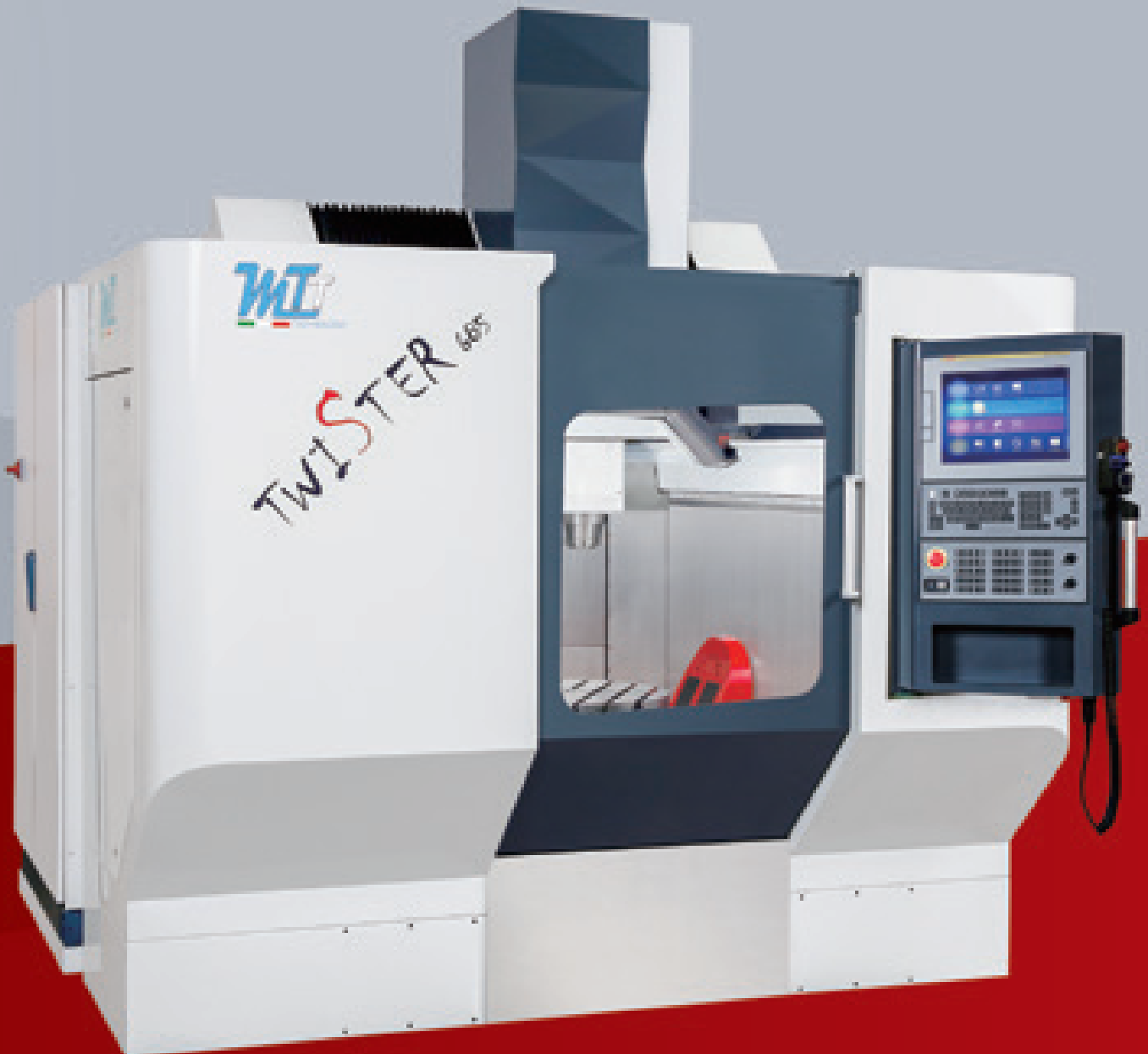


# TWISTER

## SERIES



Moving Gantry Type 5-axis Machining Center

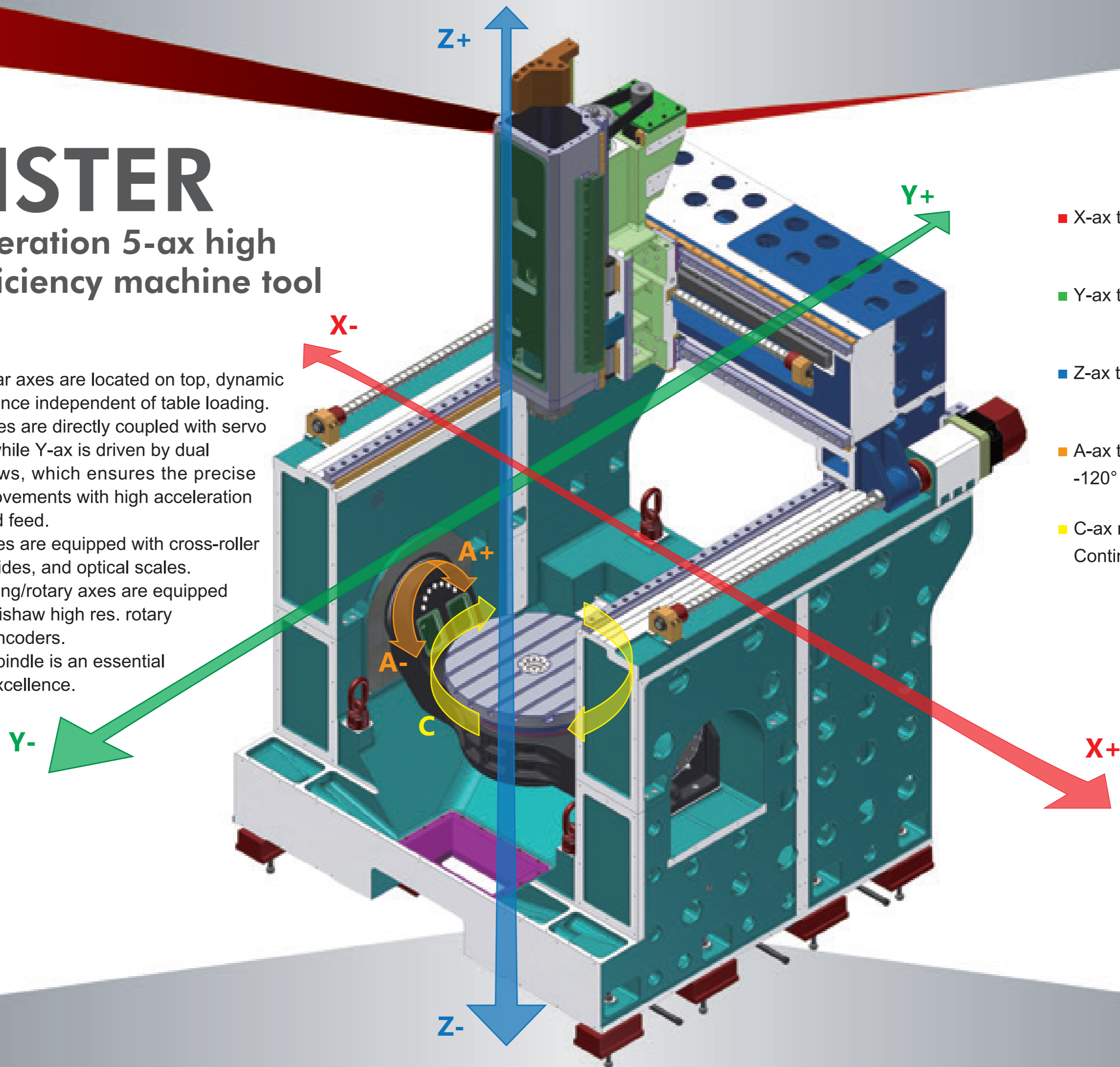


# TWISTER

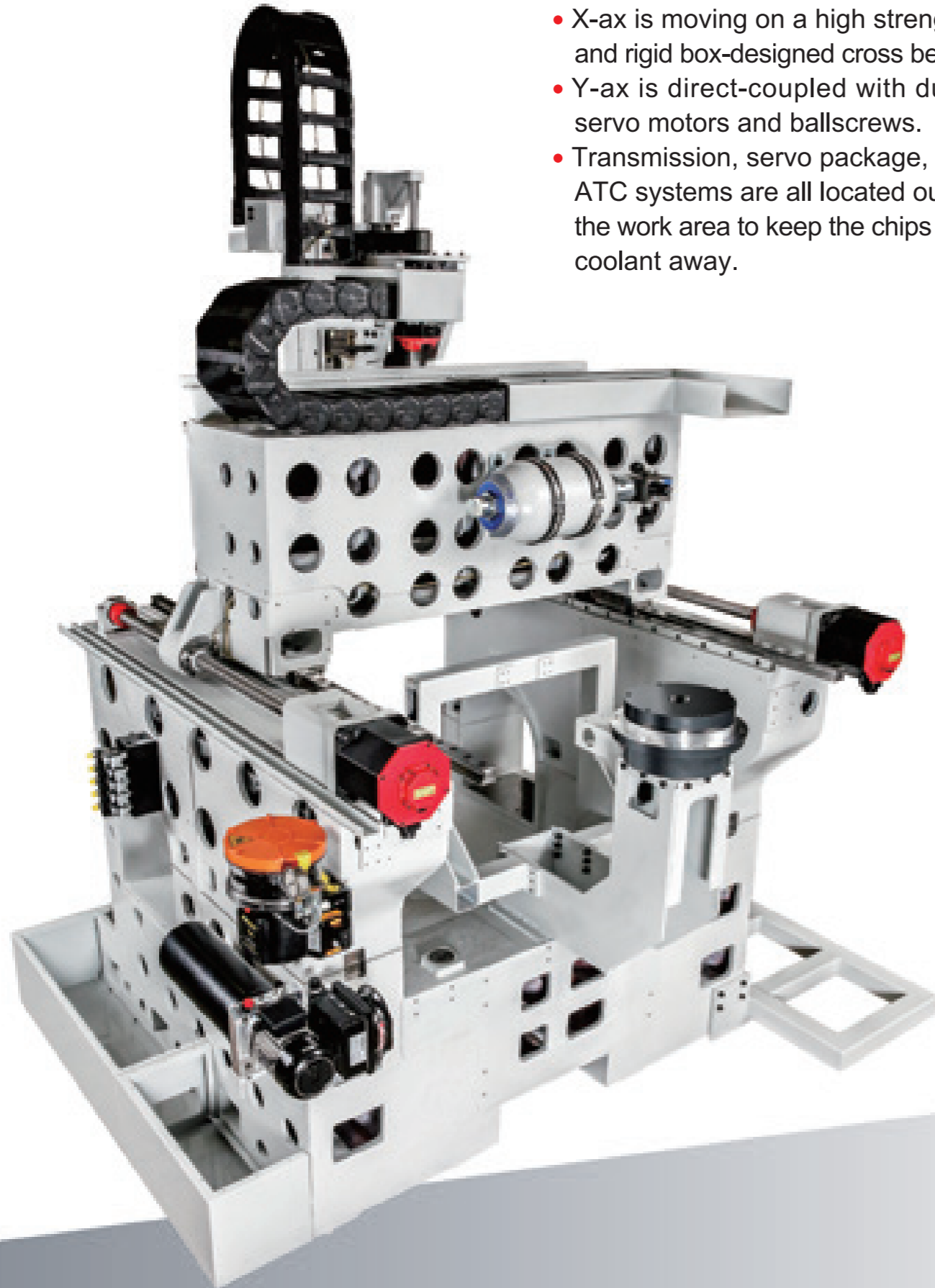
## New generation 5-ax high efficiency machine tool

- All 3 linear axes are located on top, dynamic performance independent of table loading.
- X & Y axes are directly coupled with servo motors while Y-axis is driven by dual ballscrews, which ensures the precise linear movements with high acceleration and rapid feed.
- X/Y/Z axes are equipped with cross-roller linear guides, and optical scales.
- A & C tilting/rotary axes are equipped with Renishaw high res. rotary optical encoders.
- Built-in spindle is an essential part of excellence.

- X-ax travel: 650 mm
- Y-ax travel: 820 mm
- Z-ax travel: 550 mm
- A-ax tilting angle range:  $-120^{\circ} \sim +100^{\circ}$
- C-ax rotary angle range: Continuous

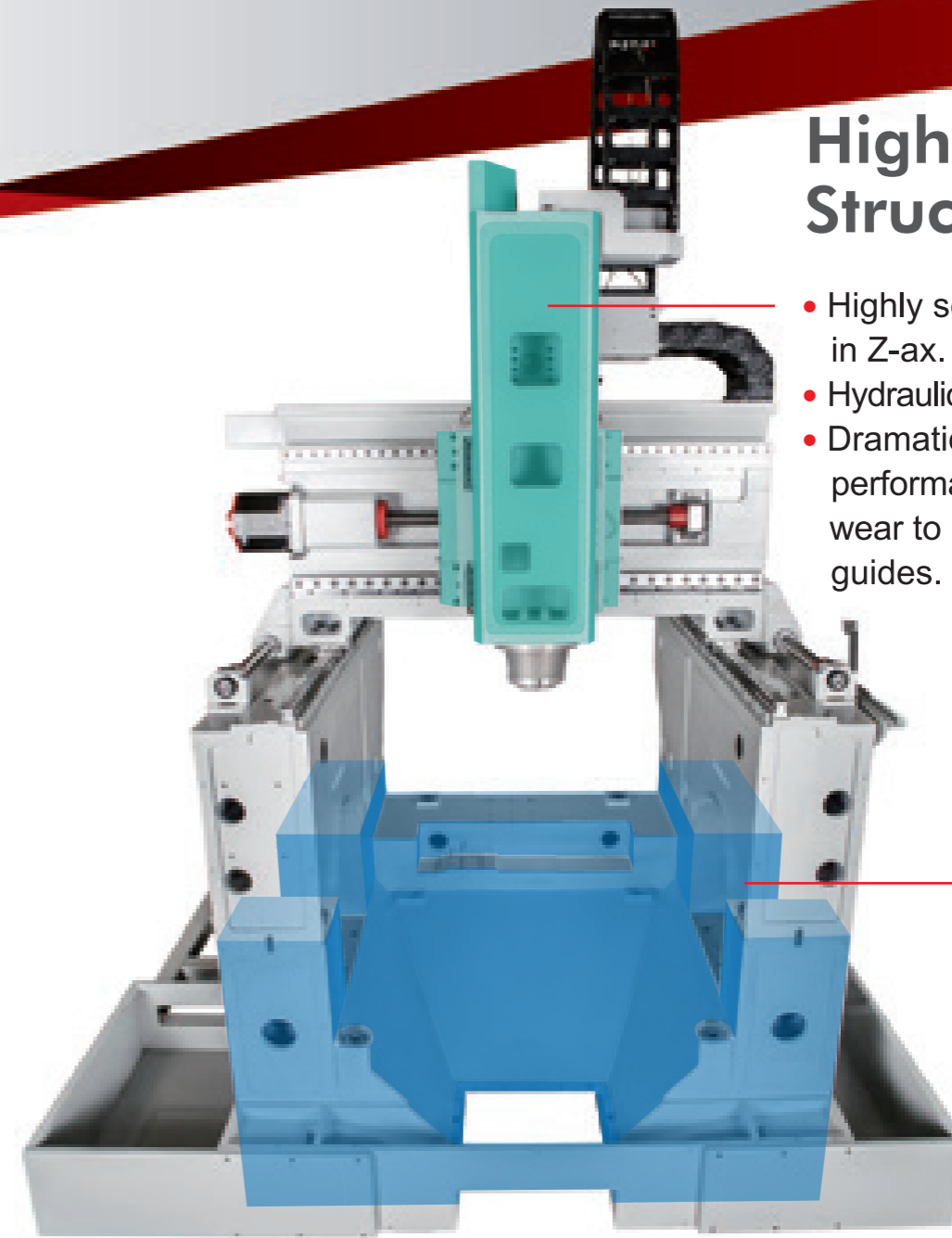


## High Precision Transmission System



- X-ax is moving on a high strength and rigid box-designed cross beam.
- Y-ax is direct-coupled with dual servo motors and ballscrews.
- Transmission, servo package, and ATC systems are all located out of the work area to keep the chips and coolant away.

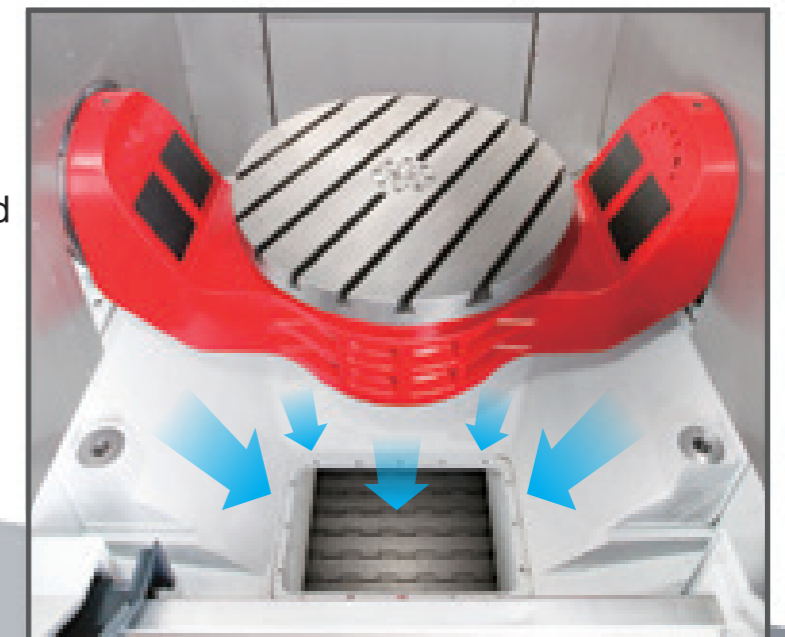
## High Rigidity Structure Design



- Highly sensitive ram movement in Z-ax.
- Hydraulic counter balance system.
- Dramatically enhance the dynamic performance and minimize the wear to ballscrew and linear guides.

- High rigidity base structure ensures optimized vibration suppression.

- Chips can be easily evacuated through a port located right underneath the table.



# High Performance 5-Axis Machining Center

# Ergonomical Working Area Design



- Twister series model features U-shaped base, and equipped with dual-supported A/C tilting & rotary table, high speed built-in spindle, cross-roller type linear guides, and precise optical scales.
- Precise angular compensation and RTCP (Rotated Tool Center Point) functions are available (optional), to ensure the best accuracy of tool tip path during complex and irregular curved surface machining tasks.

- Machine top is fully covered by finned crankcase type way cover.
- Fully closed working environment is achieved while the way cover closes.



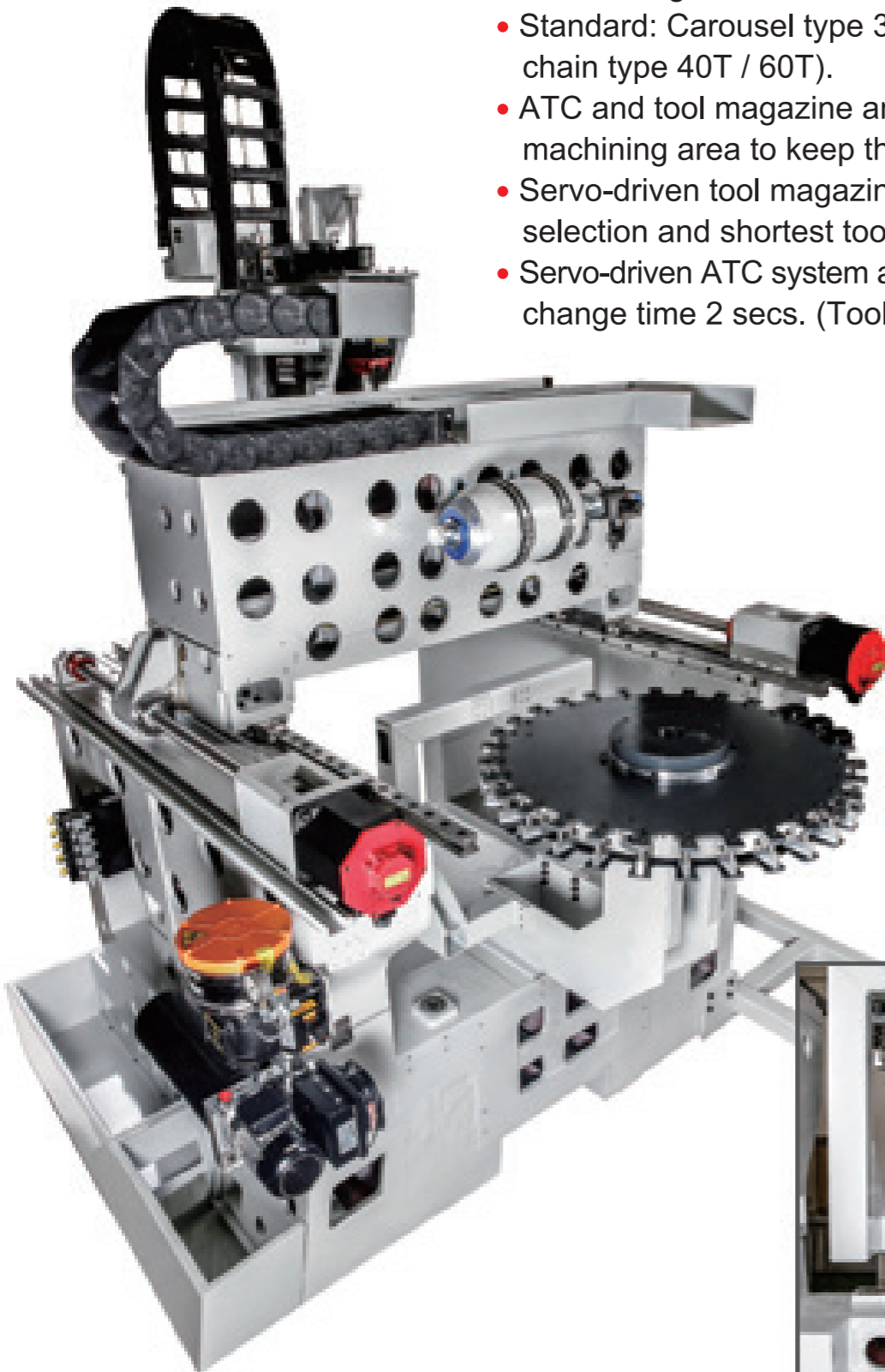
- Fixture and workpieces can be easily hoisted onto the table with a crane while the roof cover is opened.
- The working area is covered with stainless steel sheets to keep it clean and elegant.



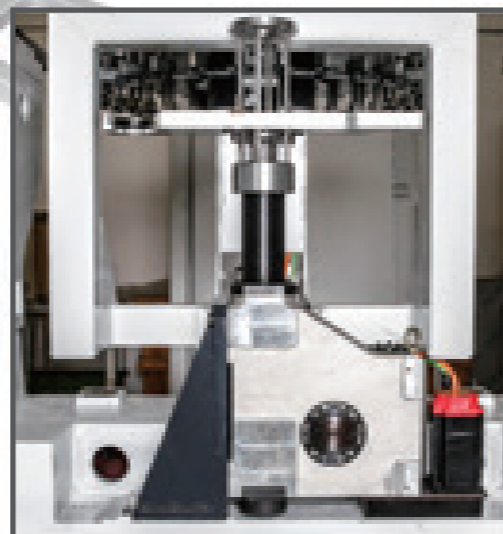
- Large touch screen and keyboard provides the best operating experience to the operators.
- Fanuc iHMI Function is available (Optional) for more innovative possibilities.

# Tool magazine & ATC System

- Twister features a proprietary tool magazine to minimize the machine footprint while maximizing the working area.
- Standard: Carousel type 30T (Option: T-shaped chain type 40T / 60T).
- ATC and tool magazine are installed behind the machining area to keep the chip and dust away.
- Servo-driven tool magazine facilitates fastest tool selection and shortest tool waiting time.
- Servo-driven ATC system achieves optimized tool change time 2 secs. (Tool to Tool).



• Carousel type 30T



## High Performance Built-in Spindle



• Outstanding 5-axis simultaneous controlled milling performance.

### Spindle Power / Torque Diagram



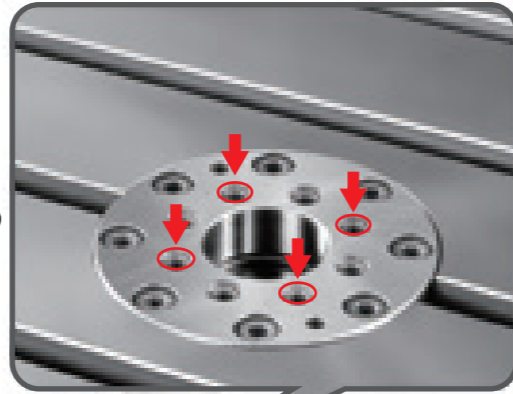
- Powerful built in spindle.
- PM (Permanent Magnetic) design built-in motor features minimum vibration, lowest base speed, and great power output.

|               |  |
|---------------|--|
| Spindle speed | Built-in Spindle 12000 rpm<br>opt. 15000 rpm / 20000 rpm |
| Spindel taper | BBT40 (opt. HSK A63)                                     |

|               |  |
|---------------|--|
| FANUC         |  |
| Spindle motor | 11 / 18.5 kW : 45.7 / 124 N·m (S1/S3-10%, LOW)<br>15 / 26 kW : 23.9 / 41.4 N·m (S1/S3-25%, HIGH)     |
| MITSUBISHI    |  |
| Spindle motor | 7.5 / 11 kW : 31.1 / 80.8 N·m (S1/S3-10%, LOW)<br>11 / 18.5 kW : 17.5 / 29.4 N·m (S1/S2-10min, HIGH) |
| SANGALLI      |  |
| Spindle motor | 24 / 32 kW : 58 / 80 N·m (S1/S6-40%)   |

## A/C axes Tilting Rotary Table

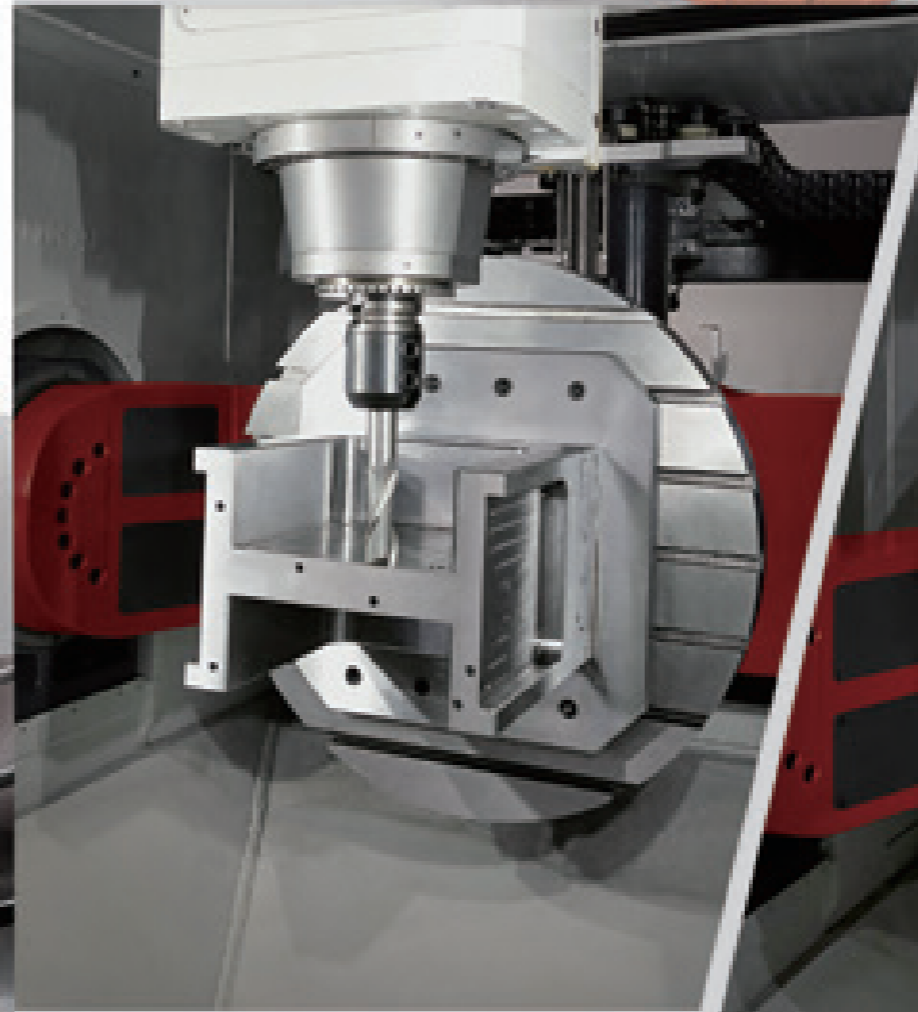
- A-ax is powered by a high precision gear reducer, and equipped with dual hydraulic clamping system.
- C-ax is driven by a torque motor, and clamped by hydraulic disc brake system.
- Both A & C axes adopt large diameter bearings to ensure durable service life and fabulous rigidity.
- Table loading 750 Kgs.
- 4 hydraulic/pneumatic paths for the integration of automatic fixtures and jigs.



- Large table diameter makes the installation of workpiece or automatic fixture easier than ever.

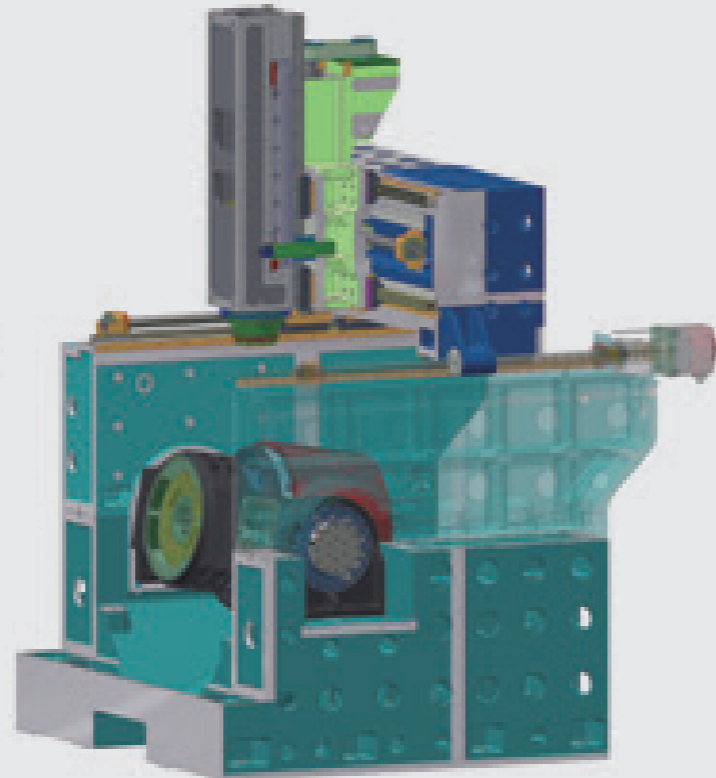
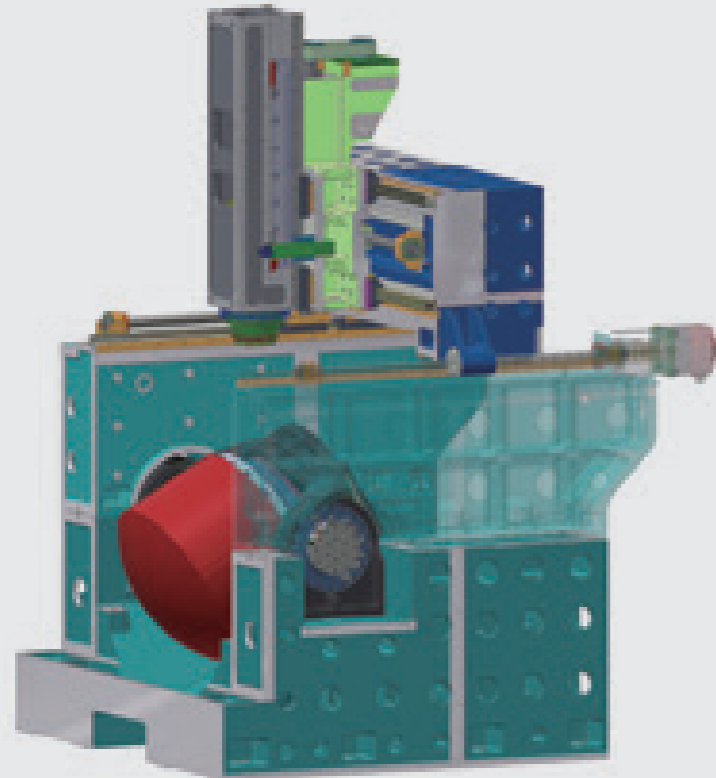
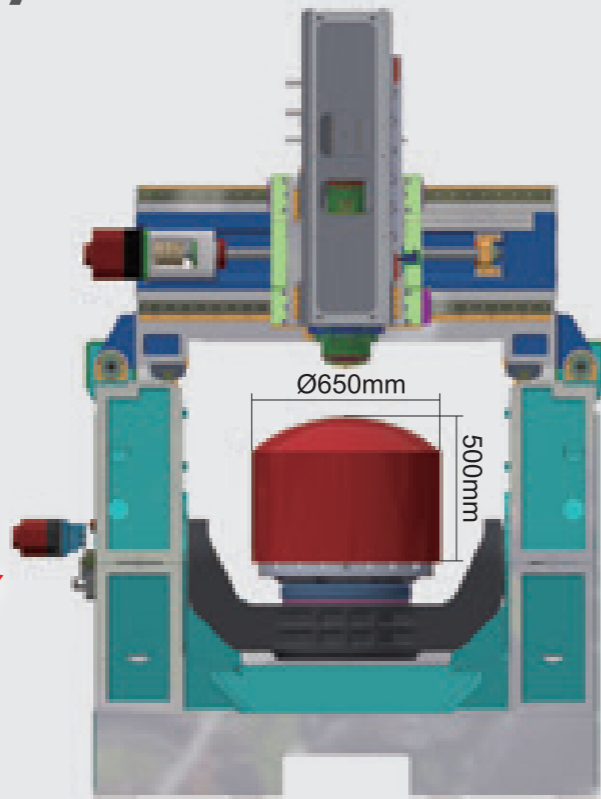
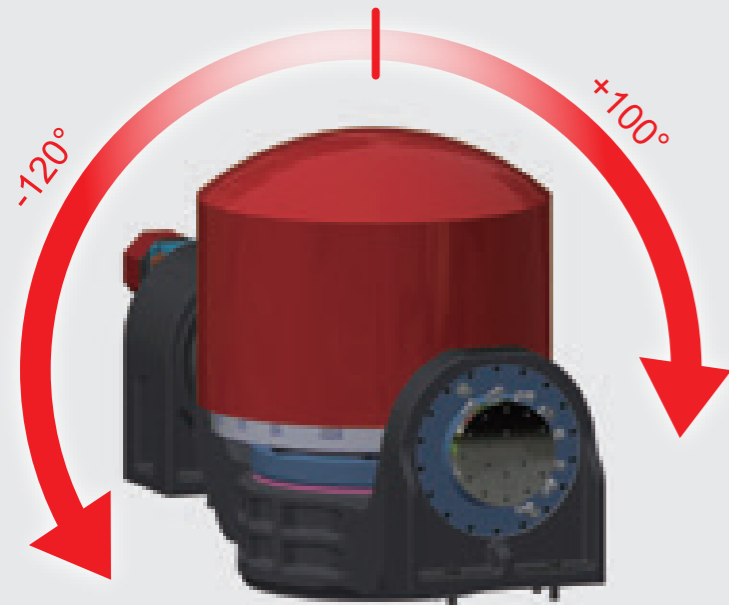


**AxiSet™**  
**Check-Up(opt.)**

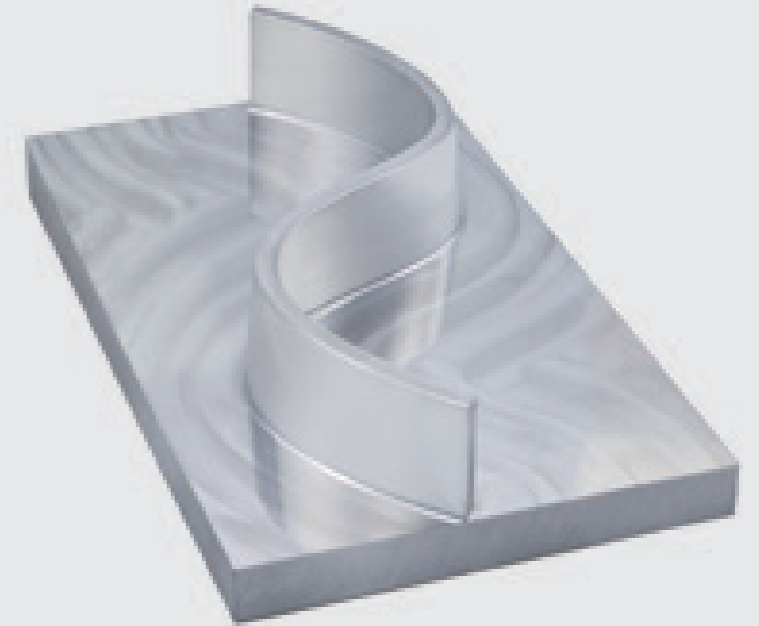


# A/C axes Tilting Rotary Table

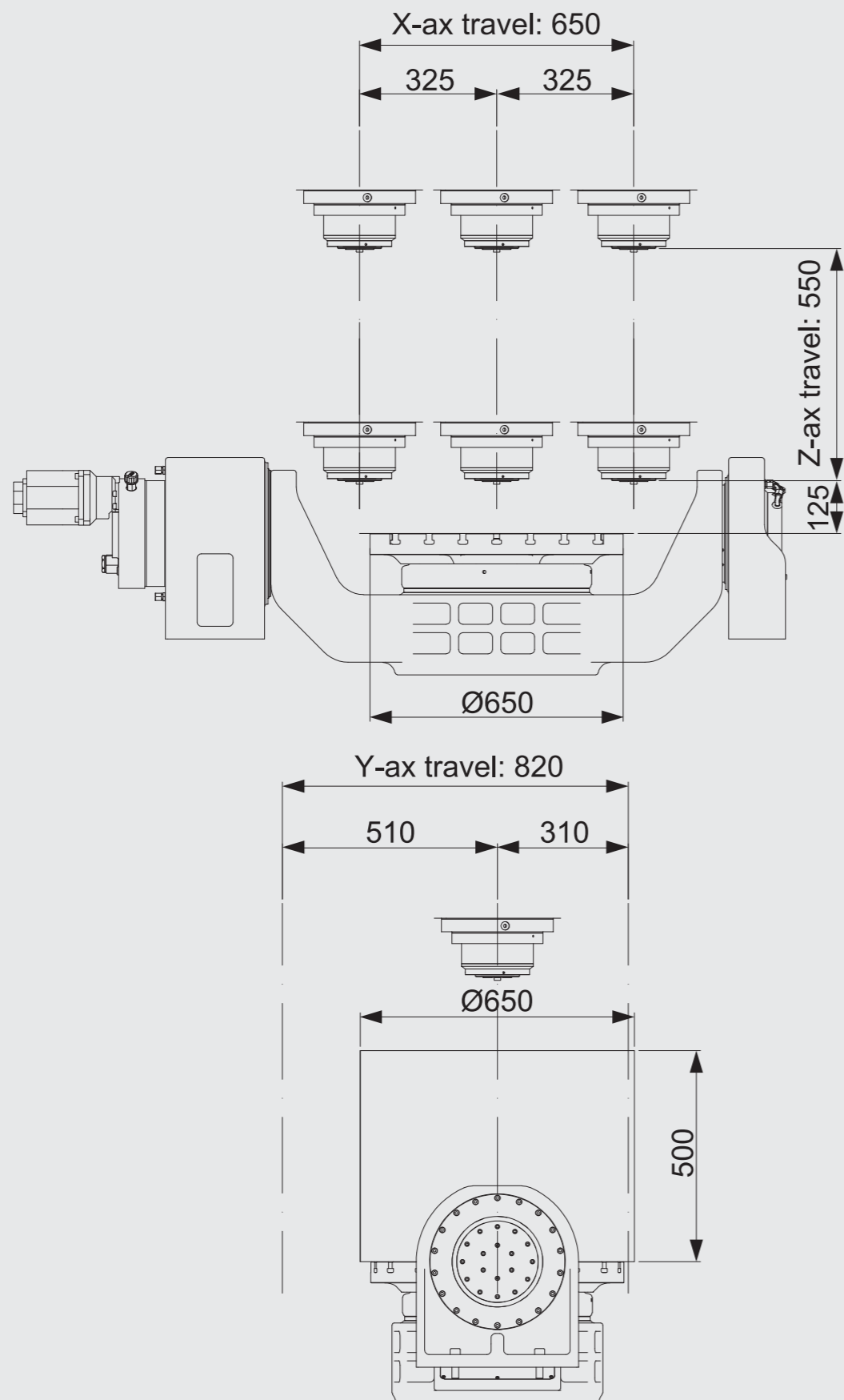
Swing range (3D illustration)



# Sample Parts

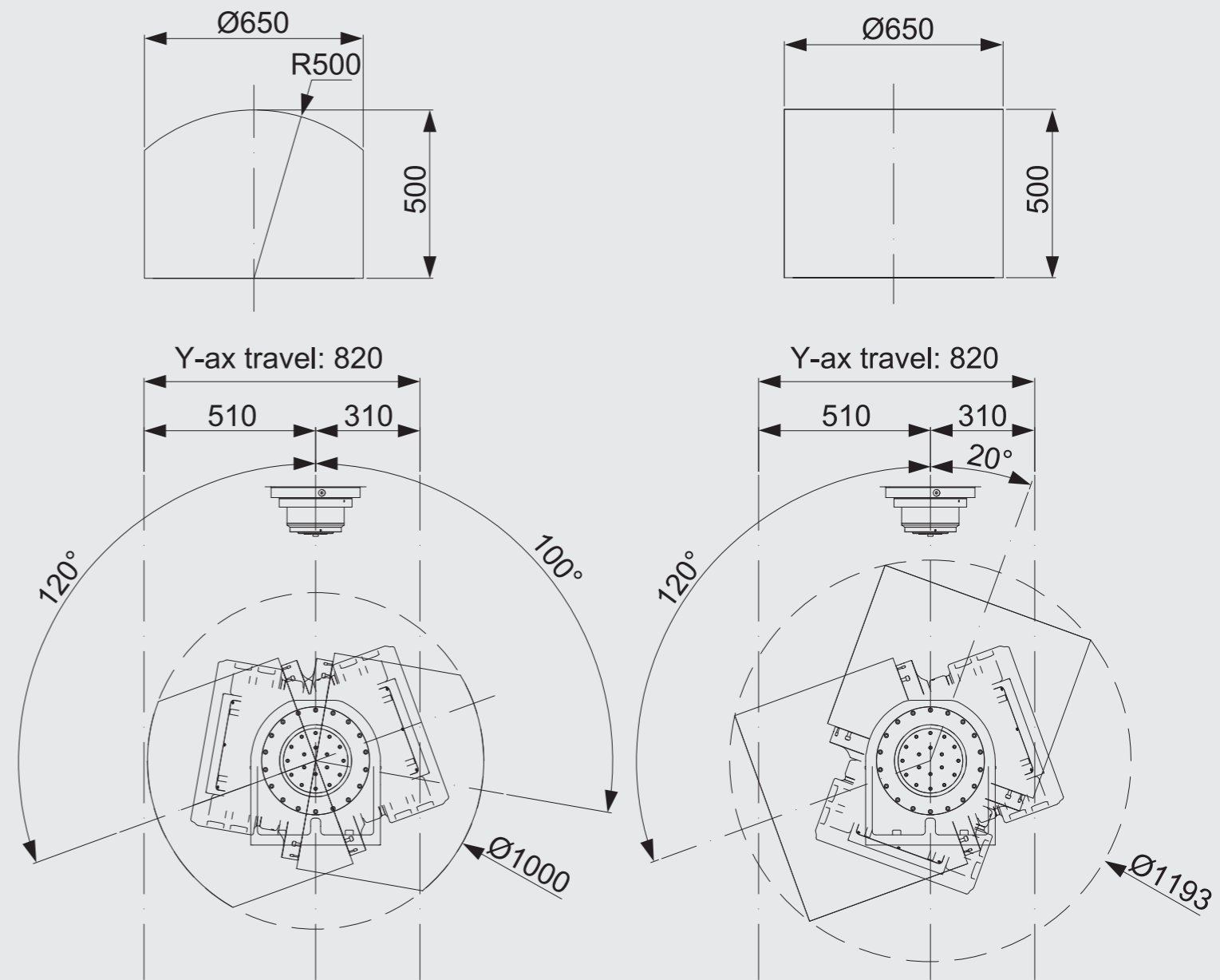


### 3-ax Interference Drawing



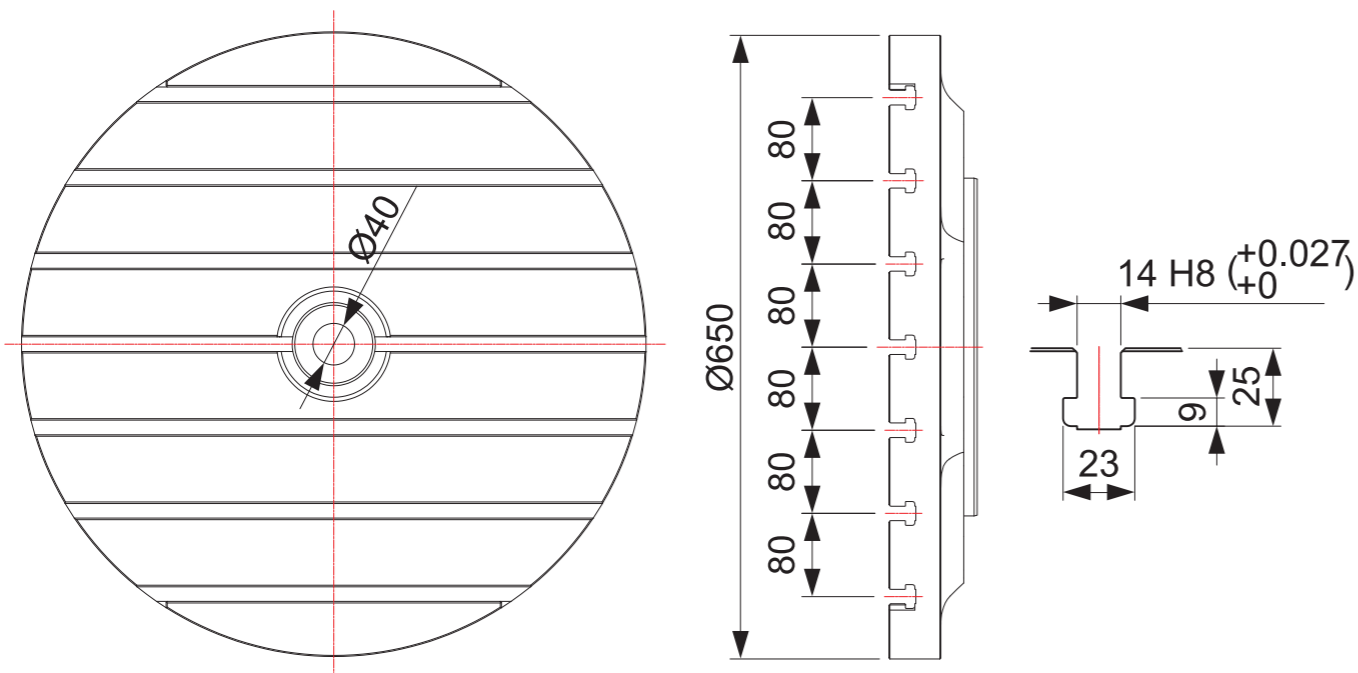
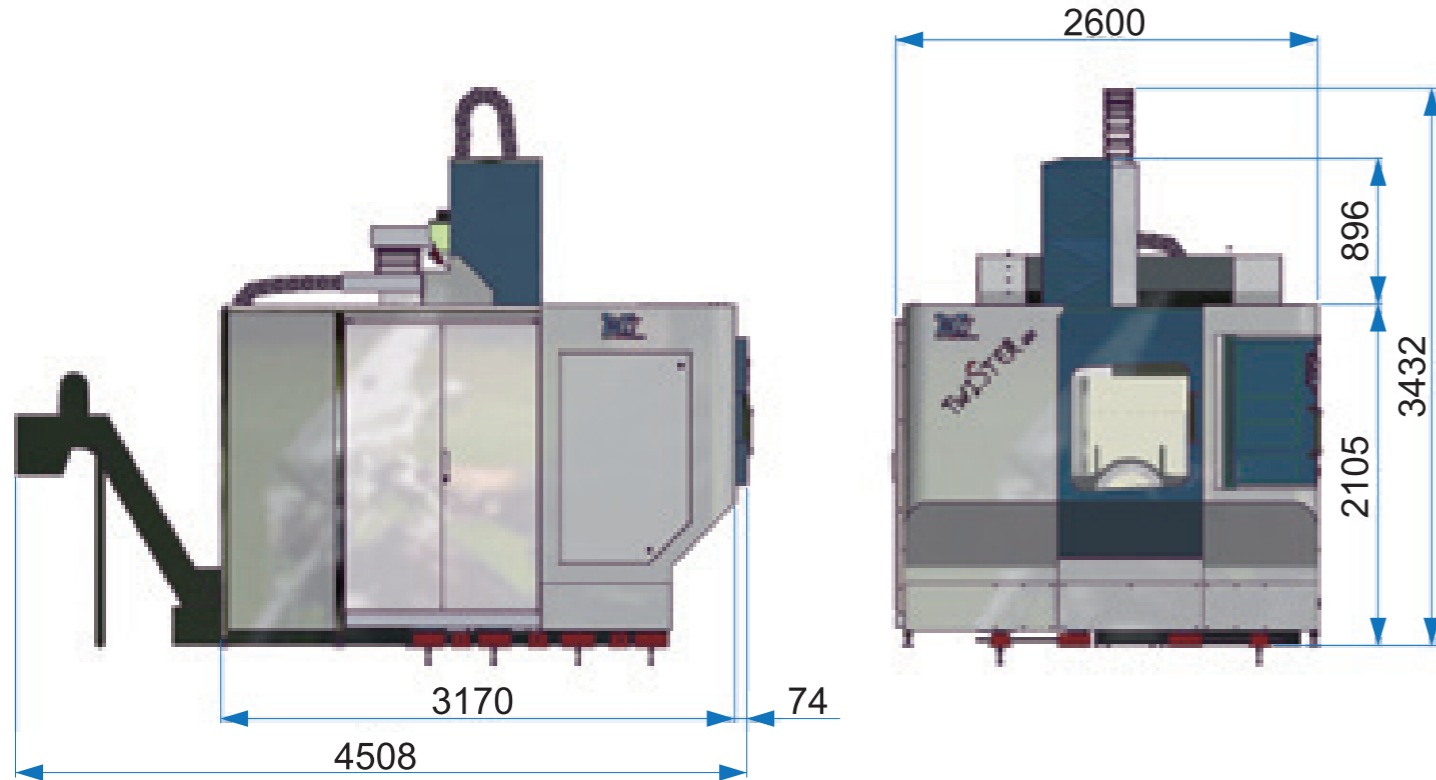
Unit:mm

### A-ax Tilting Interference Drawing



Unit:mm

# Outline Dimension Drawing



Unit:mm

# Machine Specification

|  |   |
|--|---|
| <b>TRAVEL</b>                              |   |
| X-ax travel                                | 650 mm  |
| Y-ax travel                                | 820 mm  |
| Z-ax travel                                | 550 mm  |
| Spindle nose to pallet surface             | 125 ~ 675 mm  |
| Axis movement "A" tilting                  | -120°~ +100°  |
| Axis movement "C" Table                    | 0°~360°   |
| <b>PALLET</b>                              |   |
| Table size                                 | Ø 650   |
| Height of the table surface from the floor | 910 mm  |
| Number of slots                            | 7   |
| Distance between T-slots                   | 80 mm   |
| Maximum loading capacity                   | 750 kg  |
| <b>SPINDLE</b>                             |   |
| Spindle speed                              | Built-in 12000 rpm  |
| Spindle motor                              | ( F ): 11 / 18.5 kW (S1/S3-10%, LOW)<br>15 / 26 kW (S1/S3-25%, HIGH)        |
| Spindle rated torque                       | ( F ): 45.7 / 124 N·m (S1/S3-15%, LOW)<br>23.9 / 41.4 N·m (S1/S3-25%, HIGH) |
| Spindle taper                              | BBT40 (opt. HSK- A63)   |
| <b>FEED</b>                                |   |
| Rapid feed (X / Y / Z axis)                | 36 m/min (opt. 48 m/min , 60 m/min)   |
| Cutting feed (X / Y / Z axis)              | 10,000 mm/min   |
| Ballscrew dia.                             | 40 mm   |
| Axis rotation speed "A"                    | 5 rpm   |
| Axis rotation speed "C"                    | 300 rpm   |
| <b>AUTOMATIC TOOL CHANGER (ATC)</b>        |   |
| Tool change system                         | ARM   |
| Type of tool shank                         | BBT40 (opt. HSK- A63)   |
| Type of pull-stud                          | MAS403 B40T-1   |
| Tool exchange time                         | T-T 2 sec ; C-C 4 sec   |
| Max. tool dia. (adjacent pot full / empty) | Ø 80 / 120 mm   |
| Max. tool length                           | 300 mm  |
| Max. tool weight                           | 7 kg  |
| <b>SUPPLY</b>                              |   |
| Electric voltage                           | 200-220 V (50 / 60 Hz)  |
| Electric power supply                      | 40 KVA  |
| Air pressure & volume                      | 0.6 MPa , 350 liters / min  |
| Coolant tank                               | 400 L   |
| <b>SIZE</b>                                |   |
| Floor space                                | 4508×2600 mm  |
| Machine height                             | 3500 mm   |
| Machine weight                             | 10000 Kg  |

## Standard Accessories

- Built-in spindle 12000 rpm
- Arm type tool magazine 30 tools
- Coolant system
- Fully enclosed splash guard
- LED lamp
- Automatic lubrication system
- Operation indication lamp
- Three-axis linear scale
- A / C axis rotary optical encoders
- Spindle air curtain
- Chip conveyor and cart
- Spindle oil cooler
- Heat exchanger for electrical cabinet
- Leveling bolts and pads
- Tools and tool box
- Operation and maintenance manual
- Water gun and air gun

## Optional Accessories

- Built-in spindle 15000 rpm / 20000 rpm
- Coolant though spindle system (20 bar)
- Arm type tool magazine 40 tools, 60 tools
- Automatic tool length measurement
- Automatic work piece measurement
- Five-axis rotary center error compensation function (RTCP)
- Transformer
- Controller: Fanuc Mitsubishi Siemens Heidenhain Fagor

\* The company reserves the right to change the mechanical specifications, accessories and appearance without prior notice.

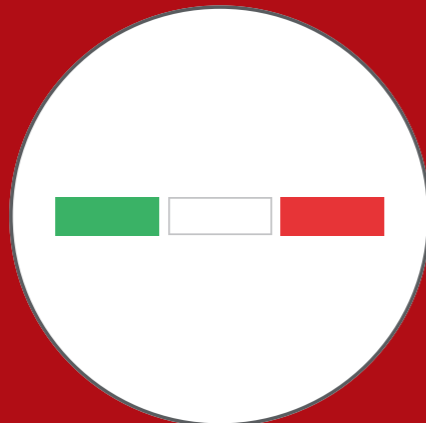


**MTT Technology S.r.l.** is the R&D center established by Twinhorn in Italy since 2014. The MTT team has many years of experience in machinery field and always dedicated in continual technological researches and innovations on high speed spindle, 5ax simultaneous control, and various high-end machine tools technologies, in order to keep providing the highest cost-effective and value-added products.

## OUR STRENGTH



Assistance and Retrofitting



Made in Italy



Research and Development

## Company

**MTT Technology** Limited is located in Veneto area, (in the North East Part of Italy).

It works in the field of Machine Tools Manufacturing and it owns wide and deep technical knowledge both in the mechanical and electronic fields, acquired in many years of experience.

The professional nature of our working team, who are very receptive to the continual technological innovation, requested by the today's modern economy, lead us to the realisation of more and more efficient and reliable machines leads.

The expertise of our technicians committed to the Service qualifies our Company to a high professional level in the market.

Previous working experience developed in the **Retrofit field for small and large size machines**, and in the Special Machines Field, as well as the production of Vertical Machining Centers, and of Mobile Portal Machines and of high speed Movable Cross Beam 3 and 5 axis, together with the continuous research and innovation commitment, enable us to offer to our customers **high performance machine tools** with a balanced compromise among performance, technology and investment.

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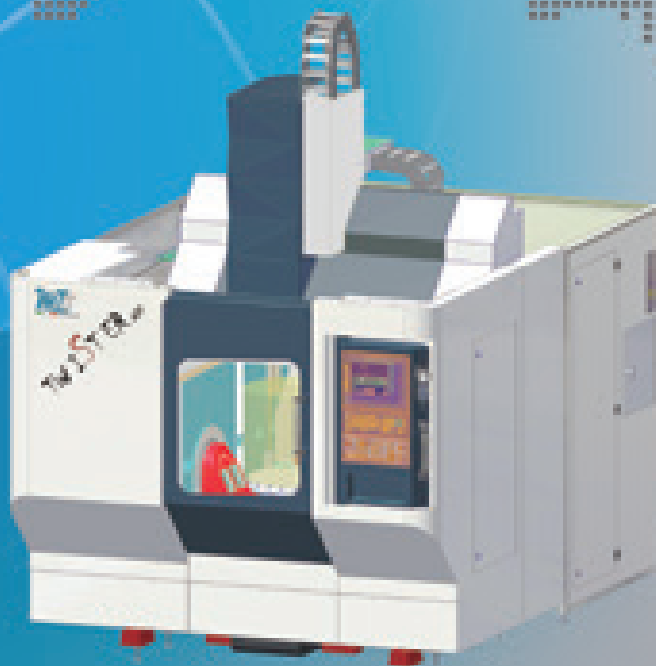
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