SOLUTION OF WORLDWIDE SALES NETWORK

TWISTER SERIES

Moving Gantry Type 5-axis Machining Center

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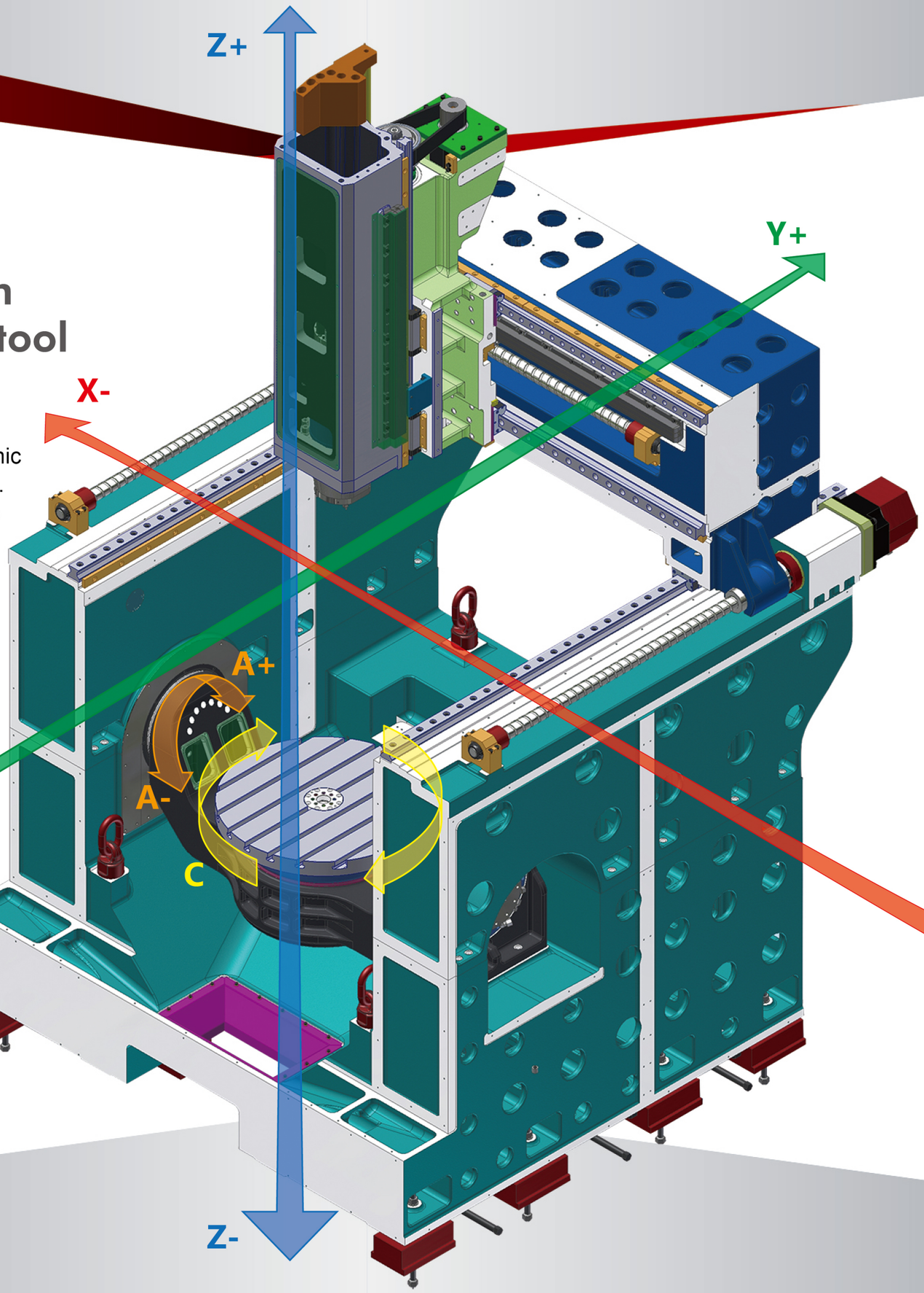
Design 201902.TWISTER (E1)1000P

TWISTER

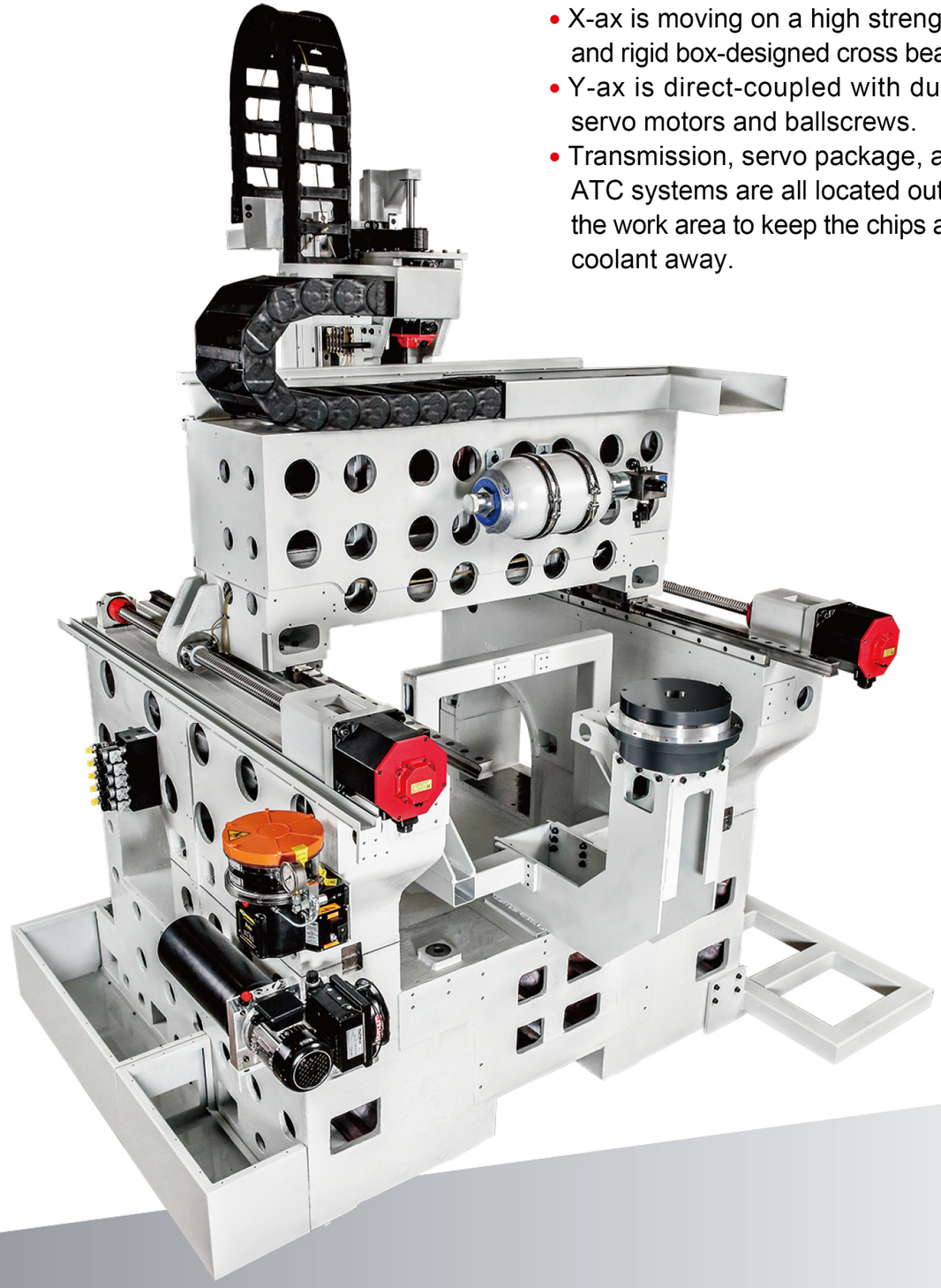
New generation 5-ax high efficiency machine tool

- 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-ax 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.



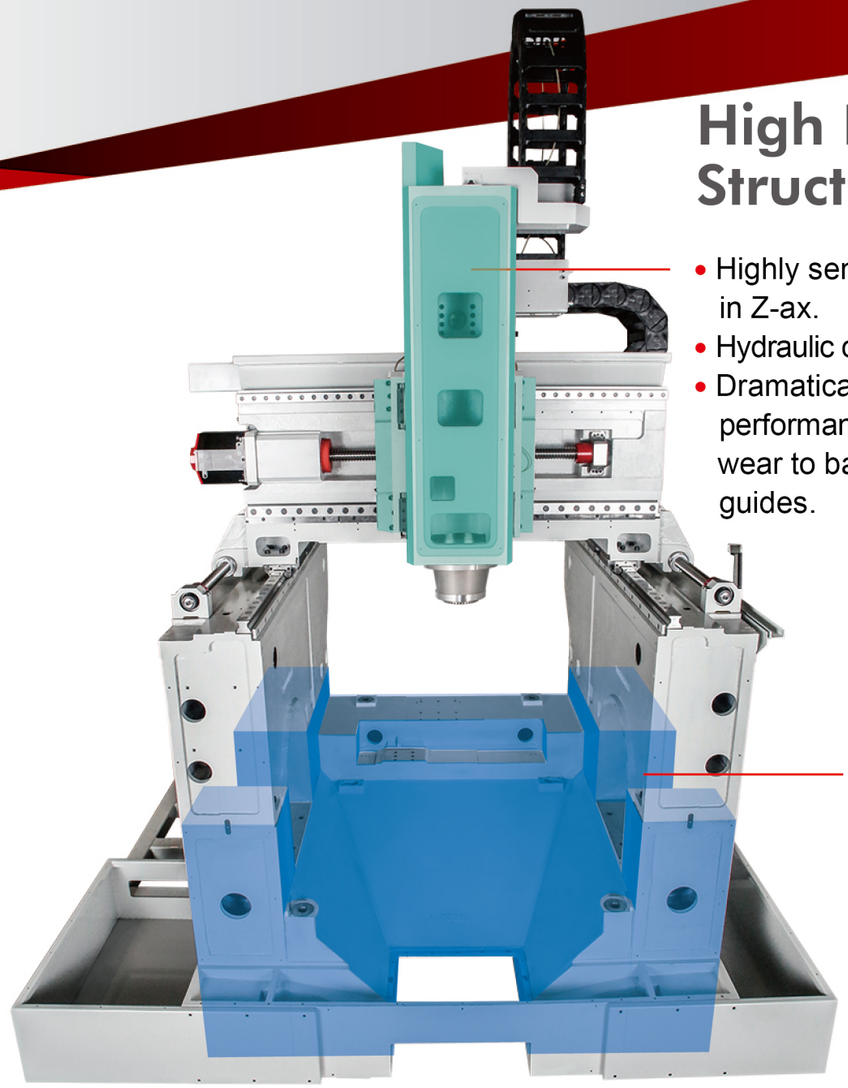
- X-ax travel: 650 mm
- Y-ax travel: 820 mm
- Z-ax travel: 550 mm
- A-ax tilting angle range: -120° ~ +100°
- C-ax rotary angle range: Continuous

High Precision Transmission System

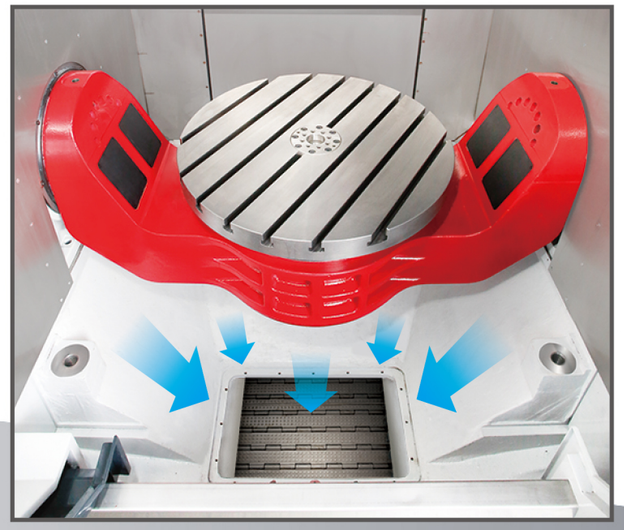


- X-ax is moving on a high strength and rigid box-designed cross beam.
- Y-ax is direct-coupled with dual servo motors and ballscrews.
- Transmission, servo package, and ATC systems are all located out of the work area to keep the chips and coolant away.

High Rigidity Structure Design

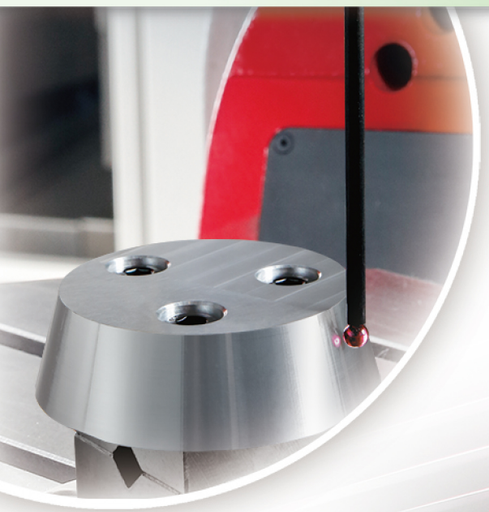


- Highly sensitive ram movement in Z-ax.
- Hydraulic counter balance system.
- Dramatically enhance the dynamic performance and minimize the wear to ballscrew and linear guides.
- High rigidity base structure ensures optimized vibration suppression.



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

High Performance 5-Axis Machining Center



- 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.

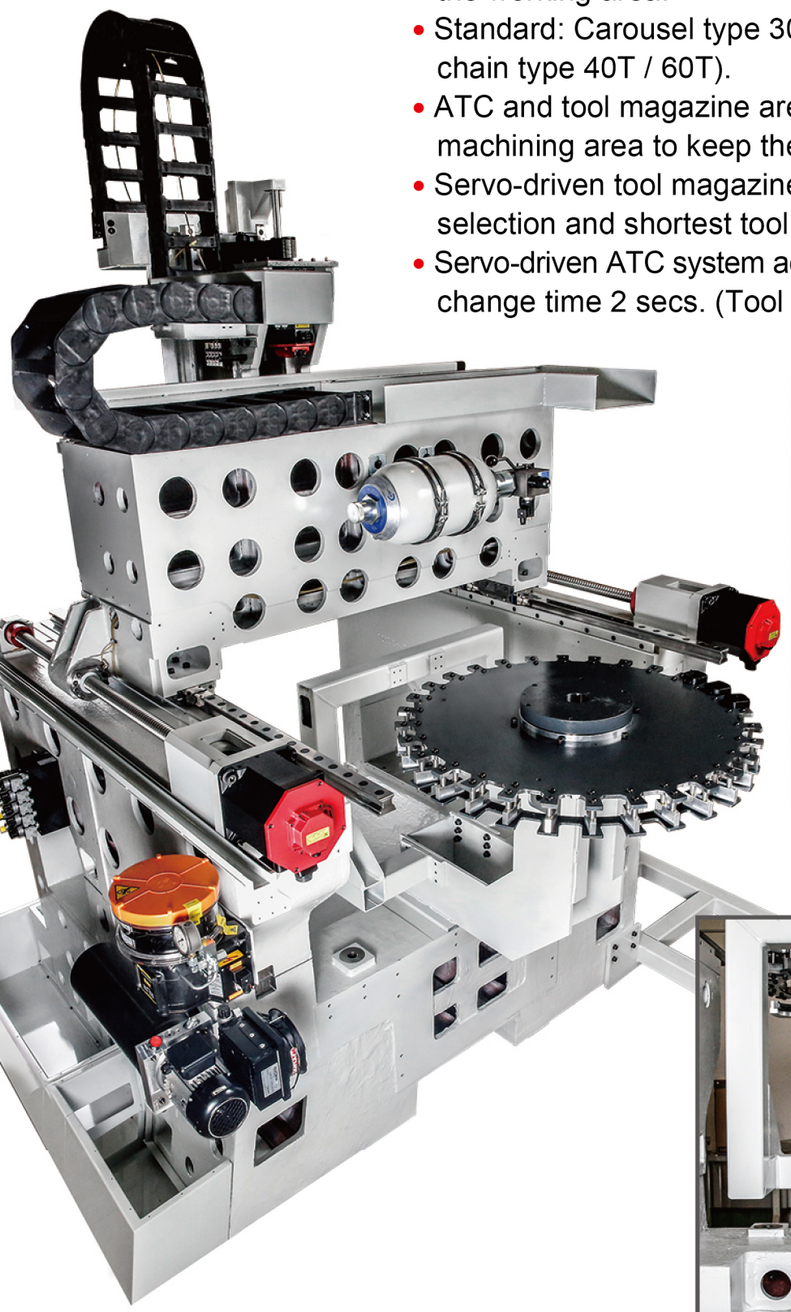
Ergonomical Working Area Design

- 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.

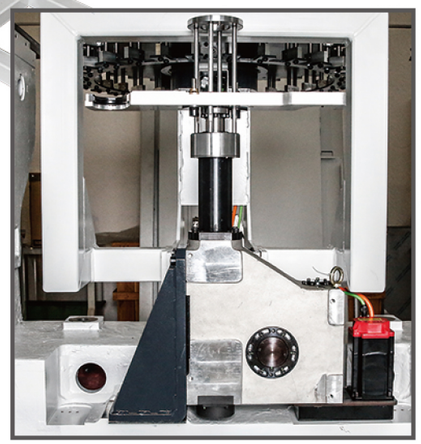
- Large touch screen and keyboard provides the best operating experience to the operators.
- Fanuc iHMI Function is available (Optional) for more innovative possibilities.

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

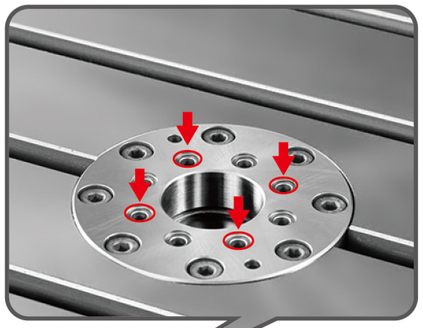
- Powerful built in spindle.
- PM (Permanent Magnetic) design built-in motor features minimum vibration, lowest base speed, and great power output.

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

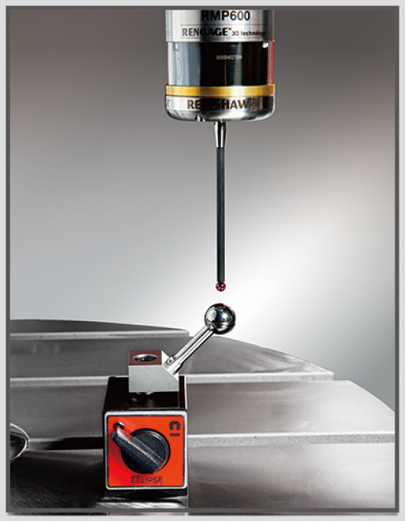
FANUC	
Spindle motor	11 / 18.5 kW : 45.7 / 124 N·m (S1/S3-10%, LOW) 15 / 26 kW : 23.9 / 41.4 N·m (S1/S3-25%, HIGH)
MITSUBISHI	
Spindle motor	7.5 / 11 kW : 31.1 / 80.8 N·m (S1/S3-10%, LOW) 11 / 18.5 kW : 17.5 / 29.4 N·m (S1/S2-10min, HIGH)
SANGALLI	
Spindle motor	24 / 32 kW : 58 / 80 N·m (S1/S6-40%)

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.



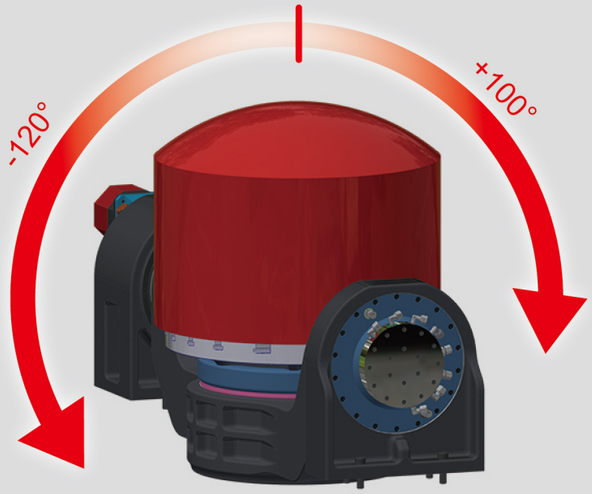
- Large table diameter makes the installation of workpiece or automatic fixture easier than ever.

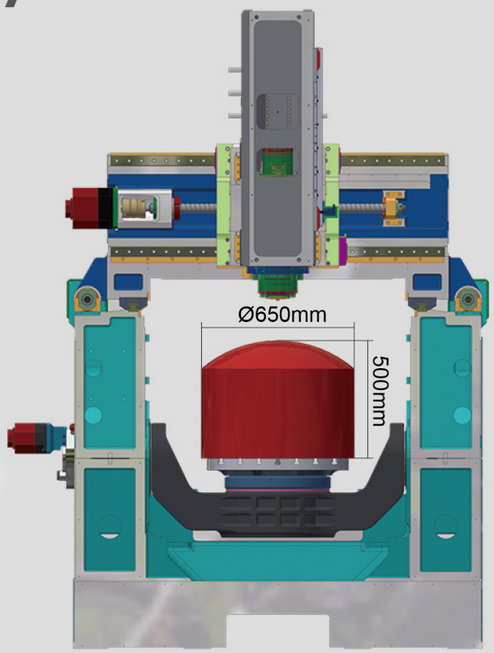


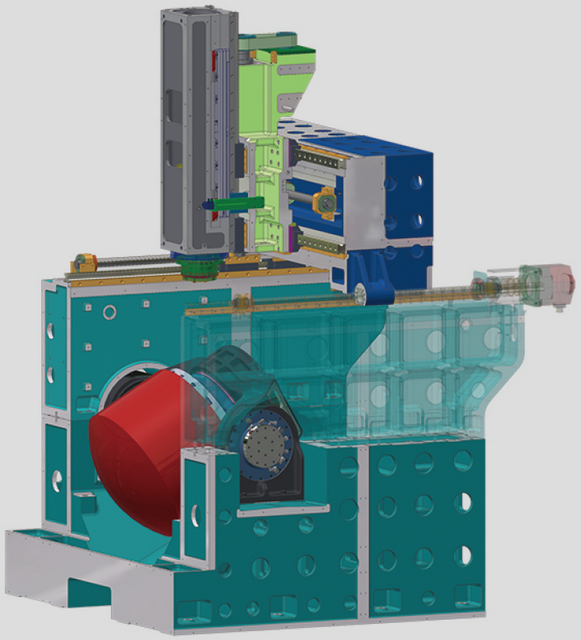
AxiSet™ Check-Up(opt.)

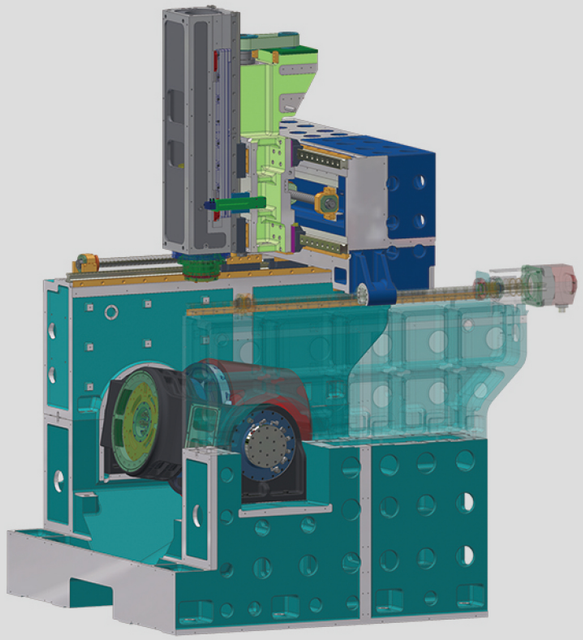
A/C axes Tilting Rotary Table

Swing range (3D illustration)

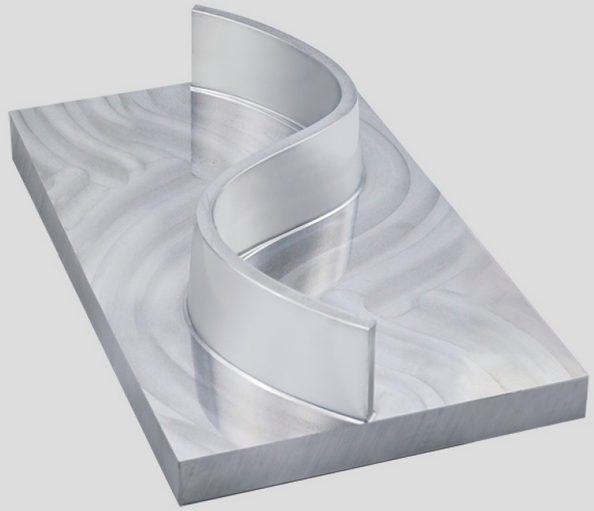


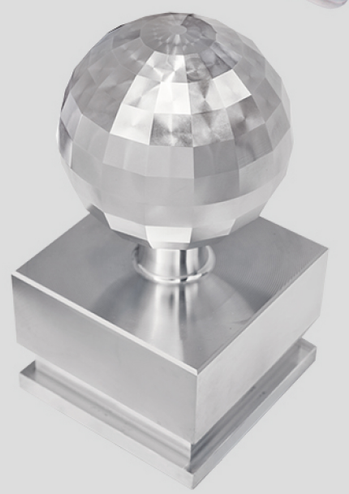


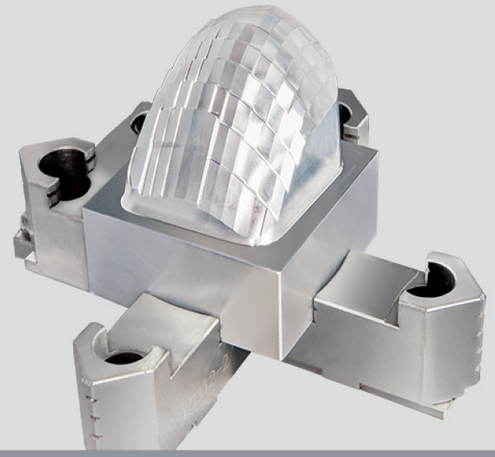




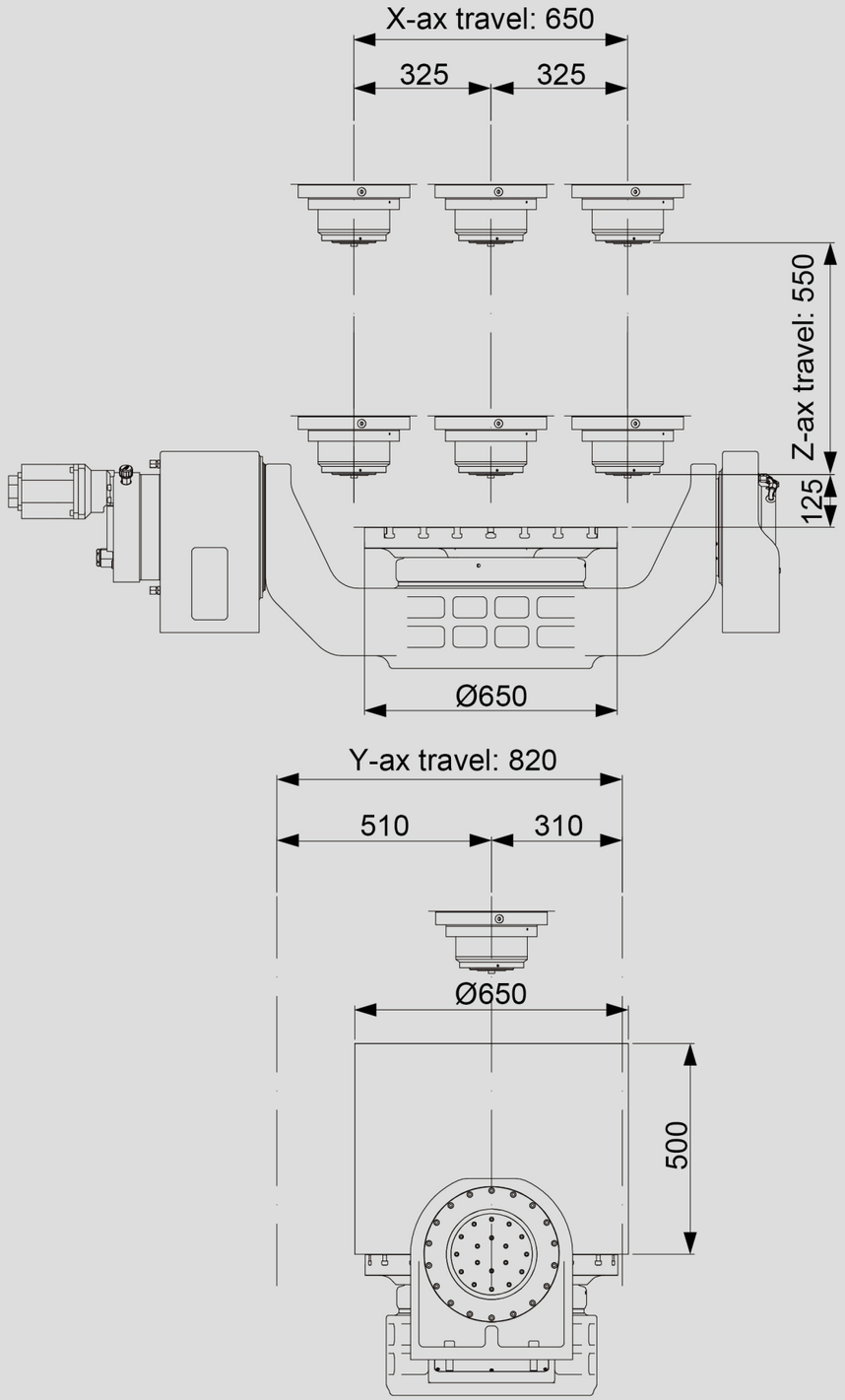
Sample Parts





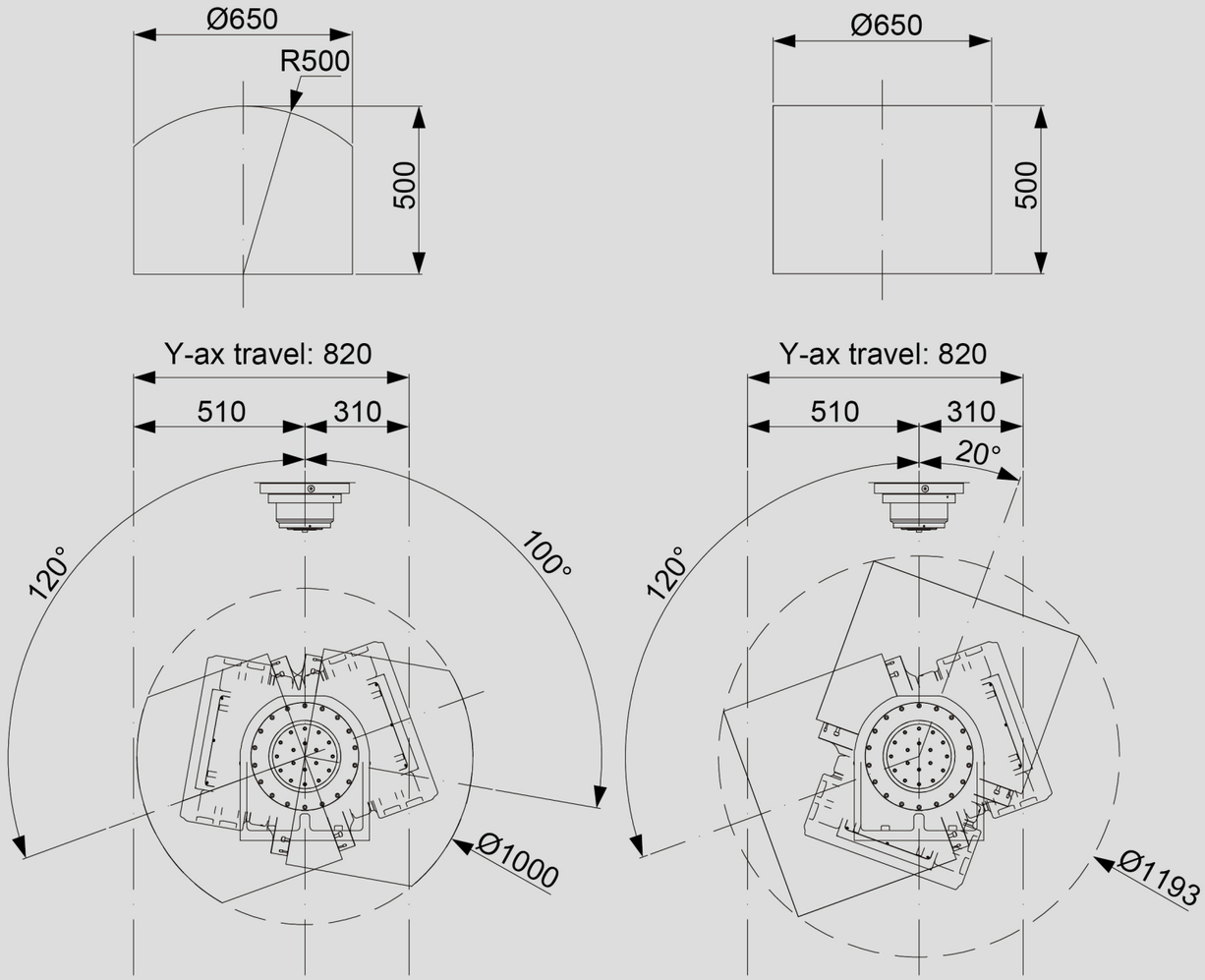


3-ax Interference Drawing



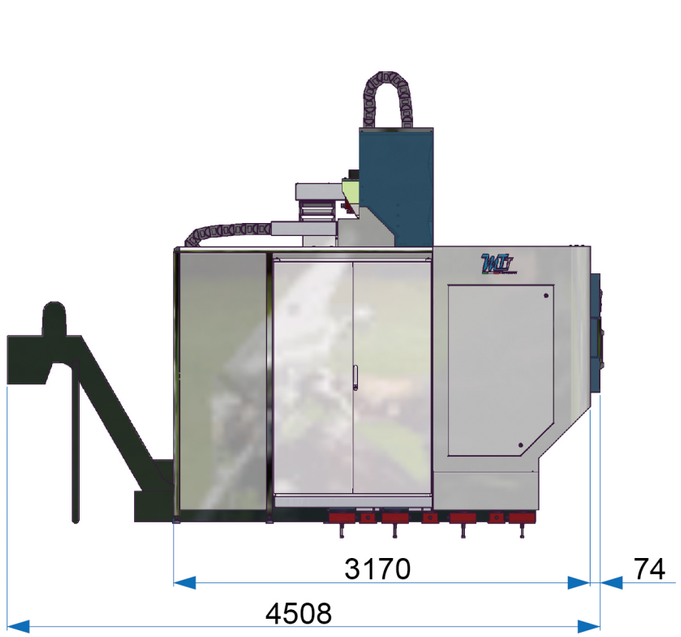
Unit:mm

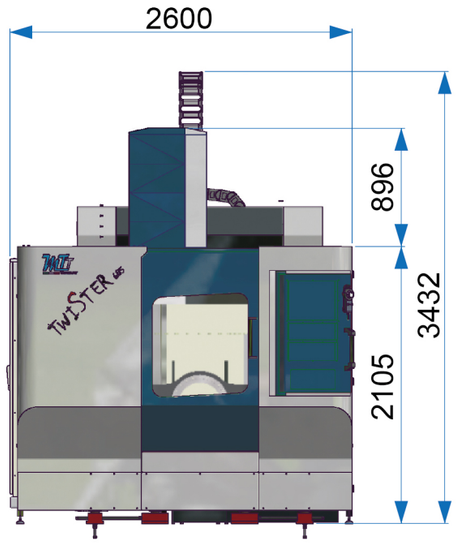
A-ax Tilting Interference Drawing

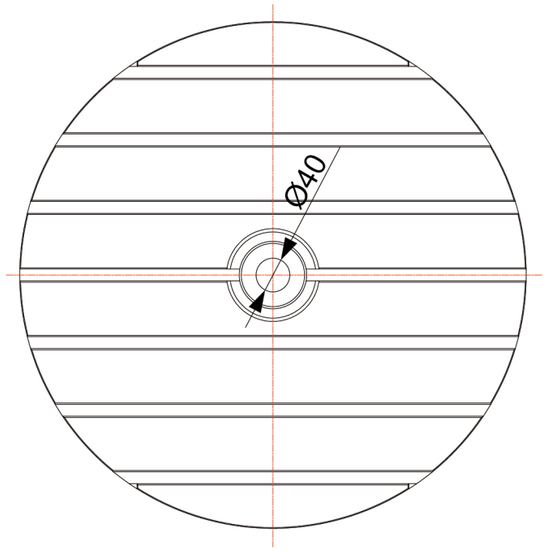


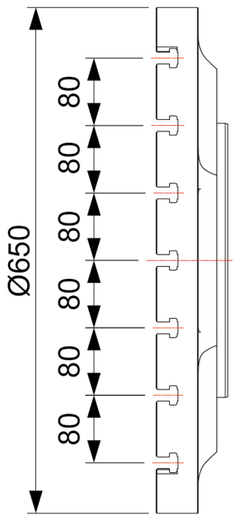
Unit:mm

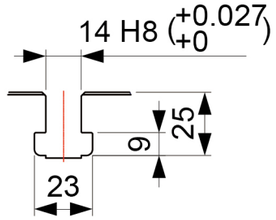
Outline Dimension Drawing











Unit:mm

Machine Specification

TRAVEL	
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°
PALLET	
Table size	Ø 650
Height of the table surface from the floor	910 mm
Number of slots	7
Distance between T-sluts	80 mm
Maximum loading capacity	750 kg
SPINDLE	
Spindle speed	Built-in 12000 rpm
Spindle motor	(F): 11 / 18.5 kW (S1/S3-10%, LOW)
	15 / 26 kW (S1/S3-25%, HIGH)
Spindle rated torque	(F): 45.7 / 124 N·m (S1/S3-15%, LOW))
	23.9 / 41.4 N·m (S1/S3-25%, HIGH)
Spindle taper	BBT40 (opt. HSK- A63)
FEED	
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
AUTOMATIC TOOL CHANGER (ATC)	
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
SUPPLY	
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
SIZE	
Floor space	4508×2600 mm
Machine height	3500 mm
Machine weight	10000 Kg

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

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

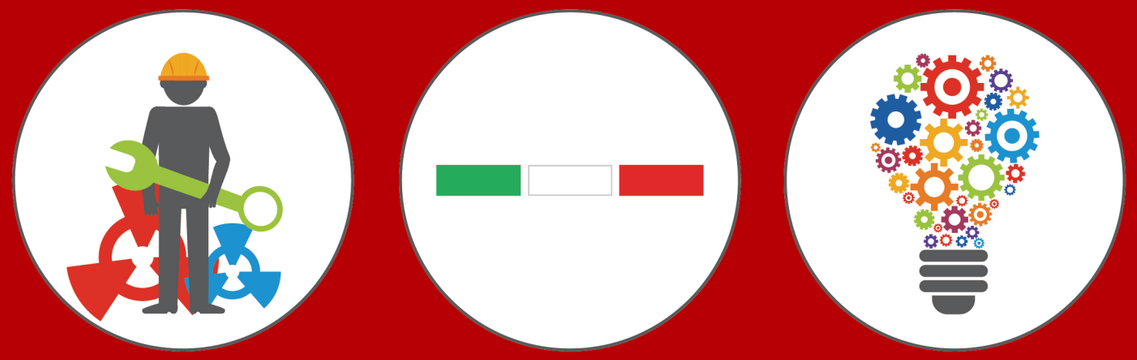
- Built-in spindle
  15000 rpm / 20000 rpm
- Coolant though spindle system (20 bar)
- Arm type tool magazine
  40 tools, 60 tools
- Automatic tool length measurement
- Automatic work piece measurement
- Five-axis rotary center error compensation function (RTCP)
- Transformer
- Controller:
  Fanuc
  Mitsubishi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

MTT *Team Work*

Giovanni Bassan
Technical Director

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 STRENGHT



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