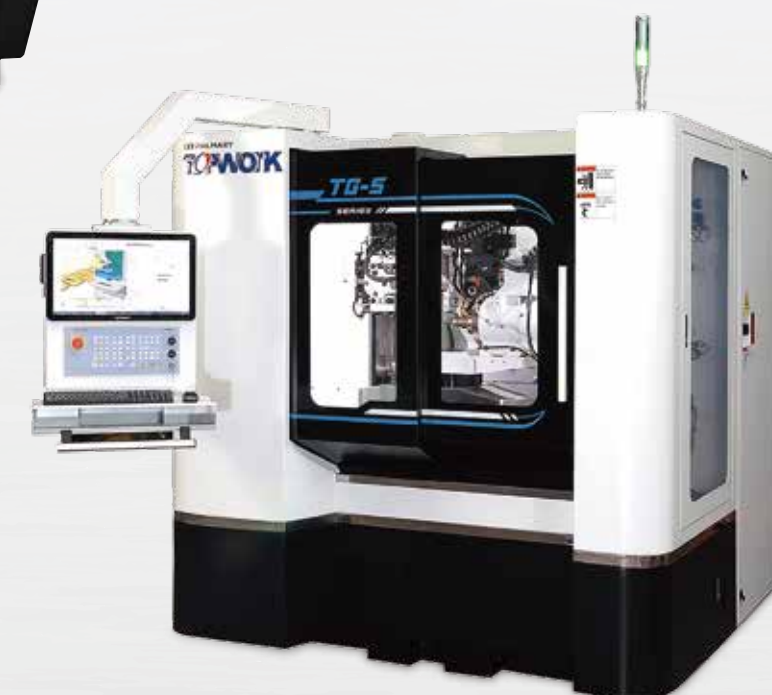


## CNC TOOL GRINDER



***TG-5 / TA-5 / TA-5 Plus***  
Total Solution for Customers' Grinding Tools.



# TG-5 CNC Tool Grinder

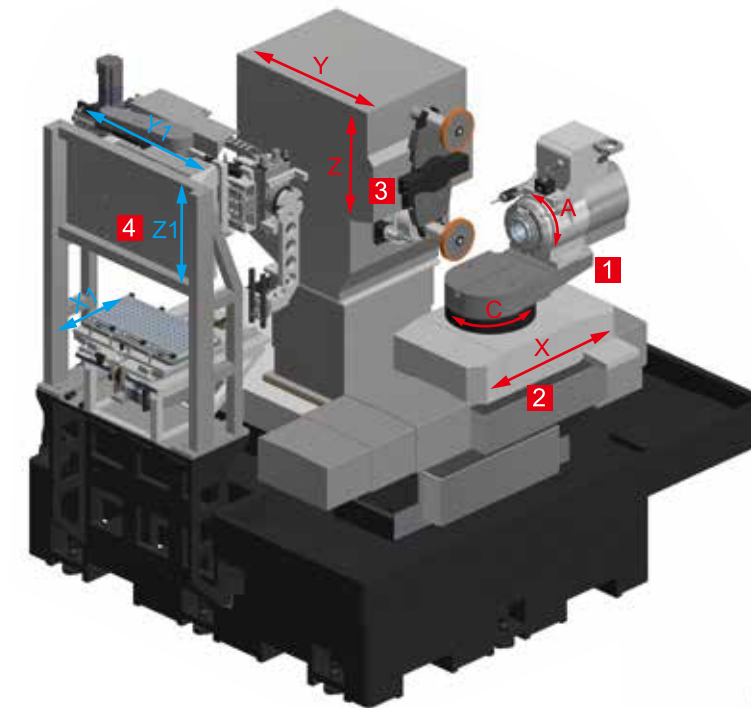
## Flexibility | Cost-Effective | Easy to use

The TG-5 CNC tool grinder is flexible, consistent, and easy to use. It features cost-effective with the world-famous NUM Flexium+ 68 controller and NUMROTOplus® software features versatile functions, for instance, excellent tool designs, 3D simulation, and collision monitoring.

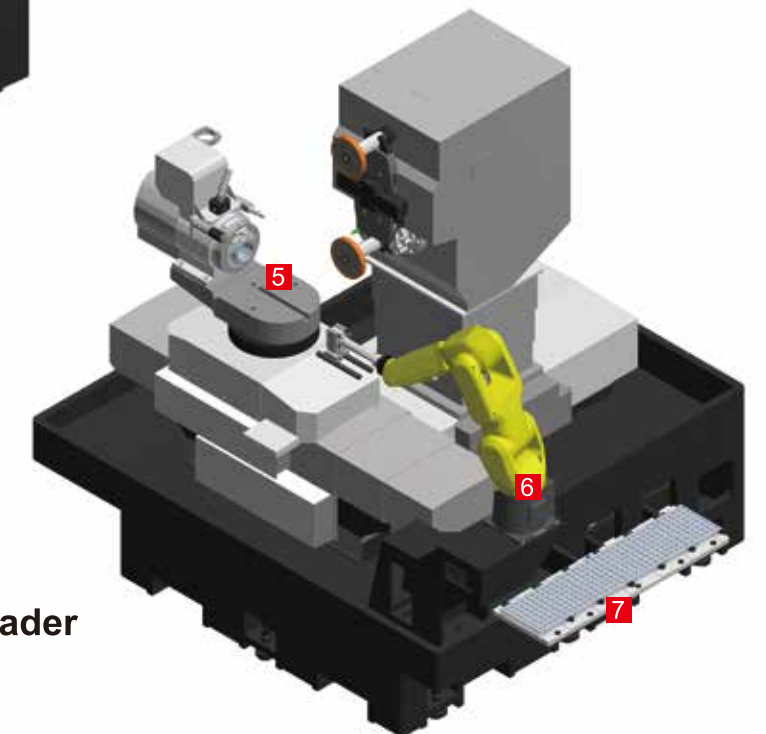
5-axis simultaneous motion design achieves high precision grinding result, and efficiently handles various types of grinding technical problems while in operation. It is the best solution to meet your needs and realize an intelligent production system in the era of industry 4.0.



## Machine Structure



Gantry Loader



Robot Loader

- 1** Workhead (A axis) driven by D.D motor.  
Spindle nose taper: BT-50
- 2** Upgrade rotary table (C axis) driven by D.D motor. (opt.)
- 3** Auto grinding wheel changer is with built-in spindle, including 2 wheel packs.  
Each wheel pack: Max. 3 wheels.  
The spindle taper: HSK-50E
- 4** Gantry loader (opt.) accommodates 3 loading trays.  
The tool diameter range: Ø3- Ø16.
- 5** 3D tool probe/grinding wheel probe automatically measures the change of coordinates and adjust the offset to improve the grinding accuracy.
- 6** Optional FANUC LR Mate 200iD robot loader to meet the needs of automated production.
- 7** The storage bin for Robot loader (option) accommodates 4 loading trays.  
The tool diameter range: Ø3- Ø16.



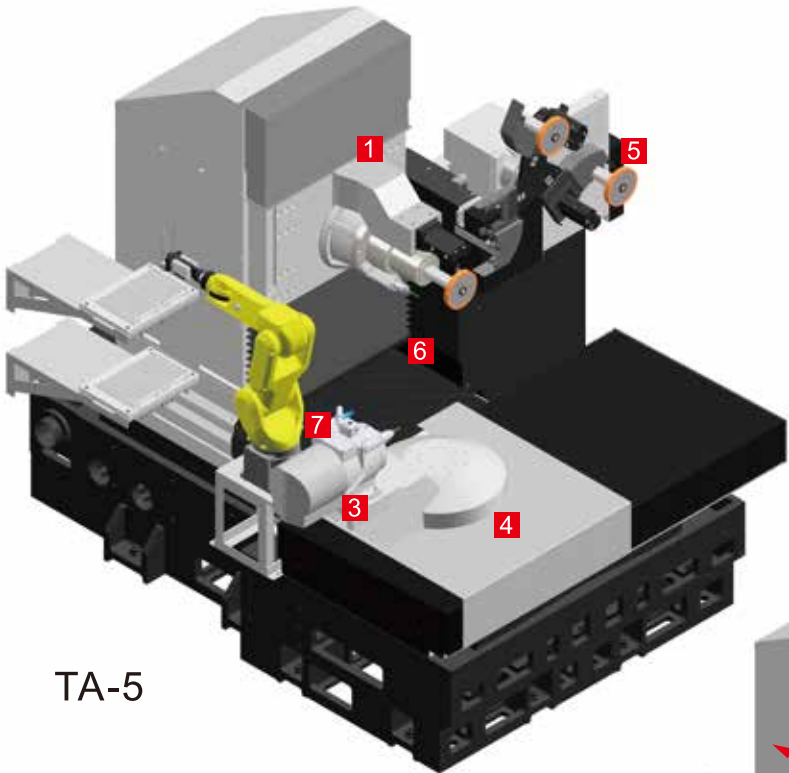
# TA-5 CNC Tool Grinder

## Innovation | High productivity | Your total solution provider

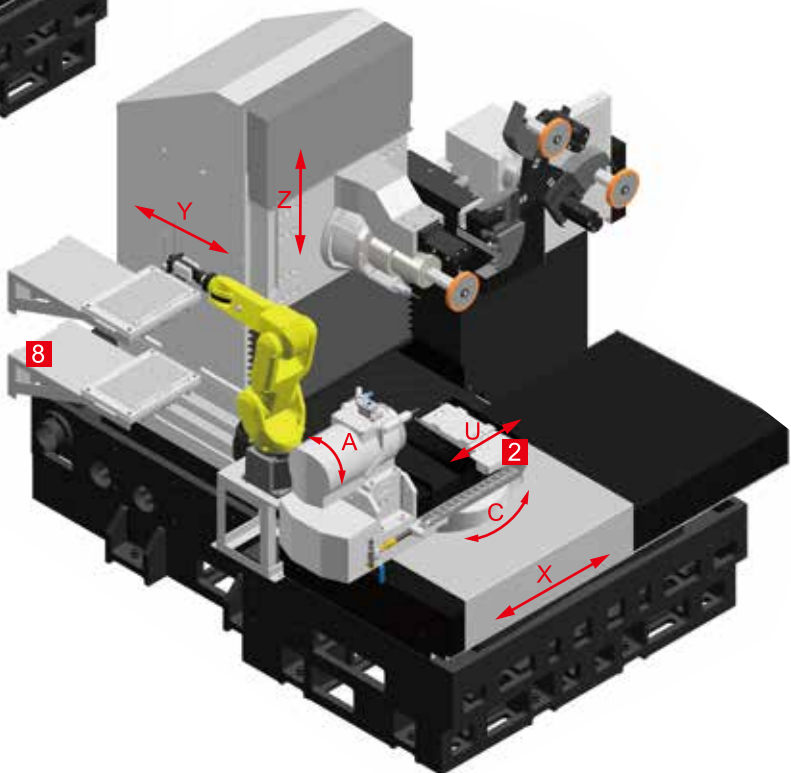
The TA-5 CNC tool grinder features a highly rigid structural design and is mainly used for grinding medium-sized and large-sized HSS and carbide, especially for aerospace and automobile application.

It is widely used for standard and profile tools, re-grinding, batch grinding, and mixed batch grinding, etc. The machine is designed with high spindle motor output, which meets the efficiency and flexibility required by the customer as well as total solution provided for automated production.

# Machine Structure



TA-5



TA-5 Plus



- 1 Horizontal structure with high rigidity design.
- 2 U axis configuration with steady rest, synchronous movement while fluting
- 3 Workhead (A axis) driven by D.D motor. Spindle nose taper: BT-50
- 4 Rotary table (C axis) driven by D.D motor.
- 5 Auto grinding wheel changer is with 3 wheel packs. Each wheel pack: Max. 3 wheels. The Max. wheel O.D: Ø150
- 6 3D tool probe/grinding wheel probe automatically measures the change of coordinates and adjusts the offset to improve the grinding accuracy.
- 7 Stäubli TX2-60 / FANUC LR Mate 200iD Robot (opt.) offers a high degree of freedom and flexibility intergraded to the machine.
- 8 The storage bin for Robot loader (opt.) accommodates 4 loading trays. The tool diameter range: Ø3- Ø16.



# TA-5 Plus CNC Tool Grinder

## The Best Solution for Long Drill Automated Production



**U axis**

Synchronous U axis movement while fluting to keep the long tool from deflection. For special grinding application, it can be set up as the supporting position.



**Steady rest with tool depressing function**

The steady rest with tool depressing function can hold up the long tool's tip to ensure the stability during grinding



# Machine Options

## Grinding Wheel Spindle and Automatic Grinding Wheel Changer



**Built-in Spindle (TA-5)**

- Spindle Taper: HSK-50E
- High Precision
- High Rigidity and Low Vibration
- High Power and High Torque



**Automatic Grinding Wheel Changer (TG-5)**

- Double Wheel Packs
- Spindle Taper: HSK-50E
- Each wheel pack: Max. 3 wheels.



**Automatic Grinding Wheel Changer (TA-5)**

- Equipped with 3 sets of wheel packs and coolant nozzles
- Spindle Taper: HSK-50E
- Each wheel pack: Max. 3 wheels.

## A-axis Workhead



**Direct Drive Motor**

- Workhead Taper: HSK-50E
- Quickly tool clamping with air pressure
- The concentricity is within 2 um.



Manual Tailstock



Manual Support

**Tailstock and Support**

The device sufficiently supports the cutting force during processing, effectively reducing grinding vibration to improve accuracy.

## Automatic Probe System



**Probe for Workpiece**

Automatically measures the tool parameters and position the tool properly in the shortest time. Measure the tool length, run-out and the position of water hole before grinding. If the dimensional tolerance is not reached, the probe will do offset automatically to improve the grinding quality.



**Probe for Grinding Wheel**

Automatically measures grinding wheel diameter, position, thickness, radial and axial runout, improve machine productivity and reduce the scrapping for the first tool adjustment. Provides accurate, repeatable geometric data for front and back position of grinding wheel measurement as well as radius contour.



# Robot Loader

- Highly reliable intelligent robot, the best option for Human-Robot collaboration

  - Intelligent six axis design with high flexibility to achieve complex motion of ROBOT arm.
  - The capacity of loading tray depends on different tool diameters; the tools of Ø3- Ø16 can be loaded 900 pcs / 3 trays.



## FANUC LR Mate 200iD Robot Loader

Faster tool changeover time by using a double gripper, maximum payload is up to 7 kg.  
The tool diameter: Ø3 to Ø16 mm,  
The tool length: 35~150 mm.

Applied for TG-5 / TA-5 series machine



## Gantry Loader

- A built-in soltion for efficient tools loading / unloading.
- Servo-driven for speed and precision control
- Compact machine footprint

Applied for TG-5 machine



# Controller and Software

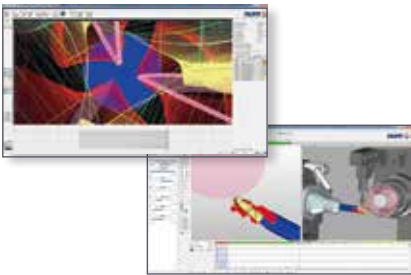


## flexium+ 68

Flexium+ has new and enhanced features, new panels, a new HMI, an enhanced servo bus, enhanced drives and simplified connectivity.

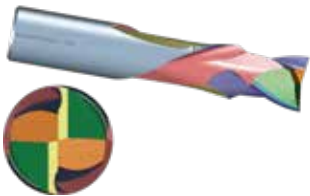
## numroto

With NUMROTOplus®, a wide range of tools can be manufactured and resharpenned, Each tool detail can be adjusted to suit individual needs, an exceptional variety of programs with a built-in database for tools, technology and grinding wheel packages, Auxiliary pictures for all parameter settings, displaying true to scale tool dimensions.

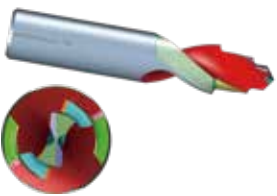


NUMROTO Draw (opt.)  
After entering all geometry parameters a dimensioned projection drawing can be created automatically, which are taken as true-to-scale color graphic image or DXF drawing from the 3D simulation.

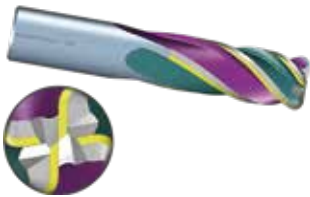
The 2D simulation is an integral part of NUMROTOplus®, all grinding operations can be simulated on the PC using the 2D simulation, With the integration in the NUMROTO software of 3D tool simulation with grinding process animation and collision monitoring with 3D machine simulation.



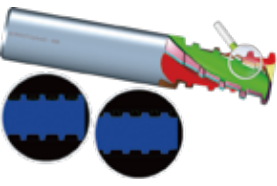
Up / Down-End Mill



Step Drill with DXF-form Step



End Mill with Multi Helix



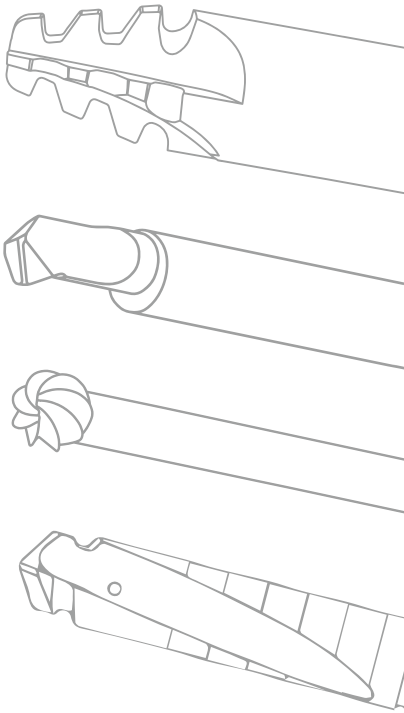
Double form Cutter



Step Drill with DXF-form Step



Convex Body




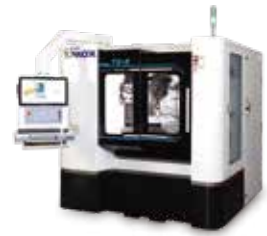
Specifications

- N/A (Opt.)

Model	TG-5	TA-5	TA-5 Plus
Stroke			
X-axis stroke	370 mm	480 mm	480 mm
Y-axis stroke	240 mm	410 mm	410 mm
Z-axis stroke	190 mm	350 mm	350 mm
U-axis stroke	-	-	240 mm
Swivel angle a-axis stroke	360°	360°	360°
Swivel angle c-axis stroke	-16° ~ 196°	-10° ~ 196°	-10° ~ 196°
Rapid traverse			
X / Y / Z-axis rapid traverse	6 m/min	15 m/min	15 m/min
A-axis rapid traverse	1000 rpm	1000 rpm	1000 rpm
C-axis rapid traverse	15 rpm	30 rpm	30 rpm
Resolution			
X / Y / Z liner resolution	0.001 mm	0.0001 mm	0.0001 mm
U liner resolution	-	-	0.001 mm
Radial resolution	0.001°	0.0001°	0.0001°
Grinding range			
Workpiece diameter	Ø3-Ø20 mm	Ø3-Ø32 mm	Ø3-Ø32 mm
Max. workpiece length	150 mm	180 mm	330 mm
Max. flute length	100 mm	150 mm	300 mm
Spindle			
Wheel spindle	Built spindle HSK50E	Built spindle HSK50E	Built spindle HSK50E
Spindle power	5.5 kW / 12.5kW (opt.)	24 kW	24 kW
Max. rotation speed (Max.)	9000 rpm / 10000 rpm (opt.)	10000 rpm	10000 rpm
Wheel packs	Max. 2 x Ø150 mm(6")	Max. 3 x Ø150 mm(6")	Max. 3 x Ø150 mm(6")
Controller			
Controller	NUM Flexium+ 68	NUM Flexium+ 68	NUM Flexium+ 68
Machine dimensions			
Electrical power	Max. 25 kVA	Max. 40 kVA	Max. 40 kVA
Weight	4600 kg 5200 kg (incl. robot system)	7370kg 7500kg (incl. robot system)	7370kg 7500kg (incl. robot system)
Dimensions (W x D x H)	2526 x 2684 x 2242 mm 2720 x 2684 x 2242 mm (incl. robot system)	2140 x 3422 x 2184 mm	2140 x 3619 x 2186 mm
Air pressure	Min. 5 kgf / cm²	Min. 5kgf / cm²	Min. 5kgf / cm²
Rated flow	Min. 40 L / min	Min. 40 L / min	Min. 55 L / min

※ All specifications are subject to change without prior notice.

Accessories

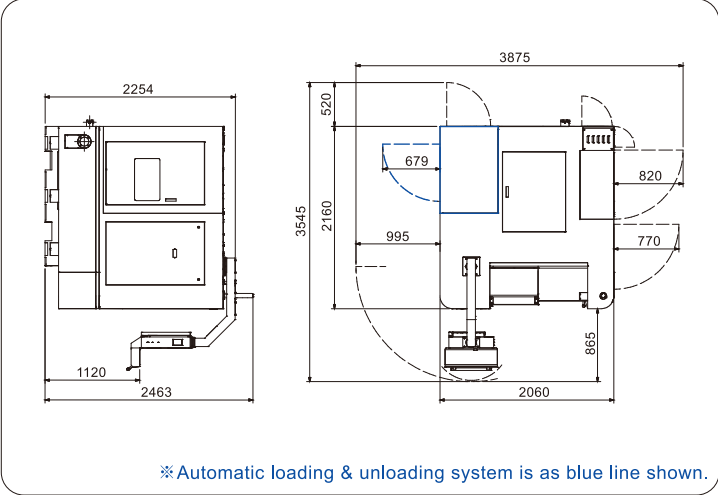


Model	TG-5	TA-5 / TA-5 Plus
Workhead (A axis) driven by D.D	●	●
Rotary table (C axis)	● Worm Drives ○Direct Drive Motor	● Direct Drive Motor
Collet	● Ø6 mm ○ Ø3-Ø20 mm	● Ø6 mm ○ Ø3-Ø32 mm
Grinding Wheel Spindle / Power	Built-in Spindle HSK-50C/E 5.5 kW	Built-in Spindle HSK-50E 24 kW
Grinding Wheel Auto. Changer	2 Set	3 Set
Automatic Loading & Unloading System (Robot System)	○Gantry Loader ○FANUC LR Mate 200iD	○FANUC LR Mate 200iD ○Stäubli TX2-60
Jaw	○ Ø3- Ø20mm	○ Ø3- Ø20mm
Loading Tray Ø3 / Ø4 / Ø6 / Ø8 / Ø10 / Ø12 / Ø16 mm	○	○
X / Y / Z axis Linear Scale	○	●
3D Touch Probe for Workpiece & Grinding Wheel	●	●
Grinding Wheel Flange	●	●
Automatic Lubrication System	●	●
Cooling System	○	○
Magnetic Separator for Filtering HSS	○	○
Transformer	○	○
Voltage Stabilizing Transformer	○	○
Block Gauge	○	○
Testing Bar	○	○

● Standard accessory      ○ Optional Accessory

Machine Layout

TG-5 CNC TOOL GRINDER WITH GANTRY LOADER      Unit : mm



TA-5 / TA-5 PLUS CNC TOOL GRINDER      Unit : mm

