

# GIVEAL

## NSC SNSTC



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## GIVEAL TC3 N2 / N3 5-Axis CNC Tool Grinder

A compact type of equipment for small batch and custom tool grinding



The inspiration for the GIVEAL series of grinding machine came from the company's operating philosophy "GIVE ALL". The configuration is strong and functional. It can be used for regrinding and manufacturing various types of rotary tools, which cover most mainstream tool sizes; Regardless of accuracy, efficiency, cost, or craftsmanship, as in its name, the GIVEAL series of grinding machines will be available for you in real production.

# GIVEAL

## Applications:

Through the processing technology and clamping system of the machine - TC3 N2 / N3, It can cover the production of most of cutting tools and parts.

- Manufacturing and grinding for woodworking and metal-cutting tools.
- Pre-grinding and finish-grinding for parts.
- Can complete machining of the flute and cutting edge in a single set up.
- Machinable materials include high speed steel, cemented carbide, cermet and ceramic.



## Overview:

- Machine body is made of marble, with unique column structure and excellent seismic performance;
- Linear axes use the top brand servo motors, the quality is reliable;
- High-torque spindle for grinding, easy to deal with large-diameter tools;
- N2 can install 2 set of grading wheels at the same time, N3 is equipped with 4-station grinding wheel changer that can store 16 grinding wheels at the same time;
- Using NUM FLEX+ (Switzerland) for CNC system, with high quality ensures the speed and accuracy of the machine;
- Provides a variety of optional functions, including automatic grinding wheel measurement;
- Rotary axes use digital direct drive technology, and equipped with high-precision feedback system to eliminate the transmission error;

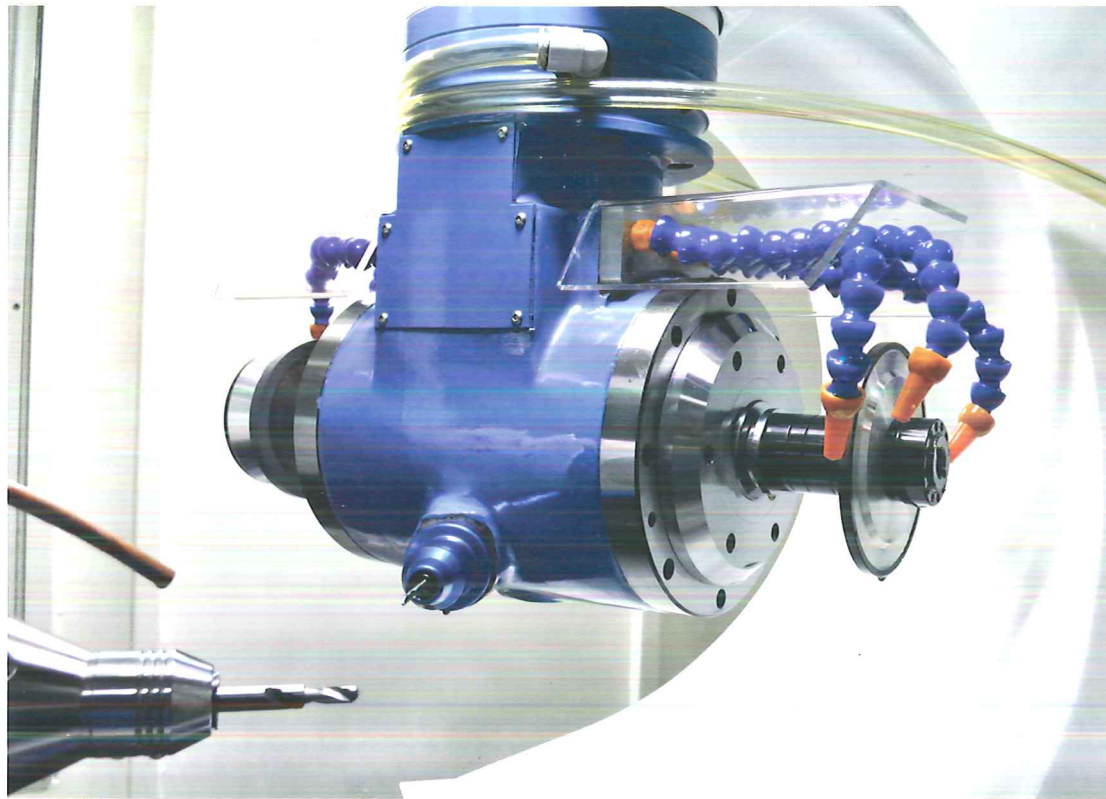


## Software:

- SNSTC TOOL BUILDER - An CAD / CAM software that integrated tool design, programming, simulation and production;
- NUM NUMROTO software;
- The processing program can be shared between Multi-device;
- A variety of optional software packages for extending function and improving productivity;



\* Machine processing can be flexibly selected SNSTC or NUM software



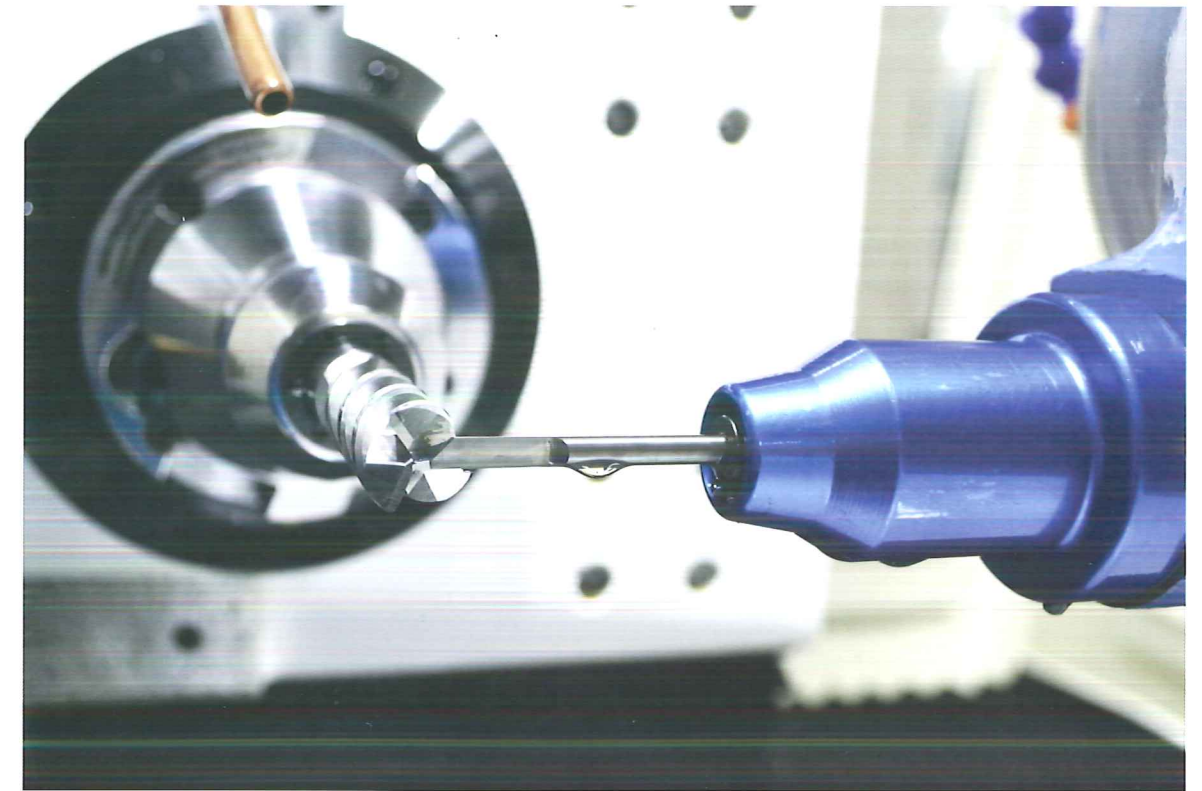
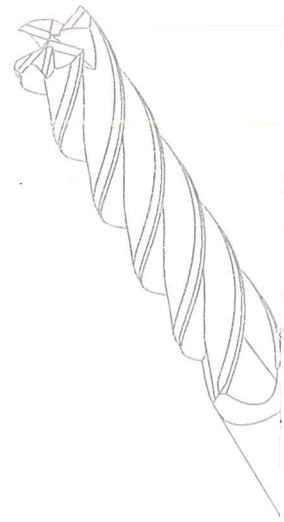
## Strong driving force:

GIVEAL TC3 N2 / N3 is equipped with high-torque grinding spindle, can output to a torque equate to the spindle with 26 / 38 kw peak power do, not only suitable for large grinding margin processing, but also for the high-feed, large-depth, the flute of large diameter tool and other heavy-duty manufacturing.

Different model has different structure, N2 provides double-end grinding spindle, N3 provides grinding wheel changer. Different grinding wheel packs can be marshalled to store the wheel size and shape data, and these date can be loaded to any spindle side, flexibly respond to multi-process processing and multi-wheel grinding.

The HSK spindle interface ensures extremely high clamping accuracy and negligible run-out, and can achieve tool change quickly.

Powerful cooling function is essential to the machine, GIVEAL TC3 N2 / N3 is equipped with "cooling multiplication" technology, through intelligent control to obtain the ability to double cooling the grinding wheel in the grinding process, better control grinding heat for better surface quality.



## Automatic on-line measurement:

The GIVEAL series of grinding machine is equipped with Renishaw probe for the accurate on-line measurement of the tool's diameter, length, edge, helical angle and front angle. The probe also helps the engineer for temperature compensation, it is an indispensable precision guarantee for tool grinding and manufacturing.

Automatic measurement can not only provide the necessary data for processing, but also can be integrated as a process into the processing action, serve as the detection and compensation basis of the processing results.

Through the software package, the GIVEAL series of grinding machine can also achieve the automatic compensation. The machine can automatically correct the machining deviation according to the data measured automatically after processing, is the best choice for unmanned operation and continuous processing.

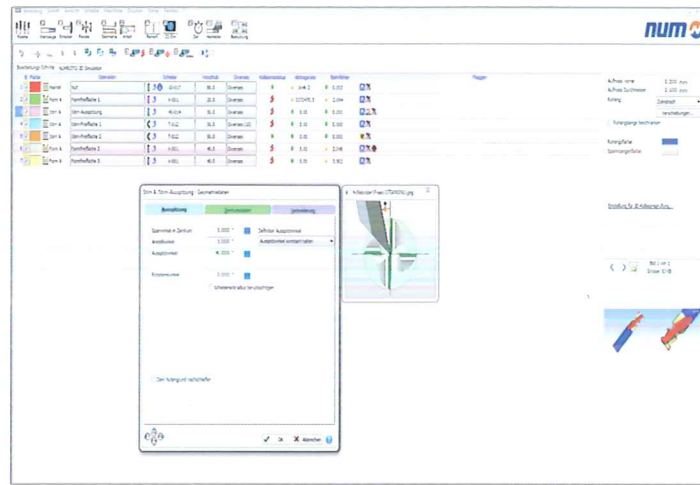
Besides workpieces measurement, by default, N3 is equipped with automatic measurement suite that measures wheel, which can calibrate the wheel automatically, greatly reduces the machine setup time. Automatic measurement suite options is also available for N2.

# Professional software:



SNSTC TOOL BUILDER is a self-developed, simple and efficient tool design and machine operation / programming control software, which integrates automatic calibration, motion simulation and other series of innovative features.

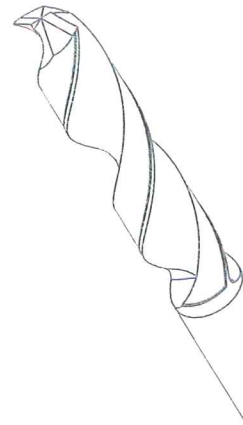
In order to maximize the versatility of the software, all the measurements and grinding processes in SNSTC TOOL BUILDER can be freely matched, and can be repeat for many times in any order on a certain product. Besides of this, user can also individually set procedures and parameters for the each cutting edges of the product, according to the processing requirements carry out the selective machining of specified cutting edges and specified process, many key parameters are variable on each cutting edges.



NUMROTO is a third-party integrated software package for the production and grinding of various tools.

NUMROTO has been widely used in 50 countries around the world, and has been integrated into more than 50 different types of machine tools of 13 internationally renowned manufacturers.

NUMROTO software is now integrated into the GIVEAL series of tool grinding machine, can immediately provide accurate and efficient tool production, and provide permanent update service.

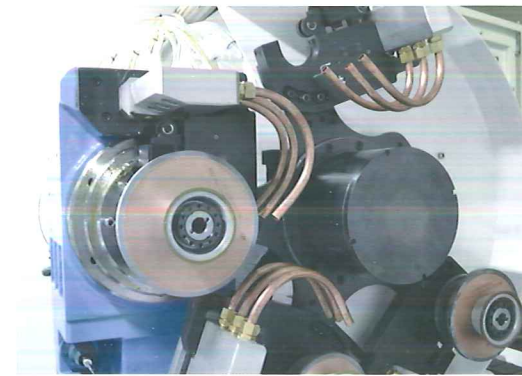


# Various options:



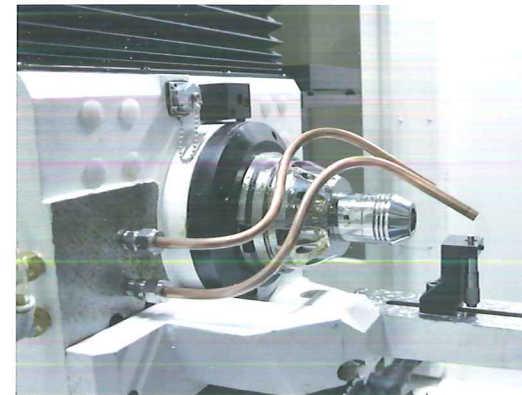
## Robot Tool Loader

Loading and unloading of the tools can be automatically carried out by the robot, which achieve unmanned operation and continuous processing. The loading capacity is determined by the pallets and the size of tools.



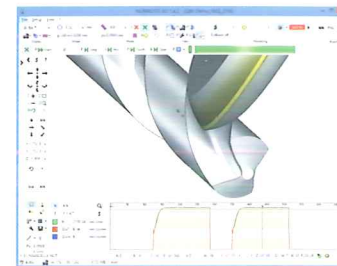
## Grinding wheel changer

Grinding wheel changer supports 4 wheel packs ( 5 maximum) and coolant manifolds changing automatically and responding quickly, can support the processing of complex tools in a single set up or separate rough machining from finish machining.

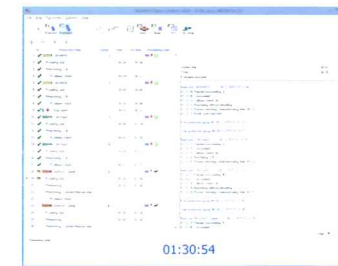


## Multi-function tool support unit

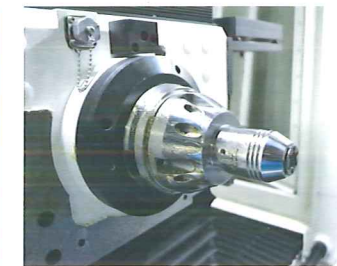
Optional multi-function tool support unit is designed to provide support for long slender tools or overweight tools, it plays a protective and auxiliary role in grinding process.



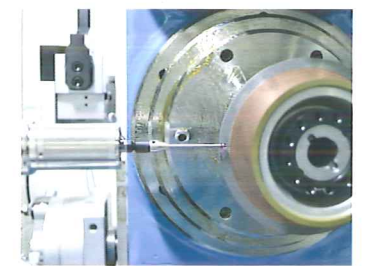
3D tool simulation



On-line measurement and automatic compensation suite



Automatic clamping suite with runout less than  $\pm 0.001$  mm



Automatic wheel calibration

## Customer service:

SNSTC is an international supplier of special tool and solutions. We will ensure that all of our users, like our manufacturing department, have access to the highest possible availability of equipment throughout the life of the equipment. We will provide plenty of services for this purpose.

From "commissioning", "maintenance" to "refurbishment", We will provide tailored services for our customers according to the special configuration of the machine. With telephone hotline, WeChat, most questions and problems can be answered and solved. In addition, our experienced technical services team also provides on-site service for our global customers, no matter when and where.

- Close to the customer, respond quickly
- Help to improve production efficiency
- Targeted, simple and clear
- Solve every tooling problem in an innovative and sustainable way



Installation and commissioning, extended maintenance



Technical training, skills improvement



Service consultation hotline



Maintenance, machine inspection



Machine transformation, machine recycling

## Technical specifications:

### Structure:

Machine body is made of marble, with C-column structure / 7-column structure

Weight : Approximately 5000kg

### Spindle:

High-torque spindle

N2 allows up to 2 wheel packs, Max 4 wheels each

Equivalent max power\* : 26 kw

Grinding wheel: Max  $\phi$ 200 mm

N3 allows up to 4-station grinding wheel changer, Max 4 wheels each pack

Equivalent Max power\* : 38 kw

Grinding wheel: Max  $\phi$ 150 mm

### Linear axes:

Servo motor direct drive ball screw

Install location reserved for grating sensor

### Rotary axes:

Rotary motor direct drive

Equipped with grating sensor

### Control system:

Beckhoff TwinCAT 2.0 / 3.0

or

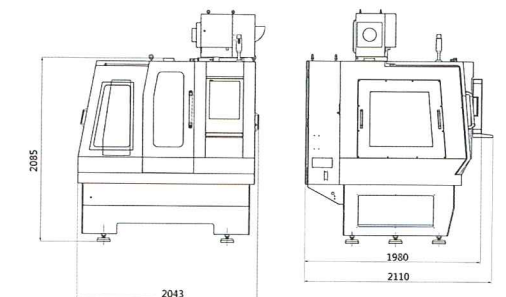
NUM Flexium / Flexium +

### Machine data:

	TC3 N2	TC3 N3
Tool diameter*	> 1 mm	> 0.3 mm
Re-grinding tool diameter*	> 3 mm	> 1 mm
Max machining length (Vertical direction)*	335 mm	430 mm
Max machining length (Parallel direction)*	175 mm	450 mm
Max machining diameter (Vertical direction)*	110 mm	120 mm
Max machining diameter (Parallel direction)*	200 mm	142 mm

\* Machinable range under the standard condition.

\* Process capability reaches the power lever.



\* SNSTC reserves the right to update or amend specifications without prior notice.

## Company profile:

Shanghai Nagoya Precision Tools Co., Ltd. was founded in 1992, mainly engaged in various types of precision cutting tools, the products are mainly used for auto parts, medical equipments, consumer electronics, machinery and equipment, wind energy and nuclear energy equipments, ship and railway, military and civilian aircraft and other precision manufacturing of military equipment.



SNSTC involves design, R&D, manufacture, sales and services. Meanwhile, also provides a set of complete solution for customers, which includes tools' design, manufacture and optimization, tools re-grinding / coating, customized fixtures, collets and holders, processing technology optimization, project cost control, etc.



Major product lines include all kinds of high-end carbide cutting tools, PCD and complex cutting tools, mainly used for replacing imported products, SNSTC is also famous for short delivery and high precision.

For the last 26 years, SNSTC constantly creates value for customers, and in the future, SNSTC will continue to contribute for the successful development of customer.

## General Manager Speech:

In the course of the development of the company, constantly committed to improving the living standards and living content of workers, continues creating jobs for the local and make due contributions to the stable development of the society.

Our company is also constantly committed to improving the overall strength and overall image of the company in order to meet the market demand and strive to become a world-renowned company in cutting tools industry at the same time.

General Manger Guoqing Sun