smart machine smart grinding

shapesmart® np5

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ROLLOMATIC®

smart grinding
unlimited grinding solutions

Rollomatic ShapeSmart®NP5
Precision Cylindrical Grinding Machine

The ShapeSmart®NP5 is a 5-axis Precision Cylindrical Pinch/Peel grinding machine with integrated 3-axis robot loader and grinding diameter range from 0.025 – 25 mm (.001"– 1"). The ShapeSmart® NP5 is ideal for cutting tool blank preparation as well as punch and mold applications requiring complex geometry and high length-to-diameter ratios.

With a Fanuc control, graphically driven NanoGrind™ software and automatic wheel qualification, the machine offers fast, easy setup every time. A versatile robot loader and optional in-process gauging mean you can successfully grind small batch quantities, as well as guarantee unattended accuracy during longer production runs.

The patented Pinch/Peel grinding process is a proven method that provides superior performance and optimal concentricity. With the addition of a 5th axis, you now have the ability to grind flats, hexes and non-concentric cam profiles.

Rollomatics' NanoGrind™ software offers the ability to mix conventional multi-pass roughing with a final, thru-feed, pinch-grinding pass. Glass-scales on the roughing and finishing axes help to achieve the highest level of interpolation accuracy and diameter control while providing a superior surface finish on tapers and radii.

CUTTING TOOL BLANKS
PRECISION PUNCHES
FORM TOOLS &
DRILL BLANKS
MOLD & CORE PINS
FIBER OPTICS

Grind perfect tool quality with ShapeSmart®NP5

Rollomatic knows that blank preparation is critical to obtain perfect tool quality. The precision of cutting tools is directly related to the quality of the blank. Achieving a precise blank is now easier than ever with the ShapeSmart®NP5 a 5 axis cylindrical grinding machine for grinding complex forms with extremely accurate concentricity and impressive size control. The machine is used in the cutting tool industry for blank preparation as well as for grinding of precision punches and molding components with:

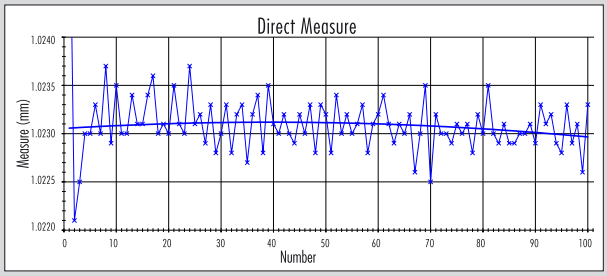
1. MIRROR SURFACE FINISH
2. SIZE CONTROL WITHIN ±0.0005 MM
3. TOOL RUNNOUT CONCENTRICITY WITHIN 0.001MM
4. ACCURATE SHAPE CONTROL

These advantages are a result of Rollomatics superior machine technologies including:

- Rigid machine base physically disconnected from machine hood provide a better surface finish vibration free
- Linear glass scales on X and V axis enable better size control, accurate interpolation and axis positioning
- BoxSlide™ concept is a one piece design provide a high thermal stability, homogeneity resulting with accurate positioning
- PerfectArbor™ flange system enable wheel runnout concentricity and repeatability of 0.002 mm
- Shank guide system with V-Block and pressure roller guarantee a perfect tool runnout concentricity

Machine repeatability in a production environment

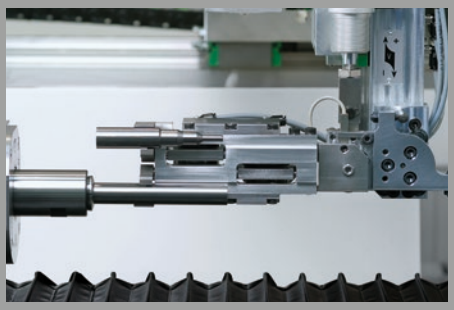
The graph shows a batch measurement of 100 tools diameter 1.023 mm ground on a ShapeSmart®NP5 auto-compensated with the in-process gauging system. The result shows that the machine is capable to hold a very tight tolerance of ±0.0005 mm with no human correction.



Enhance productivity and reduce production costs

In answer to current market demands which require greater flexibility, smaller batch quantities and increasing production efficiency, Rollomatic focused on these key points for the development of the ShapeSmart®NP5.

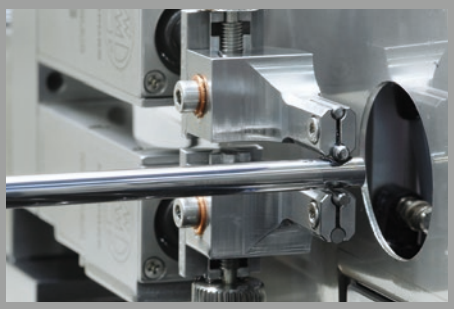
- Integrated 3-axis pick and place loader
  - Maximum 10 min setup change for shank diameter change
  - High loader capacity up to 1000 pieces
  - Ability to program & manufacture up to 10 different tool shapes with one setup
- Automatic grinding wheel position qualification
  - Simple, safe and fast to setup
- In-Process measuring system
  - Diameter control within 0.001mm during production
  - Proven, unattended production
- Unique shank guide/support system
  - Fast to setup



Low maintenance and service cost

In addition to the unparalleled reliability of our products, Rollomatic is known worldwide for the quality of its customer support. In order to maintain this leading role, Rollomatic is constantly searching for and developing new solutions to offer our customers even greater reliability and first class service.

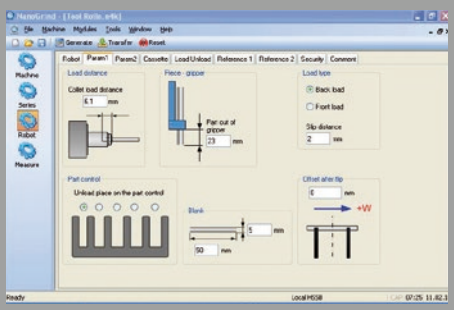
- Reliable Fanuc control
- Automatic ball screw lubrication system
- BoxSlide™ concept, sealed in a pressurized air chamber
- First class, worldwide support with qualified, multi-lingual hotline
- Free software updates

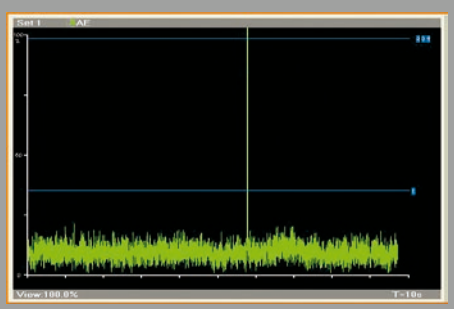


Flexibility and versatility

The ShapeSmart®NP5 is loaded with new features that increase machine versatility and extend machine tool production beyond your expectations.

- P4Smart® programming software
  - Offers unlimited profile possibility in a few clicks
- NanoGrind™ machine programming platform
  - Intuitive interface extremely easy to program
- CNC controlled workhead
  - Offers the possibility to grind flats and non-concentric parts
- Patented Pinch and Peel grinding process
  - Ability to mix conventional multi-pass roughing with a final, thru-feed, pinch-ginding pass as well as roughing and finishing in a single pass
- Retractable shank guide system
  - Enable to grind all type of tool with head larger than shank
- Part returning station
  - Offers ability to grind double ended tools automatically





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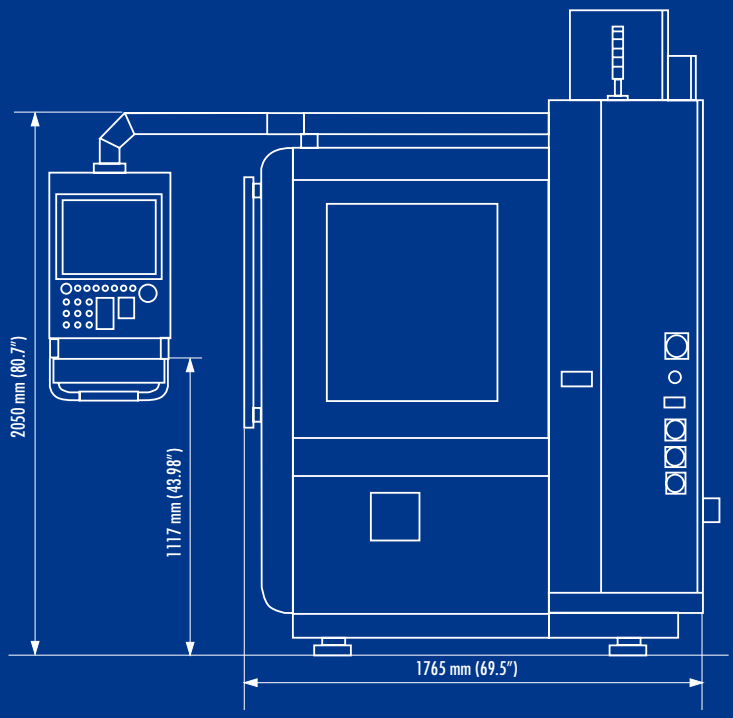
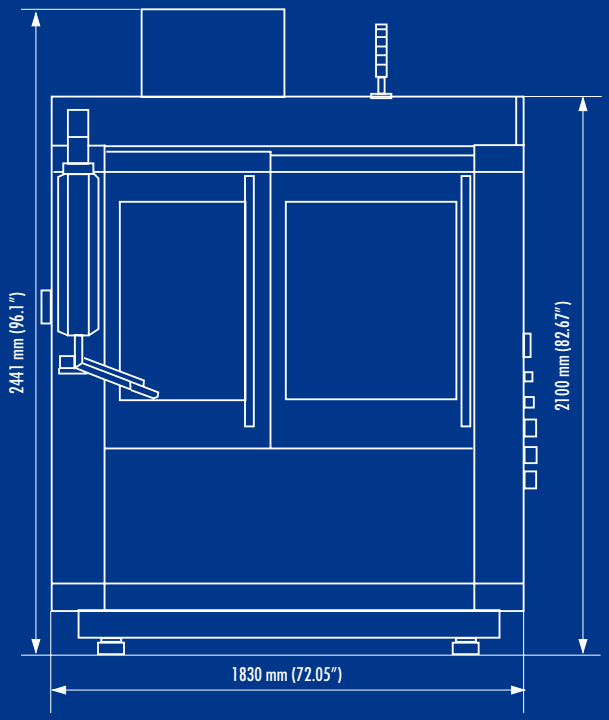
SPECIFICATIONS

APPLICATION		ROBOT LOAD & UNLOAD	
Traverse and plunge grinding of round blanks such as cutting tools, punches, micro drills, mold & core pins, precision punches, form tools		Shank	Ø 1.0 – 20.0 mm (.04"– .78")
		Overall length	30 – 300 mm (1.2" – 12")
		MANUAL LOADING	
GRINDING RANGE		Shank	Ø 1.0 – 25.0 mm (.04"– 1")
Grinding	Ø 0.025 – 25.0 mm (.001"– 1")	Overall length	20 – 350 mm (.787" – 13.8")
Clamping collets	W20		
Grinding length	max. 330 mm (13")	**GRINDING MOTOR & SPINDLE**	
		Roughing Motor	8.5 kW (11 HP), Belt drive, Internal cooling
CONTROL	**FANUC SERIES 32iB**	Roughing Spindle	Ø 100 mm (4"), PerfectArbor™
CNC axes 5	C/Y/Z/X/V Grinding station	Cutting speed	Adjustable, Frequency converter
+ CNC axes 3	$U_L/V_L/W_L$ Robot station ($_L$ = Loader)	Roughing Wheel	Ø 250 mm (10")
Y axis	Stroke 350 mm (13.7")	Finishing Motor	1.4 kW (2 HP)
	Resolution 0.0001 mm (.000004")		Direct drive, Internal cooling
Z axis	Stroke 100 mm (3.95")	Finishing Spindle	Ø 100 mm (4"), PerfectArbor™
	Resolution 0.0001 mm (.000004")	Cutting speed	Adjustable, frequency converter
X axis	Stroke 29 mm (1.14")	Finishing Wheel	Ø 150 mm (6")
	Resolution 0.00001 mm (.0000004")		
V axis	Stroke 29 mm (1.14")	**DIMENSIONS**	
	Resolution 0.00001 mm (.0000004")	L x W x H	1830 x 1765 x 2441 mm (72" x 70" x 96")
C axis	Tool rotation 0 – 3000 r.p.m.	Net weight	Approx. 3000 Kg (6614 lbs.)
	Resolution 0.001°	Total Power	Maximum 15 kW, 3 x 400V/25A
Linear interpolation up to 4 axes simultaneously			
+ 3 robot axes		* Specifications are subject to change without notice	





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