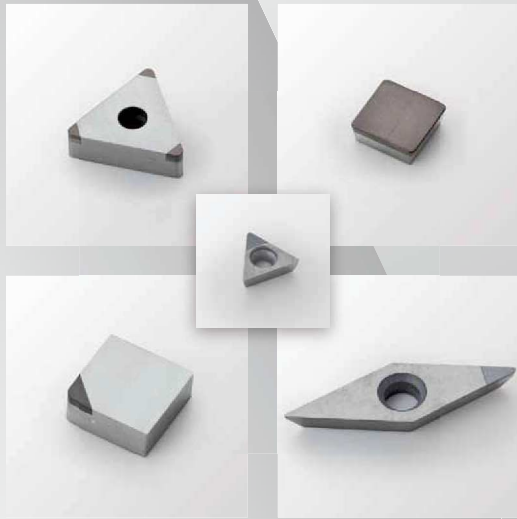




Fully Automatic  
Insert Periphery Grinder

# APX-103



# Insert Periphery Grinder for Throw Away Insert, Achieved High-Productivity and High-Quality

## MAIN FEATURES

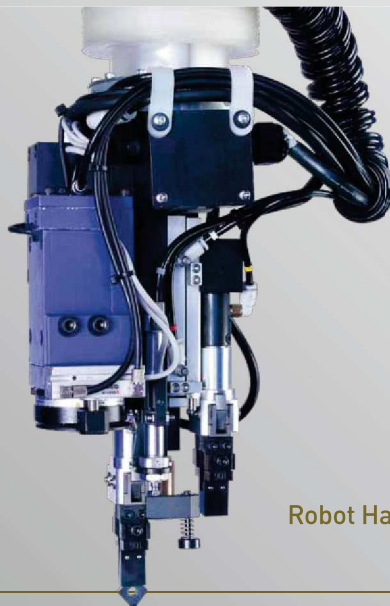
### Product measurement



### Work head



### Loading unloading device



Robot Hand

### Jigs Option



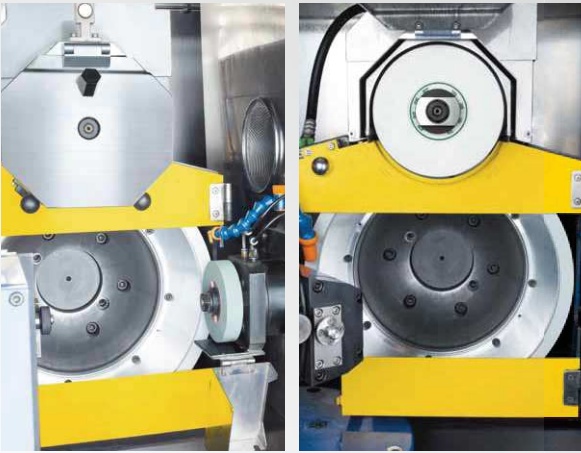
- 1** Peripheral grinding and two side K-Land grinding for standard throw away insert.  
K-Land grinding with using one side of the wheel, two side K-Land is done by re-clamping workpiece.
- 2** New-developed work head with enhanced rigidity increases the B axis torque.  
The same rigidity structure is also adopted in C axis.
- 3** Automatic oil mist lubrication system for feeding unit on X axis (In-feed) and Y axis (Oscillation).
- 4** Main body and the loader unit are fully covered.  
Partition and shutter are installed to prevent the intrusion of liquid mist to the drive unit.
- 5** Adopted SCARA robot for workpiece loading & unloading.  
2 sets of pallet can be equipped.  
Pallet changer (10 pallets) is available as option parts.
- 6** Operability has been increased by adopting FANUC for NC unit, installing new oscillation option and interactive software, APX ToolLab.

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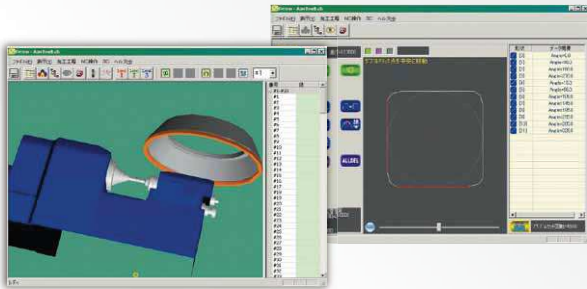
## Dressing device

In-process cleaning device

Option

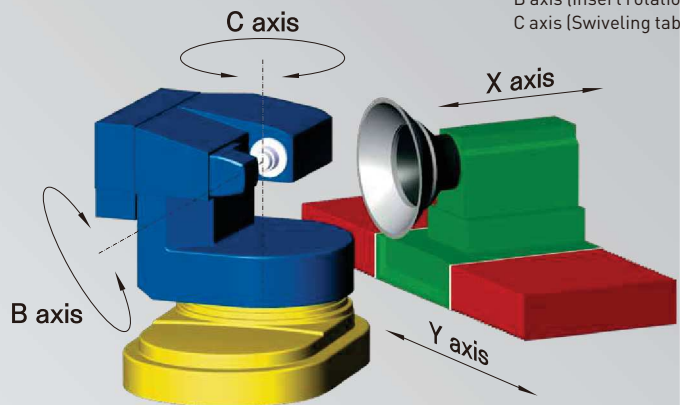


## Operation panel



## Axis Structure

- X axis (In-feed)
- Y axis (Oscillation)
- B axis (Insert rotation)
- C axis (Swiveling table)



# APX-103

## STANDARD SPECIFICATIONS

Workpiece	Objects of grinding	Periphery and both side K-Land of standard insert (Standard and small diameter) Both side K-land can be ground by 180 degrees reversal of insert with robot. (Reversed positive K-land is not possible)
	Material	Carbide, Cermet, Ceramics, CBN, PCD
	Minimum inscribed circle	Equilateral Triangle: 3.5 mm Others: 4.7 mm
	Maximum circumscribed circle	45 mm
	Maximum thickness	15 mm
X axis (In-feed)	Maximum rapid feed rate	10 m/min
Y axis (Oscillation)	Maximum rapid feed rate	30 m/min
B axis (Insert rotation)	Travel	∞
	Maximum rapid feed rate	100 min <sup>-1</sup>
C axis (Swiveling table)	Grinding range	-90~+36 deg. (Some limitations depending on the conditions.)
	Maximum rapid feed rate	9,000°/min
Spindle	Grinding wheel size	Outside diameter φ350 mm
	Spindle rotation speed	500~2,000 min <sup>-1</sup>
	Motor	7.5 kW
Tail stock	Maximum chuck pressure	10 kN (Theoretical value at the time of 7MPa.)
Dressing device	Diameter of dressing wheel	Outside diameter φ100 mm
	Wheel rotation speed	300~1,500 min <sup>-1</sup>
Centering pin device		Exchanging system
Automatic centering device	Control system	Back/forward, up/down automatic control
Measuring device	Measuring probe	Flat type carbide probe φ7
Loading unloading device	Robot	SCARA robot
	Robot hand	Loading hand, unloading hand each 1 set, insert pusher
Work stock	Pallet type / No. of pallet (vertical)	Standard pallet (240 mm x 300 mm) : 3 pallets
		T-type pallet (190 mm x 370 mm) : 4 pallets
Touch panel		5.7 inch handy type
Oil cooling unit	Cooling part	Y axis linear motor and grinding wheel spindle

## OPTION

Thickness measuring device		
AE Sensor		
In-process cleaning device	Cleaning wheel size	Outside diameter φ150 mm
	Wheel speed	300~1,500 min <sup>-1</sup>
Washing device		
Mist collector		
Workpiece for lay down pallet specification		Magnetic specification Vacuum suction specification
Camera for lay down pallet		
Pallet changer	No. of pallet	10 pallets
Splash gun / Air gun		
Grinding fluid supply device		Tank capacity: 300 ℓ
Oil grinding specification	Automatic fire extinguisher	
	Coolant temperature controller	
	Oil flow sensor	
Measuring device (for large diameter workpiece)		
Air blow for measuring		

## NC STANDARD SPECIFICATION

NC Unit	FANUC Series 31i-MODEL B
Control Axis	X axis (In-feed)
	Y axis (Oscillation)
	B axis (Insert rotation)
	C axis (Swiveling table)
Maximum Simultaneous Control Axis	4 axes

## DRIVE SOURCE

Total Electric Capacity	10 kVA AC200 V (50/60 Hz)
Compressed Air Primary Pressure	0.35 MPa or More
Air Consumption	450 Nℓ/min
Hydraulic Unit Maximum Pressure	7 MPa

## MACHINE SIZE

W×D×H	2,635×2,015×2,375 mm
Machine weight	5,500 kg

## JIGS OPTION

Grinding wheel
Dressing wheel
In-process cleaning wheel
Driving arbor
Clamping arbor
Centering block
Robot finger
Centering pin
Work guide

## Caution

- \* This product may be regulated by the Foreign Exchange and Foreign Trade Control Law. Be sure to consult us before exporting the product to a foreign country.
- \* Specifications in this catalog may be changed without notice due to improvement of the product, etc.

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