

CITIZEN

**Miyano**

**BND51**

Fixed Headstock Type CNC Automatic Lathe



# SY

We introduce a new bar machine equipped with a subspindle and a Y axis that can machine bar material up to  $\phi 51$  mm.

The structure of the machine, consisting of precision scraped square guideways that provide high rigidity and excellent vibration damping characteristics and a heavy 30° slanted bed of a platform construction with appropriately arranged ribs ensuring good thermal stability and minimum dimensional changes over time, realizes consistent high machining accuracy.

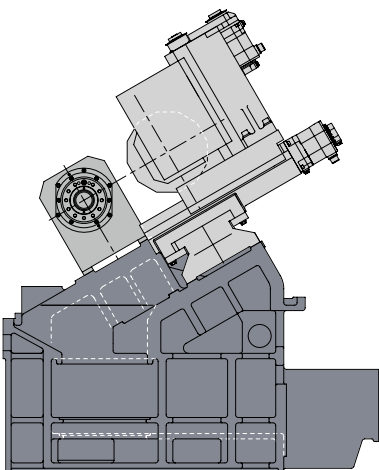






### Strong, Highly Rigid Construction

Rigid square guideways are used for all axes. The 30° slanted bed where major machine units such as spindles and tool slides are mounted has been given a platform-like ribbed structure to provide rigidity and stability. This structure combined with exceptional rigidity ensures the Miyano characteristics of high precision, consistent production and extended tool life.



### Complex Machining with Y Axis Control

The combination of independently driven revolving tools that can be mounted at all positions on the turret with the Y axis and the subspindle realizes a high level of process integration in complex machining.

### Easy to Use Tooling System

Double sleeve holders and double turning holders allow multiple tools to be mounted at a single position on the turret to maximize tooling flexibility.

## Standard Equipment and Options



Part catcher (standard)



Part conveyor (standard)

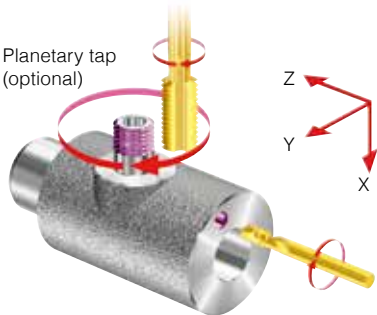
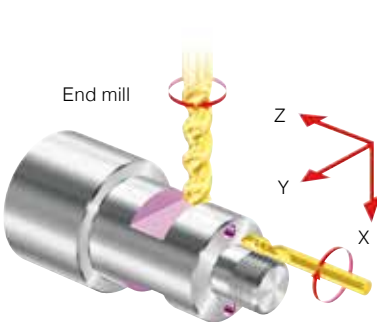


Chip conveyor (optional)

# Wide Range of Complex Machining with Revolving Tools

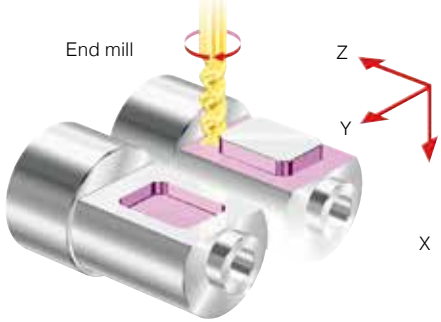
### Basic complex machining

The ability to perform off-center cross-drilling, cross-tapping and end milling in the X-Y and Z-Y planes as well as milling by controlling the C axis allows machining of high level functional parts beyond the capabilities of conventionally available models.



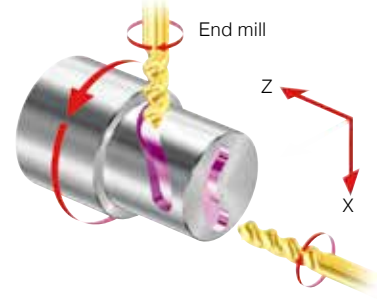
### Large boss and pocket milling

Large boss and pocket milling can be done in the Y-Z plane using the circular and linear interpolation functions.



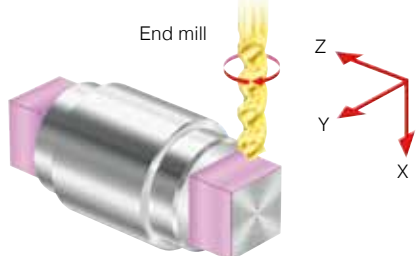
### Contouring

Contouring using simultaneous 3-axis control (C, X and Z axes) is possible.



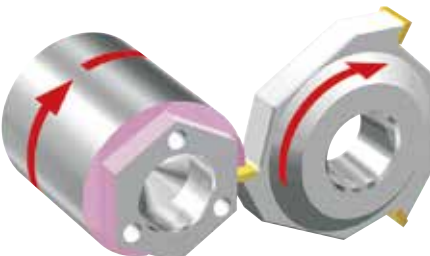
### High-precision milling

High-precision complex machining thanks to the high C axis positioning accuracy and the ability to control the Y axis with high accuracy expands the range of machining.

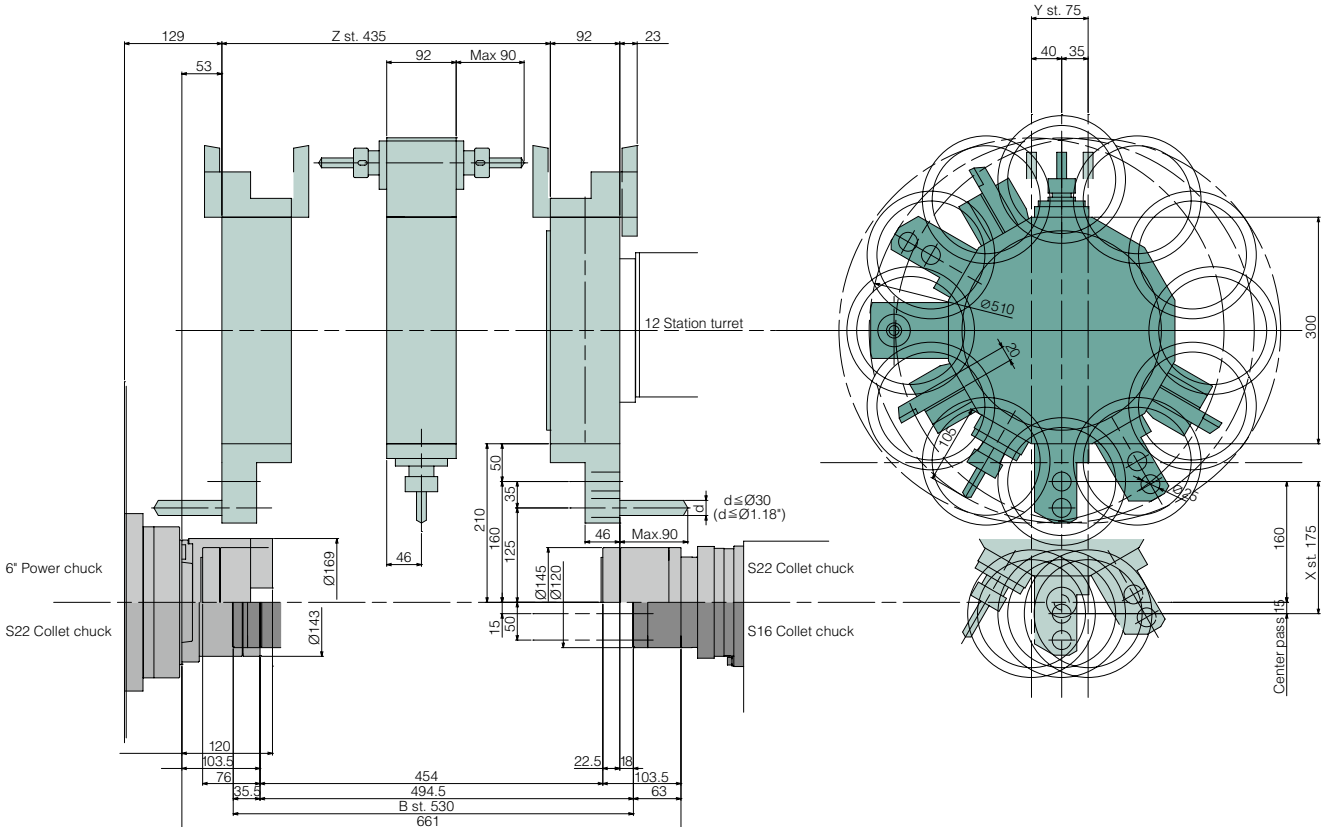


### Polygon machining (optional)

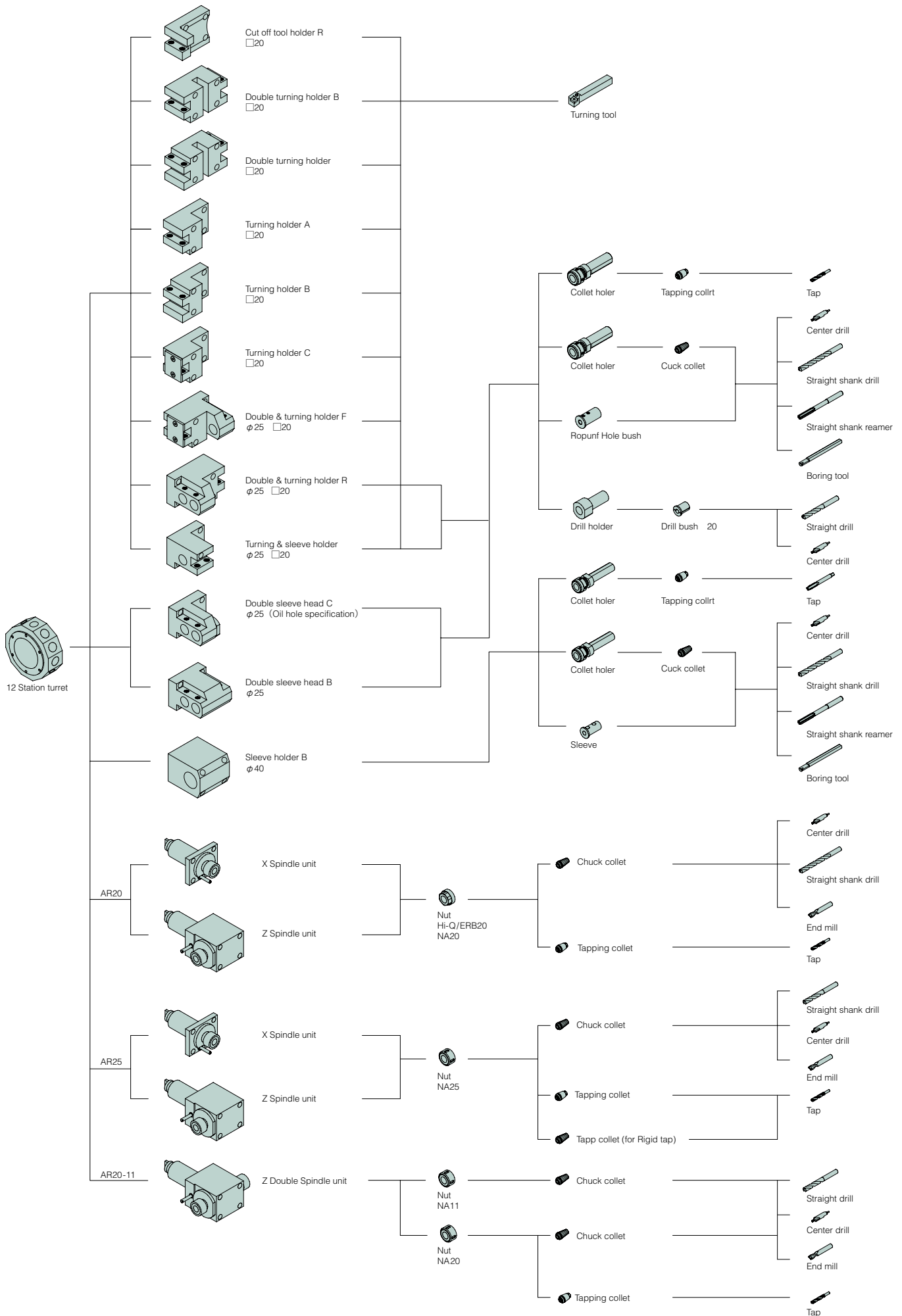
Synchronizing the revolving tool speed with the spindle speed at two times permits polygon machining, such as two-, four- and six-sided machining, with a polygon cutter.



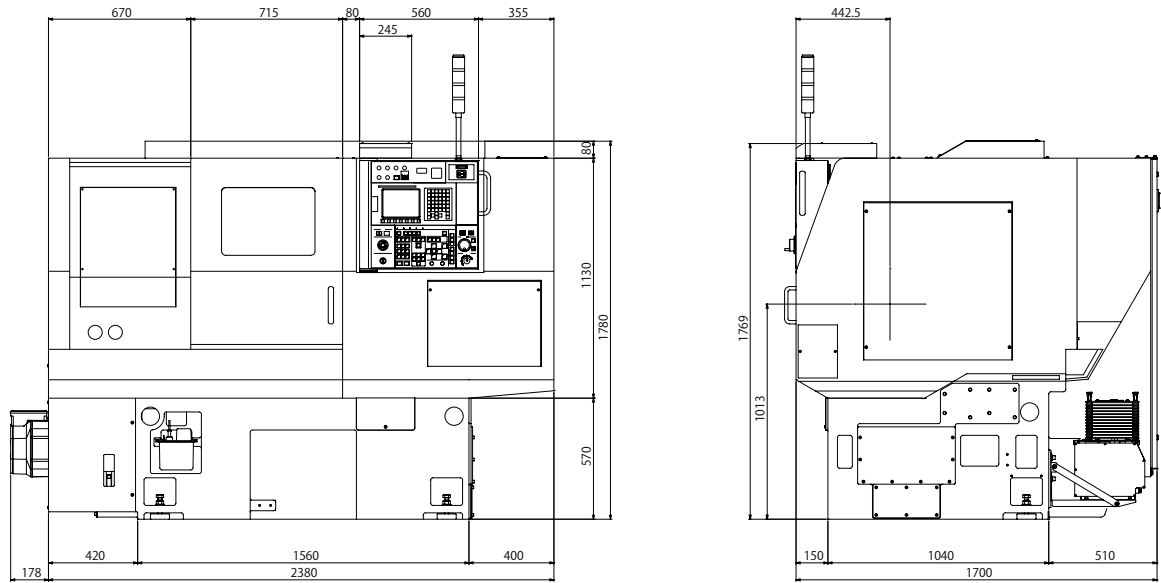
## Tooling Area



# Tooling system

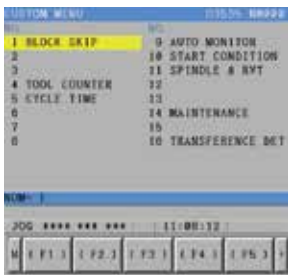


## External view



## NC Custom Menu

'One-touch' functions for faster set-ups.



**Custom menu**  
Displays the list of custom screens.



**Block skip**  
Used to set block skip 1 to block skip 9.



**Tool counter**  
Used to set and reset the tool counter stop value and enter the tool wear offsets.



**Cycle time**  
Measures the cutting time, non-cutting time and running time in each cycle.



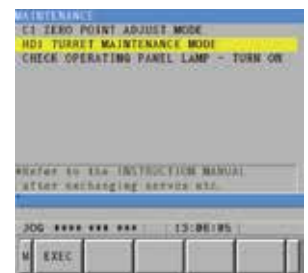
**Automatic running monitor**  
Displays the control status of each axis. Used to set ON / OFF for the machine lock function.



**Start condition**  
Used to set the start conditions for automatic running.



**Spindle & RVT**  
Used to set the rotational speed of the spindle and revolving tools. Used to set the spindle override.



**Maintenance**  
Used to set ON / OFF for the maintenance items. Used to set ON / OFF for turret zero point adjustment.



**C Zero point adjust mode**  
Easy to adjust the C axis zero point.



**Turret Maintenance**  
Used to adjust the turret zero point.



**Manual operation**  
Displays the zero point lamp status and the machine coordinate of each axis.



**Option device**  
Used to select an auxiliary device such as a part catcher to be operated manually.

# Machine specifications

Item	<b>BND-51SY2</b>	
<b>Machining capacity</b>		
Maximum work length		320 mm
Maximum bar Dia.		51 mm Dia.
Maximum blank diameter	chucker	Max. 210 mm Dia.
<b>Spindle</b>		
Number of spindles		2
Spindle speed		50 - 5,000min <sup>-1</sup>
Draw tube Dia.	SP1	52 mm Dia.
	SP2	26 mm Dia.
Power chuck type		Hydraulic
Type of collet chuck	SP1	H-S22 Pads
	SP2	H-S16, S22 pads
Power chuck size and type	SP1	6" Through hole type
	SP2	5" Through hole type
<b>Turret</b>		
Number of turret		1
Turret stations		12 ST.
Shank size of square turning tool		20 mm Sq.
Diameter of drill shank		25mm Dia.
Turret index time		0.25 sec./ 1pos.
<b>Feed rate</b>		
Slide stroke	Xaxis	175 mm
	Zaxis	435 mm
	Yaxis	75 mm
	Baxis	530 mm
Rapid feed rate	Xaxis	18 m/ min.
	Zaxis	20 m/ min.
	Yaxis	12 m/ min.
	Baxis	18 m/ min.
<b>Revolving tool</b>		
Number of revolving tools		Max12
Tool spindle speed range		60 - 6,000min <sup>-1</sup>
Capacity	Drill	Max 13 mm Dia.
	Tap (Steel)	Max M8
	Tap (Al, Brass)	Max M8
<b>Tank capacity</b>		
Hydraulic oil tank capacity		10 L
Lubricating oil tank capacity		2 L
Coolant tank capacity		150 L
<b>Machine dimensions</b>		
Machine height		1,700 mm
Floor space		2,560 mm × 1,700 mm
Machine weight		4,750 kg
<b>Motors</b>		
Spindle motor	SP1	AC 15/ 11 kW
	SP2	AC 5.5/ 3.7 kW
Revolving tool motor		AC 2.2 kW 20 Nm
<b>Power supply</b>		
Voltage		AC 200/ 220 V ± 10%
Capacity		37 KVA
Fuse		125 A
Air supply		0.5 MPa (5 kgf/ cm <sup>2</sup> )
<b>Others</b>		
Splash guard interlock, Revolving tool driving unit, Pneumatic, Spindle brake No.1, High pressure coolant, Parts Catcher, Parts conveyor, Work ejector & inner high pressure coolant.		
<b>Optional accessories</b>		
Collet chuck system, Power chuck system, Spindle brake No.2, Chuck air blow, Automatic fire extinguisher, Automatic power shut-off, Coolant level switch, Sub spindle Inner high pressure coolant & air blow, Speed setter, Chip conveyor, Chip box, Foot switch, Total & preset counter, Coolant mist collector, Oil mist damper, Warning light, Cut-off confirmation, Large bore spindle, Bar feeder interface, Filler tube, Spindle inner bushing, RS-232C port, etc.		

## NC specifications

	FANUC 0i-TD
Axial control	X, Z, Y, B, Cs
Simultaneous control axis	4 axis
Minimum setting unit	0.001mm, 0.001deg, Cs axis
Minimum output unit	X: 0.0005mm, Z: 0.001mm Y: 0.001mm, B: 0.001mm, Cs: 0.001deg
Interpolation functions	G00, G01, G02, G03, G04, G32, G33
Program storage capacity	1 Mbyte (2560 m)
Spindle function	S4 digit
Cutting feed rate	F3.4 digits per revolution, F6 digits per minute directly specified
Feed rate override	0 - 150% (10% steps)
Rapid feed override	F0, 25, 50, 100%
Thread cutting	G32, G33, G92
Canned cycle	G90, G92, G94
Tool function	T AABB (AA=Tool number and geometry, BB=Wear offset number)
Tool position direct input function	by measured MDI Data input-and-output Memory card interface, USB memory interface, Auto data backup
Automatic operation	1cycle/ Automatic operation, Single block, Block delete, Machine lock, Optional block skip, Dry run, Feed hold
Others	8.4" color LCD/ MDI, Program storage capacity addition: 800pieces, A decimal point input, Manual pulse generator Memory protect, AC digital servo motor, The circle radius R command, Nose radius compensation, Constant surface speed control (G96), Back ground editing, Programmable date input (G10), Run hour/Parts count display, Multiple repetitive cycles (G70 - G76), Spindle rigid tap, Polar coordinate interpolation, Custom macro B, Canned cycles for drilling, Tool life management. etc.
NC Option	Helical interpolation, Leader puncher interface, etc.

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