

CITIZEN

Miyano



# BNJ 42/51 SY

## Economical, efficient and powerful thanks to simultaneous machining.

Turret No. 2 now has 8 tool mounting stations instead of 6 on the previous machines, so the number of tools has been increased and also rotary tools may be mounted. The milling processes that were handled using turret No. 1 alone can now be shared with turret No. 2, making it possible so substantially shorten cycle times and deal with workpieces that require complex machining.

## Advantages

Considerably improved operability.

Collision protection (rapid feed only).

Machining time shortened by simultaneous machining at left and right.

Combined Machining with the Y-axis.

Machining time shortened through superimposition machining.

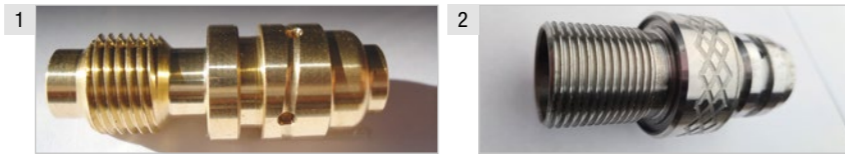
Optional for 64 mm available.

4,05 m<sup>2</sup>



## Workpiece example

- 1 **Name** Adjusting screw  
**Material** Brass
- 2 **Name** Sample part for the trade fair  
**Material** Steel



## Standard

1

2

3

4

5

1 Control configuration of the new models  
BNJ42/BNJ51

2 Part catcher

3 Part conveyor

4 Tool setting

5 Tool monitor

## Options

1

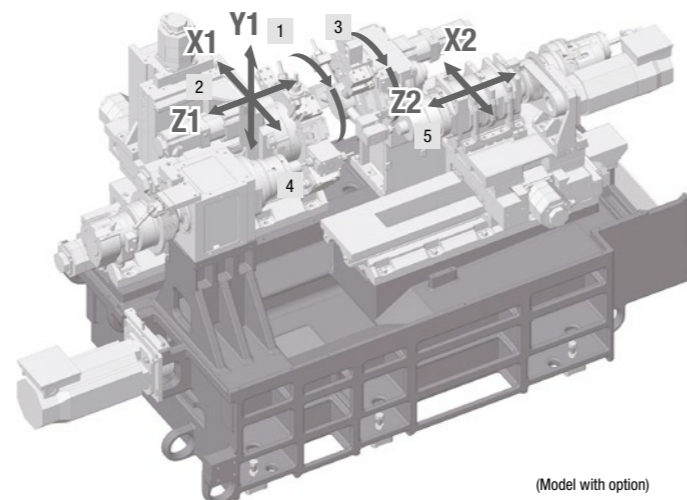
2

3

- 1 Chip conveyor
- 2 Bar feeder
- 3 Drill breakage detector

## Layout

- 1 **Turret No. 1:** Turret type: 12 stations  
Number of rotary tools: 12 (25 Nm)
- 2 **Y axis** (SY type only)
- 3 **Turret No. 2:** Turret type: 8 stations  
Number of rotary tools: 4 (10 Nm)
- 4 **Spindle No. 1**  
Spindle speed: 6000 rpm (BNJ42) / 5,000 rpm (BNJ51)
- 5 **Spindle No. 2**  
Spindle speed: 5,000 rpm  
(only BNJ51-SY)



(Model with option)

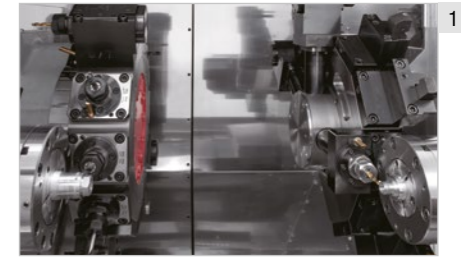
## Working area

### 1 Turret No. 1 accommodating higher-torque revolving tools

Since a single drive mechanism is used to drive the revolving tools, they can be mounted at all stations. With a maximum torque of 25 Nm, they can handle heavy-duty cutting too.

### Turret No. 2 accommodating revolving tools and with a bigger tool capacity

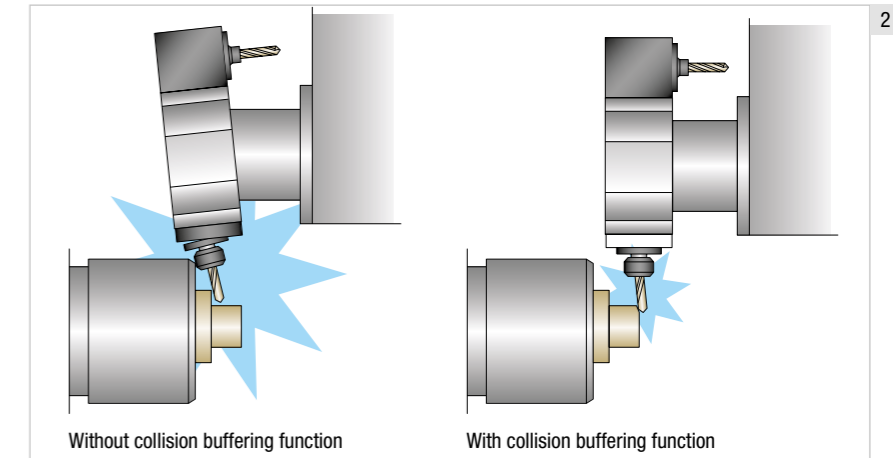
The number of tool mounting positions has increased from the six on existing machines to eight. The turret also now accepts double plain holders, greatly increasing the number of tools that can be mounted.



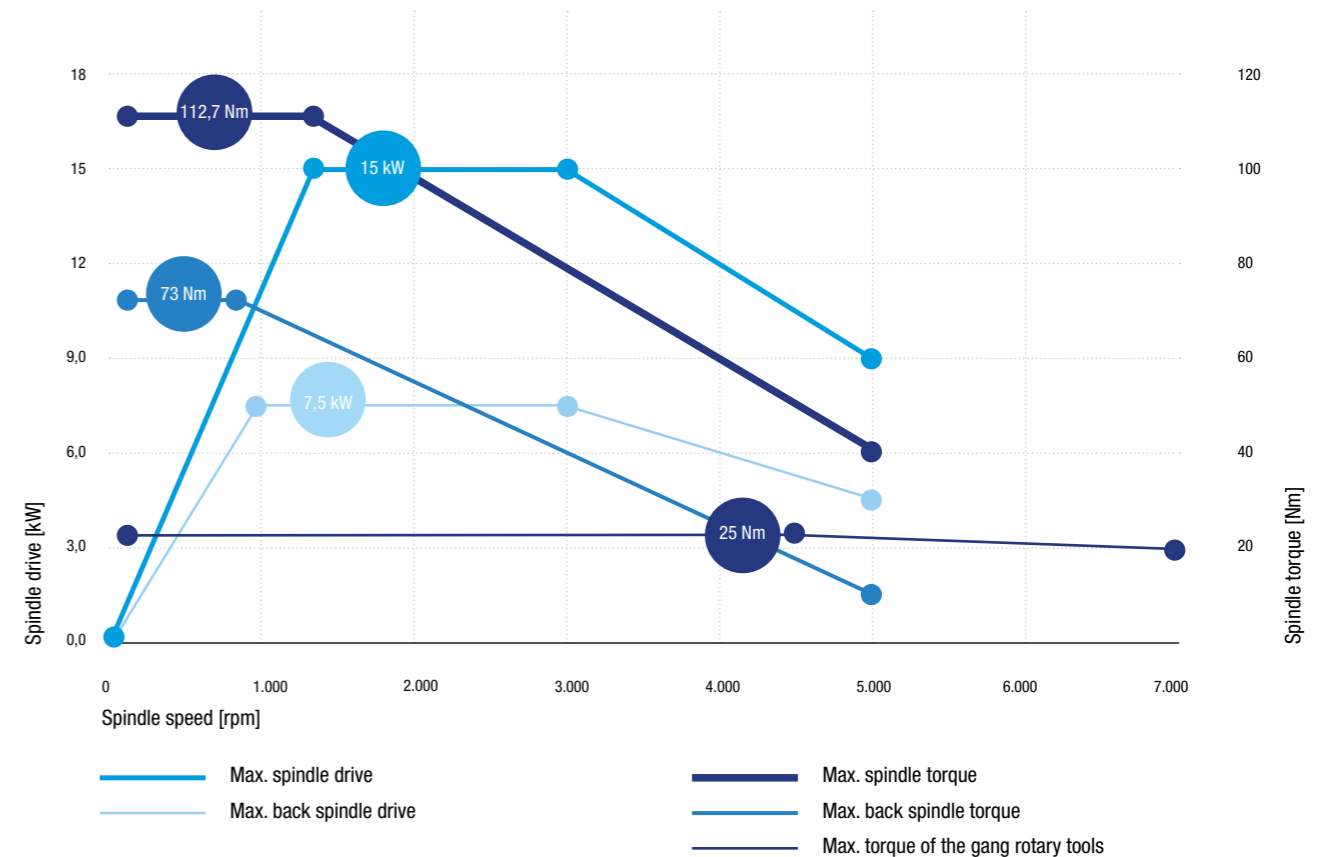
Machining time shortened by simultaneous machining at left and right

### 2 Collision buffering (just rapid traverse operation)

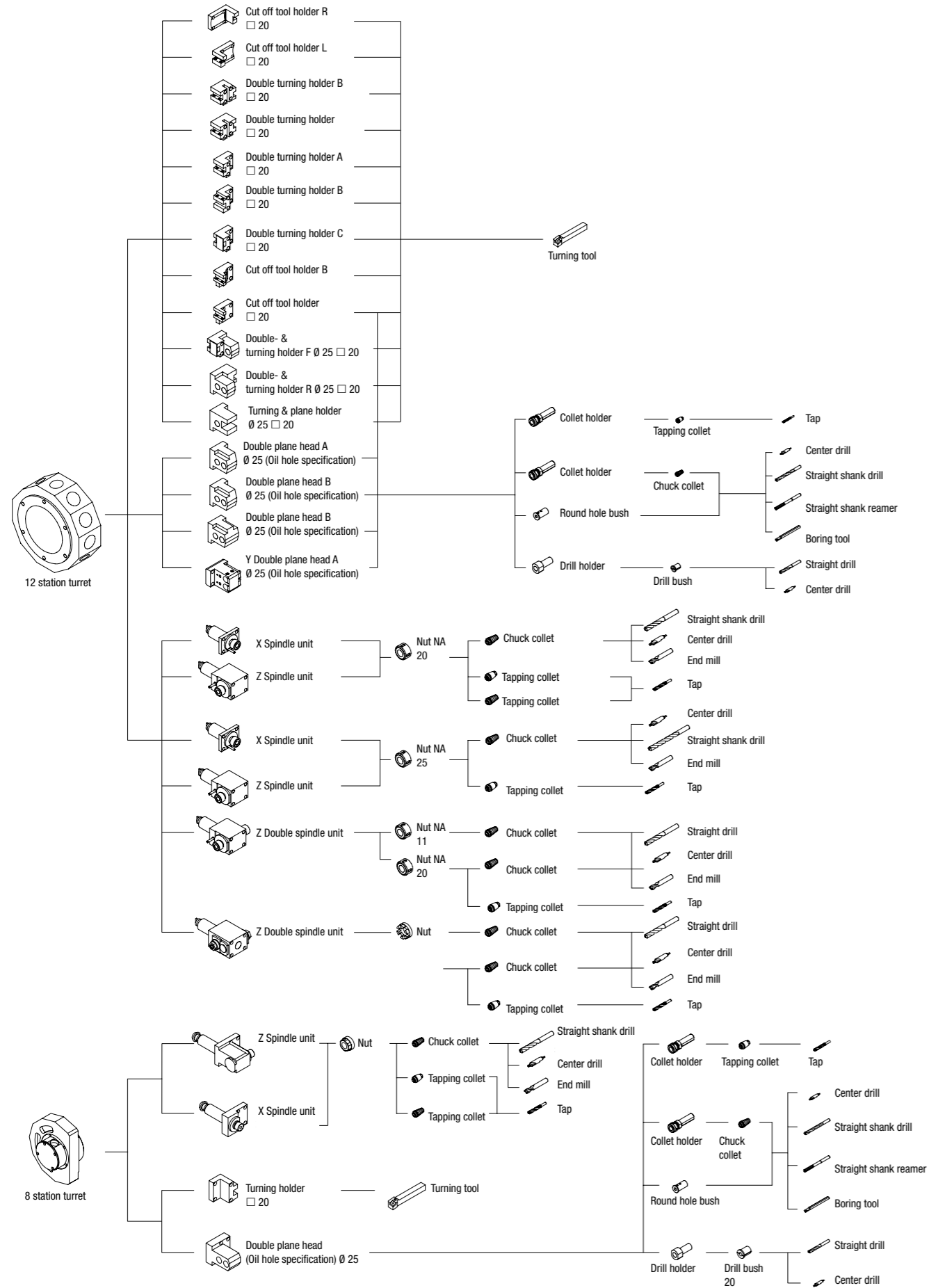
When interference is encountered in rapid traverse operation, the function decelerates and stops axis feed and generates retraction torque to retract the feed axis in the opposite direction to the collision direction, limiting damage to the machine.



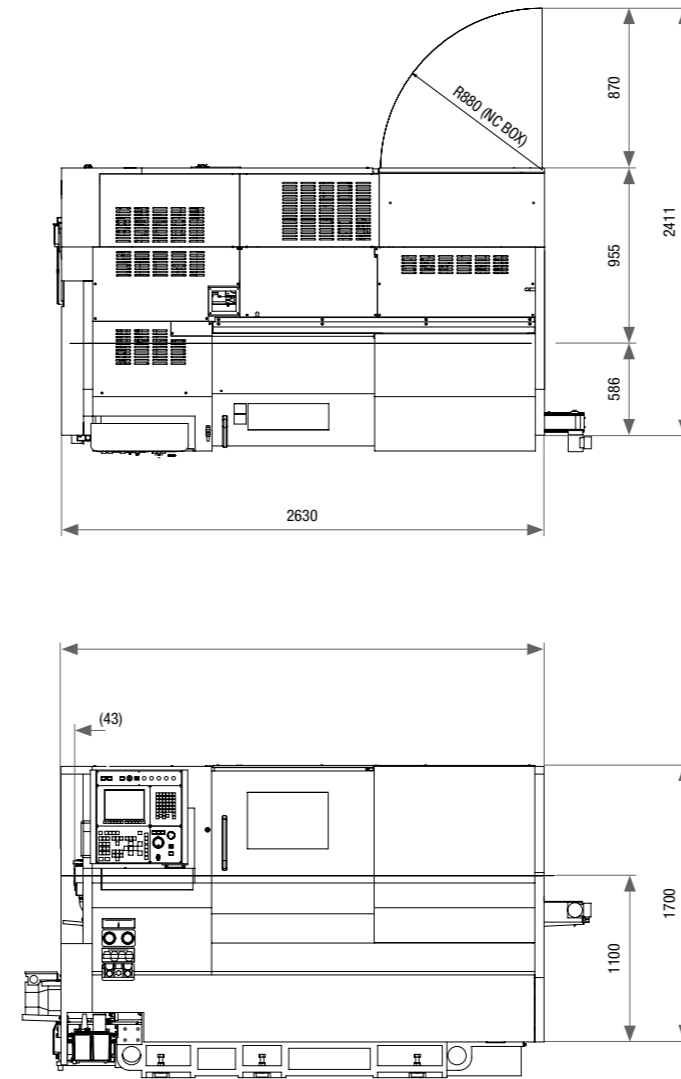
## Performance diagram



# Tooling System



# Floor plan



# Machine specification

Item	BNJ-42S6	BNJ-42SY6	BNJ-51SY6	
<b>Machining capacity</b>				
Maximum machining length	100 mm			
Ø Standard machining	Spindle No. 1	Ø 42 mm	Ø 51 mm	
	Spindle No. 2	Ø 42 mm		
Chuck size	Spindle No. 1	5"	6"	
	Spindle No. 2	5"		
<b>Spindle</b>				
Number of spindles	2			
Spindle speed range	Spindle No. 1	6,000 rpm	5,000 rpm	
	Spindle No. 2	5,000 rpm		
Inner diameter of draw tube	Spindle No. 1	Ø 43 mm	Ø 52 mm	
	Spindle No. 2	Ø 43 mm		
Chuck collet	Spindle No. 1	H-S22, DIN173E		
	Spindle No. 2	JPN, H-S16, DIN171E		
Power chuck (thru-hole chuck)	Spindle No. 1	5"	6"	
	Spindle No. 2	5"		
<b>Turret</b>				
Number of turrets	2			
Type of Turret	Turret No. 1	12-station turret		
	Turret No. 2	8-station turret		
Shank size of square turning tool	□ 20 mm.			
Diameter of drill shank	Ø 25 mm			
<b>Rotary tools</b>				
Number of rotary tools	Turret No. 1	Max. 12		
	Turret No. 2	Max. 4		
Type of rotary tools	Turret No. 1	Single clutch		
	Turret No. 2	Simultaneous drive in all positions		
Tool spindle speed range	Turret No. 1	6,000 rpm		
	Turret No. 2	3,000 rpm		
Machining capacity Drill	Turret No. 1	Max. Ø 13 mm		
	Turret No. 2	Max. Ø 10 mm		
Tap	Turret No. 1	Max. M12 × 1.75 (S45C-D)		
	Turret No. 2	Max. M6 × 1.0 (S45C-D)		
<b>Slide stroke</b>				
Turret slide stroke	X1 axis	165 mm		
	Z1 axis	246 mm		
	Y1 axis	80 (±40) mm	80 (±40) mm	
Spindle slide stroke	X2 axis	85 mm		
	Z2 axis	590 mm		
	Y2 axis	-		
<b>Feed rate</b>				
Rapid feed rate	X1 axis	20 m/min		
	Z1 axis	20 m/min		
	Y1 axis	12 m/min	-	
	X2 axis	20 m/min		
	Z2 axis	20 m/min		
	Y2 axis	-		
<b>Motors</b>				
Spindle drive	Spindle No. 1 Cs	11/15 kW (15 min/cont.)		
	Spindle No. 2 Cs	5.5/7.5 kW (15 min/cont.)		
Rotary tool drive	Turret No. 1	2.2 kW		
	Turret No. 2	0.75 kW		
Slide	1.2 kW (X1, Z1, Y, X2, Z2)			
Hydraulic oil motor	2.2 kW			
Lubricating oil motor	0.004 kW			
Coolant pump	0.25 kW × 1, 0.18 kW × 1			
Turret index motor	0.75 kW			
<b>Power supply</b>				
Voltage	AC 200/220 ± 10% 50/60 Hz ± 1%			
Power consumption	33 kVA			
Air supply	5 bar			
<b>Tank capacity</b>				
Hydraulic oil tank capacity	18 l			
Lubrication oil tank capacity	4 l			
Coolant tank capacity	300 l			
<b>Machine dimensions</b>				
Machine height	1,700 mm			
Floor space	W 2,780 × D 1,510 mm (without Chip conveyor)			
Machine weight	5,300 kg			
<b>Others</b>				
Splash guard interlock, Coolant & pneumatic unit, Machine light, Non-fuse breaker, SP2 Work ejector & inner high pressure coolant, Chuck close confirmation, Total & preset counter (Custom menu)				
<b>NC specifications</b>				
Control unit: FS 0i-TF; Simultaneously controlled axis Max.4: X1, Z1, Y1, Cs1, A1, A2 (Opt.), X2, Z2, Cs2; Min. input increment; 0.001 mm, 0.0001 inch, 0.001 deg; Min. output increment: X-axis: 0.0000 in, X-axis: 20.001 mm, Y-axis: 0.001 mm; total program storage capacity 1MB (2,560m tape length); Spindle function: speed programming via 4-digit S word/Constant cutting speed control (G96); Rapid traverse rate: X1, X2, Z1 axis: 20 m/min, Z2 axis: 20 m/min, Y1 axis: 12 m/min; Cutting feed rate: 3.4 digit F word (feed per revolution); Cutting feed rate override: 0-150% (in 10% increments); interpolation: G01, G02, G03; Thread cutting: G32, G92; Canned cycle: G90, G92, G94; Work coordinate setting: Automatic setting, 64 work coordinate systems can be set via tool position; Tool selection: by TAAABB at the specified position for each turret tool wear compensation, selection by BB; Direct input of tool position by measurement in MDI mode; Input/Output interface: USB, PC card slot; Automatic operation: 1 cycle operation/continuous operation, Single block, Block delete, Machine lock, Dry run, Feed hold, Optional block skip				
<b>NC standard functions</b>				
10.4" color LCD, No of registered programs: 800, Decimal point input Manual pulse generator, Memory protect, Polar coordinate interpolation Programmable data input (G10), C-axis control (SP1/SP2), Superimposed control A Chamfering/Corner R, Tool nose R compensation, Background editing, Synchronous mixed control, Operating time/ Parts No. display Multiple repetitive canned cycle (G70-G76), Continuous threading Canned cycle for drilling, Tool life management system, Variable-lead cutting Rigid tapping function (spindle & rotary tool), Circular interpolation, Custom macro, Handle retrace function, Polygon cutting, Synchronized function, Dual check safety Reference position setting, NC option Helical interpolation, RS-232C.				

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