

# SMEC

## PCV 430

VERTICAL MACHINING CENTER



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https://www.youtube.com/c/smecmachinetools

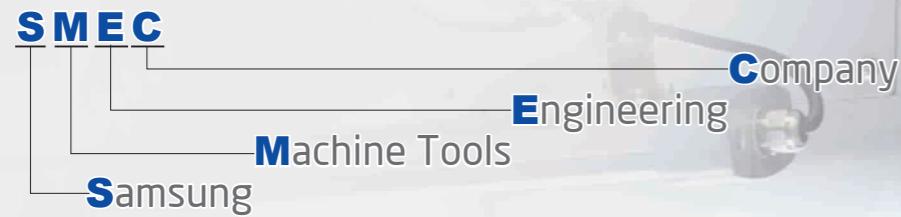
**SMEC**  
Smart One,  
Global One

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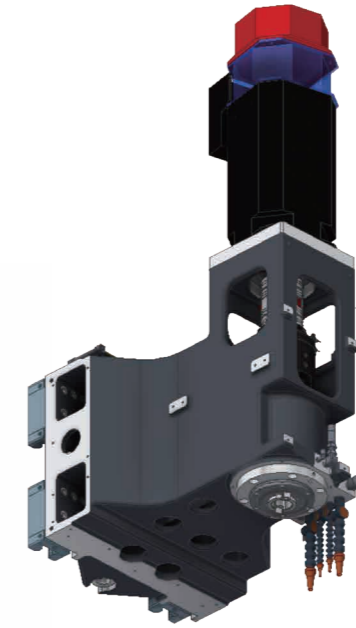
❖ Design and specifications subject to change without notice.

- 1988 - Started as Samsung Heavy Industries Machine Tools Business
- 1989 - Horizontal and vertical machining center technology partnership with OKK Japan
- 1991 - Turning center and vertical machining center technology partnership with Mori Seiki
- 1996 - 5-sided processing center technology partnership with Toshiba
- 1999 - Spun out from Samsung Aerospace Industries and established SMEC Co., Ltd



## High speed, Ultra precision Vertical machining center!

- The Largest machining capacity in its class
- Applying low-centered box structure and Rigid one piece cast iron bed
- Applying the widest linear guide way span and the widest saddle in its class to prevent overhang
- Available with direct drive spindle and belt drive spindle for user's preference.



### Spindle (Direct Drive)

Spindle Speed  
**10,000 rpm**

Spindle Motor  
**11/15(15min)/18.5/20.4(max.) kW**

Spindle Torque  
**95.5(15min)/130(max.) N.m**

The spindle is supported by four P4 class high precision angular ball bearings to minimize heat increment. Also belt head takes forced heat emission to minimize thermal expansion to provide high speed and ultra precision machining.

Rapid Traverse (X/Y/Z)  
**48/48/36 m/min**

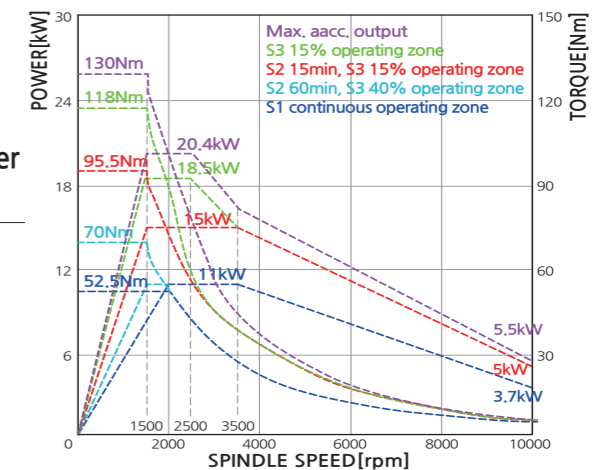
Table Size Magazine Capacity  
**750×420 mm 24 ea**



### High Efficiency Spindle Head Cooling System

For long-term continuous high-speed operation, a coolant system may be installed to maintain room temperature. The coolant system circulates coolant oil around the spindle bearings to prevent thermal expansion due to the spindle temperature, ensuring high precision machining.

Main Spindle Power & Torque Diagram



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## Head Ass'y

Direct drive type spindle suitable for high speed, high precision and Belt drive type spindle for easily mounting various optional accessories are available.

## Z-axis column & headstock

Wide surface with high rigidity column stabilizes heavy duty cutting.

## X-axis saddle & table

Wide surface saddle realizes high precision machining during long working hour.

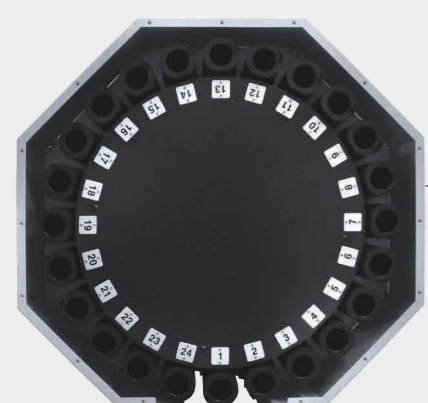
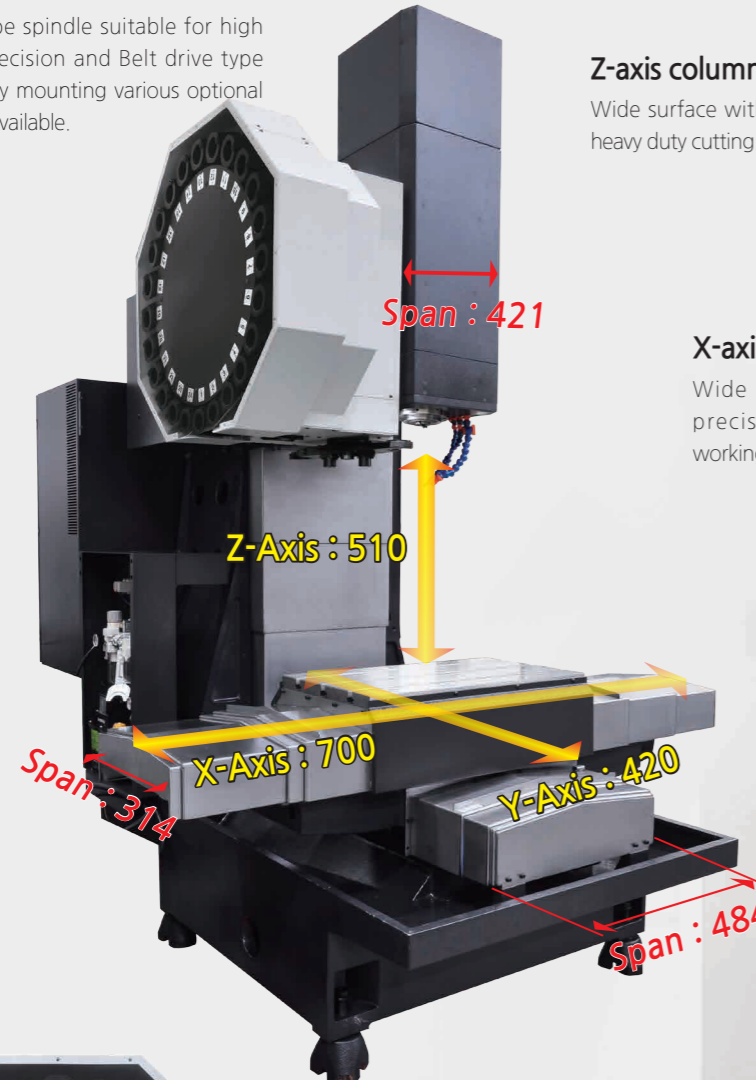
## Y-axis bed & saddle

Applying low-centered rigid one piece cast iron bed and the widest span in its class to prevent overhang

## Tool Magazine

The largest magazine capacity in its class with the shortest distance moving system provides high speed tool change time

Magazine Capacity : **24ea**



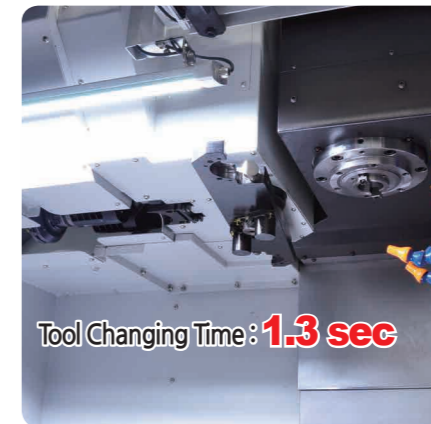
the most advanced mechanism of high-speed technology

## Automatic Lubrication Dispenser

Automatic lubrication dispenser that reliably dispenses the required amount of lubrication to the required travel axes.

Lubrication is only dispensed when the travel axes is in operation, reducing the amount of lubrication that is consumed.

When there is problem on lubrication line it shows warning message on a screen and stop the machine for users safety operation.



Tool Changing Time : **1.3 sec**

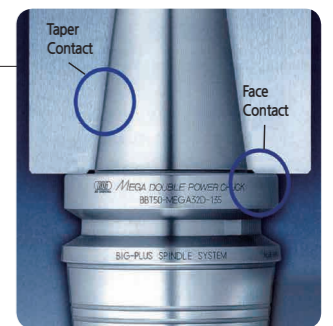
## Twin Arm Type Automatic Tool Changer

It is Double swing arm swing type by memory random method and has no error during tool changing and minimize idle time.

## Dual Contact Spindle (BBT 40)

Dual contact system to contact both main spindle surface and taper surface dually by measuring elastic deformation of spindle surface that occurs when main spindle is clamped.

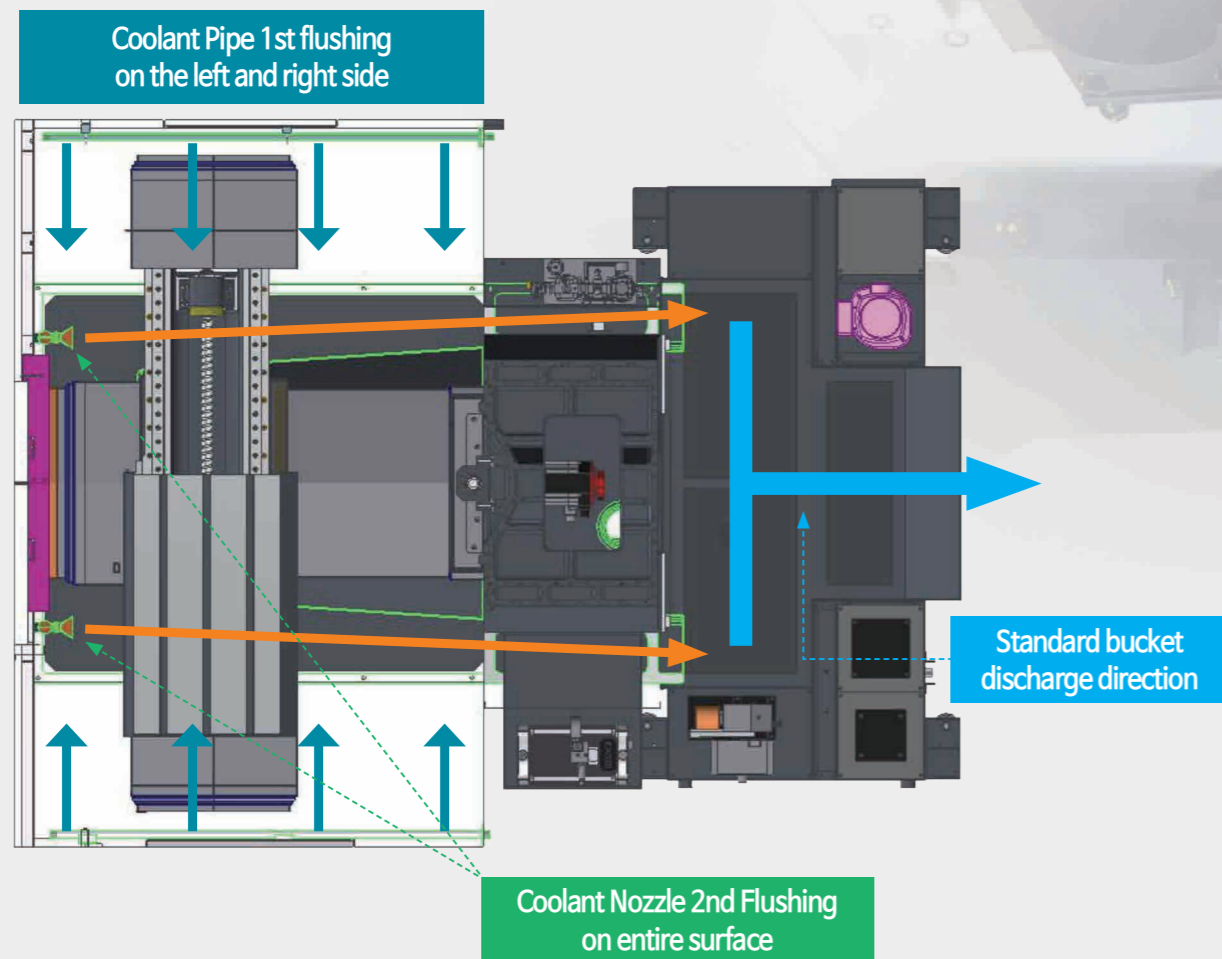
- Simultaneous contact to both main spindle surface and taper increases rigidity and reduces vibration.
- Increases machining capacity and surface roughness even under harsh condition.
- 100% compatible with existing tools. (BT 40)



**Big Plus BBT40(Opt.)**  
(Simultaneous Dual Contact)

### Eco-Friendly 3 Step Chip Disposal

Sequential process by Steps of Coolant way, flushing nozzle and chip conveyor realizes perfect chip disposal.



- S/GUARD with wide and large tilt angle and Rear Coolant tank make it easy for chips to be discharged.
- Improved chip disposal on Bed surface with optional bed flush feature. (opt)
- Lift up chip conveyor on the left clears off chips smoothly from tank, which ensures user's convenience. (Opt.)



User friendly centralized control panel.

CRT : 10,4" color LCD

Swivel control panel

control panel can swivel up to 90 degree and a wide range of alarm message support for all sorts of errors of machine and control device increases user's convenience

Portable MPG

Portable MPG on the side of control panel gives users more convenience for manual moving operation.

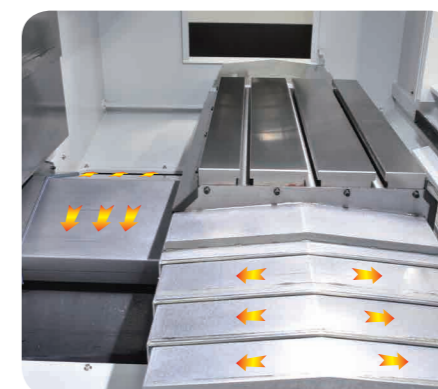
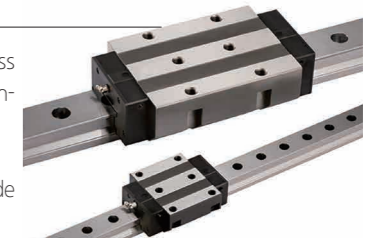


Table Size

### Roller type LM guide way

The use of LM Guides with superb responsiveness has increased rapid traverse speeds and reduced non-cutting time while minimizing noise during travel.

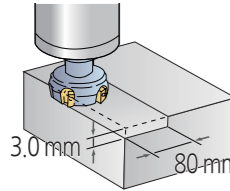
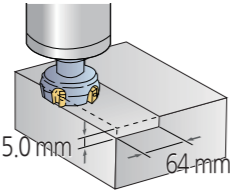
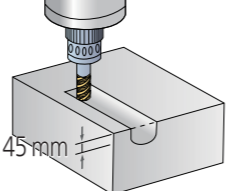
- Strengthen speed, rigidity, and durability
- Much better durability compared with Ball LM Guide to realize precision moving and longer life time



Easy chip disposal and high volume coolant system

High volume of flushing coolant allows minimal chip build-up, and slanted splash guard design effectively moves chips out to the machine

Cutting Capacity (BT40 11/15(15min) / 18.5/20.4(Max)KW)

<p><b>Face mill</b> Carbon Steel (SM45C)</p> <p>Ø100mm Face mill (SZ)</p>  <p>3.0 mm      80 mm</p> <p><b>Cutting amount</b> 192 cm<sup>3</sup>/min <b>Spindle speed</b> 1500 r/min <b>Feedrate</b> 800 mm/min</p>	<p><b>Face mill</b> Aluminum (AL6061)</p> <p>Ø80mm Face mill (SZ)</p>  <p>5.0 mm      64 mm</p> <p><b>Cutting amount</b> 403 cm<sup>3</sup>/min <b>Spindle speed</b> 1,500 r/min <b>Feedrate</b> 1,260 mm/min</p>	<p><b>End mill</b> Carbon Steel (SM45C)</p> <p>Ø30mm End mill (GZ)</p>  <p>45 mm</p> <p><b>Cutting amount</b> 65 cm<sup>3</sup>/min <b>Spindle speed</b> 230 r/min <b>Feedrate</b> 48 mm/min</p>
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High Precision

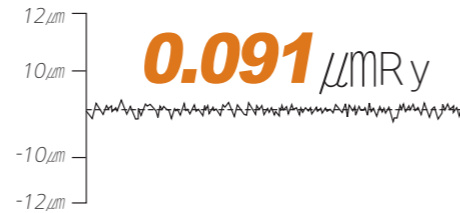
Roughness



**6.50 μm**  
**Roundness**

Machine	PCV 430
Material	A 1050P
Tool	Ø25×4T
Spindle Speed	1,500RPM

Surface Roughness <O.D. cutting>



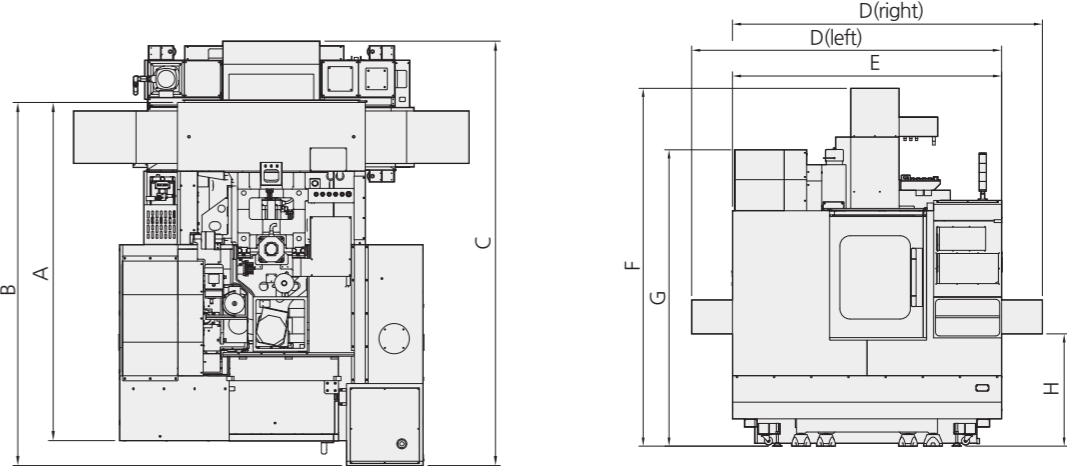
**0.091 μm Ry**

Optional Accessories

 Auto Tool Length Measurement System	 Gun Coolant	 Through-Spindle Coolant System
 Oil Mist System	 Cnc Rotary Table	 Chip Conveyor

Machine Dimensions

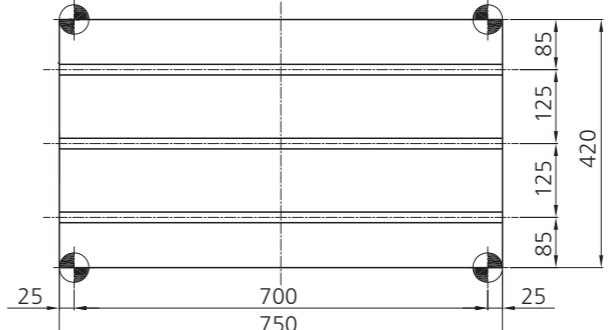
Unit : mm



A (wide)	B (with controller box)	C (max. wide)	D (with chip conveyor)	E (length)	F (height)	G (shipping height)	H (discharge)
2,341	2,513	3,288	2,987	2,100	2,792	2,312	876

Table & T-Slot

Unit : mm

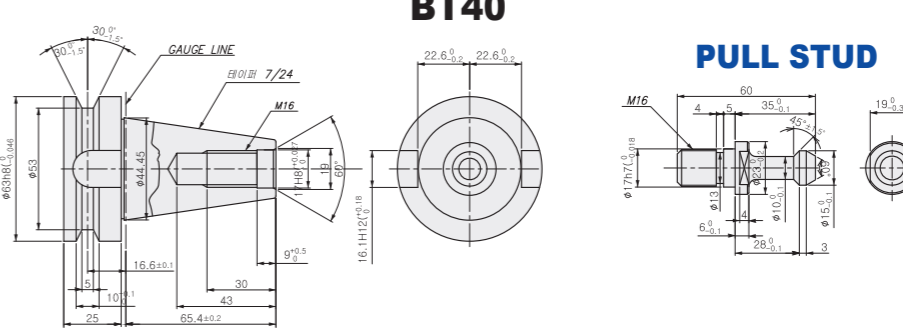


Detail T-Slot (S,3/1)

Tool Shank

Unit : mm

**BT40**



**PULL STUD**

**Major Specifications**

DESCRIPTION			PCV 430
Travel	X-axis travel	mm	700
	Y-axis travel	mm	430
	Z-axis travel	mm	510
	Spindle to table surface	mm	130 ~ 640
Table	Table size	mm	750 × 420
	Max. Workpiece weight	kgf	560
Spindle	Table surface	mm	18H8 × p125 × 3ea
	Spindle speed	rpm	10,000
	Motor (Cont./Max)	kW	11/20.4
Feedrate	Torque (Cont./Max)	N.m	52.5/130
	X-axis Rapid traverse rate	m/min	48
	Y-axis Rapid traverse rate	m/min	48
ATC	Z-axis Rapid traverse rate	m/min	36
	Tool shank	-	BBT 40
	Pull stud	-	MAS P40T-1
	Tool storage capacity	ea	24
	Max. Tool diameter (adjacent empty)	mm	80(125)
	Max. Tool length / weight	mm	300/8
	Tool-to-tool time	mm	1.3
	Tooling changing method	mm	Double Arm Swing
Machine	Tool select type	mm	Memory random
	Size (with Side Chip conveyor) L×W×H	mm	2,100(2,987) × 3,288 × 2,793
	Size (with Rear Chip conveyor) L×W×H	mm	-
	weight	kg	4,500
Electric power supply	kVA/V	32/220	
Controller		FANUC	

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**Standard Accessories**

- Coolant system
- Door interlock
- Full splash guard with coolant tank
- Head nozzle
- Leveling parts (level plate, bolt, etc.)
- Lubrication system
- Manual/Part list (1set)
- Patrol lamp (3 colors)
- Portable MPG handle
- Rigid tapping
- Safety precaution name plate
- Spindle orientation
- Spindle override
- Standard tools and tool box
- Work light (LED lamp)

**Optional Accessories**

- Air blower
- Air conditioners (electric cabinet)
- Air gun
- Auto door
- Auto power off
- Bed flushing
- Bellows cover
- Chip bucket
- Chip conveyor
- Coil conveyor (inside)
- Coolant blower
- Coolant chiller
- Coolant gun
- Coolant level switch
- Coolant pressure switch
- Counter (total, multi, tool, work)
- High column
- High pressure coolant
- Linear scale (X/Y/Z)
- M-code addition
- Oil cooler
- Oil mist collector
- Oil skimmer
- Robot interface
- Rotary table
- Through spindle coolant unit
- Tool measuring system
- Tool measuring tool
- Transformer
- Work light ( addition)

**NC Specifications (FANUC Series)**

Item	FANUC Series	
<b>Controlled axis</b>	Controlled axes	X,Y,Z
	Max. simultaneously controlled axes	4
	Least command increment	0.001mm / 0.0001"
	Stored stroke check	Soft overtravel 1, 2, 3
<b>Operation functions</b>	Pulse handle feed	○
	Feedrate per minute	G94
	Feedrate per revolution	G95
<b>Interpolation functions</b>	Linear interpolation	G01
	Circular interpolation	G02, G03
	Dwell	G04
	Cylindrical interpolation	G70.1
	Reference position return	G28
<b>Feed function</b>	Reference position return check	G27
	Rapid traverse rate override	F0, 25%, 50%, 100%
<b>Spindle function</b>	Feedrate override	0~200%
	Spindle orientation	○
<b>Tool functions</b>	Rigid tapping	M29
	Tool number command	T2-Digt Tool number
	Tool nose radius compensation	G40 ~ G42
	Tool offset pairs	400 pairs
	Tool geometry/wear offset	○
	Tool length offset	○
	Tool life management	○
Tool path graphic display	○	
<b>Program input</b>	Absolute/incremental programming	G90/G91
	Multiple repetitive cycle	-
	Multiple repetitive cycle II	-
	Canned cycles	-
	Canned cycle for drilling	G73/74/76, G80~89
	Decimal point programming	○
	Inch/metric conversion	G20 / G21
	Program restart	○
	Sub program call	○
	Max. programmable dimension	±99999.999mm/±9999.9999"
	M function	3 digit
	Custom macro	○
	Addition of custom macro common variables	*#100~#199, #500~#999
	Programmable data input	○
Tape code	G10	
Optional block skip	ISO / EIA	
Workpiece coordinate system	○	
Addition of workpiece coordinate system	G52 ~ G59	
<b>Setting and display</b>	Alarm & Operator histor display	○
	Run hour and parts count display	○
	Display spindle & servo overload	○
	Self-diagnosis function	○
	Extended part program editing	○
<b>Data input/output</b>	Display screen	10.4" color LCD
	Memory card input/output	○
<b>Editing operation</b>	USB memory input/output	○
	Part program storage size	512Kbyte
	Manual Guide I	Opt.