

## Machine Specification

### Capacity

Max. turning diameter	300mm
Standard turning diameter	190mm
Distance between spindles	max780/min280mm *with sub spindle (op.)
Distance between centers	689mm
Max. turning length	500mm
Bar capacity	51mm 65mm
Chuck size	8"/215mm

### Axis travel

Slide travel (X)	177.5mm
Slide travel (Z)	550mm
Slide travel (Y)	± 41mm (op.)
Slide travel (B)	500mm (op.)
Rapid feed (X)	16m/min
Rapid feed (Z)	30m/min
Rapid feed (Y)	6m/min (op.)
Rapid feed (B)	30m/min (op.)

### Spindles

Spindle speed	5000min <sup>-1</sup>	4500min <sup>-1</sup>
Spindle speed range	Stepless	
Spindle nose	A2-6	
Hole through spindle	65mm	80mm
I.D. of front bearing	100mm	110mm
Hole through draw tube	52mm	66mm

### Sub spindle (op.)

Spindle speed	5000min <sup>-1</sup>
Spindle speed range	Stepless
Spindle nose	A2-5
Hole through spindle	62mm
I.D. of front bearing	90mm
Hole through draw tube	52mm

### C-axis (op.)

Least input increment	0.001°
Least command increment	0.001°
Rapid index speed	400min <sup>-1</sup>
Cutting feed rate	1 - 4800° /min
C-axis clamp	Disk clamp
C-axis connecting time	1.5sec.

### Turret

Type of turret head	Dodecagonal drum turret
Number of Tool stations	12
Number of indexing positions	12
Tool size (square shank)	□ 25mm(20mm)
Tool size (round shank)	φ 32mm

### Driven tools (op.)

Rotary system	Individual rotation
Spindle speed	3600min <sup>-1</sup>
Spindle speed range	Stepless
Number of driven-tool stations	12
Collet size	AR25
Tool shank	Straight holder φ 1mm - φ 16mm Cross holder φ 1mm - φ 16mm

### Tailstock (op.)

Quill diameter	80mm
Quill taper	MT-4 Rotating center
Quill stroke	80mm

### Drive motor power

Main spindle	15/11kW
Sub spindle (op.)	11kW
Driven-tool spindle (op.)	5.5/3.7kW

### General

Machine height	1815mm
Floor space	2598mm × 1671mm
Machine weight	3800 kg

### Power supply

Power supply	31.43kVA
Air supply	150 ~ 200NL/min, 0.5 ~ 0.7MPa

### Safety specifications

Various safety devices such as interlocks, safety fences for automatic loaders, and automatic fire extinguishers, are available as options, which can be included in your purchase package.

Please contact our local distributor or agent for your specific requirements.

## Control Specification

### Items

Control type	FANUC 21i-TB (18i-TB for machine with sub spindle)
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### Controlled axes

Controlled axes	2 axes
Simultaneously controlled axes	2 axes

### Input command

Least input increment	0.001mm/0.0001inch (X in diameter)
Least command increment	X : 0.0005mm, Z : 0.001mm
Max. programmable dimension	± 99999.999mm/ ± 9999.9999in
Absolute / Incremental programming	X, Z / U, W
Decimal input	standard
Program code	EIA/ISO automatic recognition
Inch / Metric conversion	G20/G21
Programmable data input	G10

### Interpolation

Positioning	G00
Linear interpolation	G01
Circular interpolation	G02/G03, CW/CCW
Polar coordinate interpolation	standard for milling
Cylindrical interpolation	standard for milling

### Feed function

Cutting feed	X : 1 - 4800mm/min, 0.01 - 188inch/min Z : 1 - 4800mm/min, 0.01 - 188inch/min 0.0001 - 500.0000mm/rev 0.000001 - 9.999999inch/rev
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Dwell	G04
Feed per minute / Feed per revolution	G98/G99
Thread cutting	G32+F
Thread cutting retract	standard
Handle feed Manual pulse generator	Manual pulse generator x 1 (0.001/0.01/0.1mm)
Automatic acceleration/ deceleration	standard
Linear acceleration/ deceleration after cutting feed interpolation	standard
Rapid feed override	F0/25/100%
Cutting feed-rate override	0 - 150%
Look ahead control	G08

### Program memory

Part program storage length	80m
Part program edit	Delete, insert, change
Program number search	standard
Sequence number search	standard
Address search	standard
Number of registerable programs	125programs
Program storage memory	Backed up by battery
Multiple program simultaneous editing	standard (not available during automatic operation of PC-G/GR)
DNC operation through memory card	standard (not including memory card)
Extended part program editing	standard

### Program support

Circular interpolation R programming	standard
Direct drawing dimension programming or Chamfering and Corner R	standard (Direct drawing dimension programming is standard setting)
Canned cycle	G90, G92, G94
Multiple repetitive canned cycle	G70 - G76
Multiple repetitive canned cycle II	standard
Canned cycle for drilling	G80 - G89
Sub program	standard
Programmable data input	G10
Custom macro B	standard
NT Work Navigator (torque type)	standard
NT NURSE	standard

	Machine spec	Without sub spindle	With sub spindle
	NC Control	21i-TB	18i-TB
Display	7.2" monochrome LCD	Standard	
	10.4" color LCD	When NT Manual guide i (op.) is installed	

### Precautions about the use of cutting coolant

Synthetic Coolants are Damaging to Machine Components

Concerning the use of cutting fluids, cautions have to be taken on the type of coolant being used.

Among coolants available in the market, some types are damaging to machine components and should be avoided. Typical damages are tool wear, peeling of paint, cracking and damage to plastics and polymers, expansion of rubber parts, corrosion and rust build up on aluminum and copper.

To prevent such damages, coolants that are synthetic, or containing chlorine have to be avoided.

Machine warranty terms do not apply to any claims or damage arising from the use of improper coolant.