Machine Specifications

Capacity

Capacity	φ51mm	φ65mm (op.)
Max. turning diameter	225mm	
Standard turning diameter	150mm	
Distance between spindles	max. 970mm / min. 200mm	
Max. turning length	685mm	
Bar capacity	51mm	65mm
Chuck size	165mm (6")	

Axis travel

Slide travel (X1 / X2 / X3)	160.5mm / 160.5mm / 160.5mm	
Slide travel (Z1 / Z2 / Z3)	235mm / 235mm / 685mm	
Slide travel (Y1 / Y2 / Y3)	±45mm /±45mm /±35mm	
Slide travel (B)	770mm	
Rapid feed X1 / X 2 / X3	20m/min⁻¹	
Rapid feed Z1 / Z2 / Z3	40m/min⁻¹	
Rapid feed B axis	40m/min⁻¹	
Rapid feed Y1 / Y2 / Y3	8m/min⁻¹	

Left and right spindles

Spindle speed	5,000min⁻¹	4,500min⁻¹
Spindle speed range	Stepless	
Spindle nose	A2-5	A2-6
Hole through spindle	65mm	80mm
I.D. of front bearing	90mm	110mm
Hole through draw tube	52mm	66mm

C-axis

Least input increment	0.001°
Least command increment	0.001°
Rapid index speed	600min⁻¹
Cutting feed rate	1- 4800°/min
C-axis clamp	Disk clamp
C-axis connecting time	1.5 sec.

Upper & Lower turrets

Type of turret head	Dodecagonal drum turret
Number of driven-tool stations	12
Number of index positions	24
Tool size (square shank)	□25mm
Tool size (round shank)	φ32mm

Rotating tool

Rotary system	Individual rotation	
Driven-tool spindle speed	6,000min⁻¹	
Spindle speed range	Stepless	
Number of driven-tool station	12	
Tool shank	Straight holder φ1mm - φ16mm	
	Cross holder φ1mm - φ16mm	

Drive motor

L-spindle	15/11kW
R-spindle	11/7.5kW (op.15/11kW)
Driven tools	5.5/3.7kW

General

Height	2,200mm
Floor space (L × W)	3,814mm × 2,218mm
Machine weight (incl. control)	10,000kg

Power requirements

power supply	43.8kVA
Air supply	400 - 450NL/min, 0.5 - 0.7MPa

● Safety devices such as various interlocks, fences for robotics, auto loading device, work stocker, automatic fire extinguisher etc. are available as options which can be included in your purchase package. Please contact our local distributor and dealer for your specific requirements.

● **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 turcite 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.

Control Specifications

items

Control type	FANUC 31i-B 3-PATH

Controlled axes

Controlled axes	13axes
Least command increment	L Upper : 4axes (X1, Z1, C1, Y1) R Upper : 4axes (X2, Z2, C2, Y2) Lower : 4axes (X3, Z3, C3 [C1, C2], Y3, B2)

Input command

Least input increment	0.001mm / 0.0001inch (diameter for X-axis), 0.001°
Least command increment	X:0.0005mm, Z:0.001mm, C:0.001°, B2:0.001mm, Y:0.001mm
Max.programmable dimension	±999999.999mm /±39370.0787inch, ±999999.999°
Absolute / incremental programming	X, Z, C, Y, B2 (absolute only for B2) / U, W, H
Decimal input	Standard
Inch / Metric conversion	G20 / G21
Programmable data input	G10

Feed function

Cutting feed	feed / min X : 1 - 8000mm/min, 0.01 - 314in/min (1 - 4800mm/min, 0.01 - 188in/min) 　　　　　Z : 1 - 8000mm/min, 0.01 - 314in/min (1 - 4800mm/min, 0.01 - 188in/min) 　　　　　C : 1 - 4800°/min 　　　　　Y : 1 - 8000mm/min, 0.01 - 314in/min (1 - 4800mm/min, 0.01 - 188in/min) 　　　　　B2 : 1 - 8000mm/min, 0.01 - 314in/min (1 - 4800mm/min, 0.01 - 188in/min) feed / rev : 0.0001 - 8000.0000mm/rev (0.0001 - 4800.0000mm/rev) 　　　　　0.000001 - 50.000000in/rev The maximum cutting feed rate is the value in AI contour control mode. It is also on with G316 command. The values in parentheses are normal values.
Dwel	G04
Feed per minute / Feed per revolution	G98 / G99
Thread cutting	G32F designation
Thread cutting retract	Standard
Continuous thread cutting	Standard
Variable lead threading	G34
Handle feed	Manual pulse generator 0.001/ 0.01/ 0.1mm,°(per pulse)
Automatic acceleration / deceleration	Standard
Linear accel./ decel. After cutting feed interpolation	Standard
Rapidfeed override	F0, 25, 50, 100% (changeable to every 10% by switch)
Cutting feedrate override	0 - 150% (each 10%)
AI contouring control I	G5.1
Spindle override	50% - 120% Set every 10%

Program memory

Part program storage length	512kbyte (Total 1,280m)
Part program editing	delete, insert, change
Program number search	Standard
Sequence number search	Standard
Address search	Standard
Number of registerable programs	1,000 programs
Program storage memory	Backed up by battery
Multiple program simultaneous editing	Standard
DNC operation through memory card	Standard (Only one turret can access memory card at a time) (not including memory card)
Extended part program editing	Standard (Replacement of word, address, cut & paste for word / character, cancel operation, copy or move the program)

Operation and display

HMI (Human Machine Interface)	NT Smart X
Operation panel : Display	19" color SXGA LCD touch panel
Operation panel : keyboard	QWERTY keyboard

Programming assist function

circular interpolation R programming	Standard
Direct drawing dimension programming or Chamfering/Corner R	Standard (Direct drawing dimension programming is standard)
Canned cycle	G90, G92, G94
Multiple repetitive canned cycle	G70 - G76
Multiple repetitive canned cycle II	G71, G72
Canned cycle for drilling	G80 - G89
Axis recomposition	Standard (used for L C-axis control · R C-axis control from the lower side)
Sub program	Standard
Balance cut	G68, G69
Custom macro	Standard (common variable#100 - #149, #500 - #549)
Additional customer macro variables	Standard (After addition, #100 - #199, #500 - #999)
FS15 tape format	Standard
Luck-bei II NT Manual Guide i	Standard
Abnormal load detection function	Standard
NT Work Navigator	Standard (not including contact bar)
NT Nurse	Standard
NT Collision Guard	Standard

Mechanical support

Rigid type	Standard
Spindle synchronised control	Standard
C axis synchronised control	Standard (G496 C1, fast forward positioning)
Spindle orientation	Standard

NT Smart X

O/S	Windows Embedded 8.1 Industry PRO
Pointing device	Touch pad
Memory	8GB