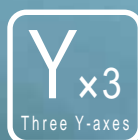# NTY³-100

NTY³-100

High Productivity Multitasking Machine

From diversified small-lot production to mass production

One hit machining

—— Finished parts, complete in one set up ——

$M_{\times 3}$ Three Milling Motor

$Y_{\times 3}$ Three Y-axes

Upgraded Milling Capabilities

Y-axis travel ±42mm (upper) / ±32.5mm (lower)
Milling tools max. Speed 8,000min⁻¹ (op.)
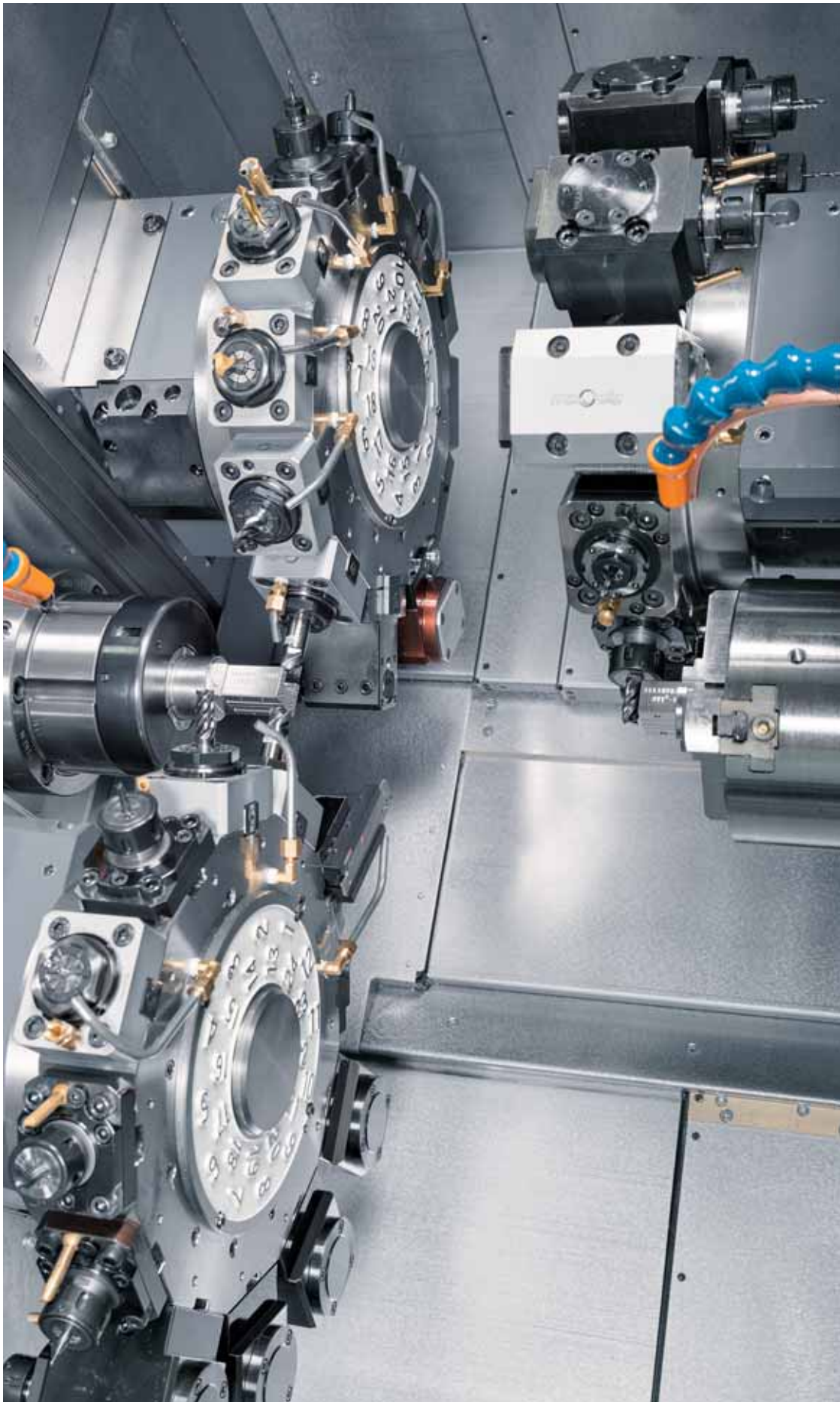
High Productivity

Top Leader of One-hit Machining

| No Work in Process |
| Less setup time |
| Complete in one setup |

15-Station Turret

45

15 - Station

15 + 15 + 15

12-Station Turret

72

12 / 24 - Station

24 + 24 + 24

Up to 72 tool stations
for turning tools and 36
stations for driven-tools.

Double Performance!

M×3

Milling-tool motor
7.1/2.2kW × 3

**Y-axis on all
three turrets**

Y×3

Y-axis travel
12st   ±42.0mm (Upper)
       ±32.5mm (Lower)
15st   ±31.0mm

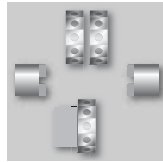# 45 Milling Tools (15-St. Turret op.)

$T \times 3$ — Three turret | $M \times 3$ — Three Milling Motor | $Y \times 3$ — Three Y-axes | $S \times 2$ — Twin-Spindle | $C \times 2$ — C-axes | $B\,2$ — B-axis

Capacity		42mm	51mm (op.)	65mm (op.)
Max. turning diameter	12st.	175mm	200mm	
	15st.		190mm	
Max. turning length		588mm	570mm	
Distance between spindles		max. 820mm / min. 200mm		
Bar capacity		42mm	51mm	65mm
Chuck size	L / R	165mm (6") / 165mm (6")		

Axis travel

		42mm	51mm (op.)	65mm (op.)
Slide travel (X1 / X2 / X3)	12st.	135 / 150 / 135mm	150 / 150 / 141mm	
	15st.	130mm / 130mm / 130mm		
Slide travel (Z1 / Z2 / Z3)	12st.	245 / 227 / 560mm	227 / 227 / 560mm	
	15st.	200 / 200 / 560mm		
Slide travel (Y1 / Y2 / Y3)	12st.	±42 / ±42 / ±32.5mm		
	15st.	±31mm		
Slide travel (B)		620mm		

Spindle L, R

	42mm	51mm (op.)	65mm (op.)
Spindle speed	6,000min^{-1}	5,000min^{-1}	4,500min^{-1}
Spindle motor output (L / R)	11/7.5kW	11/7.5kW (op. 15/11kW)	

Turrets

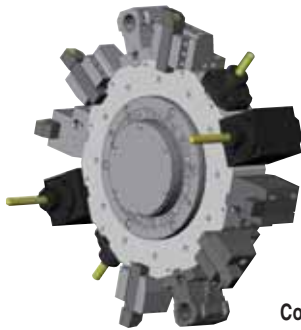|		
Number of turrets (Upper / Lower)		2 / 1
Driven-tool spindle speed		6,000min^{-1} (op. 8,000min^{-1} Only for 12-station turret)
Drive motor		7.1/2.2kW (op. 5.5/2.2kW)
Type of turret head / Number of indexing pos.	12st.	Dodecagonal drum turret / 24
	15st.	15-station turret / 15
Drive type / Number of driven-tool stations	12st.	Individual rotation / 12
	15st.	Individual rotation / 15

General

Floor space (L×W×H)	3,428mm × 1,985mm × 2,000mm
Machine Weight (incl.control)	9,000kg

* Either 12-station turret or 15-station turret specification must be chosen for all turrets.

NTY³-100

High-rigidity turret

72 stations

Bar capacity 42mm	Bar capacity 51mm	Bar capacity 65mm
Spindle motor	**Spindle motor**	**Spindle motor**
11 / 7.5kW **6,000min^{-1}**	**11 / 7.5kW** **5,000min^{-1}**	**11 / 7.5kW** **4,500min^{-1}**
C-axis C-axis synchronization	**15 / 11kW** **5,000min^{-1}**	**15 / 11kW** **4,500min^{-1}**
Standard	**Option**	

12 / 24 - Station Turret

Turret type	: Dodecagonal
Number of tools	: 24
Number of indexing pos.	: 24
Number of driven-tools	: 12 × 3
Max. Speed of driven tools	: 6,000min^{-1} (op. 8,000min^{-1})
O.D. turning tool	: 20/16mm
I.D. Boring	: dia.25mm
Collet diameter for driven tools	: 1mm to 14mm
Tool swing diameter	: 485mm
Max. turning diameter	: 175mm (42mm) 200mm (51mm, 65mm)

Left Spindle

45 stations

15 - Station Turret

Turret type	: 15 - station turret
Number of tools	: 15
Number of indexing pos.	: 15
Number of driven-tools	: 15 × 3
Max. Speed of driven tools	: 6,000min^{-1}
O.D. turning tool	: 20/16mm
I.D. Boring	: dia.25mm
Collet diameter for driven tools	: 1mm to 14mm
Tool swing diameter	: 562mm
Max. turning diameter	: 190mm (51mm, 65mm)

Lower Turret ×1

Milling motor	Milling motor
7.1/2.2kW **16/8N·m** **6,000min^{-1}**	**5.5/2.2kW** **16.0/12.0/7.0N·m** **8,000min^{-1}**
Standard	**Option**

Y-axis travel ±32.5mm (12st) ±31mm (15st)

Stable Accuracy Ensured

Milling motor

7.1/2.2kW
16/8N·m
6,000min^{-1}

Standard

Milling motor

5.5/2.2kW
16.0/12.0/7.0N·m
8,000min^{-1}

Option

Y-axis travel ±42mm (12st) ±31mm (15st)

Upper Turret ×2

Right Spindle

Larger window ensures better visibility

Bar capacity 42mm

Spindle motor
11 / 7.5kW
6,000min^{-1}

C-axis
C-axis synchronization

Standard

Bar capacity 51mm

Spindle motor
11 / 7.5kW
5,000min^{-1}

Bar capacity 65mm

Spindle motor
11 / 7.5kW
4,500min^{-1}

Option

Parts catcher G   **Option**

		42mm	51 / 65mm
Workpiece size	**Diameter [mm]**	15 - 42	15 - 65
	Length [mm]	20 - 150	
	Weight [kg]	1.5	3.0
Method		Swing / Gripper	
Cycle time [sec.]		6.0	
Ejecting method		Belt conveyor & Chute	

High-Performance Turning and

S×2
Twin-Spindle

NTY³-100

Simultaneous machining with synchronized
left and right spindles contributes to faster cycle times.

Left & Right Spindle Motors

11 / 7.5kW

Standard
Rotating speed : 6,000min⁻¹   42mm

1000 Torque N·m — 100 Output kW

76N·m (15min. S3 25%)
11kW
100 — 10
7.5kW
39N·m (S1 CONT.)
10 — 1
0.1

10   100   1000   10000 Spindle speed min⁻¹
60   1389 4167
      1851 6000
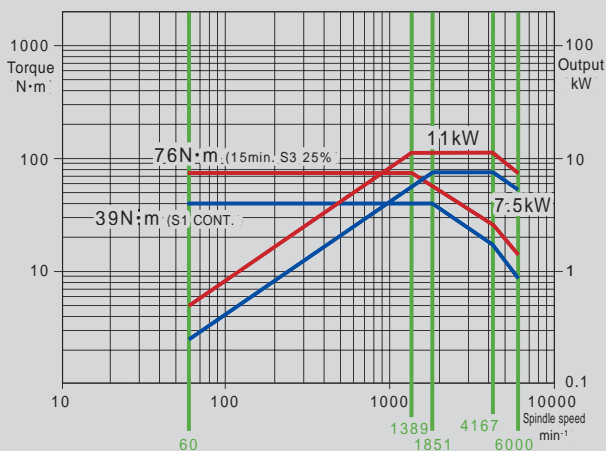
Option
Rotating speed : 4,500min⁻¹   65mm

1000 Torque N·m — 100 Output kW

85N·m (15min. S3 25%)
11kW
100 — 10
7.5kW
43N·m (S1 CONT.)
10 — 1
0.1

10   100   1000   10000 Spindle speed min⁻¹
42   1240 3719
      1652 4500
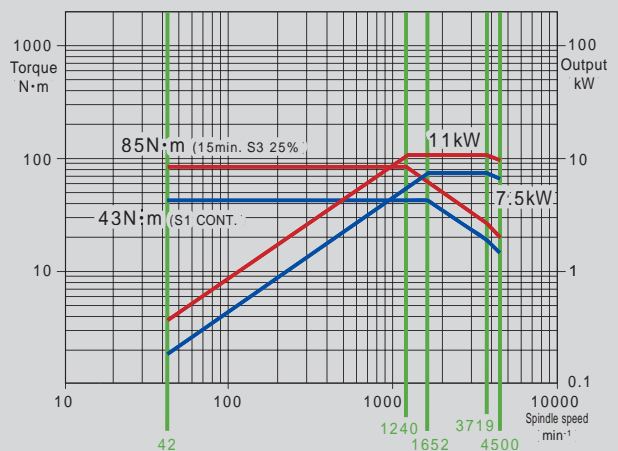
Option
Rotating speed : 5,000min⁻¹   51mm

1000 Torque N·m — 100 Output kW

77.0N·m (15min. S3 25%)
11kW
100 — 10
7.5kW
39.4N·m (S1 CONT.)
10 — 1
0.1

10   100   1000   10000 Spindle speed min⁻¹
42   1364 4091
      1818 5000
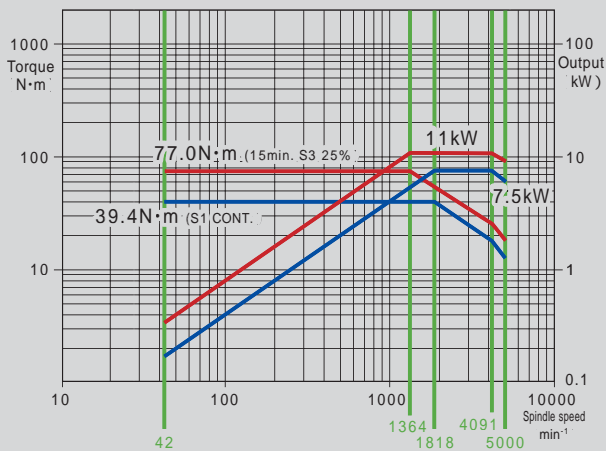
Milling Motors.

From simple to complex parts
One hit machining from raw material to finished part

Y×3
Three Y-axes

M×3
Three Milling Motor
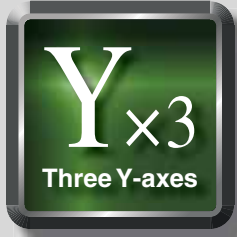
NTY³-100

In addition to milling or drilling simultaneously with upper and lower turrets, improved chip-removal capabilities contribute to drastically faster cycle times.

Upper & Lower Milling Motors

7.1 / 2.2kW

Standard

Rotating speed : 6,000min⁻¹

Torque N m / Output kW

- 7.1kW
- 16N m (S3 15%)
- 2.2kW
- 8N m (S1 CONT.)

5.5 / 2.2kW

Option

Rotating speed : 8,000min⁻¹

Torque N m / Output kW

- 5.5kW
- 3.5kW
- 16N m (S3 25%)
- 2.2kW
- 12N m (15min. S3 60%)
- 7N m (S1 CONT.)

42　3000　3283　8000　10000
Rotating speed min⁻¹
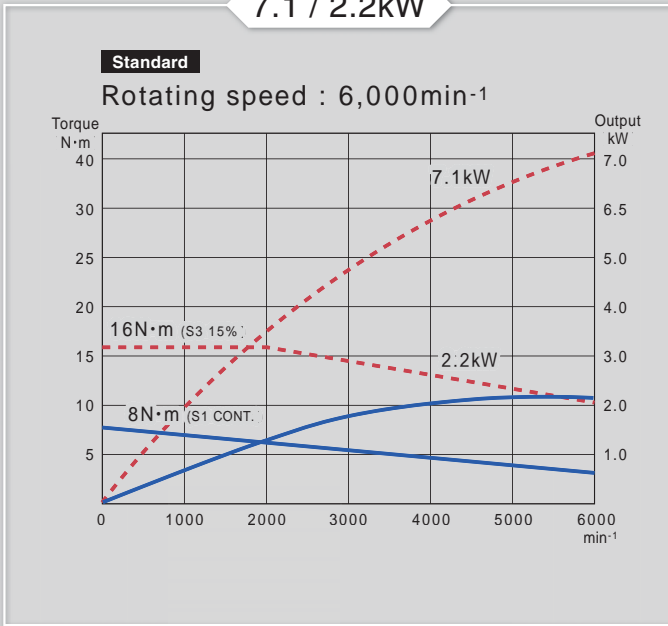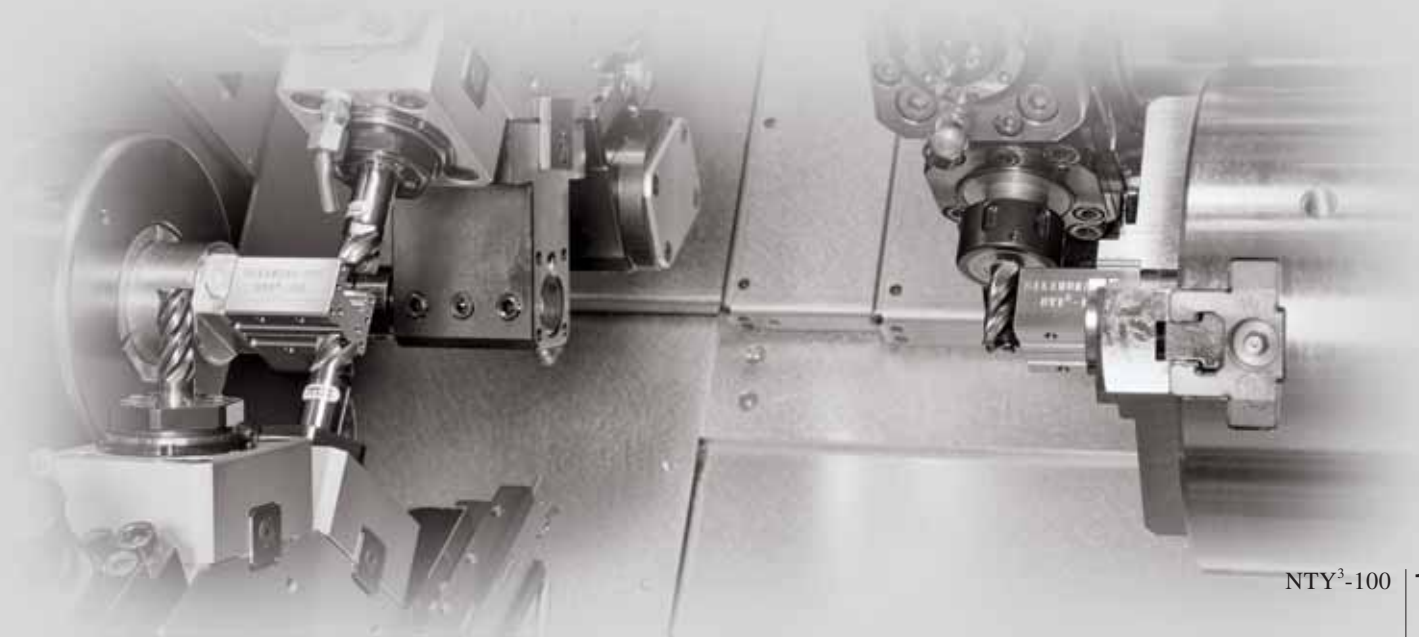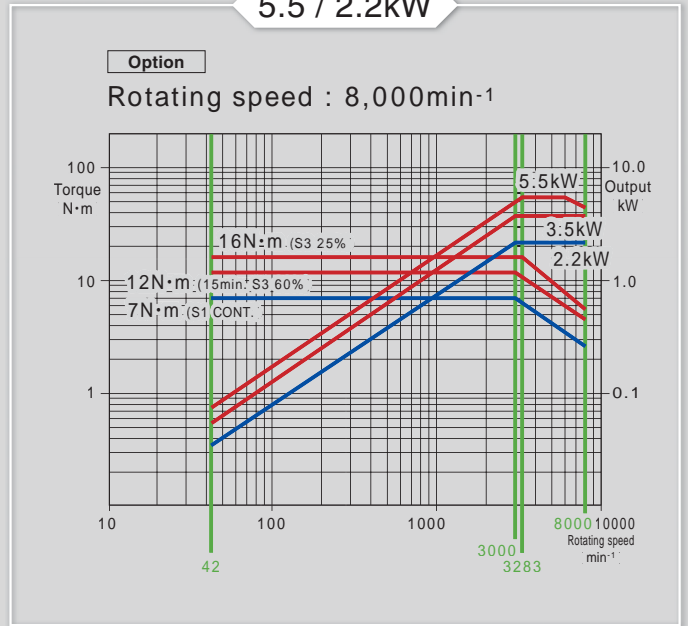
Advanced Production System

Big Data

IoT

Industry 4.0

3D Smart PRO

Nakamura-Tome

Cut-in Check

• 19 inch color LCD Touch panel • PC memory 8GB • QWERTY Key board • Windows 8 • Touch Pad • USB 2.0 port × 2

Program storage length	Total 512Kbyte (1,280m)	Total 1Mbyte (2,560m)	Total 2Mbyte (5,120m)	Total 4Mbyte (10,240m)	Total 8Mbyte (20,480m)
Program registered number	Total 1,000	Total 1,000 or Total 2,000	Total 1,000 or Total 4,000		
Tool offset pairs	99 + 99 + 99 (op. Total 999)				

Standard / Option

Main features

- NT Manual Guide i
- NT Work Navigator
- Airbag (Overload detection)
- Advanced NT Nurse
- Status Display Function
- Setup Display
- Trouble Guidance
- Productivity Function

- Operation Level Control Function
- Warm up Function
- Built-in Loading Device Setting Screen (op.)
- Parts Catcher G Operation Function (op.)
- NT Machine Simulation
- NT Collision Guard
- NT Multitasking Office (op.)
- Net Monitor (op.)
- 3D Smart PRO

Cut-in Check

The machine can be stopped immediately while in automatic cycle. After reading G00 command in the machining program, the Spindle, Tool spindle, Axis Feeding and Coolant will stop. It is faster than M01 optional stop. After checking the machine internal status, the machining can be restarted by pressing "Program restart" button.

Start Up Conditions [UPPER]

W301 : FRONT DOOR IS NOT CLOSED
W303 : RETURN THE Y-AXIS ZERO POS.
W304 : MIS-SETTING OF PROGRAM NO SEARCH
W306 : TURRET IS NOT CLAMPED
W307 : INTERLOCK OF THE BAR-FEEDER
W331 : TOOL IS NOT CLAMPED(TOOL-SPINDLE)

Update **Close**

Cycle start condition is popping up by pressing reference position LED.

Color of perimeter becomes white when override setting is 100%.

Driven-tool Rotating Speed

Waiting tool number for left upper turret

Waiting tool number for right upper turret

Spindle Status

Selected head shown in blue color

Work counter

— Remaining count

— Value

Menu

Undo

NT Mach...

ATC Tooling

Work Status

Operatio...

Wear Offset

PMC Mon...

Product G...

User Menu

Tool Setting

Turret status display

Machine status display

Load status display

Accumulation value

Reference position LED

Spindle RPM

Waiting tool number for lower turret

Operating status display

• Green : Automatic operation
• White : Feed hold
• Yellow : Warning
• Red flashing : Alarm

• Blue : Index ready
• Green :
  Reference position return
• Green Flashing :
  2nd Reference position return
• Blue : Cycle start ready

Blank

Middle pf process

Part complete

Remnant

Quill

T 0101.

Tool number is displayed during automatic cycle.

Coolant status **Automatic mode** **Manual mode** **Manual mode**

Spindle load meter
• Red : 120% -
• Yellow : 100% -120%
• Green : 0 -100%

Load meter
• Red : 120% -
• Yellow : 100% -120%
• Green : 0 -100%

Auxiliary information display

Counter and Remaining counter information are displayed. Ticker can be stopped by touching the screen.

Shortcut bar

Most used Icon can be registered at right side of display.

G131 **Soft work pusher**

This cycle is used during part transfer from left to right side spindle. Once part contact with the jaws or stopper of the right side spindle has been confirmed, the right side spindle servo axis stops.

• Contact force can be changed in the program.
• It is possible to set OK/ NG range as well.
• An additional work pusher for the right side is not required and cycle time can be reduced.

G376 **Soft quill pusher cycle**

Thrust force of center support can be set in the program by using servo motor technology, which help keep a constant pushing thrust during cutting.

• It is available for Z axis and B2 axis.
• Quill thrust force can be changed in the program.
• It is possible to set OK/ NG range as well.

Dual safety

Double safety features for maximum protection

NT collision Guard to avoid machine collision and Air bag function (Abnormal load detection) to minimize damage even in case of collision.

NT Machine Simulation

Prevent the collision due to tooling, chuck, and program.

Simulation is performed to check the programs without running the machine.
This helps prevent machine collisions due to programming or setup errors.

> **"Distance to go" and "Modal information" can be checked during with simulation.**

> **Rapid feed and Cutting feed can be adjusted using override setting. It is possible to make Simulation of each process, or to use single block.**

Process

Single block

Simulation of part machining. There are several view screen display settings, such as machine display, turret display and tooling display.

It is possible to choose between "with" or "without" program display. The color of the program block being simulated can be set to be displayed in a different color.

NT Collision Guard

Preventive safety technology - Machine collisions are avoidable!

This function is available in automatic mode and manual mode. Collisions can be prevented, especially after modifying the program, or changing the tool geometry offset. Registered machine data, chucks, tools, holders, and parts are used to monitor the machine during automatic, manual or jog movement, and recognize in advance collisions before they happen. Even turret indexing is monitored to avoid collisions, drastically reducing machine collision risks, especially during set up.

> **• Model setup was simplified.**
> **Type of tool being indexed is automatically sorted out from the program, and the tool model can be selected from a displayed list.**
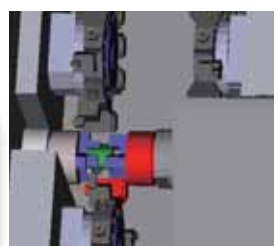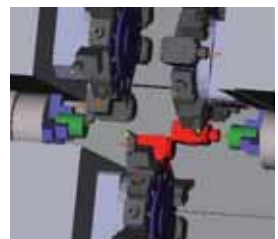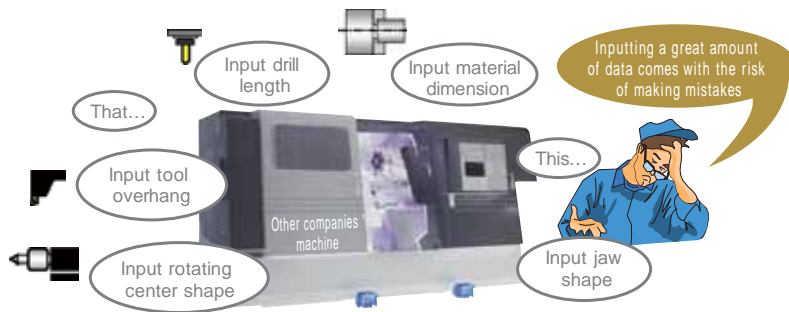
Airbag (Overload detection)

Nakamura-Tome machines will not break for the slightest collision, as other machines do. The function minimize damage in case of collision.

Even with barrier function, machine collisions may occur

Soft barrier function is not perfect.
If wrong data is input, a collision will occur.

Input drill length

Input material dimension

Inputting a great amount of data comes with the risk of making mistakes

That…

This…

Input tool overhang

Other companies machine

Input rotating center shape

Input jaw shape

### When unavoidable human error results in machine collision, there is no reason to panic.

All Nakamura-Tome machines are equipped with a safety feature called "airbag" (overload detection), which will greatly reduce the impact force and prevent heavy damage to the machine.

Without Airbag
Machine will not be stop immediately. The slide continues to move even after collision.

With Airbag
Retraction within 0.008 sec
Crash !
Within 8 milliseconds after the crash, servo motor-feeding direction is reversed and the machine stops in EMG mode.

Crash
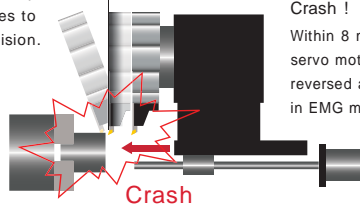
Video

* This feature does not mean zero impact.

NT Work Navigator

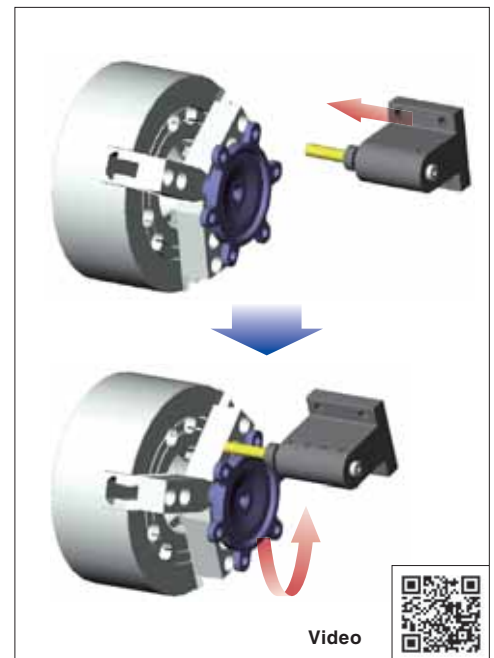### New Navigator for X-axis and Y-axis

X Y Z B C

• **Advanced NT Work Navigator !**
Navigation function is expanded to also include the X and Y-axis. Coordinate Recognition can made the part's outer surface in the X or Y-Axis direction.

• **No fixtures required**
Machining parts with non-round shapes, such as forgings or castings requires that the raw part coordinates be recognized by the CNC control. In order to achieve this without requiring extra cost or additional options, the NT Navigator is used. It works just by touching the part with a simple inexpensive probe (mostly round bar mounted on a tool holder) and using the torque control feature of the servo-motor, which is to record required coordinates in the CNC. The NT Navigator is a cost cutting feature in multitasking machines, eliminating the need for positioning fixtures and special clamping devices.

Video

2118.2

760.5 | 1325 | 32.7
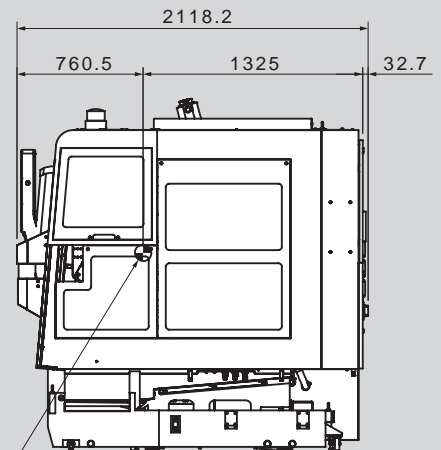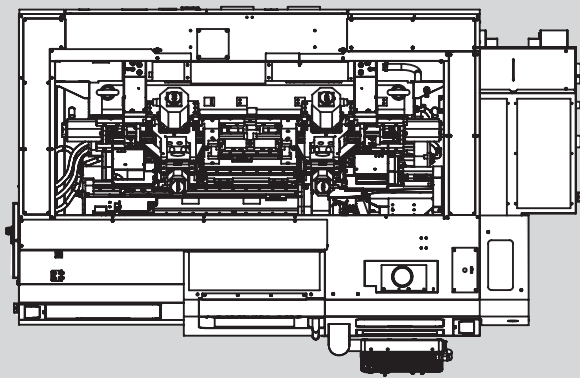
Spindle center

During transport (operation panel stored away)

3424

34 | 995 | 850 | 935 | 610

Door ST 735

Door opening 715 | 20

218.5 | 492

985 | 820 | 975

Left spindle nose

Right spindle nose

2257

MAX 2120.1

2057.7

2000

1930

1190

Spindle center

575 | 1325 | 48.8

644.7

883.2
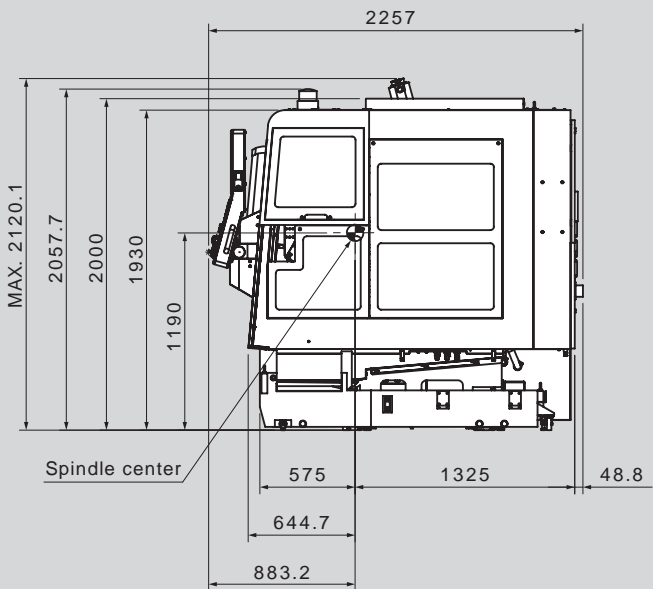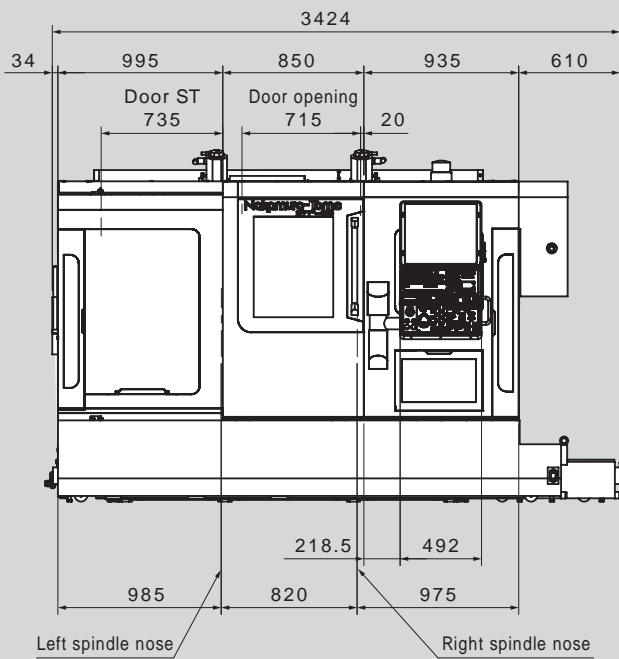
Unit : mm

NTY3

3T 3Y 3M

S E R I E S

NTY³-100

42

6"

Left spindle　42,　51 or　65. Right Spindle　42,　51 or　65*

$Z1=-202$

227

$*Z1=+25$

$Z2=-202$

227

$*Z2=+25$

336　148　336

85

$Y1/Y2=+42$　$Y1/Y2=-42$

S.LS　2.5　2.5　S.LS

2.5

$X1=-150$

150

55

1.7　1.8 1.8　1.7

S.LS　S.LS

$X2=-150$

150

$B2=620$

55

59

355　355

350　350

Left spindle
A2-5(51)
A2-6(65)

Right spindle
A2-5(42)
A2-5(51)
A2-6(65)

62

65

$Y3=-32.5$　$Y3=+32.5$

1.7　0.7 0.7　1.7

S.LS　S.LS

150

300

$X3=-141$

$Z3=-266$　$Z3=+294$

144　$Z3=560$　116

820

Cannot move both upper Z-axes
simultaneously in + direction
from their home positions

* For possible combinations, contact your sales representative.

Unit : mm

NTY³-150

NTY³-250

Bar Capacity　　71

Chuck Size.　　8"

C26330
Cross Holder
Max. 14)

F26333
Straight Holder
Max. 14)

Qualified Tool
20× 90
19.05× 90

A1021201-01
A1022201-01
Turning Holder (AL) Forward

A1111201-01
A1112201-01
Cut-o Holder Forward

A1221201-01
A1222201-01
Turning Holder (AL) Reverse

A1311201-01
A1312201-01
Cut-o Holder Reverse

A1061201-01
A1062201-01
Double Turning Holder (ALD)

Qualified Tool
20× 90
19.05× 90

A1041202-01
A1042202-01
Turning Holder (B)

Turret Hoad

Metric
Inch

M2112   25- 12
M2113   25- 10
M2122   25.4- 12.7
M2123   25.4- 9.525
Boring Bar Holder

N3170   25
N3180   25.4
Set Ring

A1411252-01
A1412252-01
Boring Holder
(25)(25.4)

A1411252-12
A1412252-12
Boring Holder
(Coolant through)
(25)(25.4)

M2110   25- 20
M2111   25- 16
M2120   25.4- 12.7
M2121   25.4- 15.875
Tool Bush

A1431251-01
A1432251-01
Double Boring Holder (B)
(25)(25.4)

A1101251-01
A1102251-01
Turning Boring Holder (ALS)
(16, 25)(15.875, 25.4)

24ST

Qualified Tool
16× 80
15.875× 80

W145102
W145103

A1081161-01
A1182161-01
Quadruple Turning Holder (AL)
(16)(15.875)
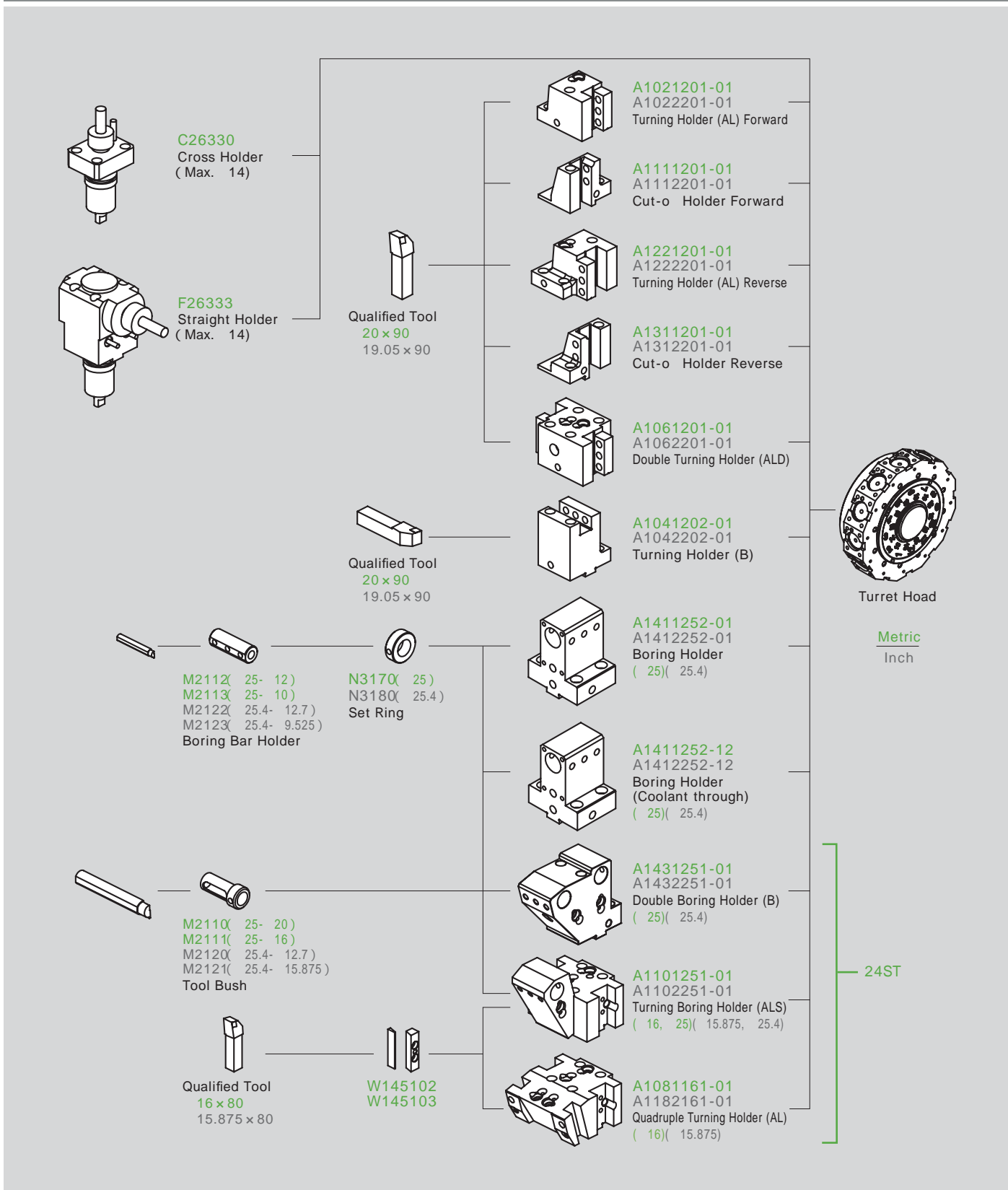
Safety devices such as various interlocks, fences for robotics, auto loading device, work stocker, automatic fire extinguisher etc. are available as options which can be included in your purchase package. Please contact our local distributor and dealer for your specific requirements.

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.

Machine Specifications

Capacity		42mm	51mm (op.)	65mm (op.)
Max. turning diameter	12st	175mm	200mm	
	15st		190mm	
Standard turning diameter		170mm		
Distance between centers		max. 820mm / min. 200mm		
Max. turning length		588mm	570mm	
Bar capacity		42mm	51mm	65mm
Chuck size		165mm (6")		

Axis travel

Slide travel (X1 / X2 / X3)	12st	135/150/135mm	150 / 150 / 141mm	
	15st	130 / 130 / 130mm		
Slide travel (Z1 / Z2 / Z3)	12st	245/227/560mm	227 / 227 / 560mm	
	15st	200 / 200 / 560mm		
Slide travel (Y1 / Y2 / Y3)	12st	±42/±42/±32.5mm		
	15st	±31mm		
Slide travel (B)		620mm		
Rapid feed X1 / X 2 / X3		20m/min		
Rapid feed Z1 / Z2 / Z3		40m/min		
Rapid feed B axis		40m/min		
Rapid feed Y1 / Y2 / Y3		8m/min		

Left and right spindles

	42mm	51mm	65mm
Spindle speed	6,000min⁻¹	5,000min⁻¹	4,500min⁻¹
Spindle speed range	Stepless		
Spindle nose	A2-5		A2-6
Hole through spindle	56mm	63mm	80mm
I.D. of front bearing	80mm	90mm	110mm
Hole through draw tube	43mm	52mm	66mm

C-axis

Least input increment	0.001°
Least command increment	0.001°
Rapid index speed	600min⁻¹
Cutting feed rate	1- 4,800°/min
C-axis clamp	Disk clamp
C-axis connecting time	1.5sec.

Upper & Lower turrets

Type of turret head	12st	Dodecagonal drum turret
	15st	15 stations turret
Number of driven-tool stations	12st	12 station
	15st	15 station
Number of index positions	12st	24
	15st	15
Tool size (square shank)		20mm
Tool size (round shank)		25mm

Rotating tool

Rotary system	Individual rotation
Driven-tool spindle speed	6,000min⁻¹ (op. 8,000min⁻¹ available only for 12-station turret)
Spindle speed range	Stepless
Number of driven-tool stations 12st	12
Number of driven-tool stations 15st	15
Tool shank	Straight holder 1mm - 14mm
	Cross holder 1mm - 14mm

Drive motor

L, R-spindle	11/7.5kW 11/7.5kW (op. 15/11kW)
Driven tools	7.1/2.2kW (op. 5.5/2.2kW)

General

Height	1,930mm
Floor space (L × W)	3,428mm × 1,985mm
Machine weight (incl. control)	9,000kg

Power requirements

power supply	37.9kVA
Air supply	

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)
Addition to custom macro common 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