NTY³-100

NTY³-100

High Productivity Multitasking Machine

From diversified small-lot production to mass production

One hit machining

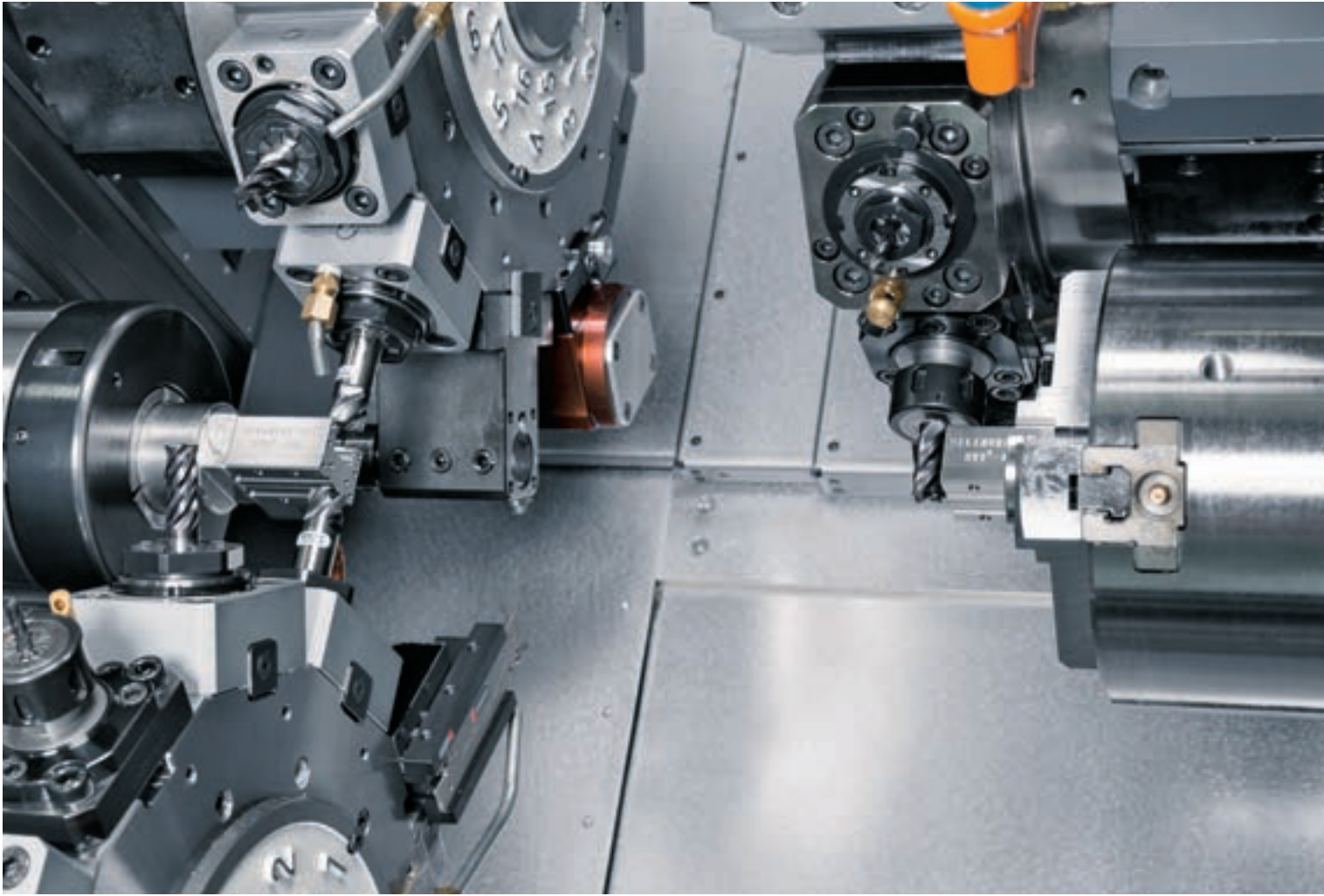Finished parts, complete in one set up

M×3
Three Milling Motor

Y×3
Three Y-axes

Upgraded Milling Capabilities

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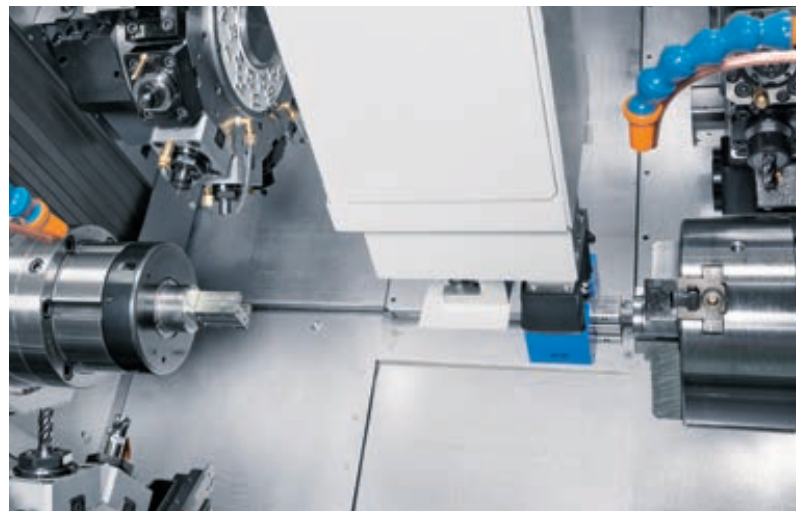**Milling tools max. Speed 8,000min^{-1} (op.)**
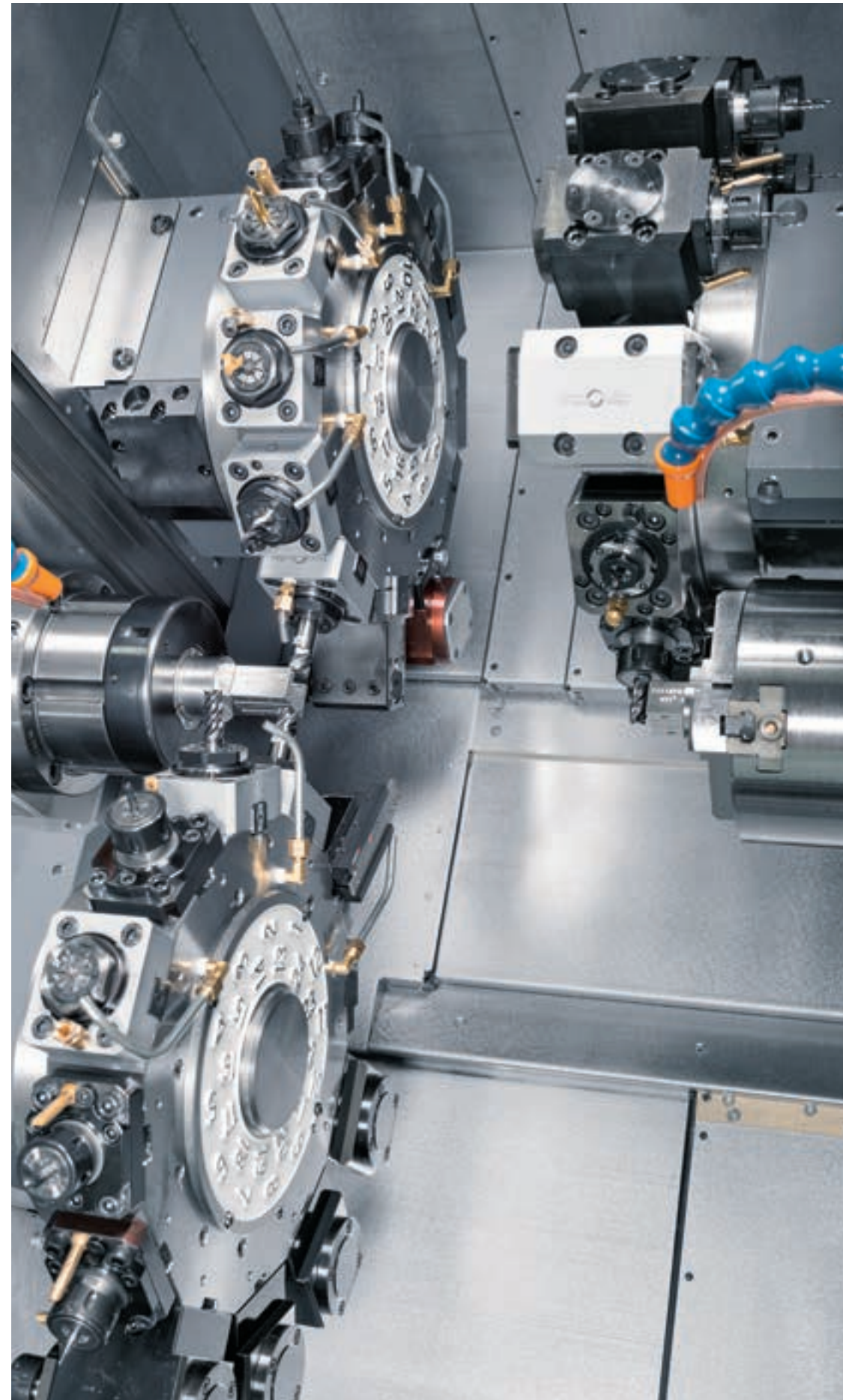
High Productivity

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
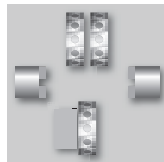12st：±42.0mm (Upper)
±32.5mm (Lower)
15st：±31.0mm

NTY³-100   Compact 3-Turret Machine with

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

19″ Color LCD Touch Panel

NT Smart X

| T×3 | M×3 | Y×3 | S×2 | C×2 | B2 |
| Three turret | Three Milling Motor | Three Y-axes | Twin-Spindle | C-axes | B-axis |

■Capacity

		ϕ42mm	ϕ51mm (op.)	ϕ65mm (op.)
Max. turning diameter	12st.	175mm	200mm	
	15st.		190mm	
Max. turning length		588mm	570mm	
Distance between spindles		max. 820mm / min. 200mm		
Bar capacity		ϕ42mm	ϕ51mm	ϕ65mm
Chuck size	L / R	165mm (6") / 165mm (6")		

■Axis travel

		ϕ42mm	ϕ51mm (op.)	ϕ65mm (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

	ϕ42mm	ϕ51mm (op.)	ϕ65mm (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

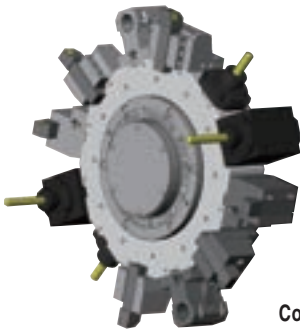|		
Number of turrets (Upper / Lower)		2 / 1
Driven-tool spindle speed		6,000min^{-1} (op. 8,000min^{-1} Only for 12-station turret)
Drive motor		7.1/2.2kW (op. 5.5/2.2kW)
Type of turret head / Number of indexing pos.	12st.	Dodecagonal drum turret / 24
	15st.	15-station turret / 15
Drive type / Number 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.
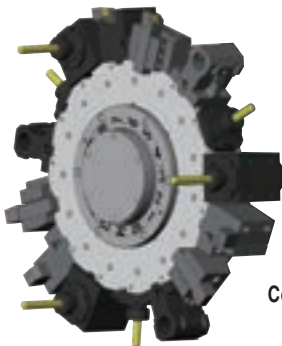
NTY³-100

High-rigidity turret

72 stations

Bar capacity φ42mm	Bar capacity φ51mm	Bar capacity φ65mm
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 (φ42mm) 200mm (φ51mm, φ65mm)

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 (φ51mm, φ65mm)

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

Larger window ensures better visibility

Right Spindle

Bar capacity φ42mm

Spindle motor

**11 / 7.5kW
6,000min⁻¹**

C-axis
C-axis synchronization

Standard

Bar capacity φ51mm

Spindle motor

**11 / 7.5kW
5,000min⁻¹**

Bar capacity φ65mm

Spindle motor

**11 / 7.5kW
4,500min⁻¹**

Option
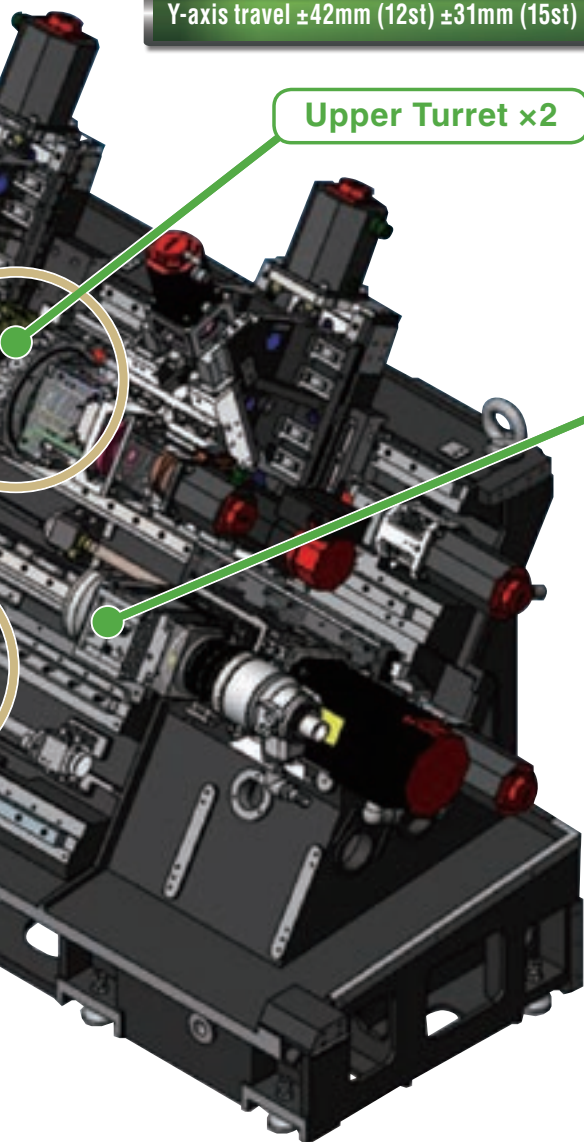
Parts catcher G **Option**

		φ42mm	φ51 / φ65mm
Workpiece size	Diameter [mm]	φ15 - 42	φ15 - 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 φ42mm

Torque (N·m) / Output (kW)
76N·m (15min. S3 25%)
39N·m (S1 CONT.)
11kW
7.5kW
60 / 1389 1851 4167 6000
Spindle speed (min⁻¹)
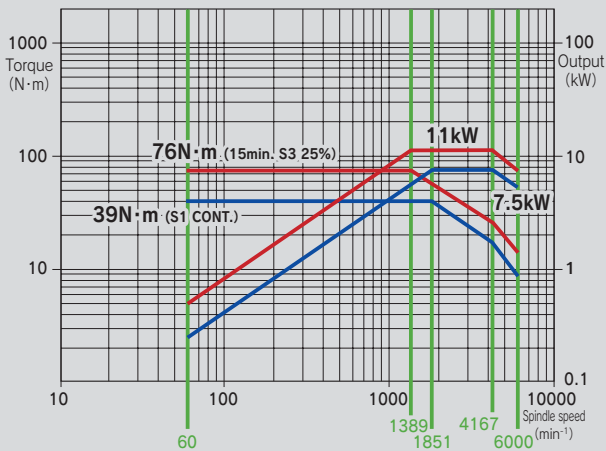
Option
Rotating speed : 4,500min⁻¹ φ65mm

Torque (N·m) / Output (kW)
85N·m (15min. S3 25%)
43N·m (S1 CONT.)
11kW
7.5kW
42 / 1240 1652 3719 4500
Spindle speed (min⁻¹)
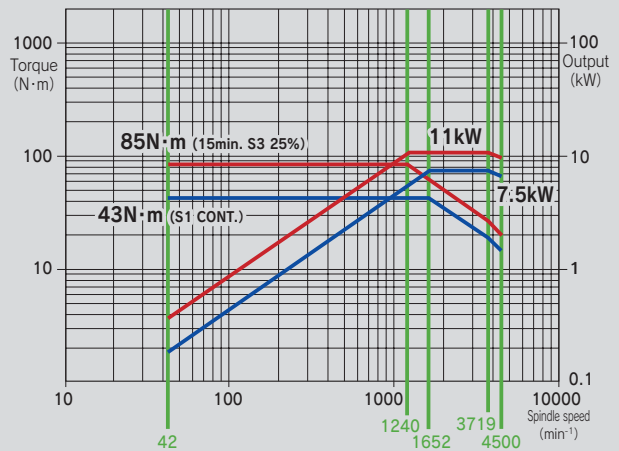
Option
Rotating speed : 5,000min⁻¹ φ51mm
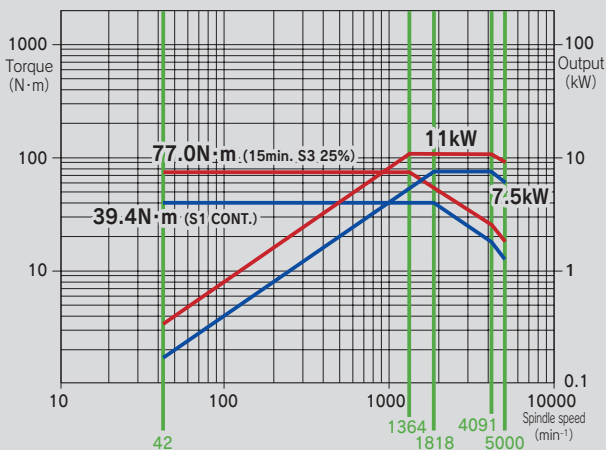
Torque (N·m) / Output (kW)
77.0N·m (15min. S3 25%)
39.4N·m (S1 CONT.)
11kW
7.5kW
42 / 1364 1818 4091 5000
Spindle speed (min⁻¹)

Milling Motors.

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.)

Rotating speed (min⁻¹)

42, 3000, 3283, 8000

Big Data

IoT
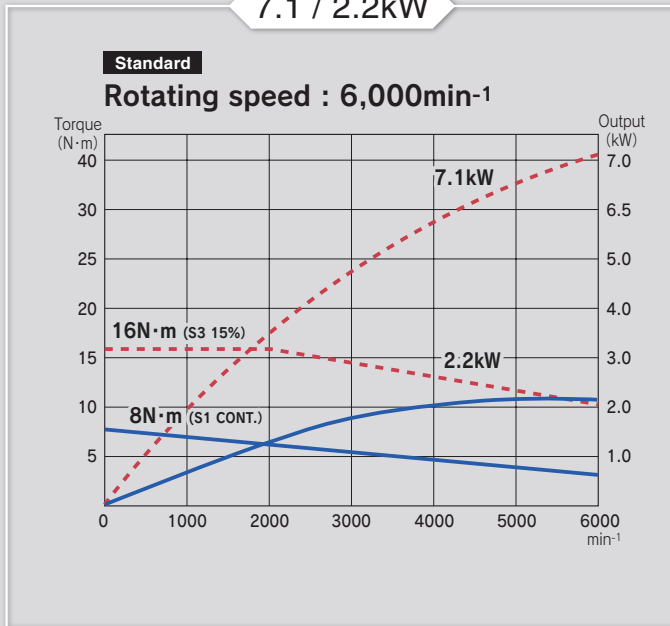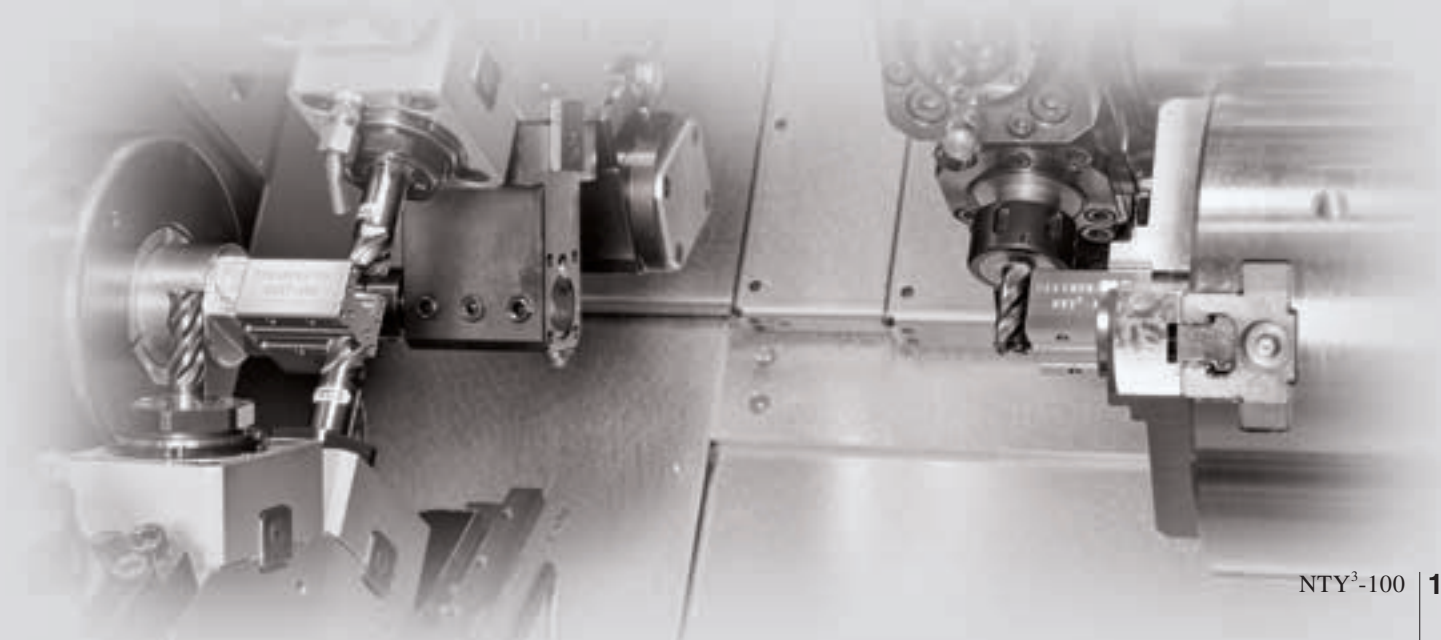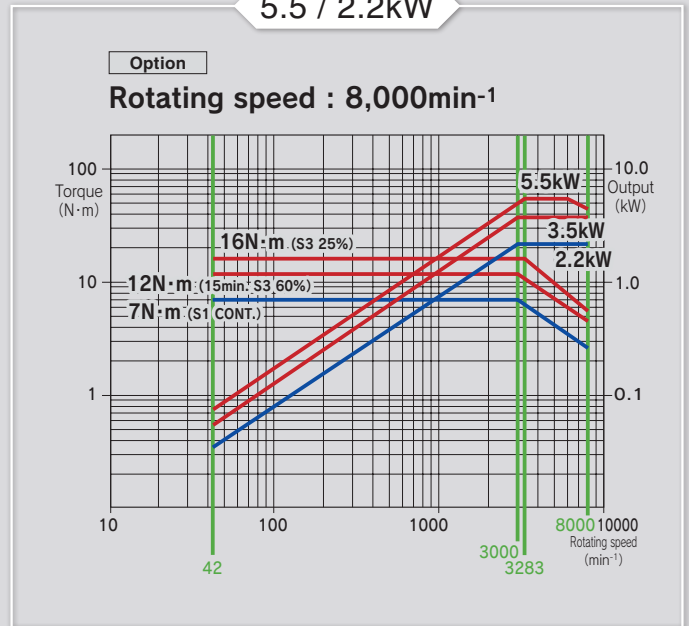
Industry 4.0

Advanced Production System

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個 (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.

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

Accumulation value

Turret status display

Machine status display

Load status display

Reference position LED

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

T 0101

Spindle RPM

Waiting tool number for lower turret

Operating status display

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

Blank

Middle pf process

Part complete

Remnant

Quill

Tool number is displayed during automatic cycle.

Accumulation value: ‹Today: 0 ‹Wear

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.

Menu

Undo

NT Mach...

ATC Tooling

Work Status

Operatio...

Wear Offset

PMC Mon...

Product G...

User Menu

Tool Setting

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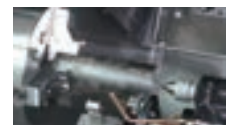
- **It is available for Z axis and B2 axis.**
- **Quill thrust force can be changed in the program.**
- **It is possible to set OK/ NG range as well.**

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.

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

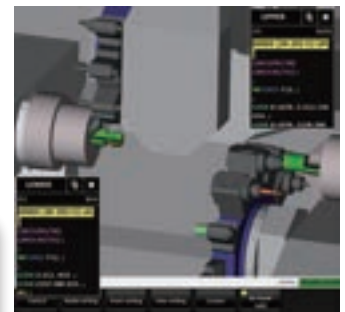**"Distance to go" and "Modal information" can be checked during with simulation.**

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

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.
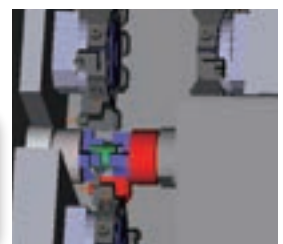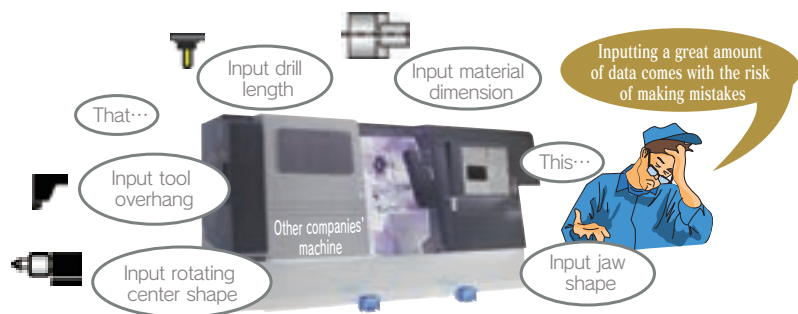
Airbag (Overload detection)

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

That…

Input tool overhang

Input rotating center shape

Other companies' machine

Input material dimension

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

This…

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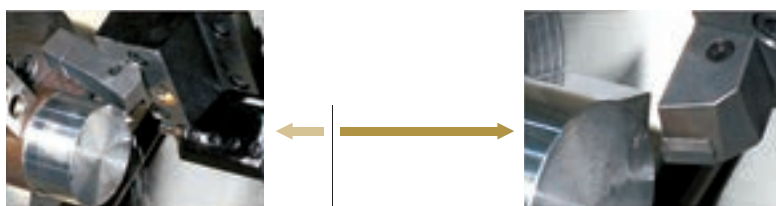
Without Airbag
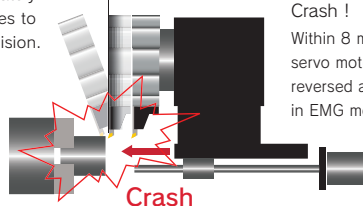Machine will not be stop immediately. The slide continues to move even after collision.

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

NT Work Navigator
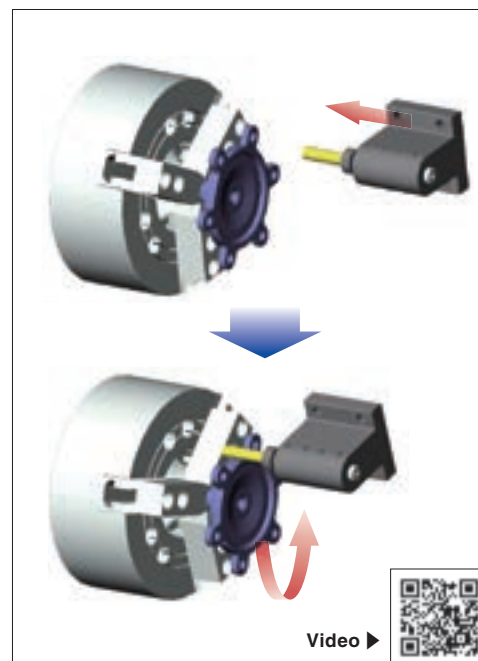
New Navigator for X-axis and Y-axis

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
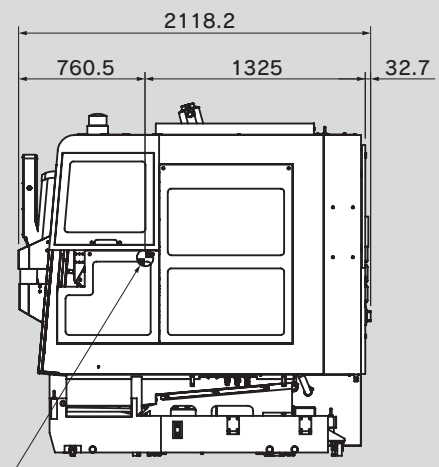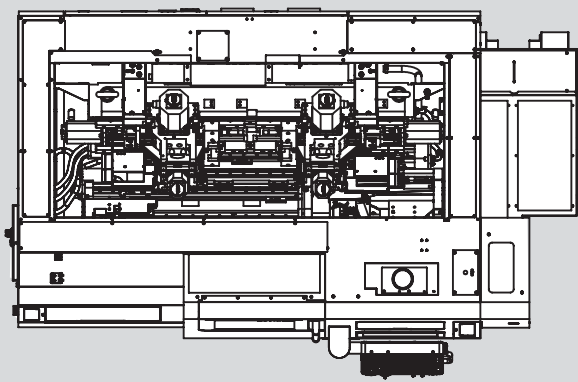
Spindle center

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
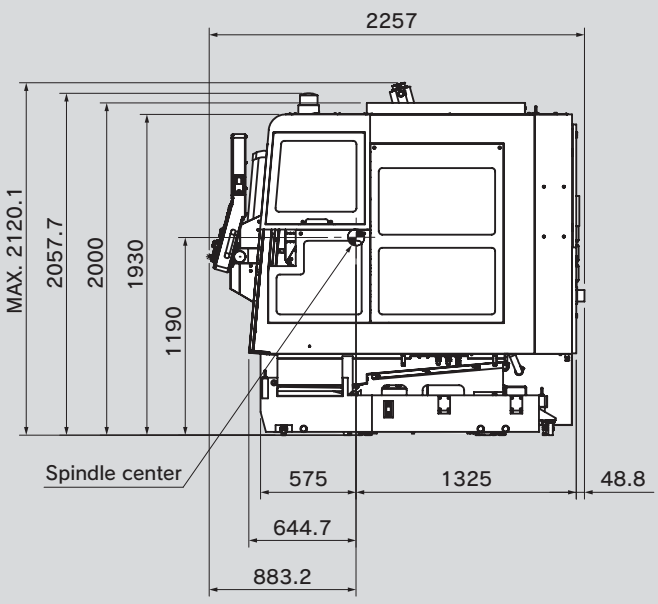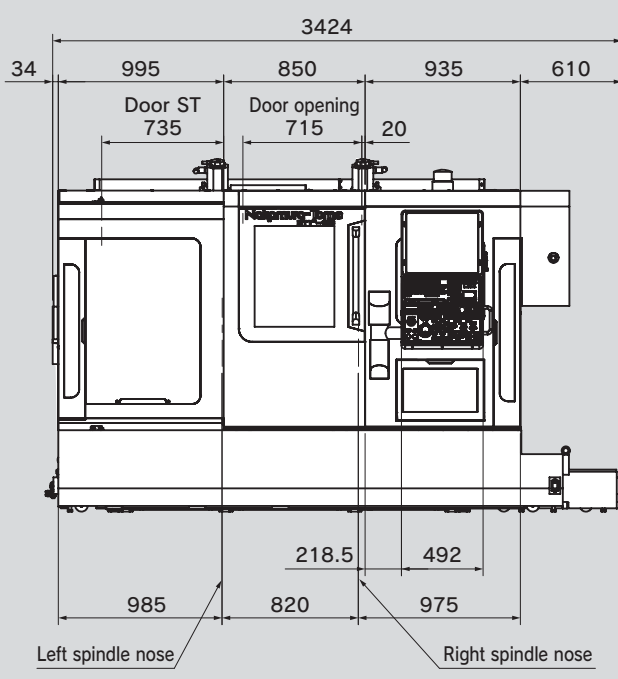
Unit : mm

NTY3

3T 3Y 3M

S E R I E S

NTY³-100

φ 42

6"

■**Left spindle φ42, φ51 or φ65. Right Spindle φ42, φ51 or φ65***

336   148   336

Z1=-202   Z2=-202

227   227

*Z1=+25   *Z2=+25

2.5   2.5   S.LS   2.5   S.LS   2.5   2.5
S.LS   2.5
S.LS   2.5   2.5   S.LS

S.LS   2.5   S.LS   2.5   S.LS   2.5

X1=-150   X2=-150   2.5
S.LS   2.5   S.LS
150   2.5   150   2.5

355   62   355

55   B2=620   55

Left spindle   2.5   2.5   59   Right spindle
A2-5(φ51)   S.LS   A2-5(φ42)
A2-6(φ65)   A2-5(φ51)
A2-6(φ65)

350   150   350
2.5
X3=-141   S.LS
300   2.5   2.5
S.LS

S.LS   S.LS
2.5   2.5   2.5   2.5

Z3=-266   Z3=+294

144   Z3=560   116

820

85

Y1/Y2=+42   Y1/Y2=-42

355

1.7   1.7
S.LS   1.8 1.8   S.LS

65

Y3=-32.5   Y3=+32.5
1.7   0.7 0.7   1.7
S.LS   S.LS

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   φ**71**

Chuck Size.   **8"**

C26330
Cross Holder
(Max. φ14)

F26333
Straight Holder
(Max. φ14)

Qualified Tool
□20×90
□19.05×90

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

A1111201-01
A1112201-01
Cut-off Holder Forward

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

A1311201-01
A1312201-01
Cut-off Holder Reverse

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

Qualified Tool
□20×90
□19.05×90

A1041202-01
A1042202-01
Turning Holder (B)

M2112(φ25-φ12)
M2113(φ25-φ10)
M2122(φ25.4-φ12.7)
M2123(φ25.4-φ9.525)
Boring Bar Holder

N3170(φ25)
N3180(φ25.4)
Set Ring

A1411252-01
A1412252-01
Boring Holder
(φ25)(φ25.4)

A1411252-12
A1412252-12
Boring Holder
(Coolant through)
(φ25)(φ25.4)

M2110(φ25-φ20)
M2111(φ25-φ16)
M2120(φ25.4-φ12.7)
M2121(φ25.4-φ15.875)
Tool Bush

A1431251-01
A1432251-01
Double Boring Holder (B)
(φ25)(φ25.4)

A1101251-01
A1102251-01
Turning Boring Holder (ALS)
(□16, φ25)(□15.875, φ25.4)

Qualified Tool
□16×80
□15.875×80

W145102
W145103

A1081161-01
A1182161-01
Quadruple Turning Holder (AL)
(□16)(□15.875)

Turret Hoad

Metric
Inch

24ST

● 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

		φ42mm	φ51mm (op.)	φ65mm (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

	φ42mm	φ51mm	φ65mm
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)		φ25mm

■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 / 15st: 15
Tool shank	Straight holder φ1mm - φ14mm
	Cross holder φ1mm - φ14mm

■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