

NTRX-300/300L

NAKAMURA-TOME
PRECISION INDUSTRY CO.,LTD.

Anyone,
Quick, Easy

Innovative
Technology

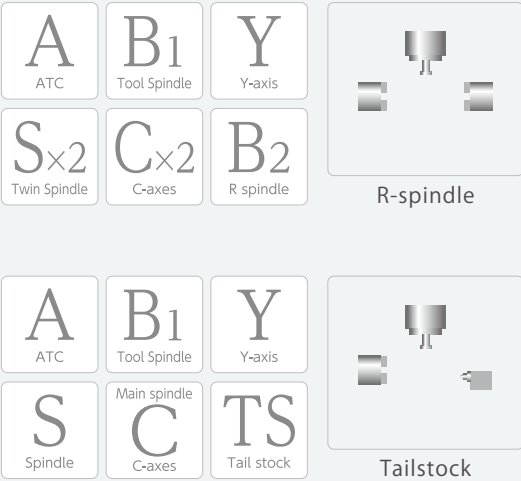
~ Creating new values ~

NTRX-300 NTRX-300L

The latest 8/10-inch machine secures a wide machining area of 250mm square in the center of the spindle. The user-friendly design of the machine reduces the daily workload.

A variety of software is excellent for program creation and maintenance is also installed in the machine. This software will support your production well.

- Selectable from R-spindle or Tailstock
- ATC tool spindle motor 22/15kW
Tool spindle speed 8,000min⁻¹ (op. 12,000min⁻¹)
- Number of tools 40 (op. 60, 80,120)
- X-axis travel below spindle center is 125mm
Y-axis travel is +/-125mm from the spindle center.
- The slides, having a vertical column structure, are mounted on a high rigidity horizontal machine bed with low gravity design.
- Floor space 4,529mm × 2,670mm(NTRX-300)
5,440mm × 2,670mm (NTRX-300L)
- Large variety of software





Wide machining space,
High machining ability

This machine secures a machining range of 250 mm square(-125 mm in the X-axis direction/±125 mm in the Y-axis direction) from the center of the spindle, enabling high-precision milling on the face over a wide range. Also, the vertical positioning of the slide ensures that the load is evenly applied to the bed, resulting in more stable machining. In addition, the thermal displacement compensation system "NT Thermo Navigator AI" suppresses thermal changes over time. This makes it possible to perform stable and even higher precision machining. Nakamura-Tome's multitasking machines not only pursue high machining capacity, but also are designed with "high rigidity" and "high accuracy".



Heavy cutting (Turning)



- Spindle motor *22/18.5kW*
- Cutting cross section *5.5mm²/rev*
- Cutting speed *120m/min*
- Feed *0.55mm/rev*
- Depth of cut *10mm*
- Material *S45C*

*The best data with φ80 spindle

Φ50 Milling



- Metal Removal Rate *315cm³/min*
- Machining load *97%*
- Number of blades *4*
- Cutting speed *235m/min*
- Milling speed *1,500min⁻¹*
- Feed *1,500mm/min*
- Axial depth of cut (a_p) *6mm*
- Radial depth of cut (a_e) *35mm*
- Material *S45C*

L-spindle		R-spindle	
Standard		Standard	
Bar capacity	φ65mm	Bar capacity	φ65mm
Spindle motor	15/11kW 4,500min ⁻¹	Spindle motor	15/11kW 4,500min ⁻¹
Option		Option	
Bar capacity	φ71mm	Bar capacity	φ71mm
Spindle motor	15/11kW 3,500min ⁻¹	Spindle motor	15/11kW 3,500min ⁻¹
Option		Option	
Bar capacity	φ80mm	Bar capacity	φ80mm
Spindle motor	22/18.5kW 3,500min ⁻¹ *1	Spindle motor	22/18.5kW 3,500min ⁻¹ *1
	22/18.5kW 2,500min ⁻¹ *2		22/18.5kW 2,500min ⁻¹ *2
Option		Option	
Bar capacity	φ90mm		
Spindle motor	22/18.5kW 2,500min ⁻¹		

*1 Direct connecting pipe
*2 Joint connection

Horizontal bed and vertical column structure

The slides mounted on a horizontal machine bed have a vertical column structure. In the strong and stable vertical column structure, the load is evenly applied.

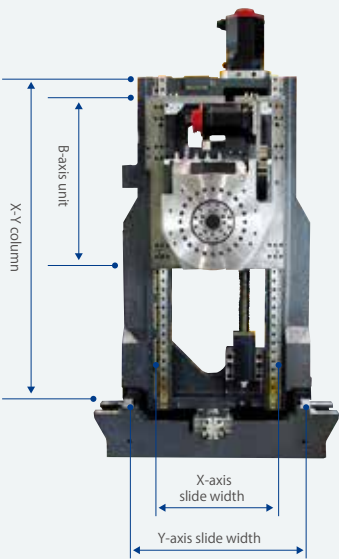
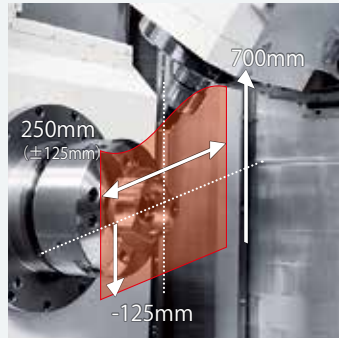


X-axis travel 125mm below spindle center ensures a wider machining range.

Tool Spindle	
Standard	
Tool spindle motor	22/15kW 8,000min ⁻¹
Option	
Tool spindle motor	22/15kW 12,000min ⁻¹

High accuracy milling

Thanks to large Y-axis travel and 125mm X-axis travel beyond the spindle center, various machining operations can be performed without rotating the C-axis, such as square milling in the X-Y plane or deep hole drilling in the X-axis direction, ensuring faster cycle time and higher precision.



Highly Rigid Tool Spindle

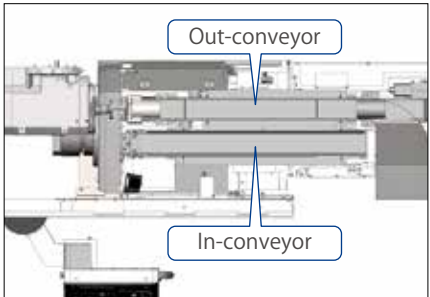
The X-axis slide unit width and depth ensures that the tool spindle unit is mounted on a stable base.

Roller drive

The B1-axis roller drive adopting a preloaded bearing mechanism achieves zero-backlash and high precision positioning and ensures excellent rotation and high transmission accuracy.

High Performance Automation System(op.)

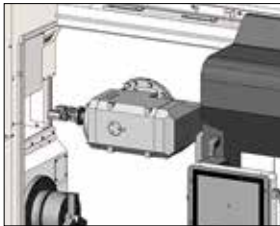
The automation (loading and unloading) is done using grippers stored in the ATC magazine. The gripper will pick up the part from the in conveyor and unload the part on the out conveyor. Both conveyors are located on the right side at the top of the right spindle.



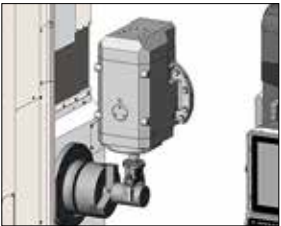
Specification

Workpiece size		Conveyor Capacity	
Diameter	φ50-90mm	Length of	NTRX-300 1,335mm
Length	LO 80-150mm	Conveyor	NTRX-300L 1,625mm
	UL 50-150mm	Maximum Weight	
Weight	3kg	In-conveyor	39kg
		Out-conveyor	12kg

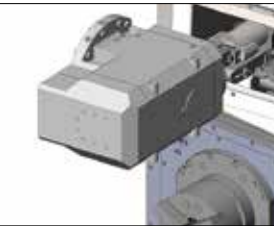
Special jaws are necessary when the work piece is not round.



Call Up Loading gripper from ATC Magazine and load the blank from In-conveyor.



Load the blank by using Loading gripper to the L-spindle.



Unload the finished parts to the Out-conveyor. Side by side : In-conveyor and Out-conveyor.

■ Capacity		φ65	φ71 (op.)	φ80A*1 (op.)	φ80B*2 (op.)	φ90 (op.)
Max. turning diameter		640mm				
Distance between spindles		NTRX-300 : max.1,350mm / min.250mm NTRX-300L : max.1,850mm / min.300mm *3				
Distance between centers		NTRX-300 : max.1,225mm / min.125mm NTRX-300L : max.1,725mm / min.175mm *4				
Max. turning length		NTRX-300 : 1,100mm NTRX-300L : 1,600mm				
Bar capacity	L	φ65mm	φ71mm	φ80mm*1	φ80mm*2	φ90mm
	R					φ80mm*2
Chuck size		8", 10"				

■ Axis travel

X1-Axis slide travel	700mm
Z1-Axis slide travel	NTRX-300 : 1,125mm NTRX-300L : 1,625mm
Y1-Axis slide travel	±125mm
B2-Axis slide travel	NTRX-300 : 1,100mm NTRX-300L : 1,550mm (1,015mm / Steady rest)

■ Rapid feed

X1-Axis rapid feed rate	36m/min
Z1-Axis rapid feed rate	36m/min
Y1-Axis rapid feed rate	36m/min
B2-Axis rapid feed rate	27m/min

■ L-spindle

Spindle speed	4,500min ⁻¹	3,500min ⁻¹	3,500min ⁻¹	2,500min ⁻¹	2,500min ⁻¹
Spindle motor	15/11kW, 22/18.5kW(op.)		22/18.5kW(op.)		
Spindle speed range	Stepless	Stepless	Stepless	Stepless	Stepless
Spindle nose	A2-6	A2-8	A2-8	A2-8	A2-8
Hole through spindle	80mm	90mm	90mm	100mm	107mm
I.D. of front bearing	120mm	130mm	130mm	150mm	150mm
Hole through draw tube	66mm	72mm	81mm	81mm	91mm

■ R-spindle

Spindle speed	4,500min ⁻¹	3,500min ⁻¹	3,500min ⁻¹	2,500min ⁻¹	-
Spindle motor	15/11kW, 22/18.5kW(op.)		22/18.5kW(op.)		-
Spindle speed range	Stepless	Stepless	Stepless	Stepless	-
Spindle nose	A2-6	A2-8	A2-8	A2-8	-
Hole through spindle	80mm	90mm	90mm	100mm	-
I.D. of front bearing	120mm	130mm	130mm	150mm	-
Hole through draw tube	66mm	72mm	81mm	81mm	-

■ Steady rest (op. NTRX-300L)

Driving system	NC control servo-driven type				
Travel	1,015mm				
Model	SLU-X3.1		SLU-X3.2		
Centering range	φ20 - φ165mm		φ50 - φ200mm		

■ ATC Tool spindle

Tool spindle speed	8,000min ⁻¹ / 12,000min ⁻¹ (op.)
Tool spindle motor	22/15kW
Swiveling range	NTRX-300 : 225° (-120° , +105°) NTRX-300L : 240° (±120°)
Tool coupling type	CAPTO C6 / HSK-A63(op.)
Number of tools	40, (op. 60, 80, 120)
Max. tool diameter / Without adjacent tool	90mm / 130mm
Max. tool length	300mm
Long-tool ATC storage capacity / Length	NTRX-300L(op.) : 3 / φ65mm × L450mm *5

■ Tailstock(op.)

Driving system	NC control servo-driven type
Stroke	NTRX-300 : 1,100mm NTRX-300L : 1,550mm
Quill taper	MT-5(Built-in center)
Range of thrust force	2.5 - 6.5kN

■ C-axis

Least input increment	0.001°
Least command increment	0.001°
Rapid speed	400min ⁻¹
Cutting feed rate	1 - 4,800" /min
C-axis clamp	Disk clamp
C-axis connecting time	1.5s

■ General

Height	2,615mm
Floor space (L × W)	NTRX-300 : 4,529mm × 2,670mm NTRX-300L : 5,440mm × 2,670mm
Machine weight (incl. control)	NTRX-300 : 17,000kg (ATC 40) NTRX-300L : 19,000kg (ATC 40)

*1 Direct connecting pipe

*2 Joint connection

*3 R-spindle + Steady rest specification:max.1,850mm / min.835mm

*4 Tailstock + Steady rest specification:max.1,725mm / min.710mm

*5 Not available when Unloading Hand Gripper(op.) is selected

● Safety quality specifications

Various interlocks, such safety fences, auto extinguisher devices, and other safety related equipment may be required. These have to be selected during the configuration of the machine.

① Safety devices include electromagnetic door lock, chuck interlock, hydraulic pressure switch, air pressure switch, short circuit breaker and quill interlock. (Door interlock and chuck interlock are standard equipment.)

② In case of automation, various safety fences may be required, such as work stocker safety fences, robot safety fences, ...etc.

During the configuration of machine specifications, please discuss these requirements with the Nakamura-Tome machine sales representative.

● Precautions on the use of cutting fluids and lubricating oils

◦ Some types of cutting fluids (coolant) are harmful to machine components, causing damages such as peeling of paint, cracking of resin, expanding of rubber, corrosion and rust build up on aluminum and copper.

To avoid causing damage to the machine, never use synthetic coolants, or any coolants containing chlorine. In addition, never use coolants and lubricating oils which contain organic solvents such as butane, pentane, hexane and octane.

◦ Machine warranty terms are void for any claims or damage arising from the use of inappropriate cutting fluids or lubricating oils.



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