

SC-300II/300III

NAKAMURA-TOME
PRECISION INDUSTRY CO.,LTD.

High-Rigidity,
High-Precision!

Innovative
Technology

~ Creating new values ~

SC-300II SC-300IIL

We offer 10-inch and 12-inch class, single turret machines equipped with highly rigid box-way slides on all axes to enhance machining rigidity and stability. The SC-300II and SC-300IIL come standard with Milling and Y-axis, catering to a wide range of machining operations.

The machine structure achieves "rigidity, accuracy, and usability" providing extensive support to our customers' production.

- Highly rigid design with box-way slides on all axes.
- Equipped with Milling and Y-axis as standard.
- Y-axis slide stroke 120mm (±60mm).
- Milling motor output 7.5/3.7kW(12 stations), 5.5/3.7kW(16 stations).
- Available choice of Sub-spindle (MATA-BEI) or Tailstock on the Right side.
- Spindle motor output on the Left side 22/18.5kW, Spindle speed 3,500min⁻¹.
- Sub spindle motor output on the Right side 15/11kW, Sub-spindle speed 5,000min⁻¹.
- Floor space 3,996mm×2,130mm(SC-300II), 4,902mm×2,130mm(SC-300IIL).
- Equipped with an Inverter-controlled Hydraulic Power Unit (HPU) as a standard, Eco-friendly specification.



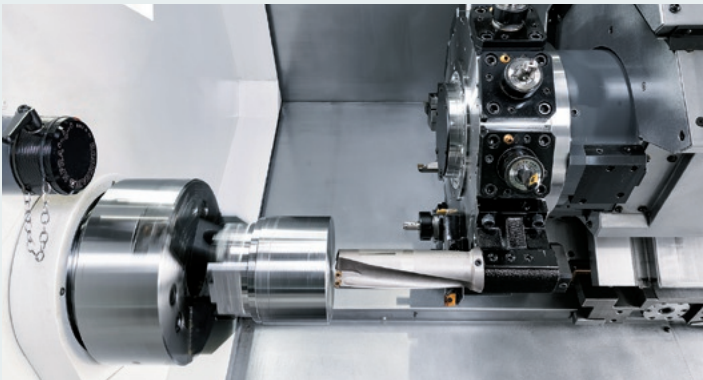


Best in Class
Machining Capabilitie

SC-300II/300III is equipped with milling and Y-axis as standard, allowing various machining operations despite being a single turret machine. In addition, the frame structure, which is the foundation of the machine, has been improved to further enhance the rigidity of the machine. Each unit is mounted on a sturdy frame, enabling stronger and more stable machining.

A full range of software is also available, such as programming support, tool-management, and setup support. This machine supports customers' production in terms of both hardware and software.

High-rigidity machine structure
realizes machining of
difficult-to-cut materials as well as
high-hardness materials!



Turning

- Cutting sectional area **4.95 mm²/rev**
- Metal Removal Rate **594 cm³/min**



- Cutting depth **9mm (Max.)**
- Feed **0.55mm/rev**
- Cutting speed **120m/min**

Milling

- Y-axis slide travel **±60mm**
- Spindle speed **6,000 min⁻¹**



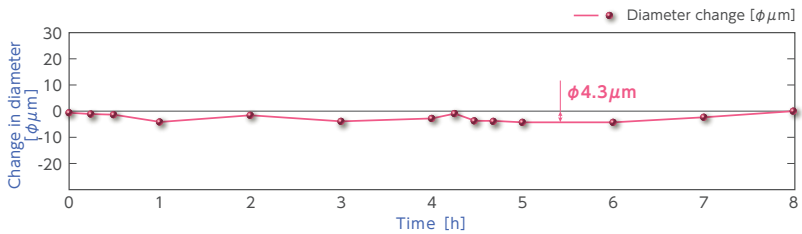
- φ20 End mill**
- Cutting blade **φ20**
 - Cutting depth **5mm**
 - Feed **0.14mm/rev**
 - Cutting speed **140m/min**



- φ22 End mill**
- Cutting blade **φ22(*1)**
 - Cutting depth **1mm**
 - Feed **2.0mm/rev**
 - Cutting speed **100m/min**

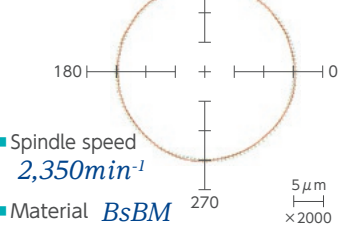
NT Thermo Navigator ■ Amount of Thermal displacement amount **φ4.3μm**

* Actual Values shown here are obtained when ambient temperature conditions are met.



Circularity

0.48μm



*1 Double-edged blade
*2 These data may change depending on actual cutting and environmental conditions.

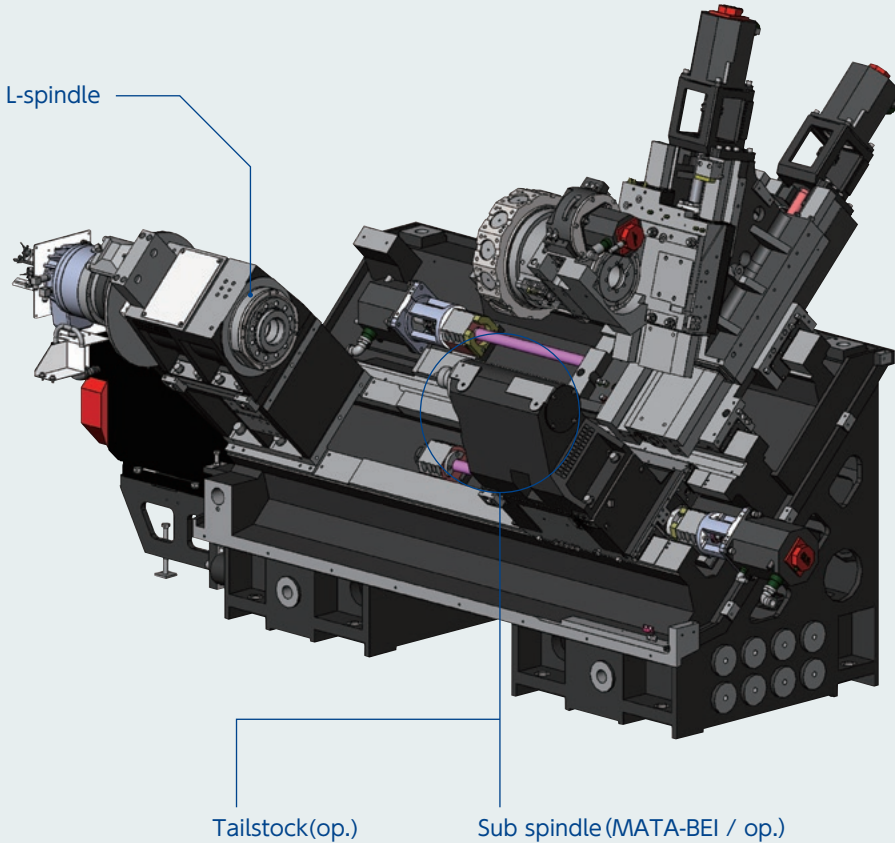
Powerful Single Turret Machine
Milling and Y-axis are Equipped as Standard.

L-spindle

Standard	
Bar capacity	$\phi 71mm$
Spindle motor	22/18.5kW 3,500min ⁻¹
Option	
Bar capacity	$\phi 89mm$
Spindle motor	22/18.5kW 3,500min ⁻¹

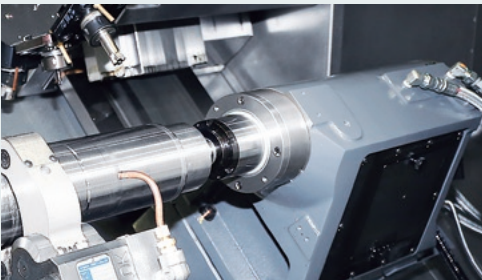
Sub spindle (MATA-BEI)

Option	
Bar capacity	$\phi 51mm$
Spindle motor	15/11kW 5,000min ⁻¹



NC tailstock

The tailstock body movement is program controlled by the NC control servo drive. The setting can be easily done on the NT NURSE screen for a maximum of 12 settings.



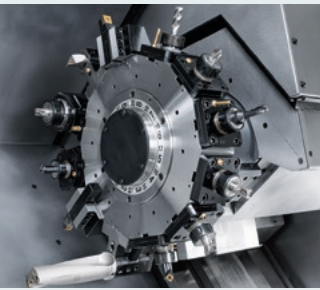
Tailstock

Option	
Driving system	NC control servo-driven type
Quill taper	MT-5(Rotating center), MT-4(Built-in center)
Range of thrust force	2.5kN-6.5kN
Option(SC-300III)	
Driving system	Z-axis slide (knock type)
Quill taper	MT-5(Rotating center), MT-4(Built-in center)
Quill diameter / Quill stroke	$\phi 90mm / 100mm$
Range of thrust force	1.3kN-7.85kN

Turret

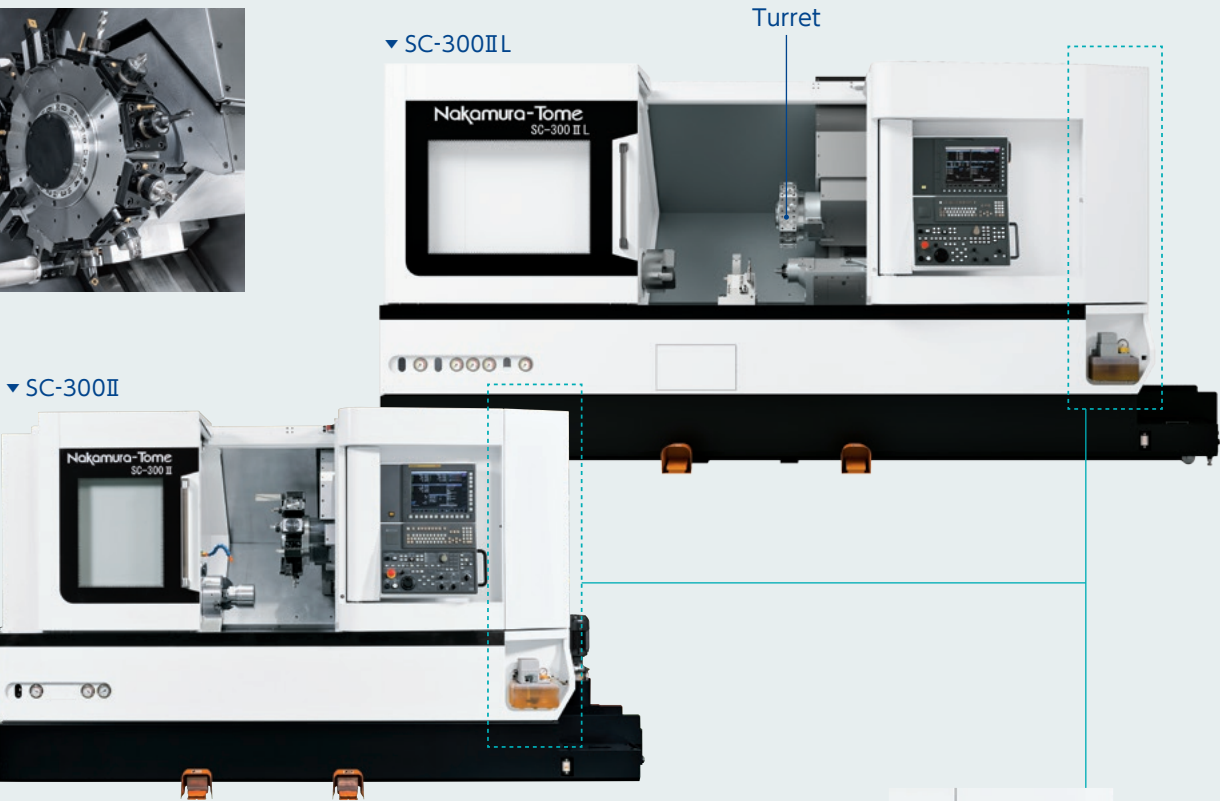
Dodecagonal drum turret

Standard	
Type of turret head	Dodecagon
Number of milling stations / Number of indexing positions	12/24
Y-axis slide travel	$\pm 60mm$
Milling motor	7.5/3.7kW 6,000min ⁻¹



16-station turret

Option	
Type of turret head	Hexadecagon
Number of milling stations / Number of indexing positions	16/16
Y-axis slide travel	$\pm 60mm$
Milling motor	5.5/3.7kW 6,000min ⁻¹



Eco Friendly!

An inveter-type hydraulic unit reduces power consumption.

Power consumption reduction **21%***

* This value may change depending on actual machining conditions.



User Friendly

Easy to refill lubrication oil.

SC-300II



The Ergonomically designed operation panel with swiveling function ensures maximum operator support and comfort during machine set up and operation.



Floor space Standard
(included chiptank) **W3,996mm × D2,130mm × H2,300mm**

■ GR-210 High-Speed (op.) Automation of loading and unloading with a high-speed gantry loader significantly improves your productivity.

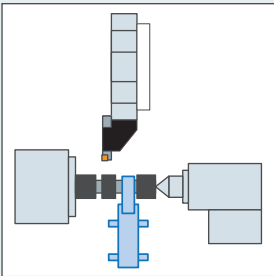
Speed		10kg	20kg(op.)
Loading/Unloading time	sec	6.0/6.0	10.5/10.5

Hand			
Workpiece diameter	Flange	mm	φ20-φ220
	Shaft	mm	φ20-φ100
Workpiece length	Flange	mm	20-100
	Shaft	mm	50-200
Hand turning	Flange	—	0.75sec/180° 3sec/180°
	Shaft	—	1.8sec/180°
Workpiece weight	Flange	kg	10×2 20×1
	Shaft	kg	10×2 20×1
Jaw stroke	Flange	mm	φ40 φ32
	Shaft	mm	φ30

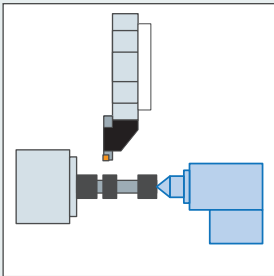


SC-300IIL

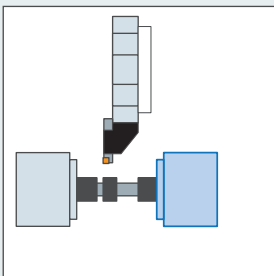
Package proposals
We offer three different types of specifications suitable for processing long workpieces.



NC steady rest+ Tailstock(knock type)



NC tailstock



Sub spindle(MATA-BEI)



The Ergonomically designed operation panel with swiveling function ensures maximum operator support and comfort during machine set up and operation.



■ NC steady rest
Option(SC-300 II L)
Driving system *NC control servo-driven type*
Model *SLU-X3.1*
Centering range *φ20mm-φ165mm*
Travel *750mm*



■ Capacity		φ71	φ89(op.)	φ51(op.)
Max. turning diameter		360mm		
Distance Between Spindles(op.)	SC-300II	max.910mm / min.310mm(Sub spindle)		
	SC-300II L	max.1,310mm / min.310mm(Sub spindle)		
Distance between centers(op.)	SC-300II	max.713.5mm / min.213.5mm(Tailstock)		
	SC-300II L	max.1,213.5mm / min.213.5mm(Tailstock)		
Max. turning length	SC-300II	635mm(Sub spindle), 600mm(Tailstock)		
	SC-300II L	1,135mm(Sub spindle), 1,100mm(Tailstock)		
Bar capacity	L	φ71mm	φ89mm	-
	R	-	-	φ51mm
Chuck size	L	10" / 12"		-
	R	-		6" / 8"

■ Axis travel

X-axis slide travel		232.5mm / 215mm(Sub spindle)	
Z-axis slide travel	SC-300II	635mm	
	SC-300II L	1,135mm	
Y-axis slide travel		±60mm	
B-axis slide travel(op.)	SC-300II	600mm(Sub spindle)	
	SC-300II L	1,000mm(Sub spindle)	

■ Rapid feed

X-axis rapid feed rate		25m/min	
Z-axis rapid feed rate		30m/min	
Y-axis rapid feed rate		12.5m/min	
B-axis rapid feed rate(op.)		20m/min(Sub spindle)	

■ Main spindle

Spindle speed	3,500min ⁻¹	3,500min ⁻¹	-
Spindle speed range	Stepless	Stepless	-
Spindle nose	A2-8	A2-8	-
Hole through spindle	85mm	100mm	-
I.D. of front bearing	120mm	140mm	-
Hole through draw tube	72mm	90mm	-

■ Sub spindle

Spindle speed	-	-	5,000min ⁻¹
Spindle speed range	-	-	Stepless
Spindle nose	-	-	A2-5
Hole through spindle	-	-	63mm
I.D. of front bearing	-	-	90mm
Hole through draw tube	-	-	52mm

● 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 the 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, expansion 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.

■ C-axis

Least input increment	0.001°
Least command increment	0.001°
Rapid speed	200min ⁻¹
Cutting feed rate	1-4,800° /min
C-axis clamp	Disk clamp
C-axis connecting time	1.5s

■ Turret

Type of turret head	12st	Dodecagonal
	16st(op.)	Hexadecagon
Number of Indexing positions	12st	24
	16st(op.)	16
Tool size (square shank)	12st	□25mm
	16st(op.)	□20mm
Tool size (round shank)	12st	φ40mm
	16st(op.)	φ32mm

■ Milling

Rotary system		Individual rotation
Milling spindle speed		6,000min ⁻¹
Spindle speed range		Stepless
Number of milling stations	12st	12
	16st(op.)	16
Tool size	12st	φ1- φ25mm
	16st(op.)	φ1- φ16mm

■ Tailstock (op.)		Tailstock(knock type)	NC tailstock
Driving system		Z-axis slide(knock type)	NC control servo-driven type
Travel	SC-300II	-	500mm
	SC-300II L	900mm	1,000mm
Quill taper		MT-5(Rotating center), MT-4(Built-in center)	
Quill diameter / Quill stroke		φ90mm/100mm	-
Range of thrust force		1.3-7.85kN	2.5-6.5kN

■ Steady rest (op. SC-300II L)

Driving system		NC control servo-driven type
Travel		750mm
Model		SLU-X3.1
Centering range		φ20- φ165mm

■ Drive motor

Main spindle		22/18.5kW
Sub spindle		15/11kW
Milling	12st	7.5/3.7kW
	16st(op.)	5.5/3.7kW

■ General

Height		2,300mm
Floor space (W x D)	SC-300II	3,996mm × 2,130mm
	SC-300II L	4,902mm × 2,130mm
Machine weight (incl. control)	SC-300II	9,000kg
	SC-300II L	11,000kg

■ Power requirements

Power supply	31.0kVA
	39.2kVA (Sub spindle)



<https://www.nakamura-tome.com>

Netsuno 15, Hakusan city, Ishikawa, 920-2195 Japan
Phone : +81 76 273 8100 Fax : +81 76 273 4312

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