

JX-50

NAKAMURA-TOME
PRECISION INDUSTRY CO.,LTD.

Compact Space.
Complete Capability.

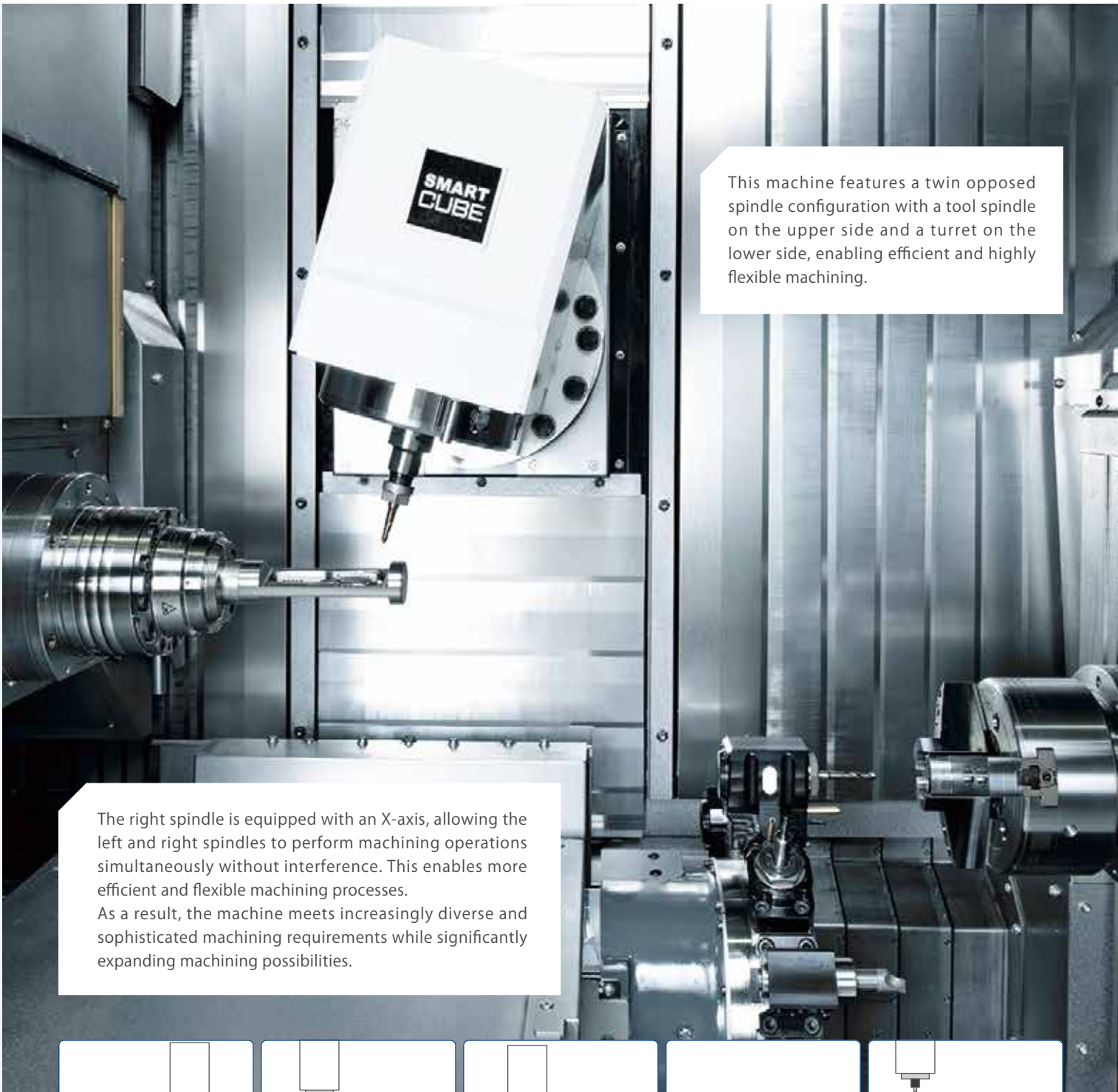
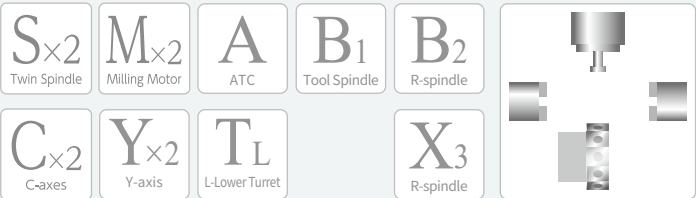
Innovative
Technology

~Creating new values~

JX-50

The JX-50 ATC Multitasking Machine is engineered for small, high-precision component manufacturing.

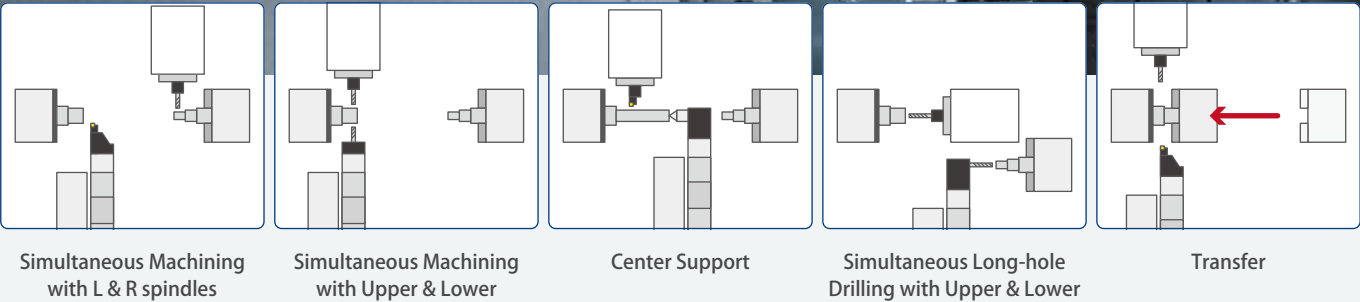
As production environments continue to shift toward high-mix, low-volume manufacturing, the JX-50 delivers the ideal combination of speed, flexibility, and user-friendly design, enabling a new level of productivity and manufacturing efficiency.



This machine features a twin opposed spindle configuration with a tool spindle on the upper side and a turret on the lower side, enabling efficient and highly flexible machining.

The right spindle is equipped with an X-axis, allowing the left and right spindles to perform machining operations simultaneously without interference. This enables more efficient and flexible machining processes.

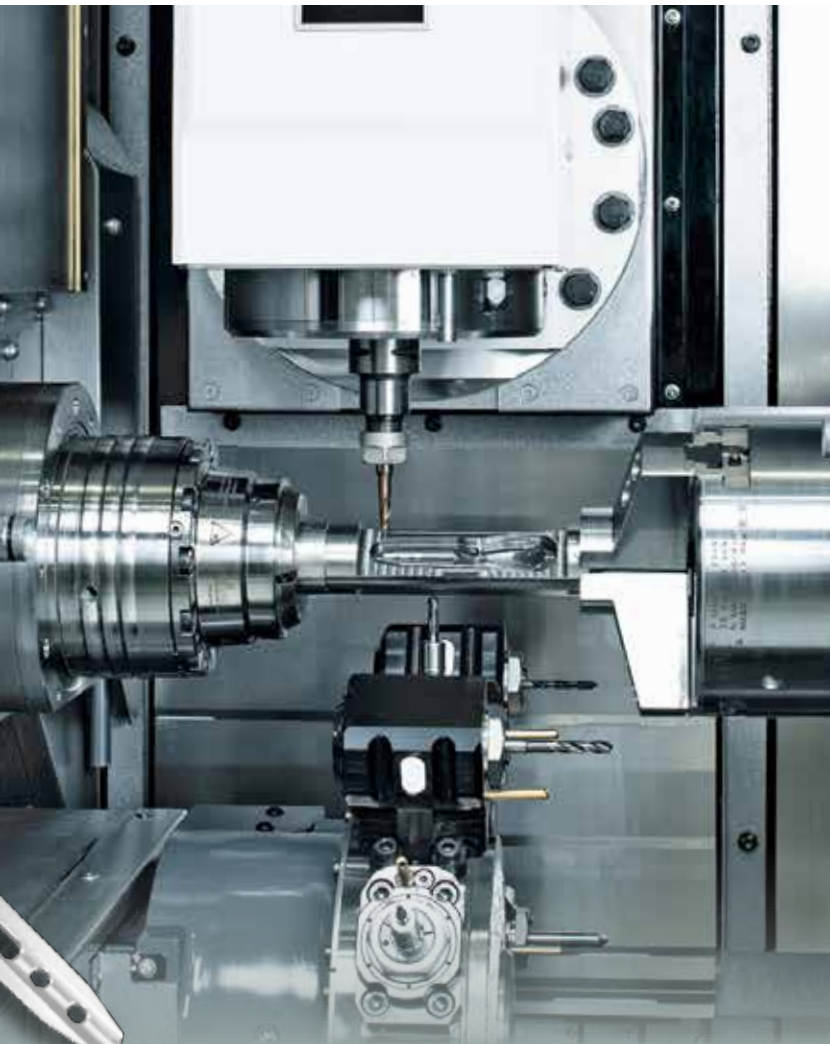
As a result, the machine meets increasingly diverse and sophisticated machining requirements while significantly expanding machining possibilities.



Ideal for Small, High-Precision Machining

Demand for small, complex precision components is increasing across a wide range of industries, particularly in the medical sector. As a result, manufacturers are under growing pressure to achieve higher productivity while maximizing the use of limited floor space.

The JX-50 was developed to achieve both a compact footprint and high-speed performance, while offering a tool-spindle platform capable of simultaneous 5-axis machining—an essential requirement for precision manufacturing.



Machining Examples 1

Type of industry	Medical
Part name	Bone plate
Material	X10CrNiS 18-9 $\phi 40$ mm bar

Machining Examples 2

Type of industry	Medical
Part name	Femur support
Material	6-4Titan $\phi 16$ mm bar

Machining Examples 3

Type of industry	Medical
Part name	Hip cup
Material	β -Titan $\phi 45$ mm bar

Reliable cutting performance

Equipped as standard with the “NT Smart Cube,” a compact tool spindle that supports a wide range of machining—from roughing to high-precision finishing—while providing excellent flexibility in process planning.

The NT Smart Cube delivers outstanding performance in both milling and turning, ensuring the cutting capability required for demanding precision components.



Turning (Tool spindle)
Cutting cross section **1.32 mm²**

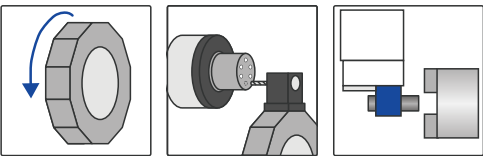
- Depth of cut(ap) **4 mm**
- Feed **0.33 mm/rev**
- Material **S45C**

Accelerated performance from both hardware and software

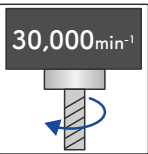


ChronoCut α

A unique function by Nakamura-Tome designed to reduce idle time. This new software minimizes idle time during manufacturing without compromising accuracy, even without any changes to the cutting conditions.

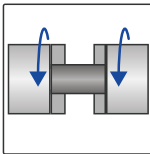


- High-speed indexing
- High-speed spindle synchronization
- Execution of multiple M-codes within the same block
- High-speed rigid tapping
- Reduction of PC-G unloading time, etc.



Machining conditions

By improving the machining capabilities of the milling speed, torque, and more, the machine achieves high performance under demanding conditions.



Acceleration / Deceleration

The acceleration and deceleration during starting and stopping have been improved, enabling quick attainment to the maximum speed.

Just 3.3 Seconds Chip-to-Chip*

The tool spindle is equipped with an Automatic Tool Changer (ATC), enabling efficient machining with a large number of tools.

With a chip-to-chip time of just 3.3 seconds*, idle time is significantly reduced, maximizing productivity. The benefits become even greater in applications requiring frequent tool changes and a high number of tools.

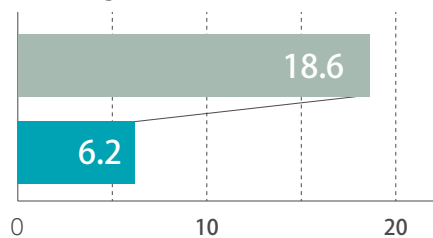
* Chip-to-chip time: The time required to move from one machining point to the next, including automatic tool exchange.



30,000 min⁻¹ High Speed Tool Spindle (Continuous use: 26,000min⁻¹)

Reduce cycle time by high speed milling with 30,000 min⁻¹.

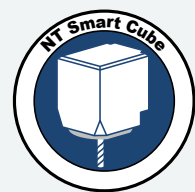
Machining Time [s]



67% Faster!

Chamfering



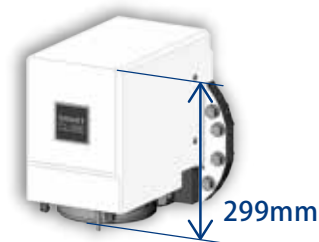


The world's shortest tool spindle
in its class*

NT Smart Cube

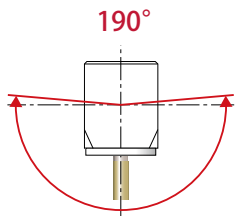
* Based on our survey in the multitasking machine market

■ Tool spindle NT Smart Cube



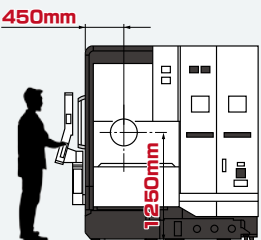
Length 299mm
Tool spindle speed 30,000min⁻¹
Tool spindle motor 38.7N·m (9kW)
Y-axis slide travel ±80mm

Max.tool diameter φ55mm
Max.tool diameter without adjacent tool φ60mm
Max.tool length 150mm



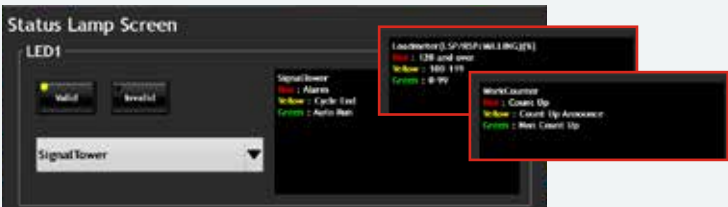
Stress-Free

Improved distance from the machine front to the spindle and optimized spindle height allow for comfortable operation with reduced operator strain.



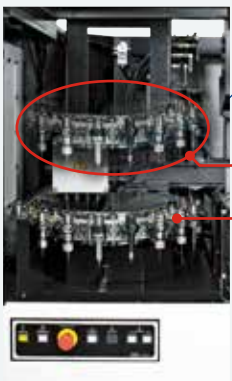
Status Lamp

The lamps on the front doors can be used as signal lights, changing color according to the machine's operating status. They can also display different colors based on the Loadmeter or Work Counter values, or be set to any custom color.



ATC Magazine: Up to 119 Tools

The ATC magazine accommodates 60 tools as standard, with expansion available up to **119 tools**. Additional magazine units are stacked vertically, enabling a significant increase in tool capacity while maintaining the machine's compact footprint.

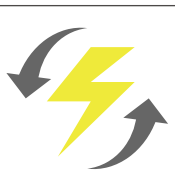


Large Window for Easy Viewing of the Machining Area

The door windows are equipped with wipers that keep the windows clean.

NT SmartX 19-inch Touch Panel

The control panel can be swiveled and repositioned, allowing operators to position it for maximum convenience. It can be moved close to the ATC magazine, making tool setup and adjustment quick and easy.



Use of regenerative energy



Grease lubrication for all liner axes
* Oil mist is used for milling



Inverter-Driven Hydraulic Power Unit

■ L-spindle

Standard
Bar capacity φ42mm
Spindle speed 6,000min⁻¹
Spindle motor 11/7.5kW

L-spindle

Lower turret

12

■ Lower turret

Standard
Y-axis slide travel ±32.5mm
Number of milling stations / Number of indexing positions 12 / 24
Milling speed 9,000min⁻¹
Milling motor 7.5/2.8kW

Tool spindle

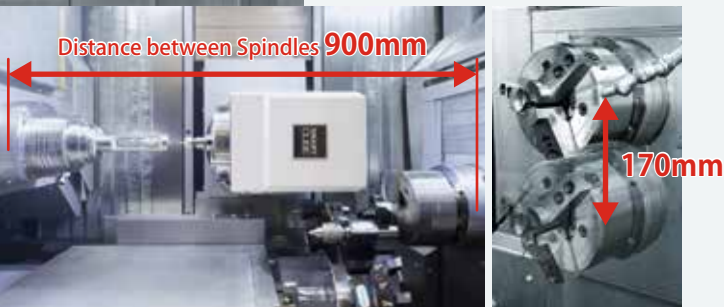
■ R-spindle

Standard
Bar capacity φ42mm
Spindle speed 6,000min⁻¹
Spindle motor 11/7.5kW
X-axis slide travel 170mm

R-spindle

Large Machining Area

The movable R-spindle shifts in the negative X-axis direction, allowing simultaneous machining on both spindles while maintaining ample clearance to avoid interference. This unique design helps maximize machine utilization and productivity.



Capacity

Max. turning diameter (Tool spindle / Lower turret)	280mm / 220mm
Distance between spindles	max. 900mm / min. 220mm
Max. turning length	650mm
Bar capacity	φ42mm
Chuck size	5", 6"

Axis travel

X1-axis slide travel	475mm
X2-axis slide travel	180.5mm
X3-axis slide travel	170mm
Z1-axis slide travel	650mm
Z2-axis slide travel	700mm
Y1-axis slide travel	±80mm
Y2-axis slide travel	±32.5mm
B2-axis slide travel	680mm

Rapid feed

X1-axis rapid feed rate	30m/min
X2/X3 axis rapid feed rate	24m/min
Z1/Z2 axis rapid feed rate	40m/min
Y1-axis rapid feed rate	16m/min
Y2-axis rapid feed rate	6m/min
B2-axis rapid feed rate	40m/min

L-spindle

Spindle speed	6,000min ⁻¹
Spindle speed range	Stepless
Spindle nose	A2-5
Hole through spindle	56mm
I.D. of front bearing	80mm
Hole through draw tube	43mm

R-spindle

Spindle speed	6,000min ⁻¹
Spindle speed range	Stepless
Spindle nose	A2-5
Hole through spindle	56mm
I.D. of front bearing	80mm
Hole through draw tube	43mm

ATC tool spindle

Tool spindle speed	Max. spindle speed: 30,000min ⁻¹ Continuous use: 26,000min ⁻¹
Swiveling range	190° (±95°)
Tool coupling type	CAPTO C4 / HSK-T40(op.)
Number of tools	60, 119(op.)
Max. tool diameter / Without adjacent tool	φ55mm / φ60mm
Max. tool length	150mm

Lower turret

Type of turret head	Dodecagonal drum turret
Number of indexing positions	24
Tool size (square shank)	□20mm / □16mm (24st)
Tool size (round shank)	φ20mm

Milling

Rotary system	Individual rotation
Milling spindle speed	9,000min ⁻¹
Spindle speed range	Stepless
Number of milling stations	12
Holder type and Tool size	Straight holder φ1mm - φ13mm
	Cross holder φ1mm - φ13mm

Drive motor

L-spindle	11/7.5kW
R-spindle	11/7.5kW
Tool spindle	38.7N·m (9kW)
Milling	7.5/2.8kW (16.5N·m)

General

Height	2,250mm (Including Signal light : 2,530.5mm)
Floor space (W × D)	4,264.4mm × 2,378mm
Machine weight (incl. control)	11,000kg

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.



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