

CITIZEN

Miyano

BNC42

Fixed Headstock Type CNC Automatic Lathe



We have updated the concept for the BNC, a renowned machine in the Miyano range in response to customer demand for a compact bar/chucking lathe. While keeping the idea of a space-saving, compact design, we have improved the performance with better ease of use.

The hardware is based on the “highly rigid bed with platform construction” that has an established reputation under the Miyano brand, combined with hand-scraped box slideways adopted for all the axes to achieve powerful cutting with excellent rigidity and damping characteristics. With a turret featuring the “half-indexing mechanism” for increased number of tools, and high-torque revolving tools. The construction gives a real sense of the high level of the basic performance.

As for the software, there is a comprehensive custom menu screen including a machining support function, which makes it easy to shorten non-cutting time. Operability has also been improved.

Experience the new BNC, with its blend of evolved hardware and software.



The leftward-opening door gives the easy access for use as a chucking machine with a full height door aperture and offers convenient tool changing for the operator.





POWER M/C.READY S.READY

CUSTOM

EXIT AUTO M0

HD1

CONT COOLANT RETRACE

SINGLE DRYRUN M01

BLOCK SKIP

1 2

CYCLE START FEED HOLD

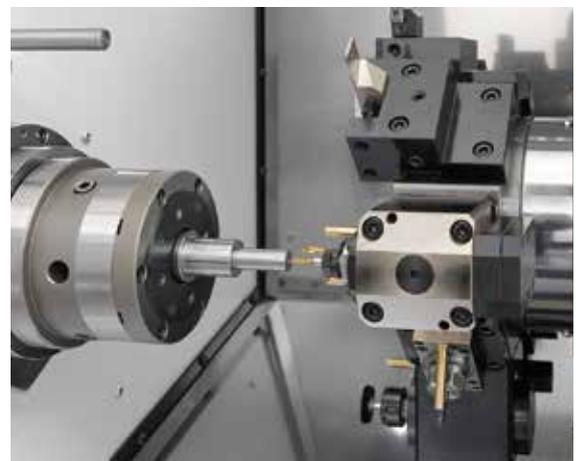


Ample tool positions

The compact 8-station turret is equipped with the half-indexing mechanism, which makes it possible to mount tools at a maximum of 16 positions when it is used, so you will never feel short of tools.

Tailstock for machining long workpieces

A hydraulically driven tailstock capable of alignment in the X and Y directions permits the machining of workpieces up to 175 mm* long.



Machines with a double spindle driven holder.

*Restrictions apply depending on the chuck.
JPN34, BA5&22D, S' power chuck ... 175 mm, DIN173E ... 160 mm, H-S20 ... 150 mm



Multi-tool holders are available in both fixed and driven types.

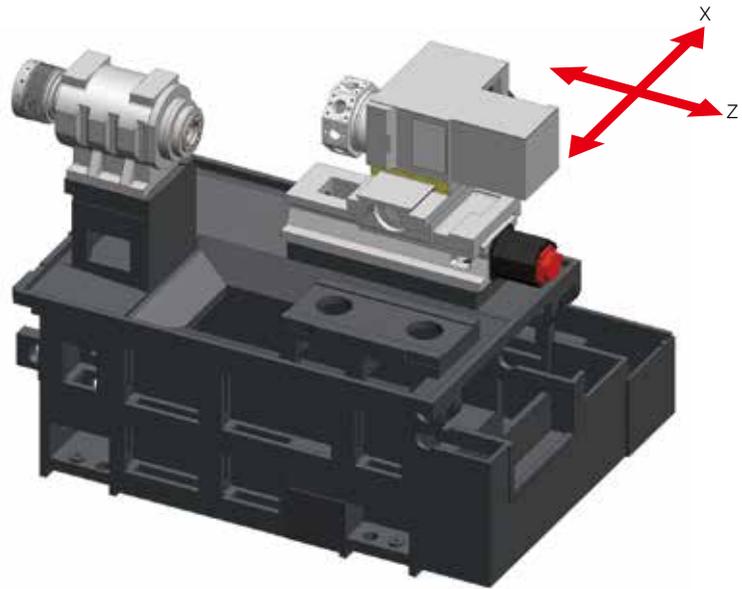


Tailstock (live center, MT2)

Basic configuration

The bed that is the basis for everything else has been given a platform-like surface table structure. Distortion of the unit mounting faces by the effects of heat is minimized and all displacements are perpendicular to the mounting faces, so relative deviations between the workpiece and cutting tools are held in check.

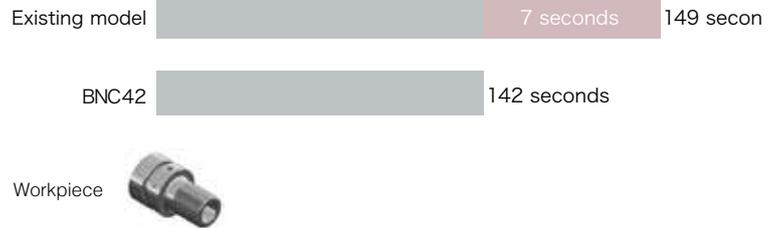
Hand scraped box slideways have been adopted on all axes. These slideways with face contacts have exceptional rigidity and damping characteristics, enable powerful cutting, with exceptional tool life.



Shortened cycle times

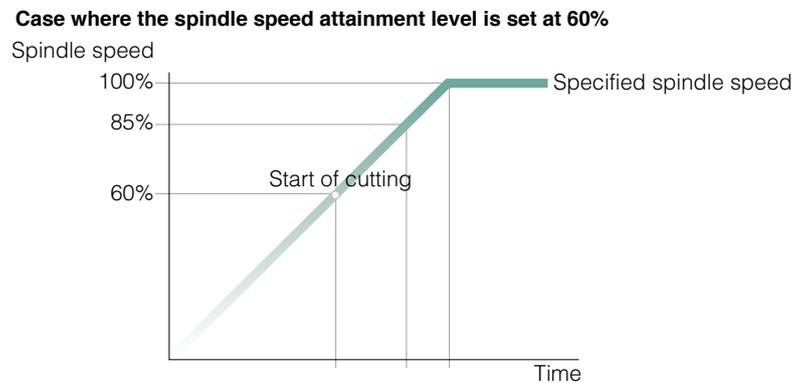
Equipping the turret with the half-indexing mechanism, speeding up the rapid traverse rate and improving the calculation processing capability of the NC have realized shorter cycle times.

Cycle times can be shortened even further through combination with machining support functions.



Spindle speed attainment level changing function

This is a machining support function for shortening non-cutting time in rough machining and thread cutting by setting the spindle speed attainment level as required with a command in a program, and starting the cutting block before the spindle speed reaches the value specified by the command to shorten the waiting time until cutting starts.

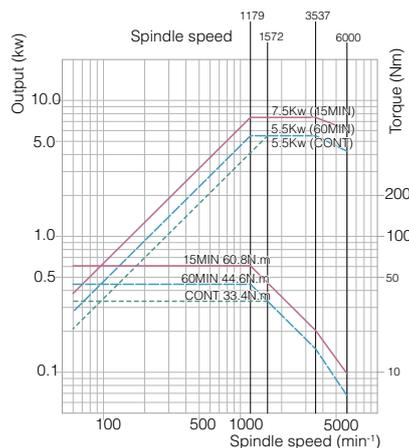


Spindle and revolving tools

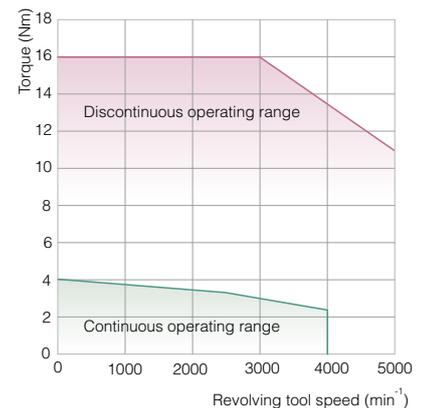
Performance has been improved in comparison with the BNC-C5, with the maximum spindle speed increased to 6,000 min⁻¹, and tools with independent drive mountable at all positions offering a maximum torque of 16 Nm and maximum rotational speeds of 5,000 min⁻¹.

The abnormal load detection function is featured too: When an excessive load of greater than 95% of the maximum motor torque is applied, this function stops the program after the completion of the current cycle, prolonging the life of the drive system.

SP1 Torque diagram



Revolving tool torque diagram



Options



In-machine Loader

A loader and conveyor type workpiece stocker are combined to achieve the perfect unmanned operation solution for small-lot production.

Maximum conveyable size	42×60 mm dia.
Maximum conveyable workpiece weight	700 g
Z axis stroke	450 mm
Z axis maximum speed	700 mm/ s
Loading time	5 seconds*

* There are differences in effects depending on materials and cutting conditions



Cut-off confirmation

Workpieces are cut off in a simple operation.

Part catcher

Catches workpieces without damaging them and transfers them to the part conveyor.



Part conveyor

Discharging finished workpieces out of the machine.



Chip conveyor

Ejects chips smoothly. Various types are available to suit the application.



Bar feeder

A range of barfeeders is available for short or long bars.

Support screens

The functions convenient for machining and checking can be called in one-touch operations.



Start condition

Displays information on the start conditions for automatic running.

Spindle and revolving tool unit

Allows you to set the rotational speed (in manual operation) of the spindle and revolving tools, and to set the spindle override.

Cycle time

Allows you to measure the cutting time, non-cutting time and running time in each cycle.

Tool counter

Informs you of the timing (count-up) for tool changes in accordance with the set tool counter stop value. You can also enter wear offsets.

Manual operation

Displays the zero point lamp status and the machine coordinate of each axis.

Option devise

Used to select an auxiliary device (option) such as a part catcher to be operated manually.

Maintenance

Used to turn the settings for maintenance ON and OFF.

Automatic running monitor (Spindle/ revolving tools)

Allows you to check the status of the spindle during automatic running.

Automatic running monitor (Axis)

Allows you to check the status of the feed axes during automatic running.

Automatic running monitor (Setting)

Allows you to check the status of the machine lock.

Automatic running monitor (State)

Allows you to check the status of the machining conditions during automatic running.



Machine specifications

Item	BNC-42C	
Machining capacity		
Max. work length		175mm*
Max. machining diameter of bar work	SP1	42mm Dia.
Spindle		
Number of spindle		1
Spindle speed range	SP1	60 - 6,000min ⁻¹
Inner diameter of draw tube	SP1	43mm Dia.
Collet chuck type	SP1	Hardinge S20, DIN173E, B&S#22D, JPN34
Power chuck type	SP1	5", 6" thru-hole chuck
Turret		
Type of turret	HD1	8ST.
Shank size of turning tool		20mm Sq.
Diameter of sleeve holder		25mm Dia. , 32mm Dia.
Slide stroke	X axis	135mm
	Z axis	235mm
Rapid feed rate	X axis	20m/min
	Z axis	20m/min
Revolving tool		
Number of revolving tools		Max. 8
Type of revolving tools		Single clutch
Tool spindle speed range		50 - 5,000min ⁻¹
Machining capacity	Drill	Max. 10mm Dia.
	Tap	Max. M6×1 (S45C)
		M8×1.25 (Spiral tap and point tap only)
		Max. M8×1.25(BSBM)
Tailstock (option)		
Max.slide stroke		175mm
Live center size		MT2
Max.slide force		4.3KN (at 3.4MPa)
Motors		
Spindle drive	Cs	7.5/5.5kw (15min./cont)
Revolving tool drive		2.8/1.0kw
Coolant pump		0.18kw
High pressure coolant drive		1.0/0.6kw (60/50Hz)
Tank capacity		
Hydraulic oil tank capacity		7L
Lubricating oil tank capacity	2L	
Coolant tank capacity		165L
Machine dimensions		
Machine height		1,686mm
Floor space		W2,272×D1,270mm
Machine weight		2,400kg
Option		
Spindle air blow, High pressure coolant, Coolant level swich, Counter, Signal tower,		
Automatic fire- extinguishing equipment, Automatic power shut-off, Revolving tool, Tailstock,		
Chip conveyor, Chip box, Part catcher, Part conveyor, Cut-off confirmation		
Drill breakage detector, Foot switch, RS-232C		

*Restrictions apply depending on the chuck.
JPN34, B&S#22D, 5" power chuck ... 175 mm, DIN173E ... 160 mm, H-S20 ... 150 mm

NC Specification	
Model device	FS.0I-TD
Controlled axis	X,Z,E (Turret),C,A(Revolving tool/Option)
Min. input increment	0.001mm (Diameter for X axis), 0.001deg.
Min. output increment	X axis: 0.0005mm, Z axis: 0.001mm
Parts program storage capacity	320kB (800mTape length)
Spindle function	Spindle speed S4-digits, directly specified (G97), Constant Cutting speed control (G96)
Cutting feed rate	F3.4 digit per revolution, F6 digit per minute, directly specified.
Cutting feed rate override	0 - 150% (in 10% increments)
Interpolation	G01, G02, G03
Threading	G32, G92
Canned cycle	G90, G92, G94
Work coordinate setting	Automatic Setting, 64 work coordinate setting by the tool position memory and the geometry offset.
Tool selection and work coordinate settings, and tool wear compensation	Tool selection and work coordinate settings are selected from 1-64 by T##** at the specified position for each turret tool wear compensation is selected by**.
Direct input of tool position	by measured MDI
Input/Output interface	Reader pancha interface, Memory card interface USB memory card interface.
Automatic operation	1 cycle operation/Continuous operation, Single block Block delete, Machine lock, Optional block skip Dry run feed hold.
Others	8.4" color LCD, No of registered programs: 400 Decimal point input, Manual pulse generator Memory protect, AC digital servo motor.
NC standard functions	Chamfering/Corner R, Tool nose R compensation Constant peripheral speed (G96), Background editing Programmable data input (G10), Operating time/ Parts No. display Multiple repetitive canned cycle (G70 - G76) Rigid tap function (Main & sub), Cylindrical interpolation Custom macro B, Drilling canned cycle (G80 - G86) Tool life management system.

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