

CITIZEN

**Miyano**

**BNX51/65MSY**

Fixed Headstock Type CNC Automatic Lathe





## EcoBalance Machine

CITIZEN MACHINERY aims to create a sustainable society by innovating customers' manufacturing workflow with a focus on their future issues as well as their current ones.

We work to continuously enhance corporate value through "sustainable management" that takes into account social issues such as human rights and the global environment throughout the value chain, while at the same time promoting the provision of "sustainable products" such as our proprietary technologies, which include LFV (low-frequency vibration cutting) technology, the "FA friendly" robot system, and "alkappliesolution" utilizing ICT technology, centering on the Cincom and Miyano brands.

## Space-saving Compact Design Single-turret Machine that Excels at Superimposition Machining

Although the machine is simply configured with two spindles and one turret, it is capable of superimposition machining through synchronization control between axis control groups because an X-axis has been added to the back spindle. Chucks of the same diameter at the front and back allow a greater range of workpieces to be handled. In addition, the  $\phi$  65-mm front spindle specifications in the lineup make robust cutting with a powerful spindle motor a reality. The slideways incorporate LFV (low-frequency vibration cutting) technology, eliminating trouble caused by chips. This helps to achieve stable production.

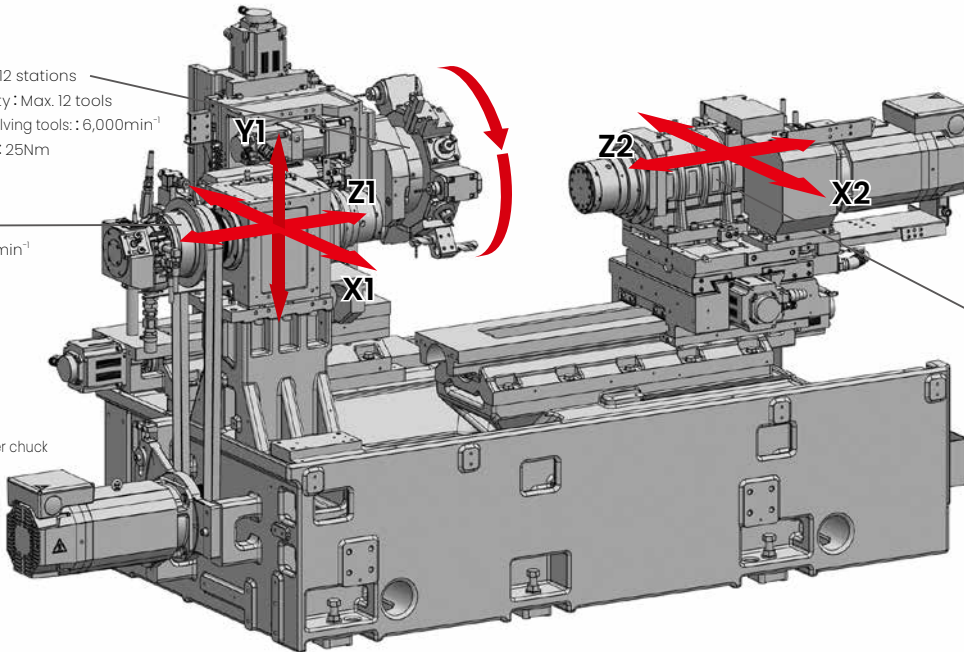
## Basic Construction

### Turret 1

Type of the tool slide : 12 stations  
Revolving tool capacity : Max. 12 tools  
Rotational speed of revolving tools :  $6,000\text{min}^{-1}$   
Revolving tool torque : 25Nm

### Spindle 1

Spindle speed :  $5,000\text{min}^{-1}$   
Collet chuck type :  
H-S26(  $\Phi 65$  )  
H-S22(  $\Phi 51$  )  
DIN 185E(  $\Phi 65$  )  
DIN 177E(  $\Phi 51$  )  
HAINBUCH65(  $\Phi 65$  )  
HAINBUCH51(  $\Phi 51$  )  
Power chuck type : 6" power chuck



### Spindle 2

Spindle speed :  $5,000\text{min}^{-1}$   
Collet chuck type :  
H-S26(  $\Phi 65$  )  
H-S22(  $\Phi 51$  )  
DIN 185E(  $\Phi 65$  )  
DIN 177E(  $\Phi 51$  )  
HAINBUCH65(  $\Phi 65$  )  
HAINBUCH 51(  $\Phi 51$  )  
Power chuck type : 6" power chuck

## Chuck System

Chucks of the same diameter can be installed at front and back.  
Increases the range of machinable workpieces.



## Support for Labor Savings in Conjunction with FA Friendly

Automatic shutter available as an option. Use in combination with FA Friendly helps to save labor and improve productivity.



## FA Friendly



FA Friendly on-machine type robot



FA Friendly stocker

## Large-diameter Front Spindle Available

$\Phi 65$ -mm front spindle specifications have been added to the lineup.  
Powerful spindle motors enable robust cutting and help to shorten cycle times.

## LFV (low-frequency vibration cutting) technology featured

The LFV function, which reduces trouble with chips by breaking them up during cutting, is incorporated on the slideways. It reduces chip entanglement, while the rigidity of the slideways is maintained. Cutting down the volume of chips shortens the downtime, due to tank cleaning and chip trouble, and extends the possible duration of unmanned operation.



Chips generated by conventional cutting



Chips with LFV

## Unloader

An in-machine unloader has been added. It contributes to automation and labor savings by preventing dents and transferring workpieces to the next process.



## The latest NC unit

Mitsubishi Electric's latest NC unit, the M800LC-V, installed. The adoption of a 15-inch touch panel improves operability, and promotes power savings.



# Machine Specifications

Item		BNX-51MSY2	BNX-65MSY2
Performance, Capacity			
Distance between spindle end faces		857 mm	892 mm
Standard workpiece collection length		195 mm	
Standard machining diameter	SP1	φ51 mm	φ65 mm
	SP2	φ51 mm	φ65 mm
Spindle			
Number of spindles		2	
Max. spindle speed	SP1	5,000 min <sup>-1</sup>	
	SP2	5,000 min <sup>-1</sup>	
Draw tube through-hole diameter	SP1	52 mm	66 mm
	SP2	52 mm	
Collet chuck type	SP1	H-S22, DINI77E, Hainbuch 51	H-S26, DINI85E, Hainbuch 65
	SP2	H-S22, DINI77E, Hainbuch 51	H-S26, DINI85E, Hainbuch 65
Power chuck type	SP1	6" hollow chuck	
	SP2	6" hollow chuck	
Tool slide			
Number of tool slides		1	
Type of tool slide		TR1	
Tool		□20 mm	□20 mm
		□25 mm (Cut-off tool holder only)	
Sleeve		φ25 mm	
Revolving Tool			
Revolving tool capacity		TR1	Max. 12
Revolving tool drive type		TR1	Single drive mechanism
Rotational speed of revolving tools		TR1	6,000 min <sup>-1</sup>
Max. drilling diameter		TR1	Max. φ13 mm
Max. tapping diameter		TR1	Max. M12×1.75 (S45C)
Slide stroke			
Turret slide stroke	X1 axis	168 mm	
	Z1 axis	349 mm	
	Y1 axis	±40 mm	
Spindle slide stroke	X2 axis	88 mm	
	Z2 axis	650 mm	
Feed rate			
Rapid feed rate	X1 axis	24 m/ min	
	Z1 axis	24 m/ min	
	Y1 axis	18 m/ min	
	X2 axis	24 m/ min	
	Z2 axis	24 m/ min	
Motor			
Motor for spindle	SP1 Cs	15 / 11 kW (15 min / cont.)	18.5 / 15 kW (15 min / cont.)
	SP2 Cs	11 / 7.5 kW (15 min / cont.)	
Motor for revolving tools		TR1	4.0 kW
Motor for feed axes			1.5 kW (Z1, Z2), 1.2 kW (X1, Y1, X2)
Motor for hydraulics			1.5 kW
Motor for lubricating oil			0.004 kW
For coolant pump			0.25 kW×1, 0.18 kW×1
Turret indexing motor			1.0 kW
Required power source			
Power source used		AC 200±10%	
Power capacity		34 KVA	39 KVA
Load operation average power consumption		20 KVA	24 KVA
Pneumatic source		0.5 MPa	
Main breaker capacity		175 A	
Tank capacity			
Hydraulic tank capacity		18 L	
Lubricating oil tank capacity		4 L	
Coolant tank capacity		276 L	
Machine size			
Machine height		1,775 mm	
Machine body dimensions		2,910×1,560 mm	2,990×1,560 mm
Machine weight		5,340 kg	5,500 kg

## Standard NC Functions

FCA820LHC NC unit dedicated to Miyano BNX-2	SD card/USB memory slot
15-inch XGA touch panel	User authentication function
On-machine program check function	Tool offset pairs: 80 pairs
Program storage capacity 500Kbyte (1280m)	Product counter: Max. 8 digits
Operating time display	Automatic power-off function
Preparation function	B code I/F
Collision detection function	User macro
Spindle C-axis function	Spindle constant surface speed control function
Canned drilling cycle	Polygon turning function
Back spindle chasing function	Inch specifications
Synchronized tapping function	Sub-microns command
Milling interpolation function	Geometric command function
Corner chamfering/Corner rounding	Multiple repetitive cycle for turning
Helical interpolation function	Optional block skip (1 set)
Tool nose radius compensation function	Arbitrary control-axis superimpose function
Quick program check function	Thermal displacement correction function
Power consumption monitor	Spindle synchronized control function

## Special Additional NC Functions

LFV mode 1/2/3	Tool monitor
Program storage capacity 1000Kbyte (2560m)	External memory program operation
Program storage capacity 2000Kbyte (5120m)	3D chamfering function
Optional block skip (9 sets)	Tool life management I

## Optional

Spindle brake	Air blower
Workpiece ejector	Automatic fire extinguisher (in Japan only)
Chip box	Workpiece conveyor
Medium-pressure coolant (1 MPa)	Through-spindle air blower
Turret air blower	Workpiece separator
Part box	Mist collector duct & fire prevention damper
Chip conveyor	Through-spindle bushing
3-color signal tower	RS232C
Cut-off tool breakage detector	Drill breakage detector
Auto shutter	Unloader

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