

# CITIZEN

# Miyano

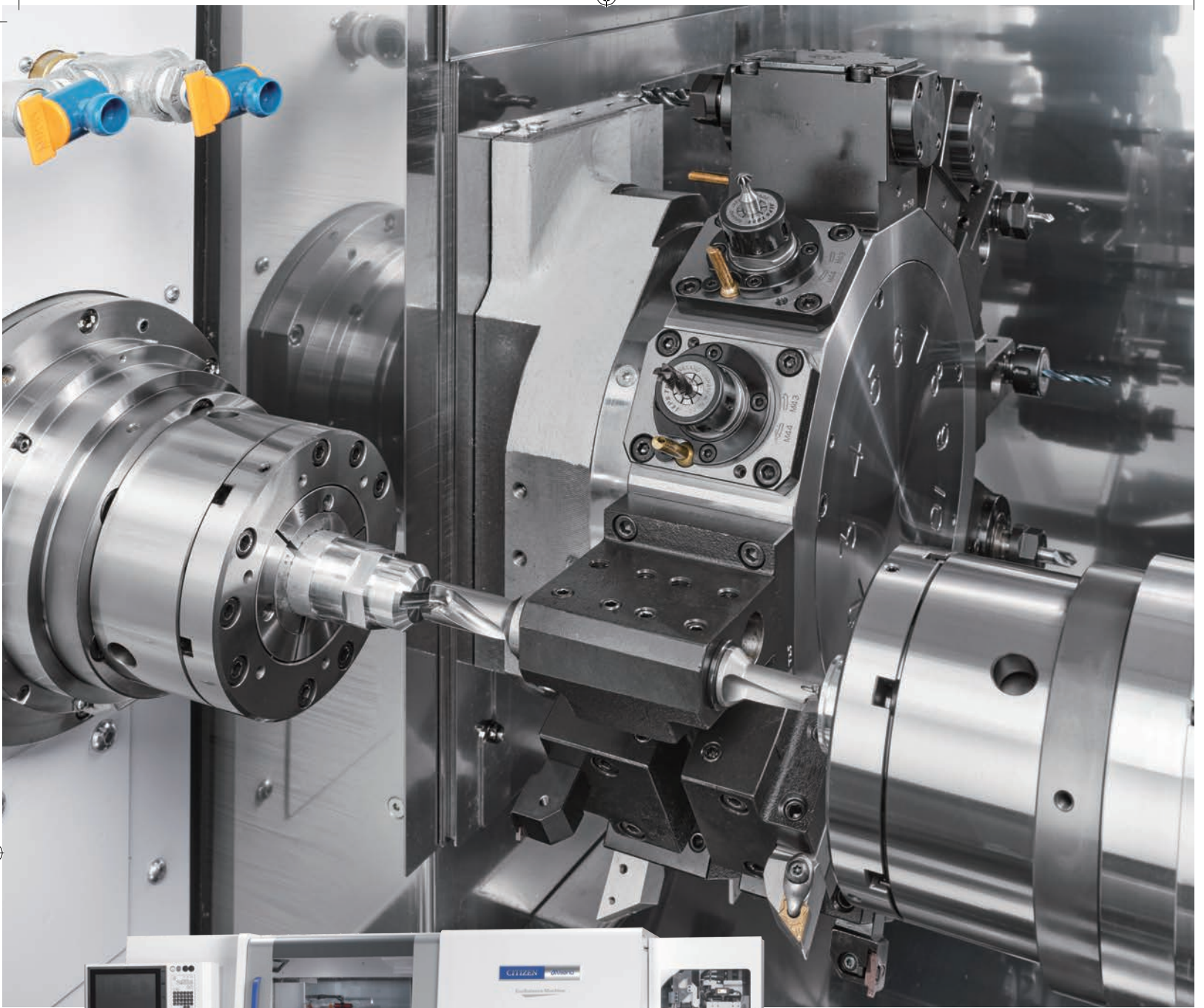
## BNX-51/65 MSY

Fixed Headstock Type CNC Automatic Lathe



EcoBalance Machine





## 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 "alkappysolution" 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 synchronisation 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.

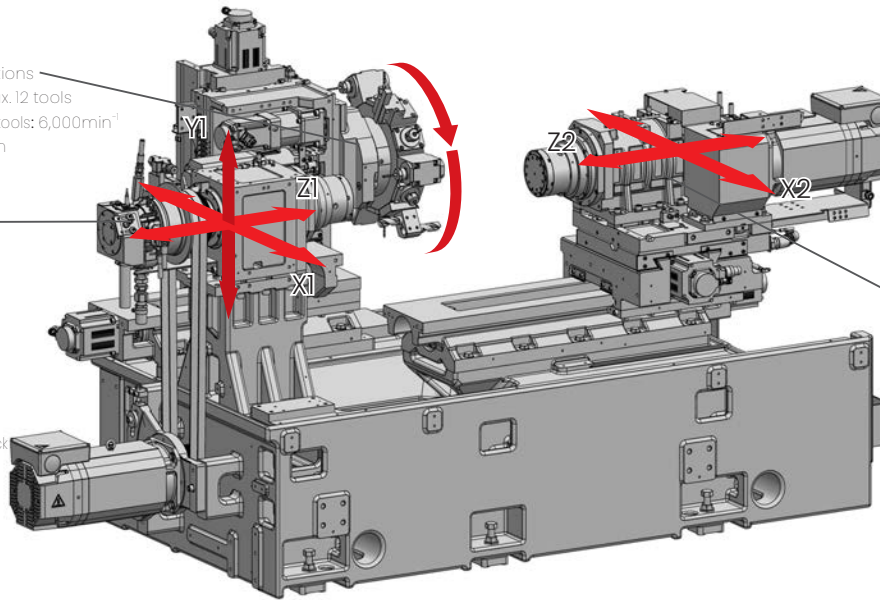
# Basic Construction

## Turret 1

Type of the tool slide: 12 stations  
 Revolving tool capacity: Max. 12 tools  
 Rotational speed of revolving tools: 6,000min<sup>-1</sup>  
 Revolving tool torque: 25Nm

## Spindle 1

Spindle speed: 5,000min<sup>-1</sup>  
 Collet chuck type:  
 H-S26(ø65)  
 H-S22(ø51)  
 DIN 185E(ø65)  
 DIN 177E(ø51)  
 HAINBUCH65(ø65)  
 HAINBUCH51(ø51)  
 Power chuck type: 6" power chuck

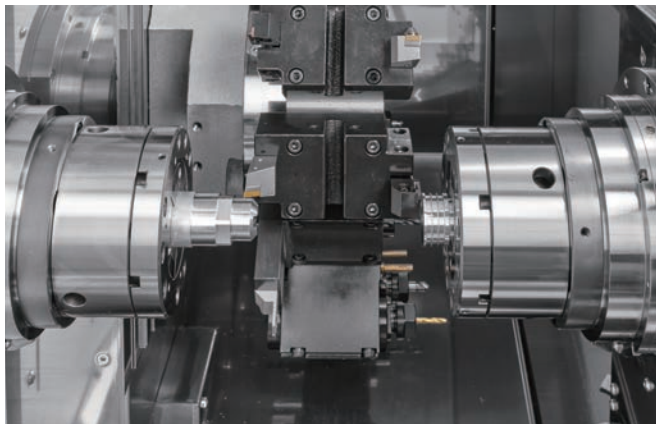


## Spindle 2

Spindle speed: 5,000min<sup>-1</sup>  
 Collet chuck type:  
 H-S26(ø65)  
 H-S22(ø51)  
 DIN 185E(ø65)  
 DIN 177E(ø51)  
 HAINBUCH65(ø65)  
 HAINBUCH 51(ø51)  
 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.



# Large-diameter Front Spindle Available

ø65-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

# 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

# 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, offers more new functions, and promotes power savings.



# Machine Specifications

Item	BNX-51MSY2	BNX-65MSY2
<b>Performance, Capacity</b>		
Distance between spindle end faces	857 mm	892 mm
Standard workpiece collection length	195 mm	
Standard machining diameter	SP1 ø51 mm	ø65 mm
	SP2 ø51 mm	ø65 mm
<b>Spindle</b>		
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, DIN177E, Hainbuch 51	H-S26, DIN185E, Hainbuch 65
	SP2 H-S22, DIN177E, Hainbuch 51	H-S26, DIN185E, Hainbuch 65
Power chuck type	SP1 6" hollow chuck	
	SP2 6" hollow chuck	
<b>Tool slide</b>		
Number of tool slides	1	
Type of tool slide	TR1	
Tool	ø20 mm	
	ø25 mm (Cut-off tool holder only)	
Sleeve	ø25 mm	
<b>Revolving Tool</b>		
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. ø13 mm
Max. tapping diameter	TR1	Max. M12×1.75 (S45C)
<b>Slide stroke</b>		
Turret slide stroke	X1 axis	168 mm
	Z1 axis	349 mm
	Y1 axis	±40mm
Spindle slide stroke	X2 axis	88 mm
	Z2 axis	650 mm
<b>Feed rate</b>		
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
<b>Motor</b>		
Motor for spindle	SP1 Cs	15 / 11 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		15 kW
Motor for lubricating oil		0.004 kW
For coolant pump		0.25 kW×1, 0.18 kW×1
Turret indexing motor		10 kW
<b>Required power source</b>		
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	
<b>Tank capacity</b>		
Hydraulic tank capacity	18 L	
Lubricating oil tank capacity	4 L	
Coolant tank capacity	276 L	
<b>Machine size</b>		
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 (280m)	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
Synchronised 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 synchronised 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	Chip box
Workpiece conveyor	Medium-pressure coolant (1MPa)
Through-spindle air blower	Turret air blower
Workpiece separator	Part box
Mist collector duct & fire prevention damper	Chip conveyor
Through-spindle bushing	3-colour signal tower
RS232C	Cut-off tool breakage detector
Drill breakage detector	Auto shutter
Unloader	

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