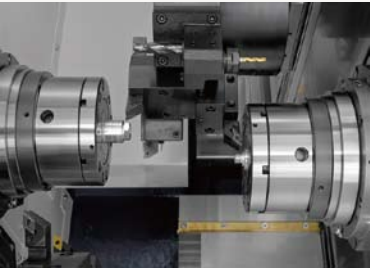


Miyano

CITIZEN
Micro HumanTech



BNE-5SIMSY
CNC Turning center

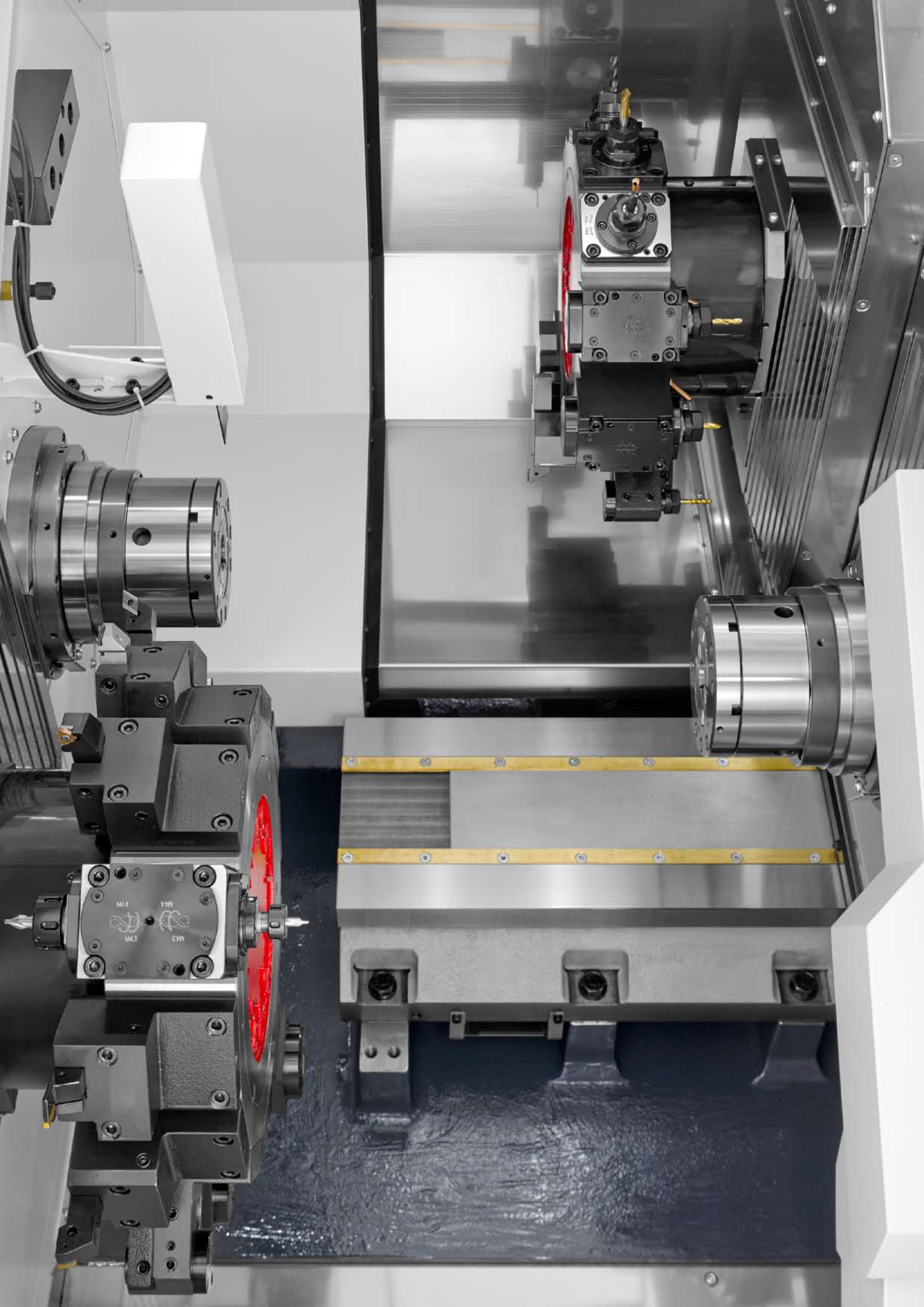
Miyano Innovation Line

BNE



Cincom **Miyano**

"Evolution and Innovation" is the Future



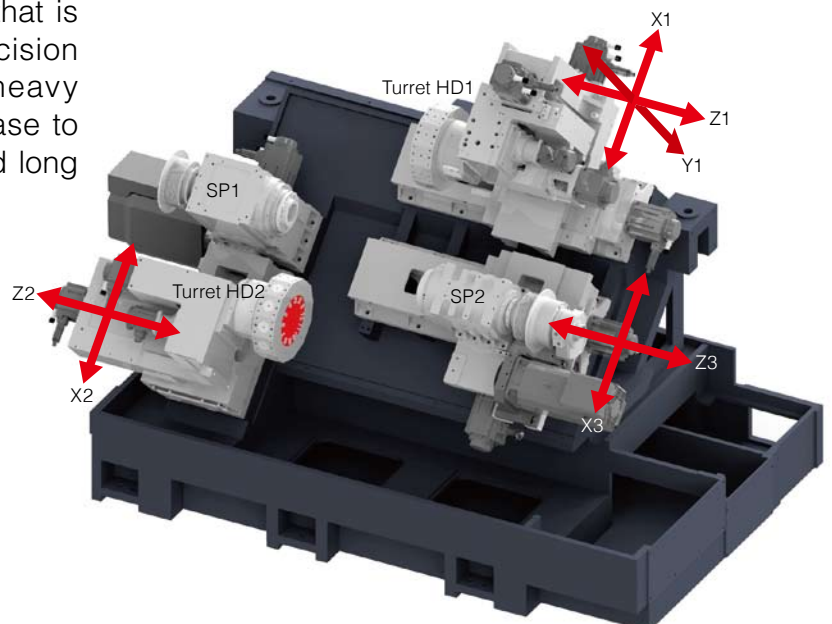
BNE-5SIMSY

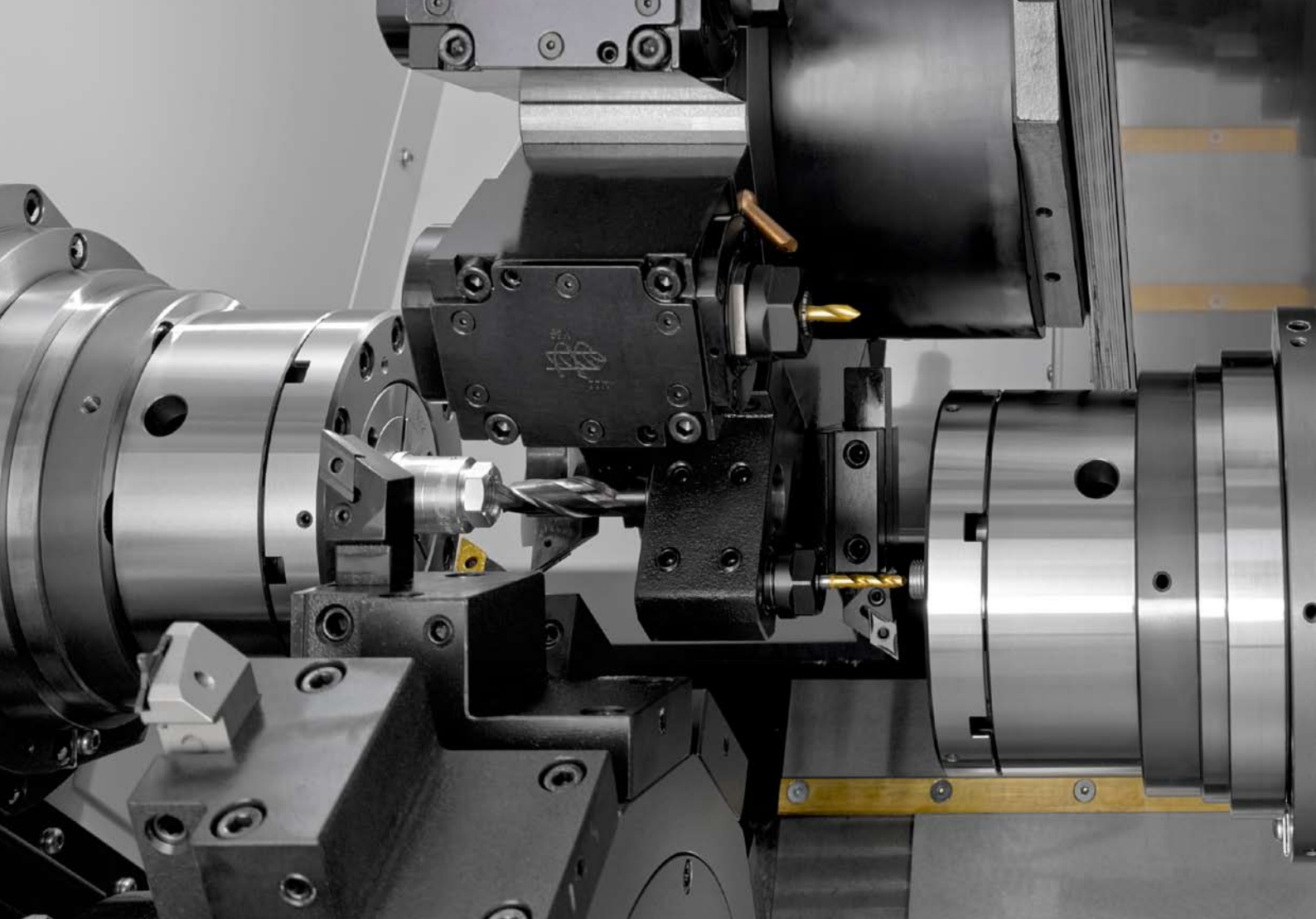
The BNE series is renowned for its high rigidity, heavy cutting capability and outstanding precision. The new MSY model extends the ability of the BNE series with the adoption of X3 axis on the back spindle (SP2) and synchronized / superimposed control for 3-tool simultaneous machining. Faster cycle times, outstanding easy-of-use and the ability to machine complex work pieces is the result.



Machine structure

The basic construction of the machine, that is the combination of the highly rigid precision scraped square guideways and the heavy slanted bed cast in one piece, is the base to support high precision, heavy cutting and long tool life even in complex machining.





Examples of simultaneous machining with three tools

Turret

Indexing by a large-diameter curvic coupling, secure hydraulic turret clamping and rugged square guideways assure high precision and long life of the turret without compromise. This turret can accommodate revolving tools with a high machining torque of 20 Nm at all 12 positions.

Our unique tool holder mounting method using two guide pins makes it easy to mount and remove tool holders and ensures exceptionally high re-mounting accuracy.

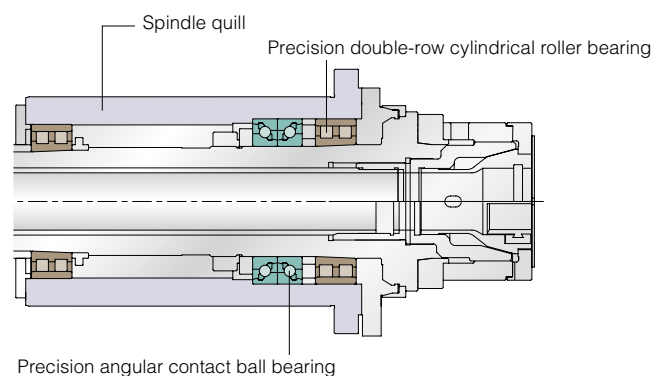


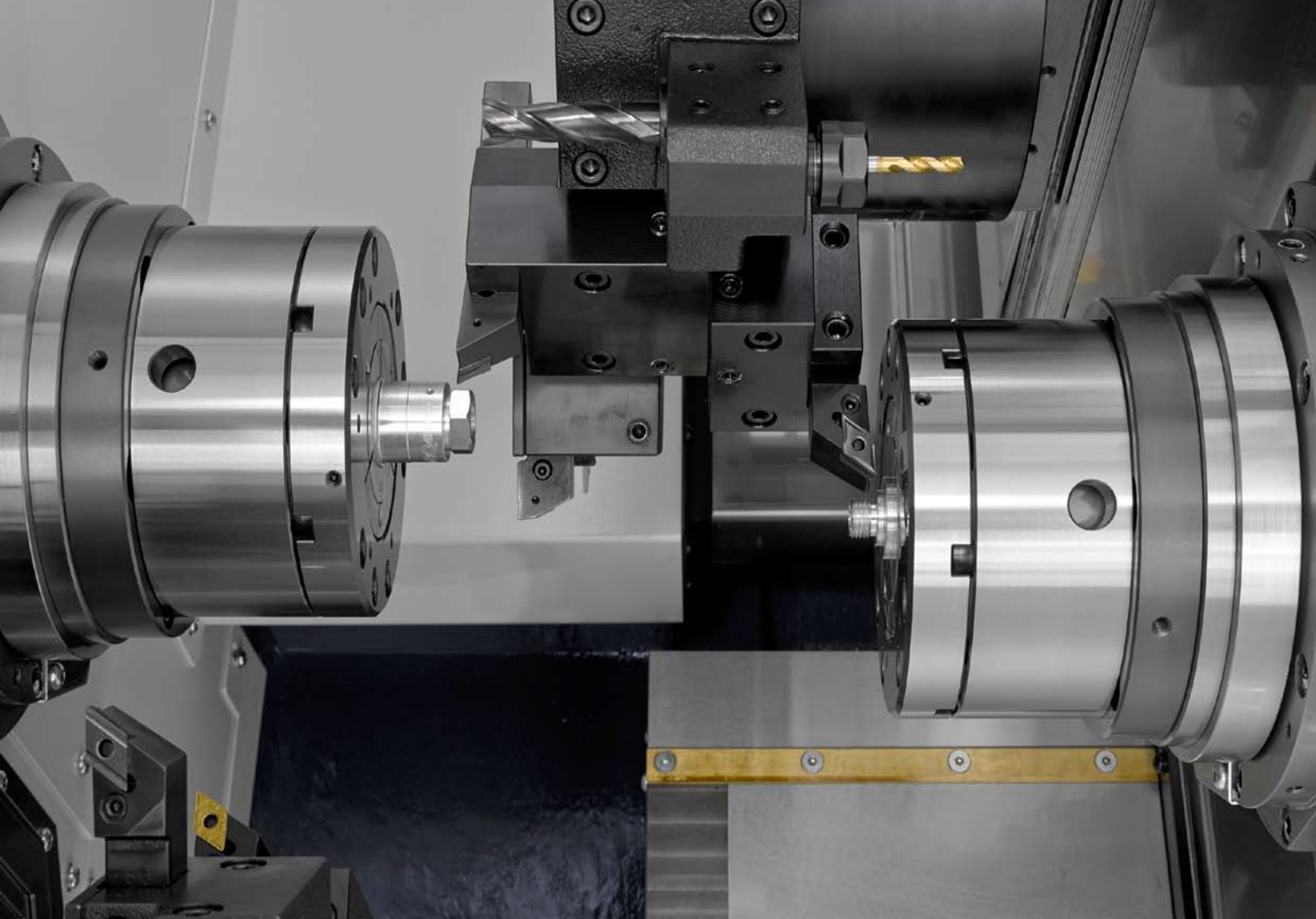
Tool holder using two guide pin mounting method

Spindle

A combination of "precision double-row cylindrical roller bearings" and "precision angular contact ball bearings" suppresses radial run-out and thermal displacement in the longitudinal direction as well as providing high rigidity.

■ Cross section of spindle



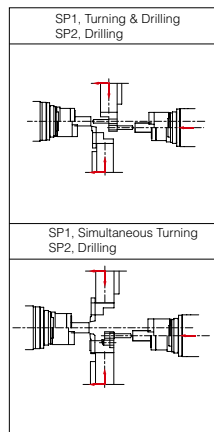


Examples of simultaneous machining with two tools

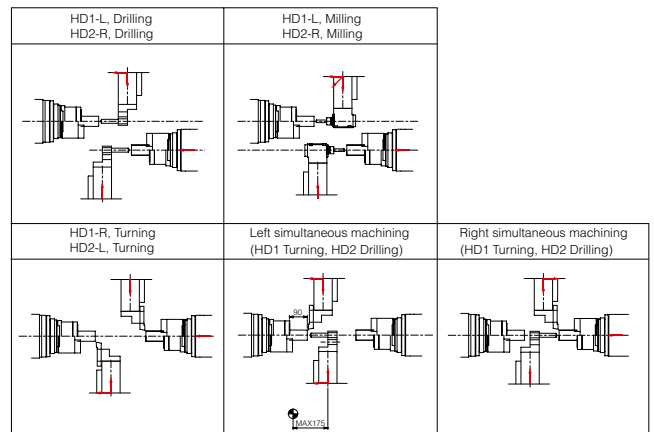
Comprehensive machining patterns

Equipping SP2 with an X3-axis has enabled simultaneous hole machining on both end faces, which was not possible on conventional BNE models. In addition, superimposition control allows simultaneous cutting with two tools by synchronizing the cutting at SP2 with the cutting at SP1, and also simultaneous cutting with three tools including SP2, helping to shorten cycle times. So a full range of machining variations is offered.

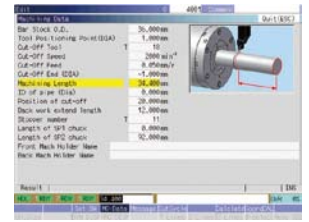
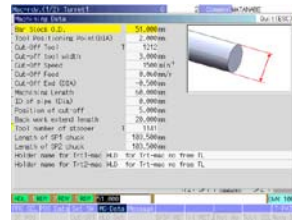
■ Simultaneous machining of 3 tools



■ Simultaneous machining of 2 tools

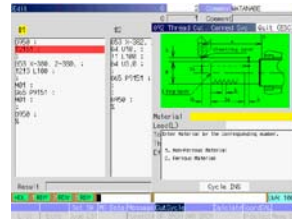
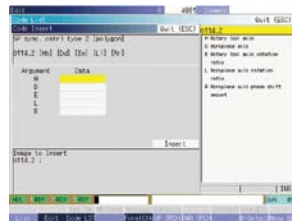
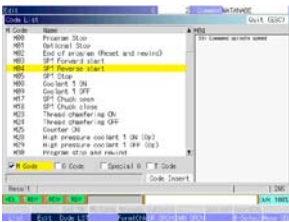


Convenient operation

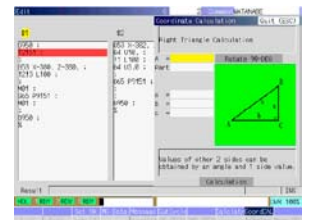
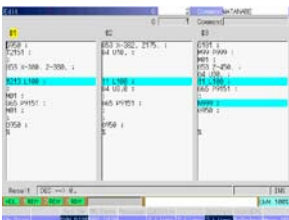


HMI (Human Machine Interface) is adopted
Graphics displayed for each item and screens that display all the necessary information in one place greatly improve operating convenience.

Machining data screen
All you have to do is input the machining length, chucking length and so on, and the escape and approach positions are automatically calculated. This is useful for collision prevention and shortening setup times.



Support for programming
The function displays the list of G and M codes including explanations of the arguments. Canned drilling cycle is designed by dialogue form to support programming.



Easy-to-view edit screen
The coordinate calculation function and calculator function incorporated in the NC unit can be used for complex intersection point calculations.

Calculation function
Programs for canned cycles etc. can be created in the conversational style.

Options



Part catcher
Discharges workpiece on to conveyor.



Revolving tools
Ensures high-power, stable milling at a torque of 20 Nm.



Drill breakage detector
Drill breakage is detected by the swing cylinder. The machine stops when breakage is detected.

Bar loader/ Bar feeder
A choice of Barloaders (max bar length ≈ 1m) or Barfeeders (max bar length ≈ 3.6m) are available.



Machine specifications

Item			BNE-51MSY
Machining capacity			
Maximum work length			90 mm
Maximum bar diameter	SP1		φ 51 mm
	SP2		φ 51 mm
Spindle			
Number of spindles			2
Spindle speed	SP1		5,000 min ⁻¹
	SP2		5,000 min ⁻¹
Spindle nose	SP1		Flat
	SP2		Flat
Draw tube Dia.	SP1		φ 52
	SP2		φ 52
Type of collet chuck	SP1		H-S22/ DIN177E
	SP2		H-S22/ DIN177E
Power chuck size and type	SP1		6" (φ 169)
	SP2		6" (φ 169)
Turret			
Number of turret			2
Turret stations	HD1		12 ST.
	HD2		12 ST.
Shank size of square turning tool			□ 20 mm
Diameter of drill shank			φ 25 mm
Revolving tool			
Number of revolving tools			Max. 12+12
Type of revolving tools			Single clutch
Tool spindle speed range			Max. 6,000 min ⁻¹
Feed rate			
Rapid feed rate	X1 axis		18m/min
	Z1 axis		20m/min
	Y1 axis		12 m/ min
	X2 axis		16.2m/min
	Z2 axis		18 m/ min
	X3 axis		18 m/ min
	Z3(B) axis		20 m/ min
Slide stroke	X1 axis		190 mm
	Z1 axis		380 mm
	Y1 axis		80 (± 40) mm
	X2 axis		190 mm
	Z2 axis		175 mm
	X3 axis		150 mm
	Z3(B) axis		450 mm
Motors			
Spindle motor	SP1		15/ 11 kw (15min./ cont)
	SP2		7.5/ 5.5 kw (15min./ cont)
Revolving tool motor			2.2 kw 20 Nm
Hydraulic operating motor			1.5 kw
Lubricating motor			0.023 kw
Coolant motor			0.25 kw
High-pressure coolant motor			0.8/1.36 kw (50/60Hz)
Turret index motor			0.7 kw
Power supply			
Capacity			44 KVA
Voltage			AC 200/220 V
Air supply			0.5 Mpa
Fuse			125 A
Tank capacity			
Hydraulic oil tank capacity			10 L
Lubricating oil tank capacity			4 L
Coolant tank capacity			350 L
Machine dimensions			
Machine height			2,046mm
Floor space			W2,725 × D2,159mm
Machine weight			8,000kg
Optional accessories			
Spindle brake, Air blow, Work ejector, Automatic fire extinguisher, Automatic power shut-off			
Chip box, Parts conveyor, Coolant level switch, High pressure coolant			
Inner high pressure coolant & air blow, Tool setter, Parts Catcher, Parts Box, Collet chuck system			
Chip conveyor, Total & preset counter, Oil mist collector, Signal tower, Filler tube			
Spindle inner bushing, Bar feeder inner bushing, Cut-off confirmation, Parts carrier			
Left over catcher, Drill checker, Thermo revision, β100V.			

NC specifications

Model device	MITSUBISHI M730VS
Command specified axes	HD1: X1, Z1, Y1, HD2: X2, Z2, SP1 : C1, SP2 : C2, SP2 Slide : X3, Z3
Auxiliary axes	HD1 Revolving tool : C3 HD1 Revolving tool : C4 HD1 Index T1 HD2 Index T2
Control axis groups	3 groups
Input code	ISO
Command input system	Incremental and absolute
Tool offset data	200 pairs
Feed command system	Per rotation feed and per minute
Cutting feed rate and Rapid feed override	Max.100%
Zero return function	Manual zero return
On machine program check function	Manual pulse generator
Program storage capacity	512KB (1200m)
Input/Output interface	Compact flash card slot
Spindle C-axis function	0.001"
Display devise	10.4" color LCD

Standard function

Start position automatic return, Manual feed function
Manual data input (MDI) function, Back up function
Operation time display, Product counter display
Cycle time check function, Automatic screen off function
Optional block skip, Optional stop
Constant surface speed control Cut off confirmation
Corner chamfering/ Radius function
Tool nose R compensation function
Arc radius specification, Thread cutting canned cycle
Spindle synchronizing control function
Revolving tool synchronous tap function
Spindle synchronizing control function, Custom macro
Multiple canned cycles for turning, Canned cycle for drilling
High speed program check function, Milling interpolation
Helical Interpolation

Preparation functions

Start position automatic return, Waiting point automatic return
Sub spindle retract return, Turret retract return
Automatic cut-off machining function, Tool set function
Spindle speed set function, Tool select function
Chuck adjustment function, AUX Manual select function
JOG operation function, Handle operation function
Spindle speed simultaneous command for 3 spindle
3 Sets of M code simultaneous command
Control axis swap function, Arbitrary superposition function
Background editing, Function to superimpose 2 pairs of axes

Editing support functions

Calculator function, Code list display, Code insert, Coordinate calculation function, Format check

Option

Automatic power shut-off, Thermo revision, tool setter, Eco function
RS232C

CITIZEN MACHINERY MIYANO CO., LTD.

CITIZEN
Micro HumanTech

JAPAN	CITIZEN MACHINERY MIYANO CO., LTD. 4107-6 Miyota, Miyota-machi, Kitasaku-gun, Nagano-ken, 389-0206, JAPAN	TEL.81-267-32-5901	FAX.81-267-32-5908
SOUTH ASIA	CINCOM MIYANO ASIA SALES CO.,LTD. 1230 Rama 9 Road, Kwang Suanluang, Khet Suanuang, Bangkok 10250 THAILAND	TEL.66-23-745-226	FAX.66-23-745-228
KOREA	CINCOM MIYANO KOREA CO.,LTD. Room No.105 BYUCKSAN DIGITAL VALLEY I 212-16, Guro-3dong, Guro-gu, Seoul, KOREA	TEL.82-70-4337-1325	FAX.82-70-8220-8539
TAIWAN	CINCOM MIYANO TAIWAN CO.,LTD. 10Fl., No.174, Fuh Sing N. Rd., Taipei, TAIWAN	TEL.886-2-2715-0598	FAX.886-2-2718-3133
CHINA	CITIZEN (CHINA) PRECISION MACHINERY CO.,LTD. 366.HENG TONG ROAD OF ZHOUCUN, ZIBO, SHANDONG, P.R.CHINA	TEL.86-533-6150560	FAX.86-533-6161379
EUROPE-Germany	CITIZEN MACHINERY EUROPE GmbH Mettinger Strasse 11, D-73728 Esslingen, GERMANY	TEL.49-711-3906-100	FAX.49-711-3906-106



KARUIZAWA HEAD OFFICE
TOKOROZAWA WORKS
KITAKAMI WORKS