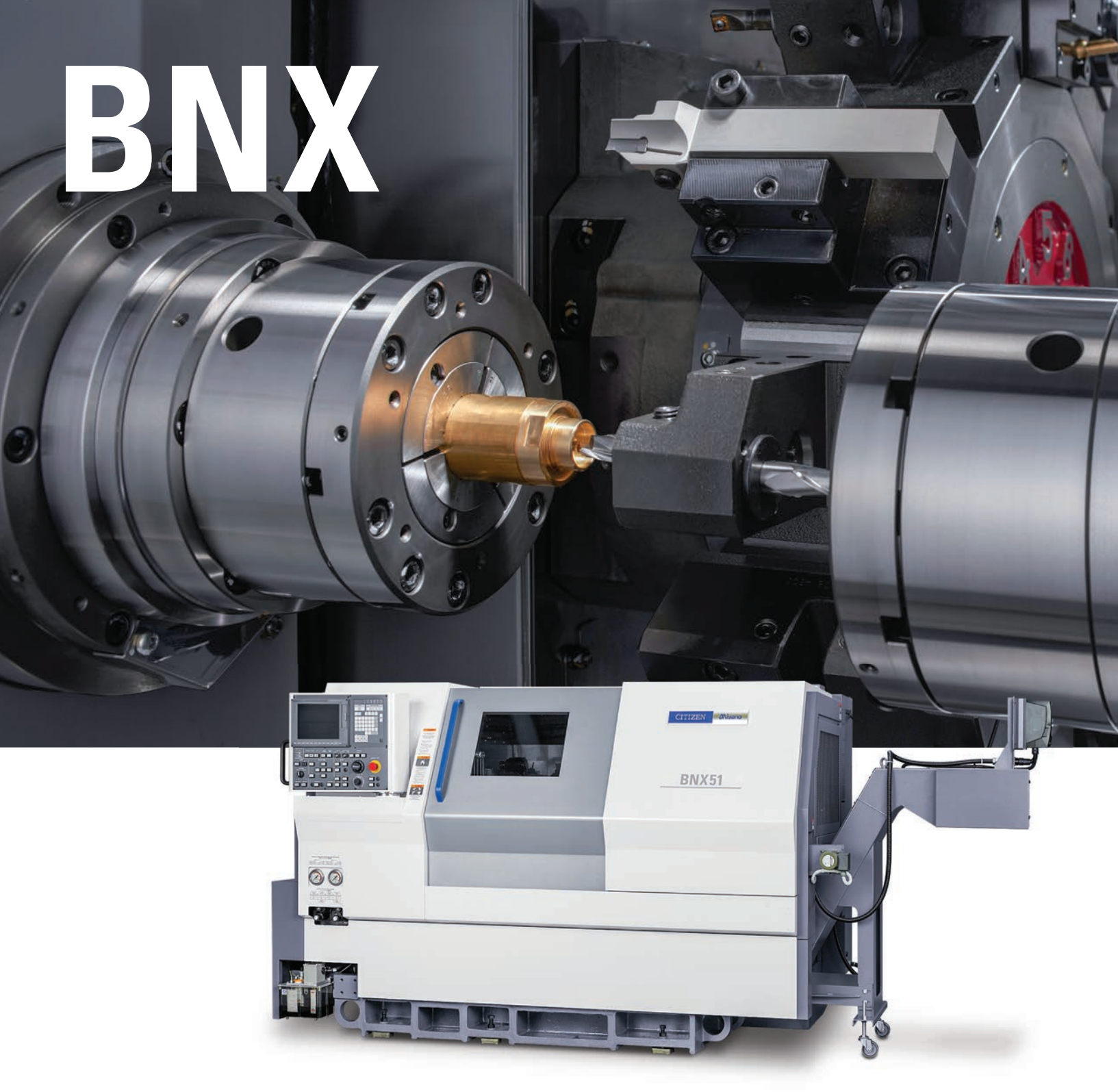
Miyano

BNX51MSY

Fixed Headstock Type CNC Automatic Lathe

BNX



This machine, developed based on the best-selling BNJ series under the Miyano brand, has inherited the characteristics of the Miyano brand in terms of the highly rigid basic configuration and hand scraped slideways, and demonstrates stable machining accuracy.

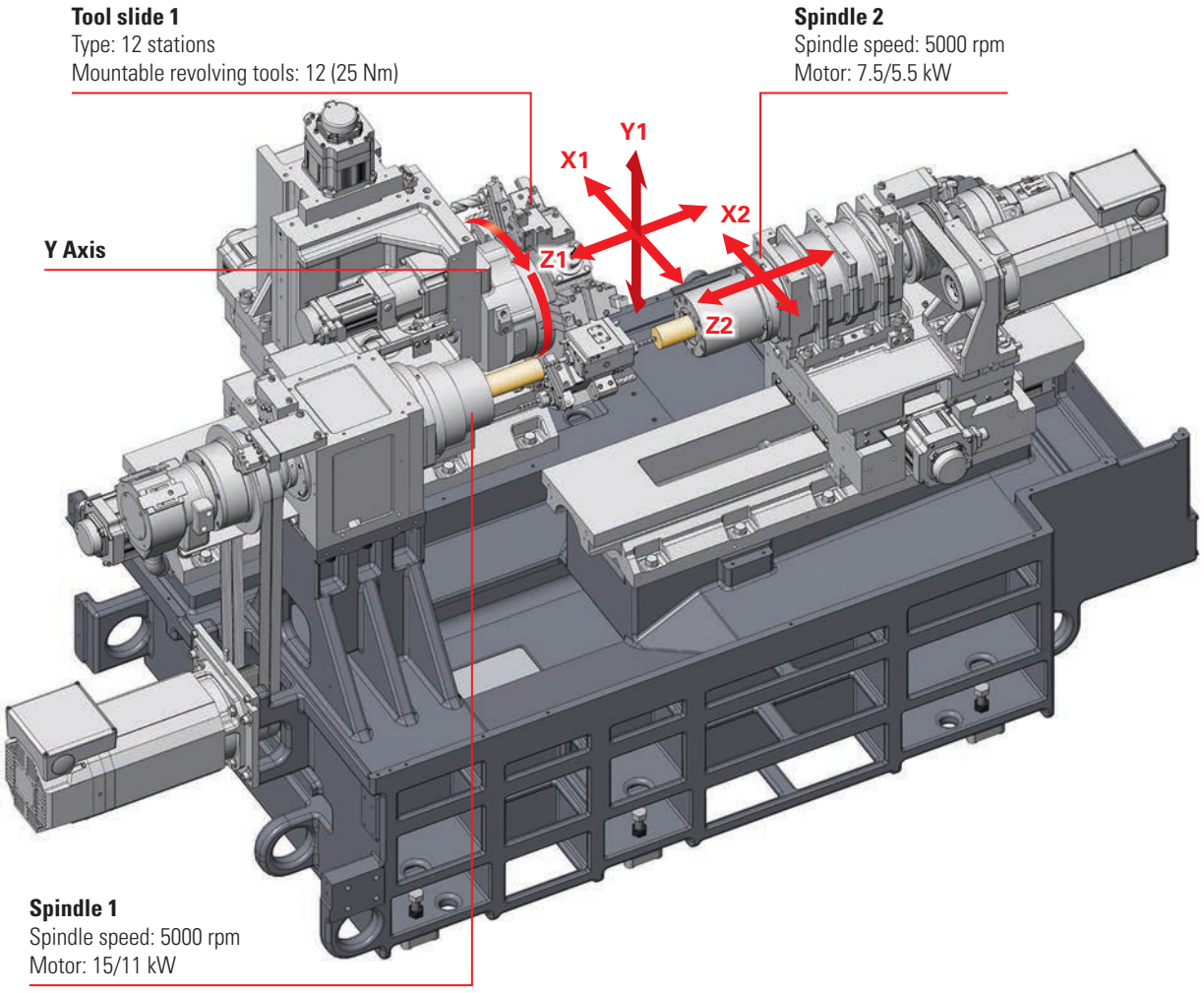
In addition to that, even larger and longer workpieces can be handled thanks to the extended stroke of the X1 axis, increased capacity of the servomotor, extended stroke of the X2 axis, and increased back spindle chuck size.

By adopting a Mitsubishi control, highly efficient machining is achieved through a wealth of machining support functions and superimposition machining, which is the biggest feature, in combination with the excellent operability cultivated under the Cincom brand.

Basic Construction

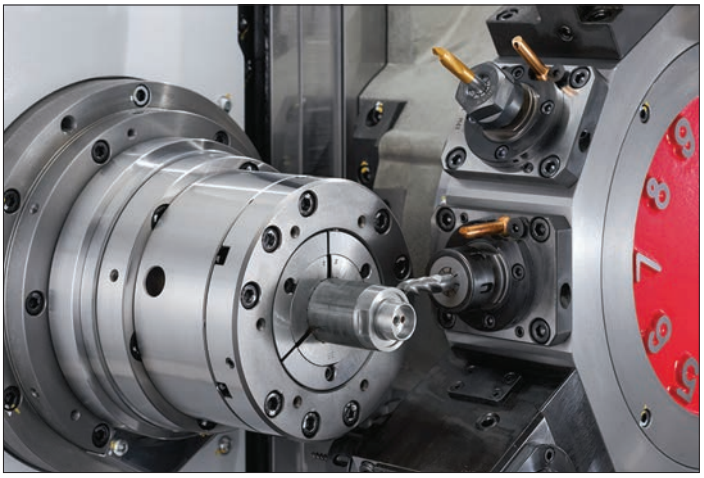
The highly rigid bed modeled on a "platform construction" is able to maintain a stable flat surface over long periods, has excellent heat dissipation characteristics due to ribs in a grid pattern, and minimizes distortion of unit mounting faces resulting from effects of heat.

In addition, "hand scraped slideways," rigid and with excellent damping characteristics, are featured on all axes. In combination with the highly rigid base, they support stable machining accuracy.



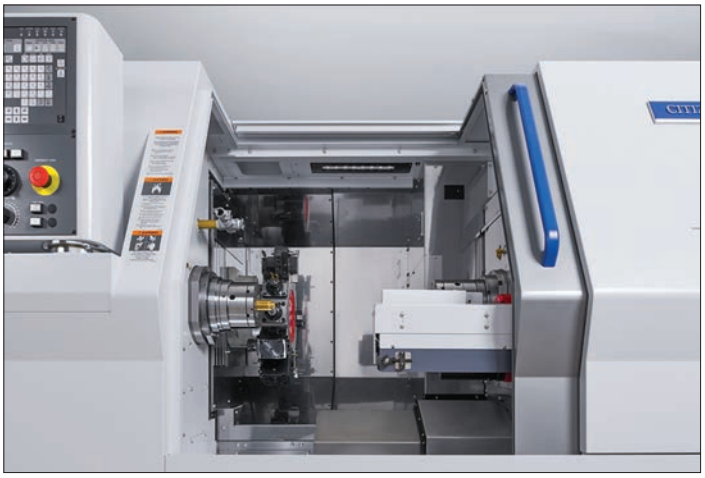
High-rigidity Y Axis

The 12-station turret, allowing revolving tools to be mounted at all stations, incorporates a Y axis and supports the machining of complex shapes.



Large Opening for Easy Setup

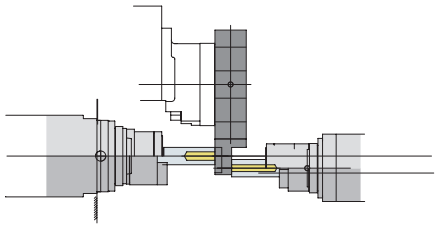
The generous door opening improves access to the machining area, lightening the load on the operator.



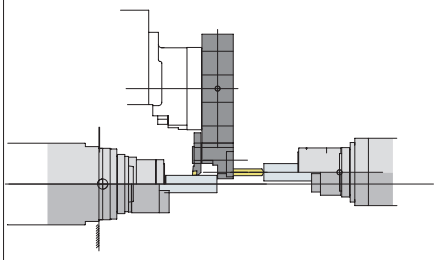
Simultaneous Machining Possibilities

"Superimposition control" where machining is performed with the movement of the back spindle synchronized with that of the tool slide, can be said to be the biggest feature of this machine.

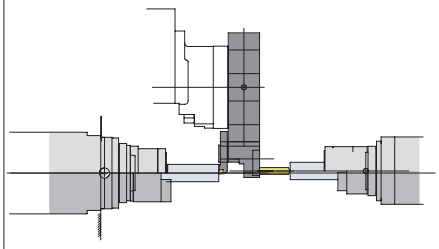
Front: Drilling Back: Drilling



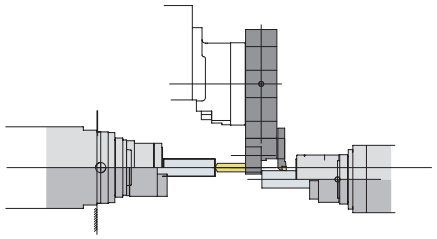
Front: O.D. Back: Drilling



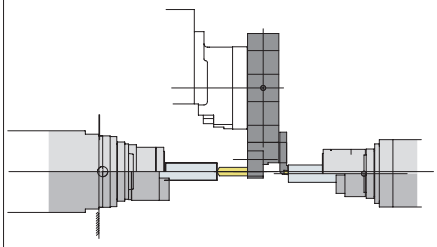
Front: End face Back: Drilling



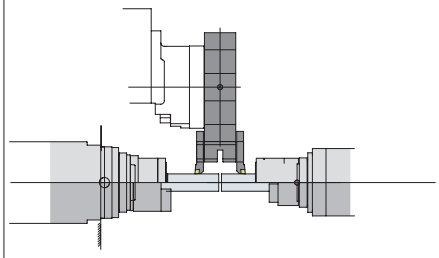
Front: Drilling Front: O.D.



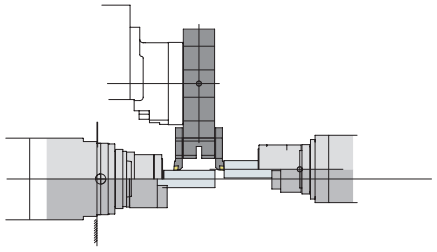
Front: Drilling Back: End face



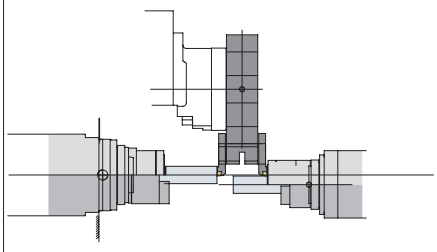
Front: O.D. Back: O.D.



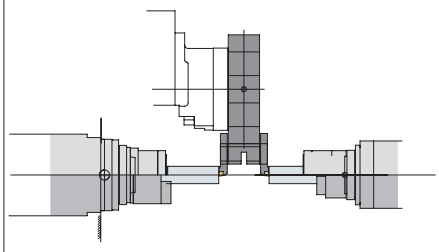
Front: O.D. Back: End face



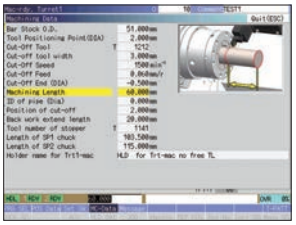
Front: End face Back: O.D.



Front: End face Back: End face

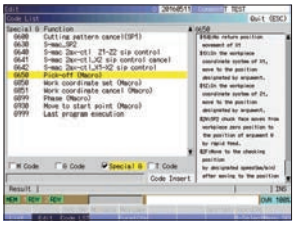


Support Screens Improve Operating Convenience



Display of easily understood illustrations
All you have to do is input the machining length, chucking length and so on, and the escape and approach positions are automatically calculated.

On-machine program check function
Using manual handle feed, operations can be run in the forward or reverse directions, and you can temporarily stop program operation, edit the program, and then restart operation.

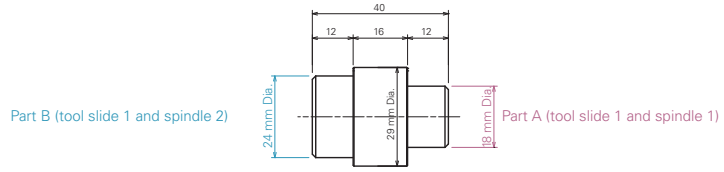


Display of code list
The function displays the list of G and M codes including explanations of the arguments to support programming.

Accuracy

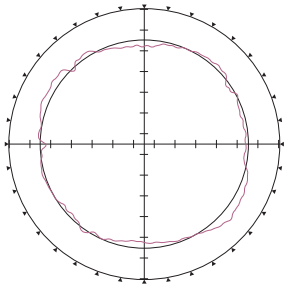
Test piece

Material: BSBM (Brass)
Spindle speed: 3,000 min^{-1}
Feedrate: 0.06 mm/rev
Depth of cut: 0.5 mm (in diameter), 0.25 mm (in radius)



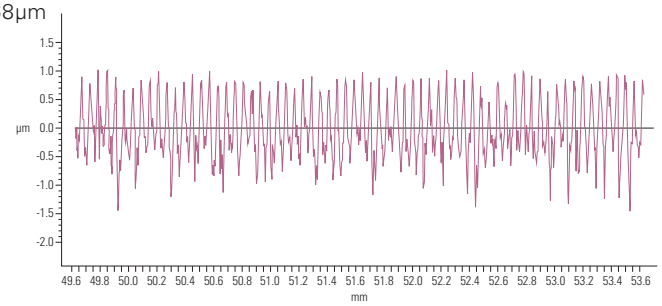
Roundness (part A)

0.66µm



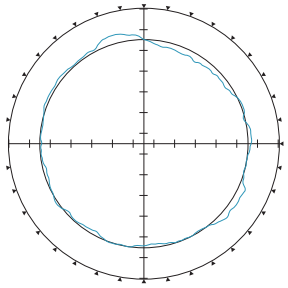
Surface roughness (part A)

Rz 2.5468µm



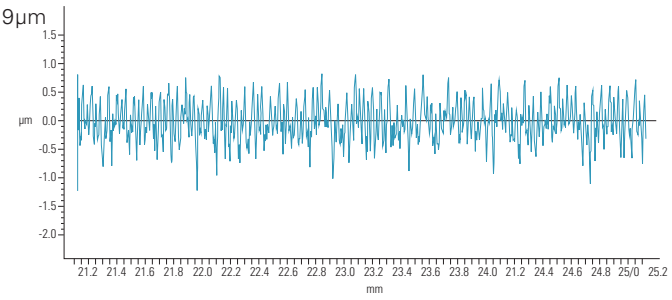
Roundness (part B)

0.62µm



Surface roughness (part B)

Rz 2.3419µm



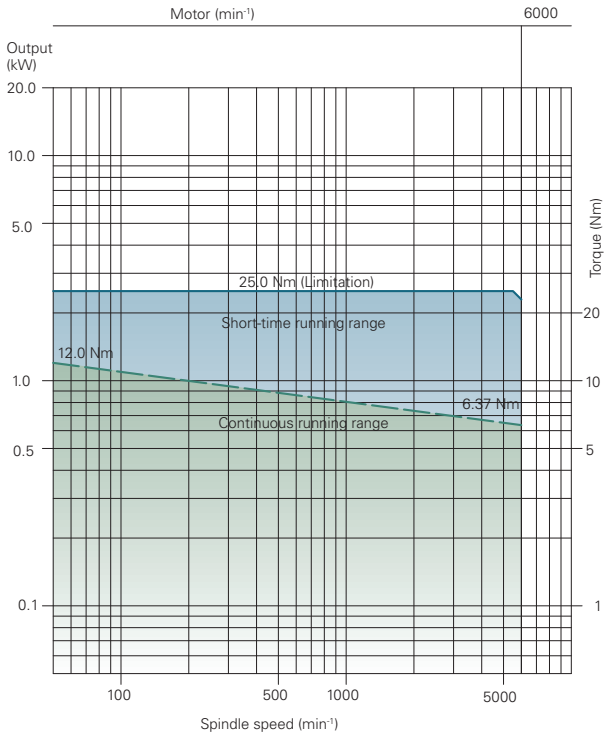
High-rigidity Spindle and High-torque Revolving Tools

Spindles with a thick-walled construction and large-diameter bearings minimize deflection and enable continuously stable operation. Assembling and inspecting these spindles based on a strict management system gives them ample rigidity, abnormal heat output suppression, and manageable thermal displacement characteristics, allowing high-precision machining.

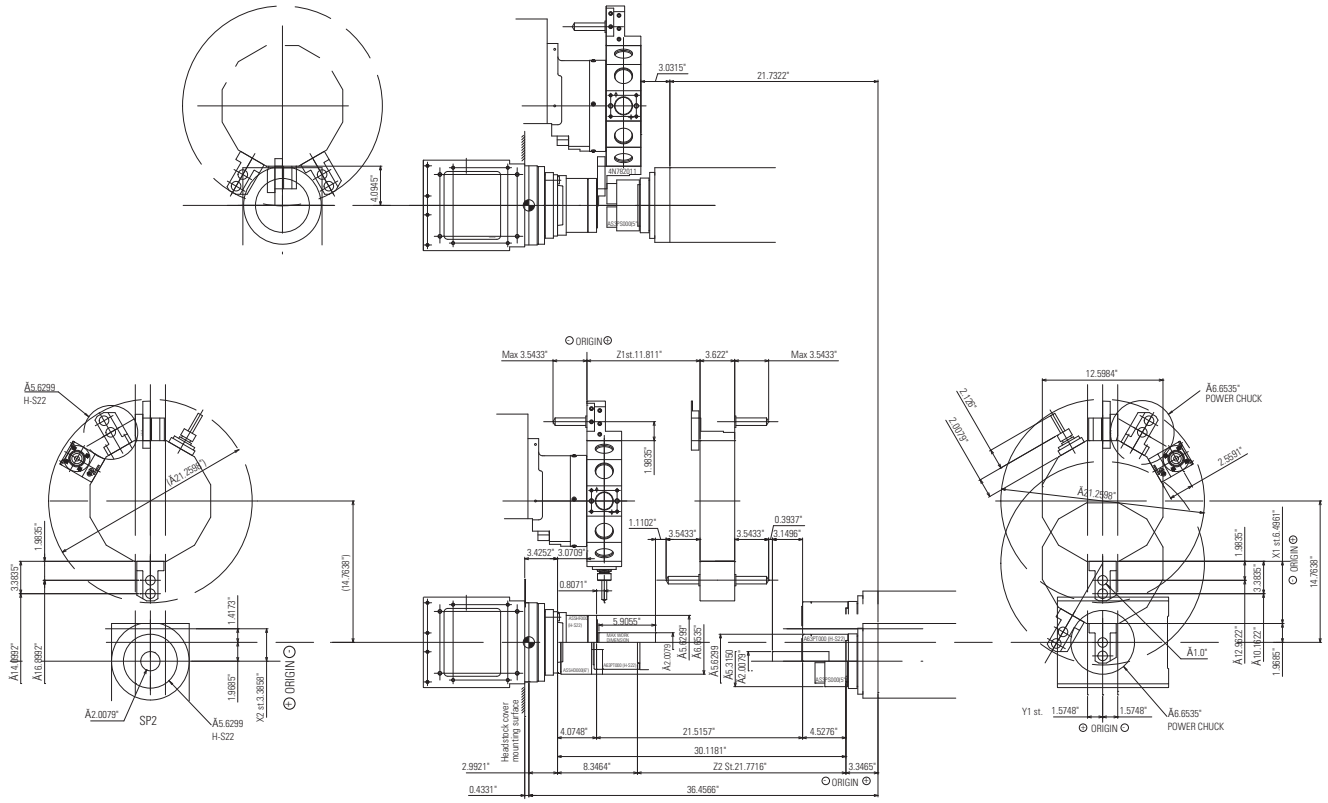
By using an angular contact ball + double-row roller format for the front bearings and double-row roller bearings for the rear bearings, the spindle of the BNX51 achieves stable, high-accurate rotation and withstands loads in the radial direction extremely well.

The use of 25 Nm revolving tools on the 12-station tool slide 1 accomplishes rigid and stable milling.

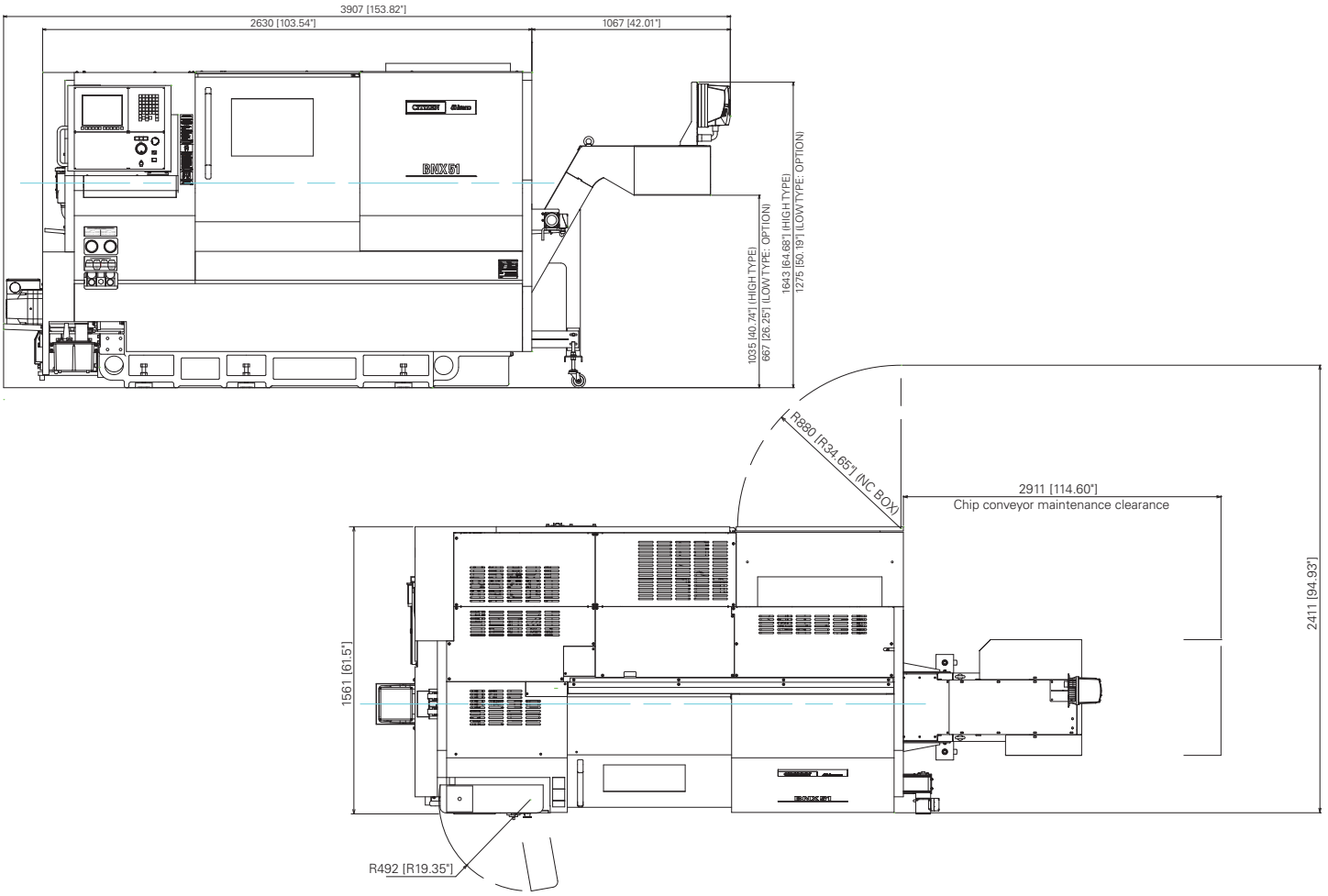
Revolving Tool Torque Diagram



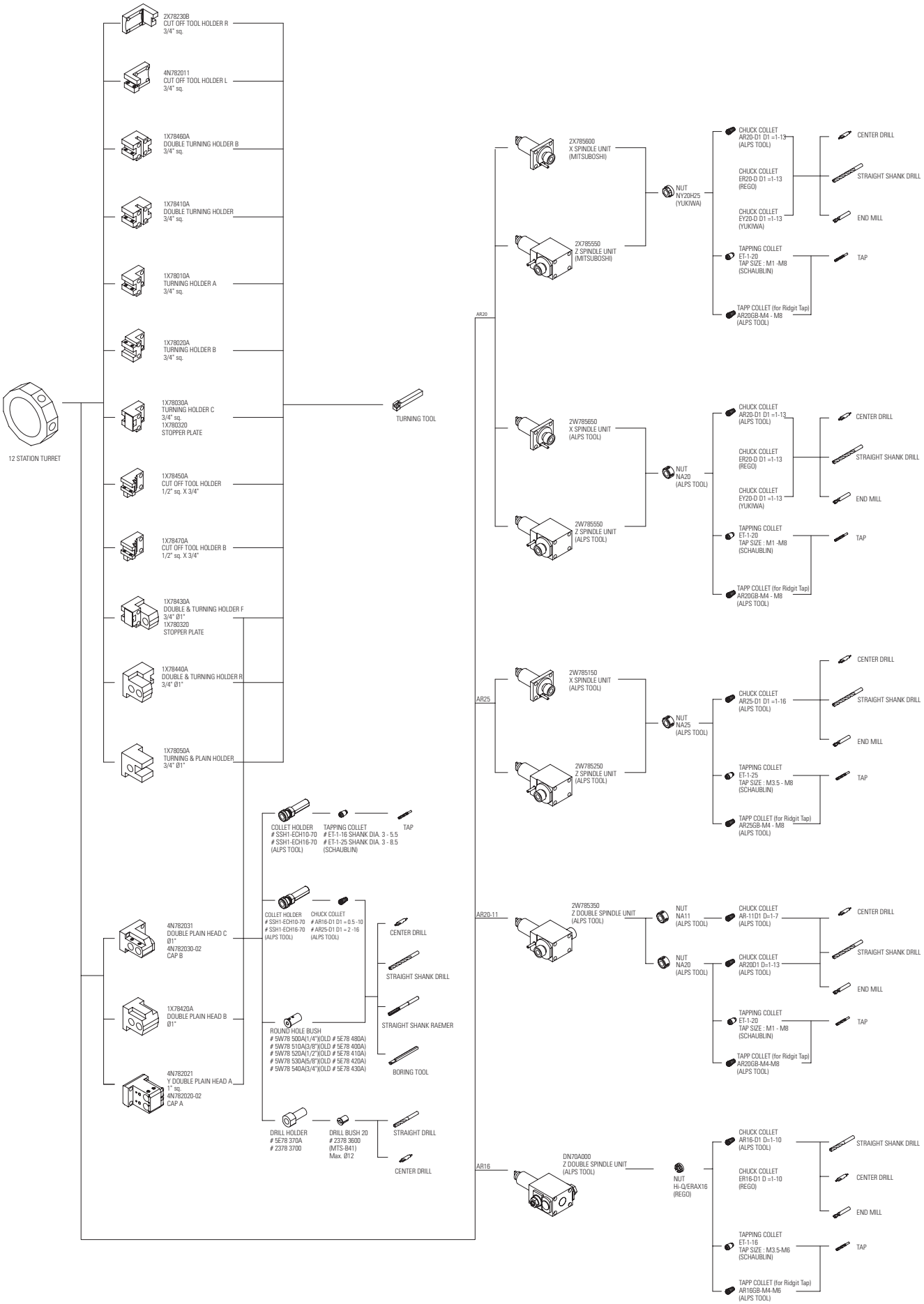
Tooling Area



External View



Tooling System



Machine Specifications

Model			BNX-51MSY
Machining capacity			
Maximum machining length			150 mm
Diameter of standard cutting		Spindle No. 1	51 mm Dia.
		Spindle No. 2	51 mm Dia.
Chuck size		Spindle No. 1	6 inch
		Spindle No. 2	5 inch
Spindle			
Number of spindle			2
Spindle speed range		Spindle No. 1	5,000 min^{-1}
		Spindle No. 2	5,000 min^{-1}
Inner diameter of draw tube		Spindle No. 1	52 mm Dia.
		Spindle No. 2	43 mm Dia.
Collet chuck		Spindle No. 1	H-S22, (DIN177E – option)
		Spindle No. 2	H-S22, (DIN177E – option)
Power chuck		Spindle No. 1	6" thru-hole chuck
		Spindle No. 2	5" thru-hole chuck
Turret			
Number of turret			1
Type of turret		Turret No. 1	12 station turret
Shank height of square turning tool			¾" Sq.
Diameter of drill shank			1" Dia.
Revolving tools			
Number of revolving tool		Turret No. 1	Max. 12
Type of revolving tool		Turret No. 1	Single clutch
Tool spindle speed range		Turret No. 1	6,000 min^{-1}
Machining capacity	Drill	Turret No. 1	Max. 13 mm Dia.
	Tap	Turret No. 1	Max. M12×1.75 (S45C-D)
Slide stroke			
Turret slide stroke		X1 axis	165 mm
		Z1 axis	300 mm
		Y1 axis	80 (±40) mm
Spindle slide stroke		X2 axis	86 mm
		Z2 axis	553 mm
Feed rate			
Rapid feed rate		X1 axis	20 m/min
		Z1 axis	20 m/min
		Y1 axis	12 m/min
		X2 axis	20 m/min
		Z2 axis	20 m/min
Motors			
Spindle drive		Spindle No. 1 Cs	15/11 kw (15 min/cont.)
		Spindle No. 2 Cs	7.5/5.5 kw (15 min/cont.)
Revolving tool drive		Turret No. 1	4.0 kw
Slide			1.5 kw (Z1), 1.2 kw (X1, Y, X2, Z2)
Hydraulic oil motor			1.36 kw
Lubricating oil motor			0.004 kw
Coolant pump			0.25 kw×1, 0.18 kw×1
Turret index motor			1.0 kw
Power supply			
Voltage			AC 200/220±10% 50/60 Hz±1%
Capacity			33 KVA
Air supply			0.5 MPa
Fuse			100 A
Tank capacity			
Hydraulic oil tank capacity			2.6 gal
Lubricating oil tank capacity			1 gal
Coolant tank capacity			79 gal
Machine dimensions			
Machine height			1,100 mm
Floor space			3,907×1,561 mm (w/chip conveyor)
Machine weight			11,240 lb

NC Specifications	
Model device	MITSUBISHI M70V
Display device	10.4" color LCD
Controllable axis	
command specified axes	X1, Z1, Y1, C1, X2, Z2, C2
Control axis groups	Two
Input code	ISO
Command input system	Incremental and absolute
Feed command system	Per rotation feed and per minute
Cutting feed rate override	Max. 100%
Tool offset data	80 pairs
Program storage capacity	160m

Standard Accessories
SP1/SP2 Chucking Device H-S22
Splash guard interlock
Spindle Air Blow
Spindle Brake
SP2 Work Ejector & Inner High Pressure Coolant
Part Conveyor
Chip Conveyor
3-Color Signal Tower
Total & Preset Counter (Custom Menu)
Cut-Off Confirmation (Electric Type)
Barfeeder Interface
Coolant Level Switch
Standard Tooling Package

Optional Accessories
1000 psi High Pressure Coolant
Mist Collector
Parts Carrier
Cut-Off Confirmation (Cylinder Type)
3-Jaws Chuck Systems

Standard NC Functions
Spindle C axis control (main-back)
Spindle synchronization function (main - back)
Program storage capacity: 160m
User macros
Canned cycle for drilling
Constant surface speed control
Polygon turning
Spindle synchronized tapping function (main-back)
Tool spindle synchronized tapping function
Sub-inch control
Milling interpolation
Helical interpolation
Multiple repetitive cycle for turning I/II
B code I/F
Tool offset: 80 pairs
Nose radius compensation
High speed program check
Optional block skip (1 set)
Superimposition of control axes
Torque skip function
Corner chamfering/Corner rounding
Arbitrary axis exchange function
Continuous thread cutting
Network I/O function

Optional NC Functions
Variable lead thread cutting function
High speed synchronized tapping function
Simultaneous thread cutting in two axis control groups 1
Simultaneous thread cutting in two axis control groups 2
Tool life management I
External memory running
Program storage capacity: 320m, 600m
Common variables (50 + 50 * Number of axis control groups)
Common variables (100 + 100 * Number of axis control groups)

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