Miyano

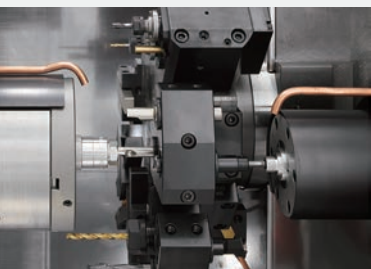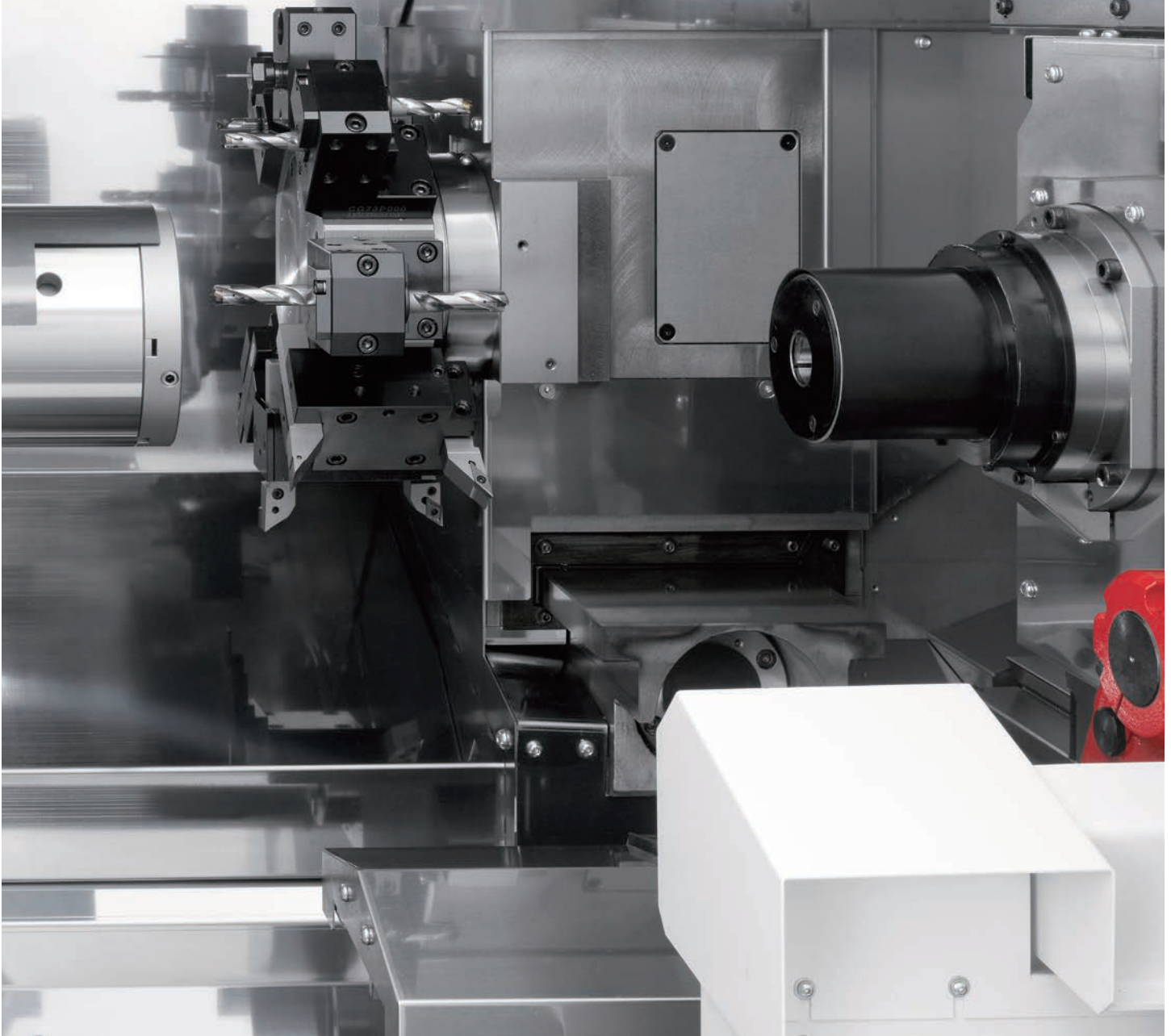## BNA-42MSY2

Fixed Headstock Type Automatic CNC Lathe

BNA

BNA-42MSY2

Configured with two spindles and one turret and equipped with a Y axis and X2 axis, the BNA-42MSY2 is able to handle complex machining, with short cycle times and fast set ups.

The X2 axis to sub-spindle enables simultaneous independent machining of the front and back of the workpiece. This, in effect, provides the benefits of a twin turret machine with the significant cost savings of a single turret model.

- 2 tool simultaneous cutting
- renowned Miyano accuracy
- quick to set up and changeover
- highly efficient for small and medium batch sizes (lots)
- compact design for improved floor space efficiency
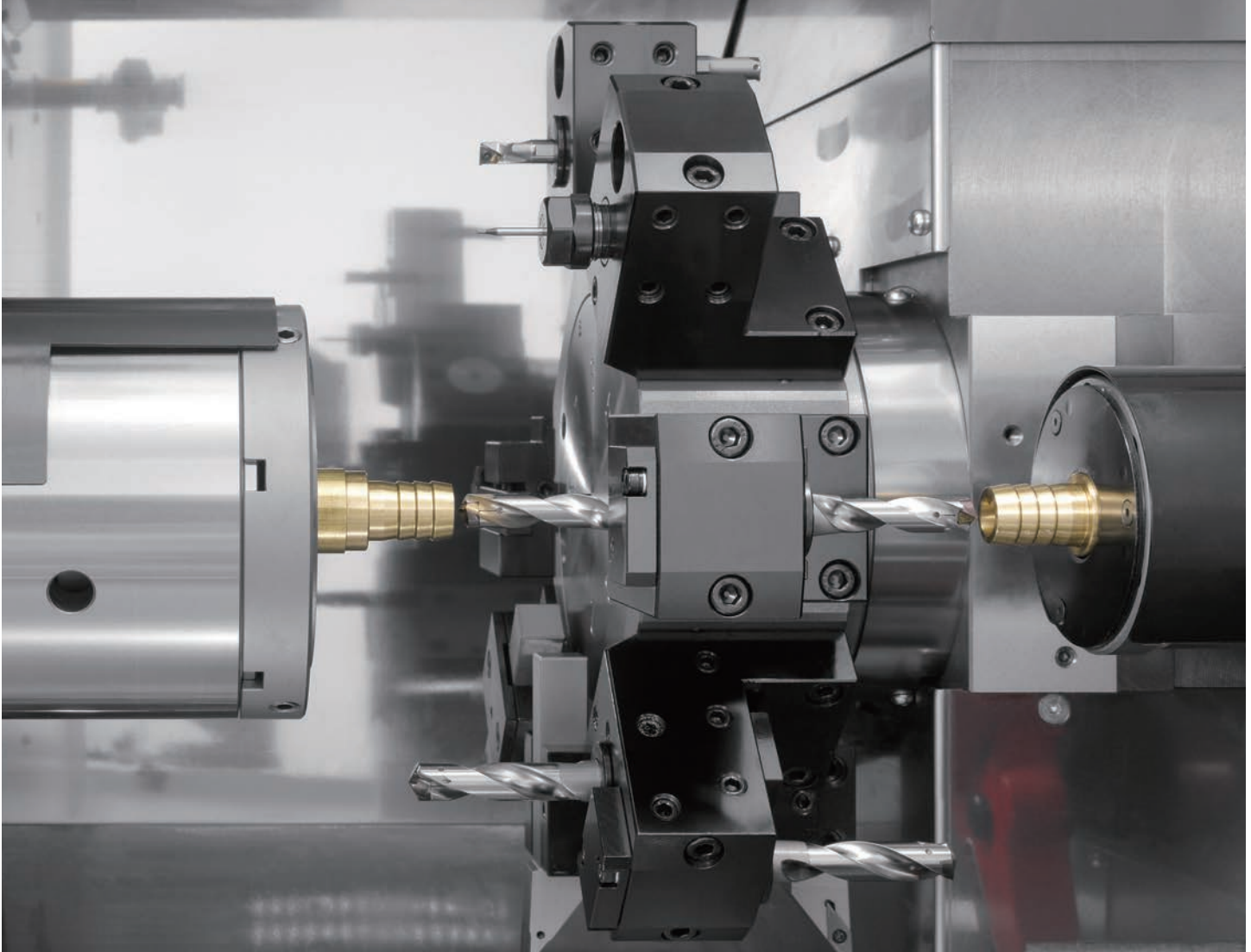
Cycle time shortened by superimposition control

A turret incorporating X, Y and Z axes (HD1) and a sub spindle incorporating X and Z axes (SP2) open up the possibility of machining by superimposition control, where the sub spindle synchronizes with the turret to machine a workpiece in the main spindle (SP1), a very effective way to shorten cycle time.
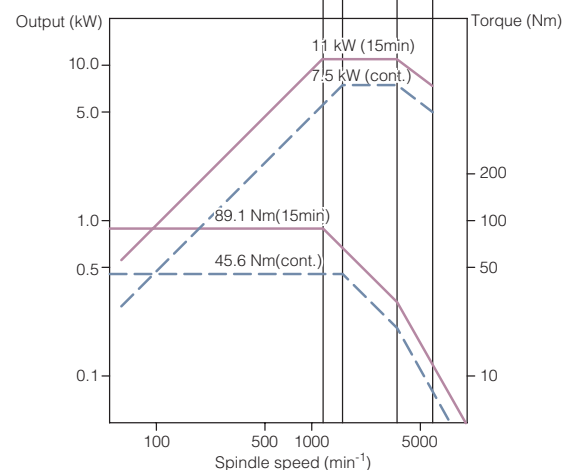
High-rigidity spindle

To achieve powerful cutting, the spindle, which is the key component in machining, is equipped with angular contact ball bearings at the front and double-row cylindrical roller bearings at the rear.

Double-row cylindrical roller bearing

Spindle quill

Angular contact ball bearing
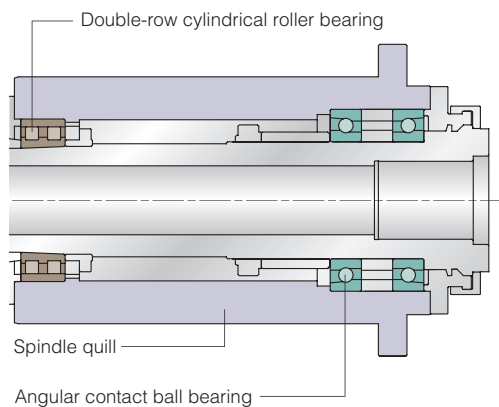
## Spindle motors with increased output

The spindle 1 motor has the highest output in the BNA series. This enables powerful cutting.

Motor pulley diameter: ϕ125mm Motor(min^{-1}) 1500 2000 4500 7632
Speed-reduction rate: 0.786
Spindle pulley diameter: ϕ159mm Spindle (min^{-1})
1179 1572 3537 6000

Output (kW)
Torque (Nm)

11 kW (15min)
7.5 kW (cont.)

89.1 Nm(15min)
45.6 Nm(cont.)

10.0
5.0
1.0
0.5
0.1

200
100
50
10

100   500 1000   5000
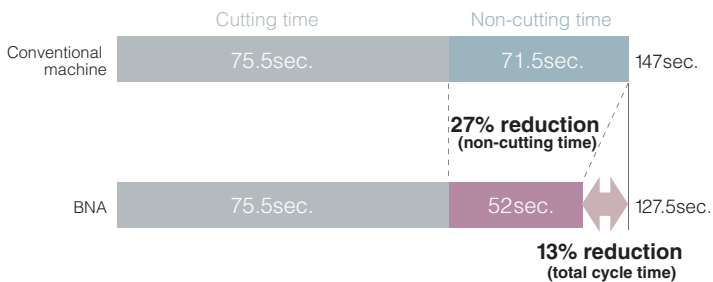Spindle speed (min^{-1})

Basic Construction

High-rigidity scraped slideways are used on all axes. These slideways with face contacts have exceptional rigidity and damping characteristics, achieve powerful cutting, and help to prolong cutting tool life.
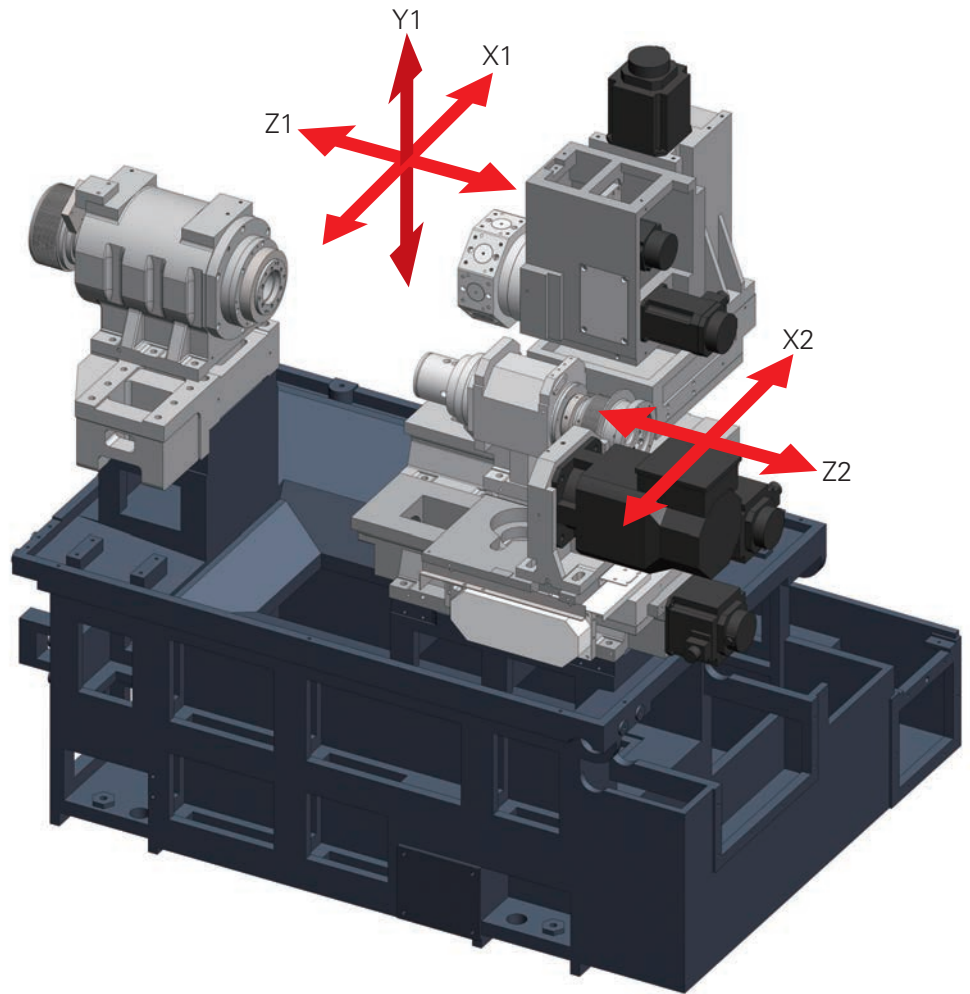
Substantial Reduction in Non-cutting Time

The unique control system cuts non-cutting time by 27% (compared to earlier equivalent Miyano products). The result is a 13% reduction in cycle time.

	Cutting time	Non-cutting time	
Conventional machine	75.5sec.	71.5sec.	147sec.

27% reduction
(non-cutting time)

BNA	75.5sec.	52sec.	127.5sec.

13% reduction
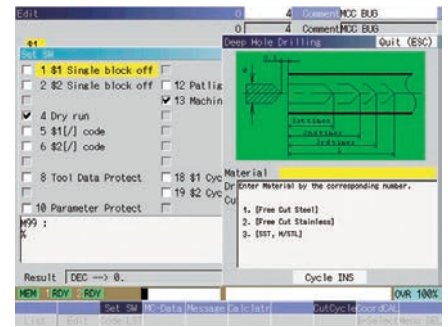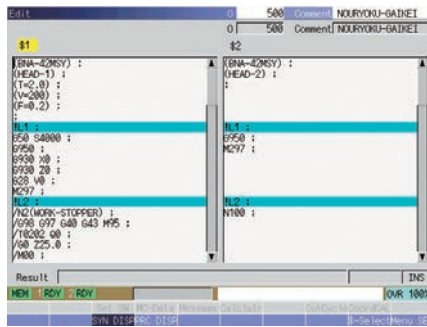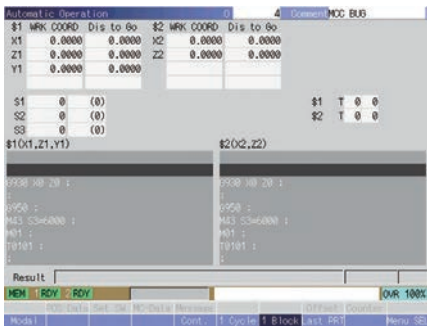**(total cycle time)**

Workpiece

Easy to Use Tooling System

The turret has 8 stations, but the half-indexing mechanism makes it possible to mount tools at up to 16 positions. The use of optional multiple tool holders can further increase the number of tool positions.
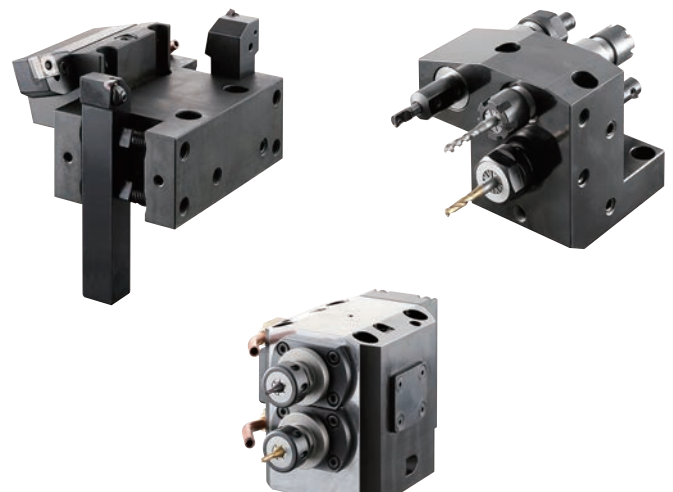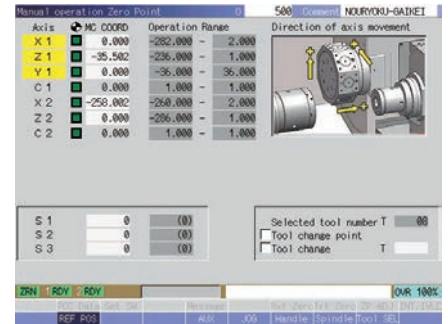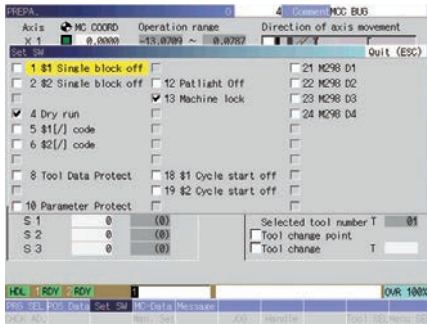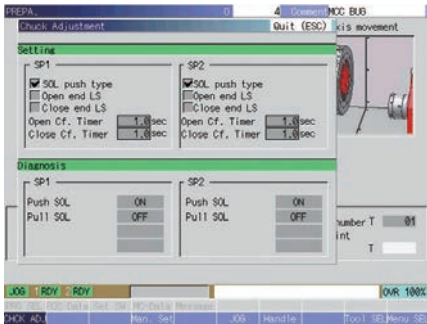
Support screens improve operating convenience

The program screen, organized for easy reading, can be displayed in synchronization with the editing screen. This simplifies the editing of complex programs with a lot of queuing.

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

HMI (Human Machine Interface) – Graphics displayed for each item and screens display all the necessary information in one place for operating convenience.
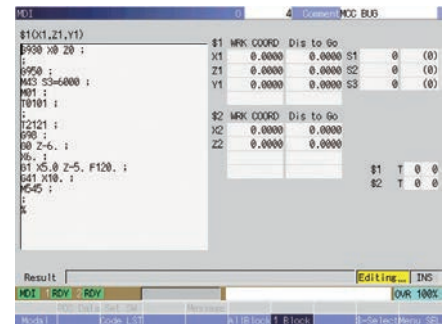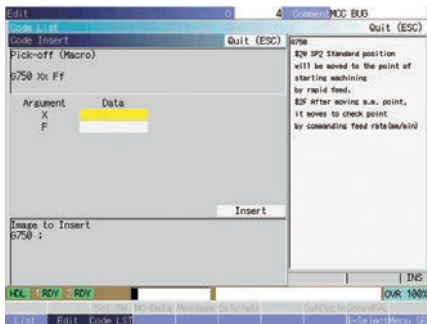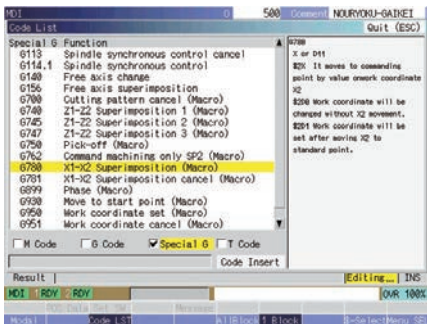
The function displays the list of G and M codes including explanations of the arguments to support programming.
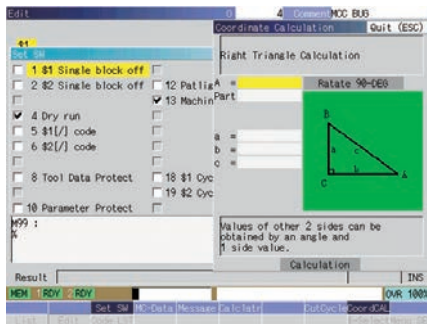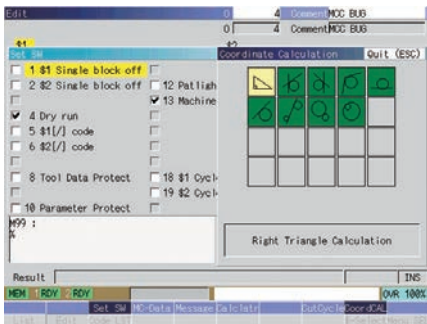
The coordinate calculation function and calculator function incorporated in the NC unit can be used for complex intersection point calculations.
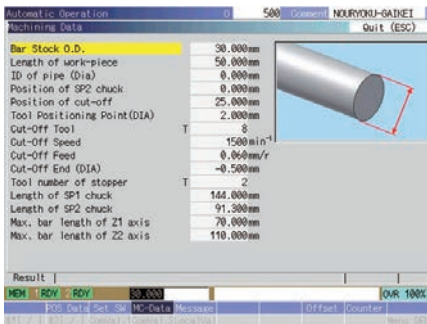
All you have to do is input the machining length, chucking length and so on, and the escape and approach positions are automatically calculated. This is useful for collision prevention and shortening setup times.

External View
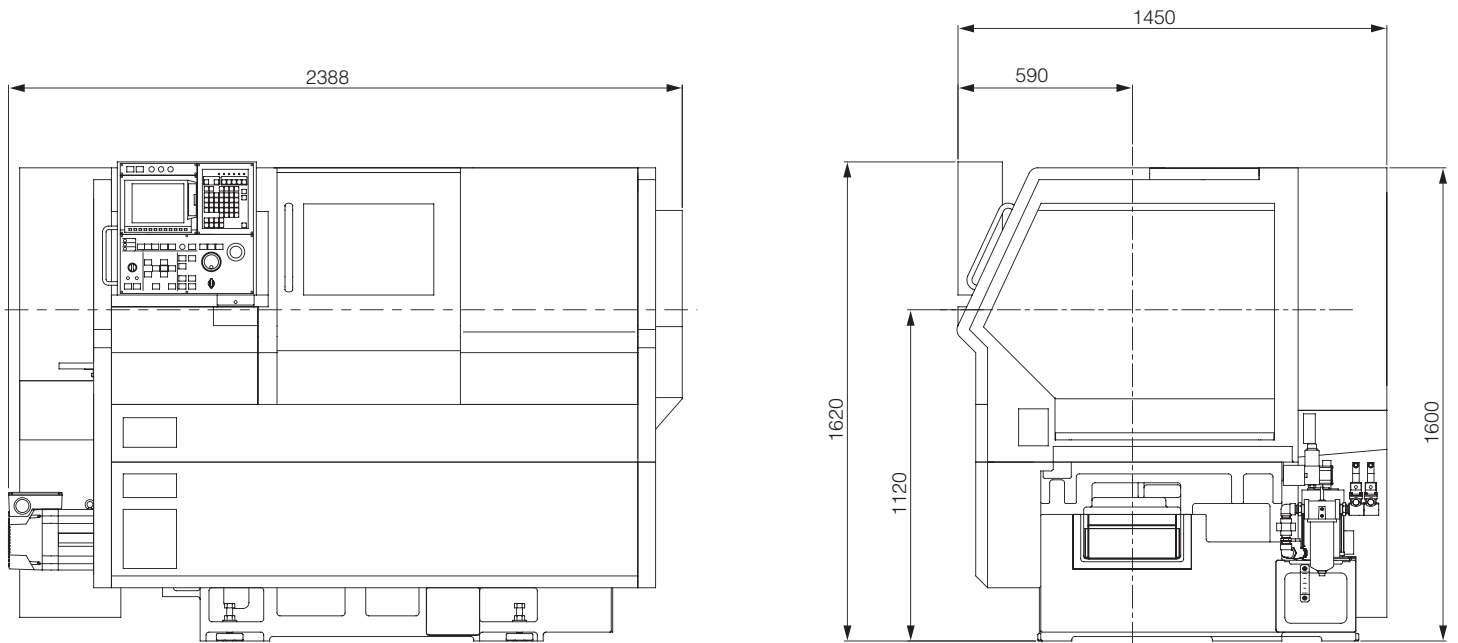
Bar feeder (Option)

The Miyano M-542 automatic magazine style bar feed is designed for feeding round, square and hexagonal bar stock into Miyano lathes.

Tooling Area

Reference point diagrams

- ⊖Reference point ⊕

Z1-st. 235
163
154
25
78
56
52
284
69
(114.8)
18.5 44
107
Z2-st. 360
60
467
148.5
14.1

⊖Reference point⊕

405
19 19
49
135
35
100
φ25
44
8st. H200
X1-st. 140
X2-st. 129
35 35
Y1-st. 70
⊖Reference point⊕

Tooling System

HD1
8 Station turret

- Triple turning tool holder □20 (3/4")
- Double turning tool holder □20 (3/4")
- Cut off tool holder □20×12(3/4"×1/2")
- Turning holder □20 (3/4")
- Double turning holder □20 (3/4")
- Double turning holderS' □20 (3/4")
- Turning holderS' □20 (3/4")
- Plain holder & turning □20 (3/4") φ25 (φ1")
- Double sleeve holder φ25 (φ1")
- Triple sleeve holder φ25 (φ1")
- Double sleeve holderD' φ25 (φ1")
- Double sleeve holderA' φ25 (φ1") Cap A
- Quad sleeve holder φ25 (φ1")

- Stopper plate
- Knee tool holder □20 (3/4")
- Stopper plateS'
- Turning tool
- Pull out finger
- Collet holder
- Collet holder
- Round hole bush
- Drill holder

- Tapping collet
- Chuck collet
- Drill bush 20 Max. Ø12

- Tap
- Center drill
- Straight shank drill
- Straight shank reamer
- Boring tool
- Straight drill
- Center drill

- X Spindle unit
- Z Spindle unit
- ZS Spindle unit
- Z Double Spindle unit
- X Double Spindle unit
- Z Four Spindle unit
- Z Double Spindle unit

- Nut
- Chuck collet
  - Straight shank drill
  - Center drill
  - End mill
  - Tap
- Tapping collet
- Tapping collet

- Nut
- Chuck collet
  - Center drill
  - Straight shank drill
  - End mill
  - Tap
- Tapping collet

Machine Specifications

Item		BNA-42MSY2
Maximum bar diameter	SP1	Ø42 mm
	SP2	Ø34 mm (Ø42 mm/OP)
Standard machining length		100 mm
Number of spindles		2
Spindle speed	SP1	6,000 min-1
	SP2	5,000 min-1
Draw tube diameter	SP1	Ø42 mm
	SP2	Ø30 mm
Power chuck size	SP1	5"
Number of turret		1
Number of turret stations		12
Shank size of square turning tool		□20 mm
Diameter of drill shank		Ø25 mm
Number of live tools		8
Methods of live tools		Single clutch
Tool spindle speed		6,000 min-1
Rapid feed rate	X1 axis	20 m/min
	Z1 axis	20 m/min
	Y1 axis	12 m/min
	X2 axis	12 m/min
	Z2 axis	20 m/min
Turret slide stroke	X1 axis	140 mm
	Z1 axis	235 mm
	Y1 axis	±35 mm
Spindle slide stroke	X2 axis	129 mm
	Z2 axis	360 mm
Motors		
Spindle motor	SP1	11/7.5 kW (15min/cont)
	SP2	5.5/3.7 kW (15min/cont)
Live tool motor		1.0 kW (12 Nm)
Hydraulic pump motor		0.75 kW
Lubricating motor		0.004 kW
Coolant motor		0.18 kW
145 PSI pressure coolant motor		1.0 kW
Turret index motor		0.75 kW
Input power capacity		29 KVA
Voltage		AC 200/220 V
Fuse capacity		100 A
Compressed air supply		0.5 Mpa
Hydraulic oil tank		7 L
Lubricating oil tank		2 L
Coolant tank		165 L
Machine height		1,620 mm
Floor space		W 2,278 × D 1,450 mm
Machine weight		3,000 kg

Standard accessories

Collet chuck system
Spindle brake
Air blow
Work ejector
Automatic power shut-off
Cut-off confirmation
Parts Catcher
Parts conveyor
Coolant level switch
SP2 Inner coolant & air blow
Chip conveyor
Signal tower
Filler tube
RS232C
Recommended tool package

Optional accessories

Collet chuck system for SP2 for 42 mm spec.
5″ power chuck for SP1
Chip box

Standard NC functions

Mitsubishi M70V
Back ground editing
Canned cycle for drilling
C-Axis for SP1 & SP2 spindles
Chamfering/corner R
Constant surface speed control
Direct drawing dimension input
Extended part program editing
Geometry & wear offset
Inch/Metric conversion
Milling interpolation
Multiple repetitive cycle
No. of tool offset: 80 pairs
Part program storage capacity 160 m (200 programs)
Rigid tapping for SP1/SP2 and live tool
Run hour/Parts number counting
Skip Function
Tool nose R compensation
Total & preset counter
User macro
Y-axis offset

Optional NC functions

Helical interpolation
Variable thread cutting
Tool life management I/II
Network I/O function

Marubeni Citizen-Cincom Inc.