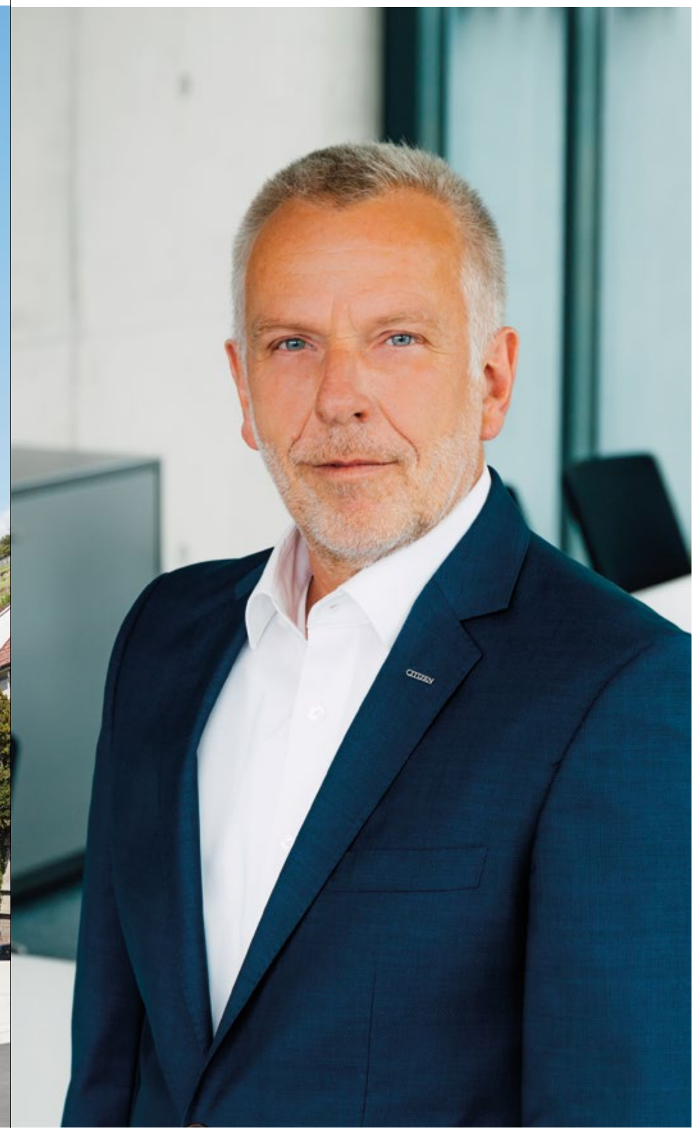
CITIZEN

Miyano



Preface

Dear Readers,

Citizen Machinery Europe GmbH has successfully been selling Swiss type lathes and fixed head automatic lathes of the brands Cincom and Miyano all over Germany and in large parts of Europe for many decades. With our 4 locations in Esslingen, Villingendorf, Neuss and Radebeul, we are always personally at your disposal and always in close vicinity throughout Germany to answer your questions regarding sales and other issues. In all service matters, we are there for you in whole of Europe.

Under the Cincom brand, we sell Swiss-type lathes which demonstrate their full power and performance when machining long workpieces and small diameters.

The Miyano brand measures up to all challenges when turning short workpieces in fixed-headstock applications. The machines distinguish themselves by high productivity, quality and precision and grant excellent results in diameter ranges of up to 80 mm.

Our path-breaking LFV technology, laser integration and our innovative automatic tool changer (ATC) have revolutionized the cutting process. We will continue to work hard on developing new innovations and provide optimum solutions to our customers. With future-oriented products, we look forward to stepping into the future together with you.

M. Reissig

Markus Reissig
General Manager Citizen Machinery Europe GmbH

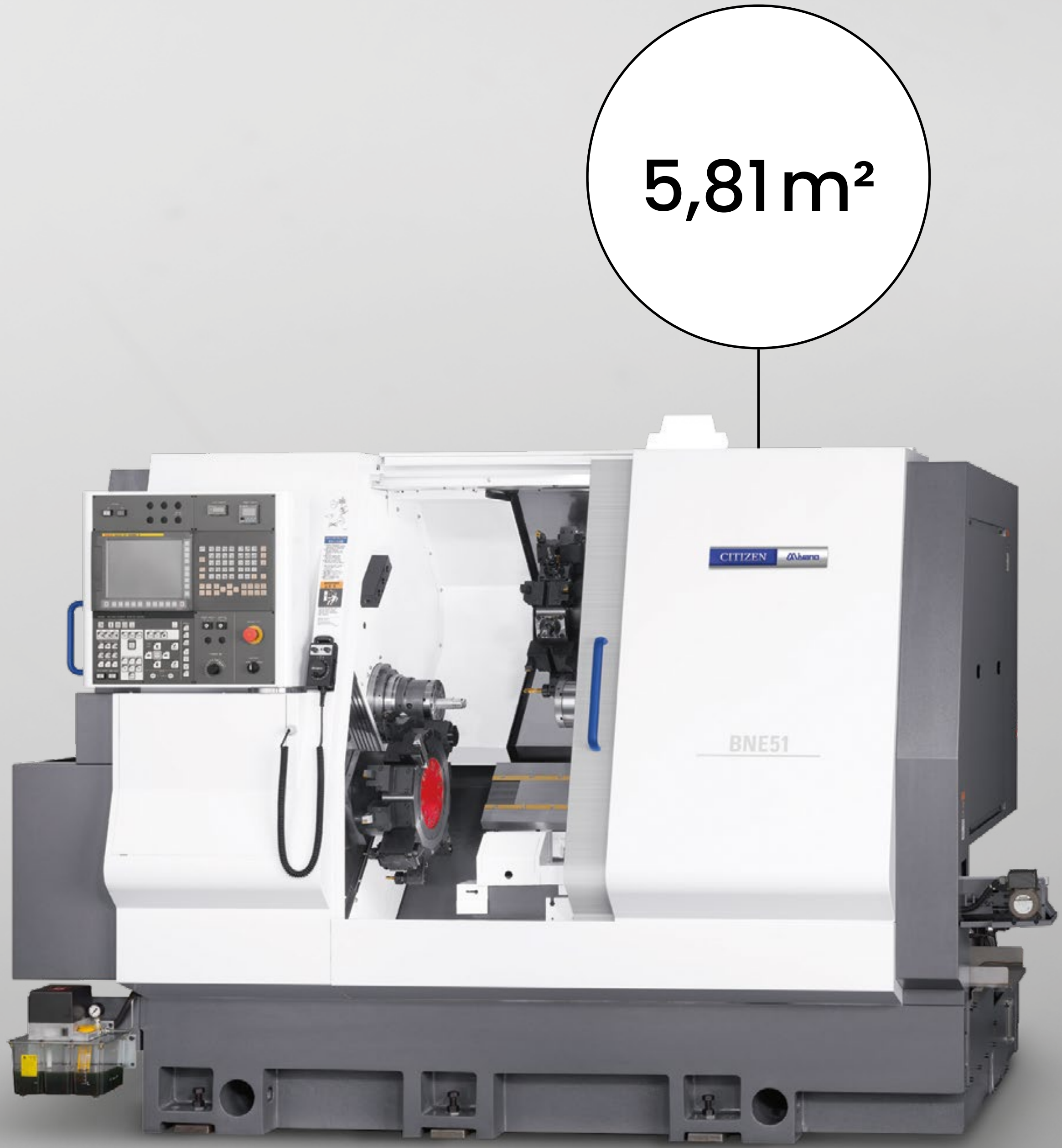
BNE 51 S/SY

For the demanding manufacturing of complex high-precision workpieces from bar stock.

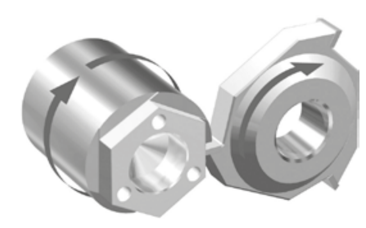
The BNE series was especially designed for ever more demanding production of complex high-precision workpieces from bar stock. Thanks to multi-tool simultaneous machining, also more complex shapes may be machined now in an ultrafast and economical way. On type “S”, multiple tools may simultaneously be mounted in L & R spindle. Type “SY” with Y axis slide for the upper turret offers functions similar to a machining centre and efficiently machines complex workpieces.

Advantages

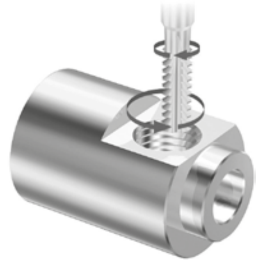
- Highly rigid precision scraped flat Box slideways
- Powerful tools
- Optional for 65 mm available
- Robust construction for maximum stability



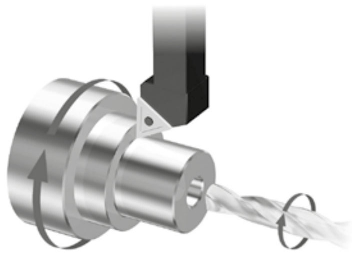
Machining examples



Polygon machining (Optional)
Synchronizing the revolving tool speed with the spindle speed at two times permits polygon machining, such as two-, four-and six-sided machining, with a polygon cutter.

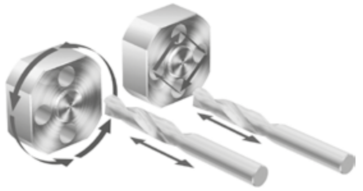


Large-diameter thread cutting using helical interpolation (Optional)
Large-diameter thread cutting can be done with a planetary tap using the helical interpola-tion function. (SY type)



Differential velocity cutting by revolving tools
In multiple cutting of inner and outer diameters, the optimum cutting speed can be obtained by controlling the revolving tool speed. A small-diameter drill is rotated in the forward direction to increase the relative speed between the drill and the workpiece, while a large-diameter drill is rotated in the reverse direction to decrease the relative speed.

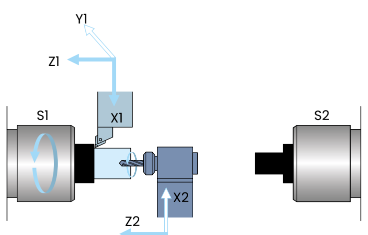
Long-shaft machining
The bar stock machined on the L spindle is pulled out by the R spindle and chucked in synchronization by the L and R spindles at the same time. Simultaneous machining is performed and then the workpiece is cut off. After that the machining at the R spindle side is performed and the finished product is pushed out of the R spindle by the next workpiece.



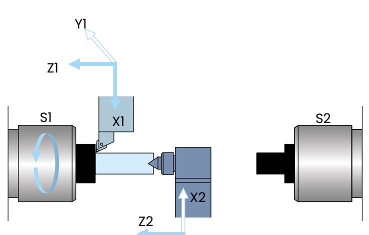
Efficient face drilling
In complex machining in the X-Y or Z-Y plane, using C axis control to index the drilling position takes a long time. Using the Y axis allows effi-cient drilling on the end face. (SY type)

Machining patterns

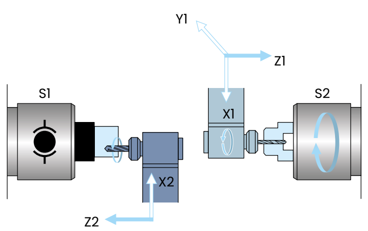
Differential cut



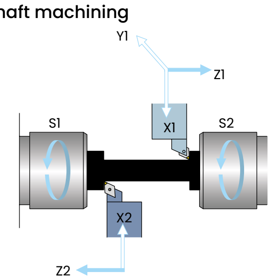
Centre support



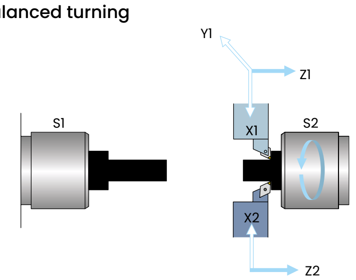
Drilling & tapping



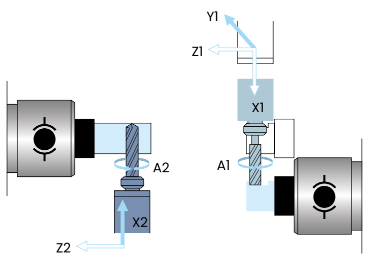
Long-shaft machining



Balanced turning

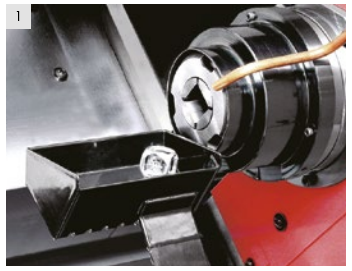


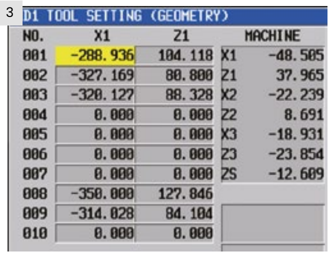
Simultaneous machining

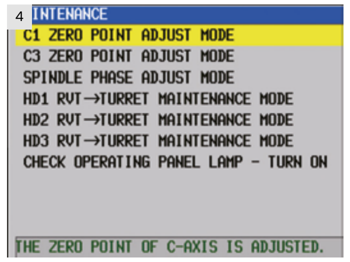


Standard

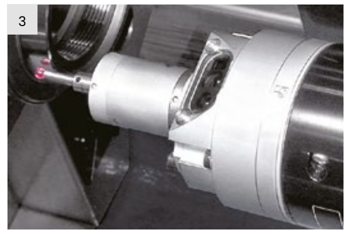
1 Part catcher
2 Revolving tool
3 Tool setting
4 Maintenance



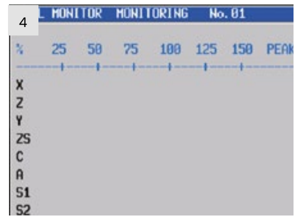




Options

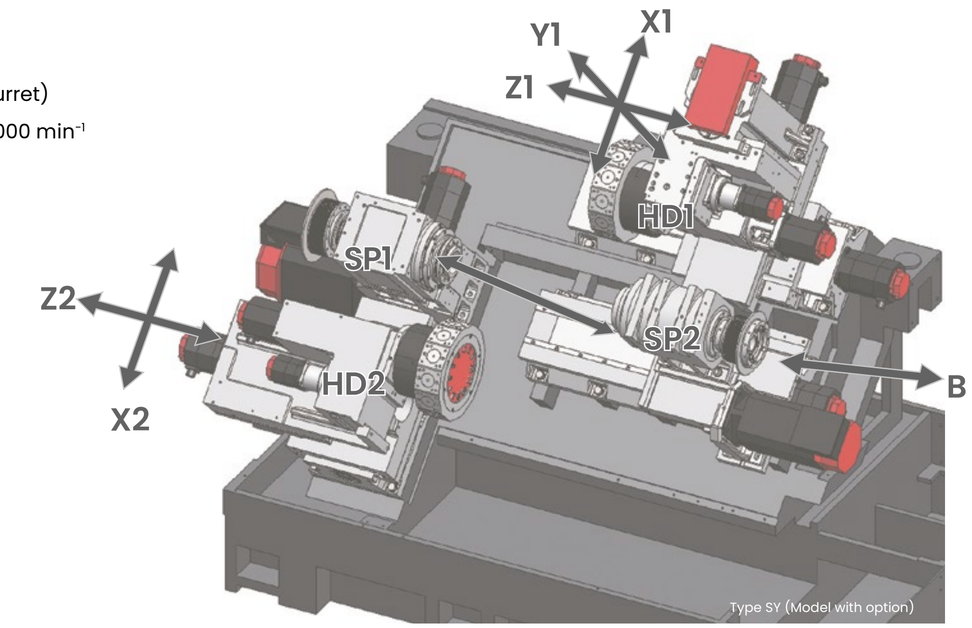


1 **Barfeeder**
2 **Chip conveyor**
3 **Automatic measuring device**
4 **Tool monitor:** Allows you to monitor tool wear and breakage by checking the current state of the machining and status of the cutting tools in terms of numerical values based on the sampling data.



Layout

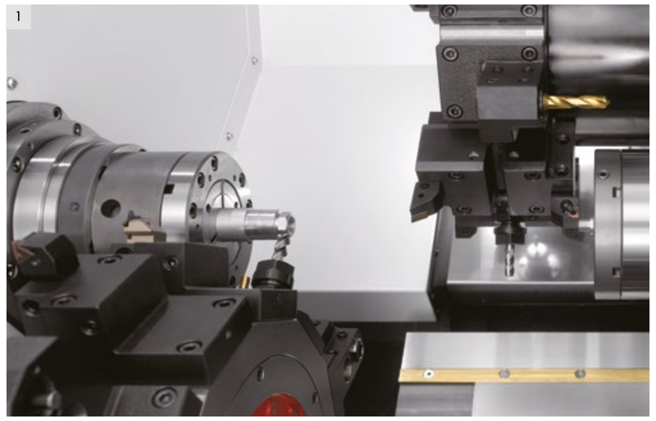
Turret HD1 + HD2
Number of stations per turret: 12
Revolving tool capacity: Max. 12 (per turret)
Rotational speed of revolving tools: 6.000 min^{-1}
Revolving tool torque: 20 Nm
Spindle SP1
Spindle speed: 5.000 min^{-1}
Collet chuck type: DIN 177E
HAINBUCH 51
H-S22
Power chuck type: 6" power chuck
Spindle SP2
Spindle speed: 5.000 min^{-1}
Collet chuck type: DIN 173E
HAINBUCH 51
H-S20
Power chuck type: 6" power chuck



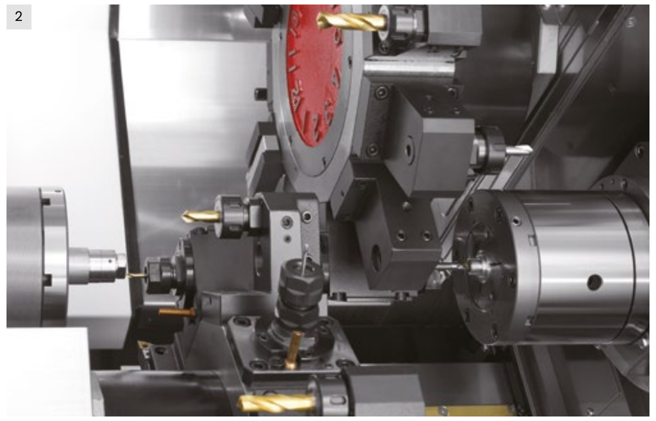
Type SY (Model with option)

Working area

1



2



1 SY: Y Axis on turret HD1

In addition to front / back integrated machining and multiple cutting achievable by the 2-spindle and 2-turret specification machines, the Y axis installed on turret HD1 (SY type) enables a greater variety of complex machining.

Ample tool stations

Installation of double tool holders on the 12-station turret allows two tools to be mounted at a single position, so you will never feel short of tools. (Common to S/SY types)

Powerful tool

Revolving tools featuring a power ful machining torque of 20 Nm and high rotational speeds of up to 6.000 rpm can be mounted at all positions (12 positions) with independent drive. (Common to S/SY types)

2 S: Two spindle capacities

BNE 42 / 51 available in two versions S without Y axis and SY with Y axis to turret HD 1.

Completely revised NC control

The new 31i-B NC unit simplifies the operation panel with less push buttons and support screens including "Machining Data", "Start Conditions" and "Tool Monitor" (option) enable further improvements in productivity by faster set-ups.

Newly designed covers

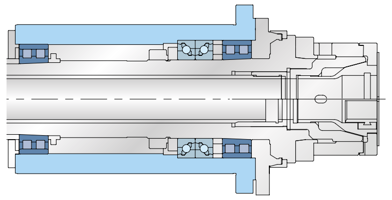
All the covers have been reviewed in detail and redesigned to improve ease of operation, including changing the splash guard to open inside the fixed cover.

3

3 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 location pins makes it easy to mount and remove tool holders and ensures exceptionally high re-mounting accuracy.

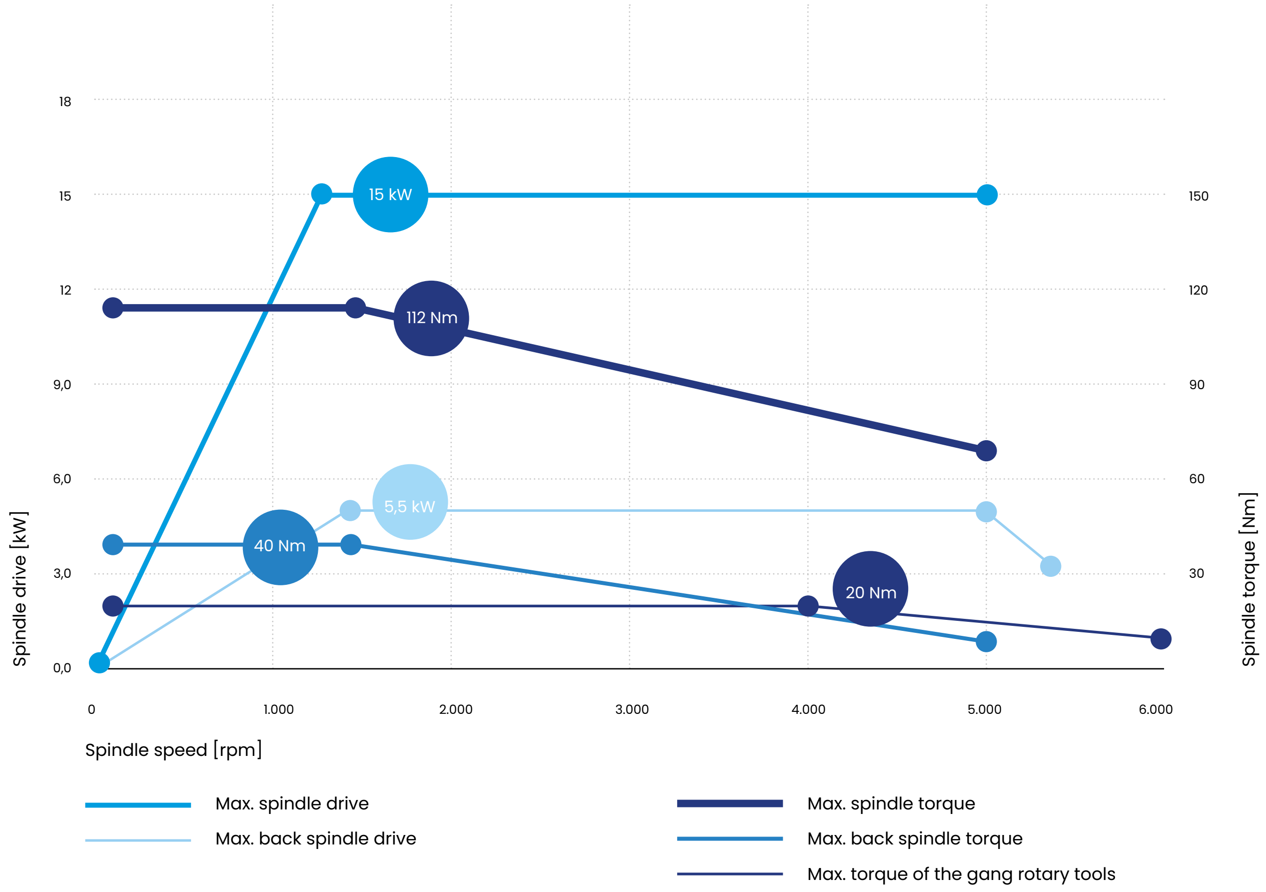
4



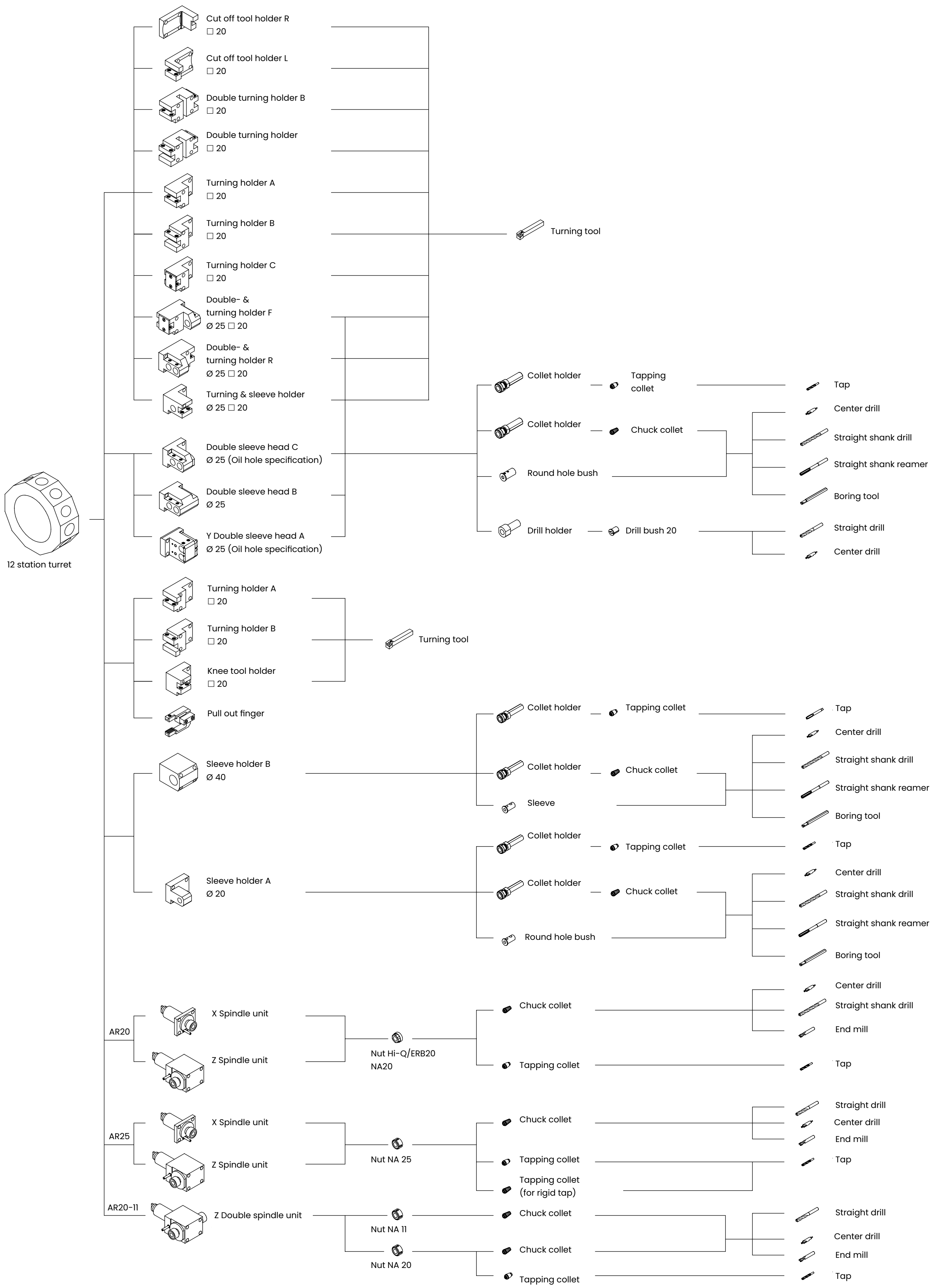
4 Spindle

The main spindle of the 51S/51SY is supported by "ultra precision double-row cylindrical roller bearings" and "ultra precision angular contact ball bearings" at the front and by "ultra precision double-row cylindrical roller bearings" at the rear to suppress radial run-out and thermal displacement in the longitudinal direction as well as to provide high rigidity. This precision spindle is installed in a ground, high-precision quill type housing. This spindle structure maintains sufficient rigidity to allow powerful machining and ensures stable thermal displacement characteristics thanks to less heat generation. All spindles are manufactured in the dedicated in-house production line and undergo extended bench testing before being assembled into the machine to provide the stable machining accuracy for which Miyano is renowned.

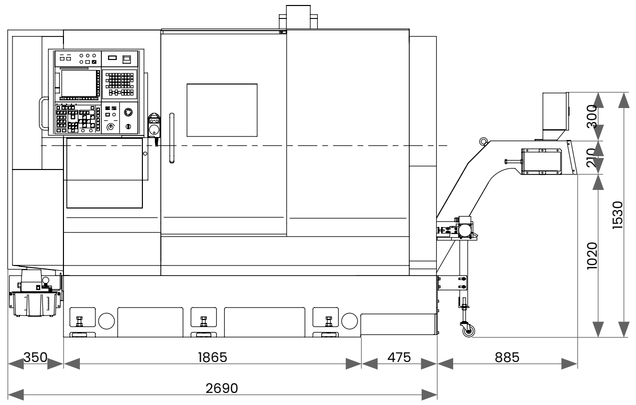
Performance diagram

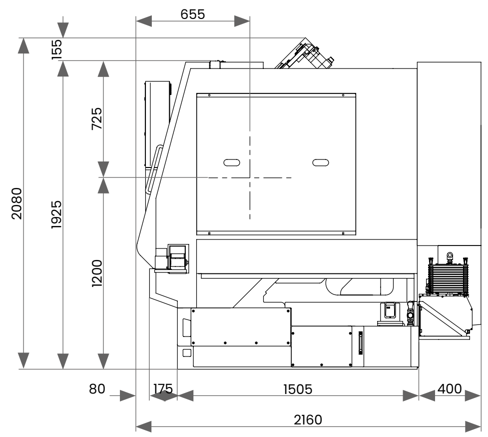


Tooling system



Floor plan





Machine specification

Item		BNE-51S6	BNE-51SY6
Machining capacity			
Max. work length		90 mm	90 mm
Max. bar diameter	SP1	Ø 51 mm	Ø 51 mm
	SP2	Ø 42 mm	Ø 42 mm
Spindle			
Number of spindles		2	2
Spindle speed	SP1	5.000 min^{-1}	5.000 min^{-1}
	SP2	5.000 min^{-1}	5.000 min^{-1}
Spindle nose	SP1	A2-6	A2-6
	SP2	flat	flat
Draw tube dia	SP1	Ø 52 mm	Ø 52 mm
	SP2	Ø 43 mm	Ø 43 mm
Collet chuck type	SP1	H-S22/ DIN177E	H-S22/ DIN177E
	SP2	H-S20/ DIN173E	H-S20/ DIN173E
Power chuck size and type	SP1	6" Hydraulic	6" Hydraulic
	SP2	5" Hydraulic	5" Hydraulic
Turret			
Number of turrets		2	2
Turret stations	HD1	12 stations	12 stations
	HD2	12 stations	12 stations
Shank size of square turning tool		☐ 20 mm	☐ 20 mm
Diameter of drill shank		Ø 25 mm	Ø 25 mm
Rotary tools			
Max. number of rotary tools		12 + 12	12 + 12
Type of rotary tool drive		Single clutch	Single clutch
Max. rotary tool speed		6.000 min^{-1}	6.000 min^{-1}
Feed rate			
Rapid feed rate	X1 axis	18 m/min	18 m/min
	X2 axis	16,2 m/min	16,2 m/min
	Z1 axis	20 m/min	20 m/min
	Z2 axis	18 m/min	18 m/min
	Y1 axis		12 m/min
	B axis	20 m/min	20 m/min
Slide stroke			
	X1 axis	175 mm	175 mm
	X2 axis	145 mm	145 mm
	Z1 axis	380 mm	380 mm
	Z2 axis	175 mm	175 mm
	Y1 axis		± 40 mm
	B axis	450 mm	450 mm
Motors			
Spindle motors	SP1	11/15 kW	11/15 kW
	SP2	3,7/5,5 kW	3,7/5,5 kW
Motor for rotary tools		2,2 kW 20 Nm	2,2 kW 20 Nm
Hydraulik motor		2,2 kW	2,2 kW
Lubricating motor		0,023 kW	0,023 kW
Coolant motor		0,25 kW × 2	0,25 kW × 2
High-pressure coolant motor		0,8/1,36 kW (50/60 Hz)	0,8/1,36 kW (50/60 Hz)
Turret index motor		0,75 kW	0,75 kW
Tank capacity			
Hydraulic oil tank		18 l	18 l
Lubrication oil tank		5 l	5 l
Coolant tank		350 l	350 l
Power supply			
Capacity		44 kVA	44 kVA
Voltage		AC 200/220 V	AC 200/220 V
Air supply		5 bar	5 bar
Machine dimensions			
Machine height		1.925 mm	2.080 mm
Floor space		W 2.690 × D 2.160 mm	W 2.690 × D 2.160 mm
Machine weight		7.800 kg	7.800 kg
Standard machine equipment			
FS31i-B 2 system; Axis control: HD1: X1, Z1, (Y1), C1, A1 / HD2: X2, Z2, C2, A2, B2; Minimum setting unit: 0.001 mm, 0.001°; Interpolation functions: G01, G02, G03; Threading: G32, G33, G92; Rapid feed override: 0 –100 %; Feed rate override: 0-150 %; Feed rate per minute/Feed rate: G98/G99; Program storage capacity: Sum total for 2 systems: 64 kB (160 m); Spindle function: 4-digit S command; Support function: 3-digit M word; Constant surface speed control: G96; Tool function:Taabb (aa=Tool number and geometry, bb=Wear offset number) 32 pieces, 64 pieces (2 system)			
Optional machine equipment			
Cylindrical interpolation, Spindle rigid tapping, Rotary tool rigid tapping, Helical interpolation, polygon turning, Workpiece coordinate system, Inch/metric change, Tool nose radius compensation, Customer macro, Multiple repetitive cycles, Program storage capacity addition, Background editing, Run hour/Parts count display, Leader puncher interface, RS-232C port			
Standard NC functions			
10.4 inch color monitor (LCD), Machine lock, Overrun, Stored stroke check, Chamfering ON/OFF, Backlash compensation, Synchronization / mixture control, Cs outline control, Spindle synchronous control, Superimposition control, Polar coordinate interpolation, Optional block skip, Absolute command, Incremental command, Decimal point input, Coordinate system setup, Single form fixed cycle, Circle radius R command, Programmable data input			

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