CITIZEN

Miyano

LZ01

CNC Lathe

Fast loading system.

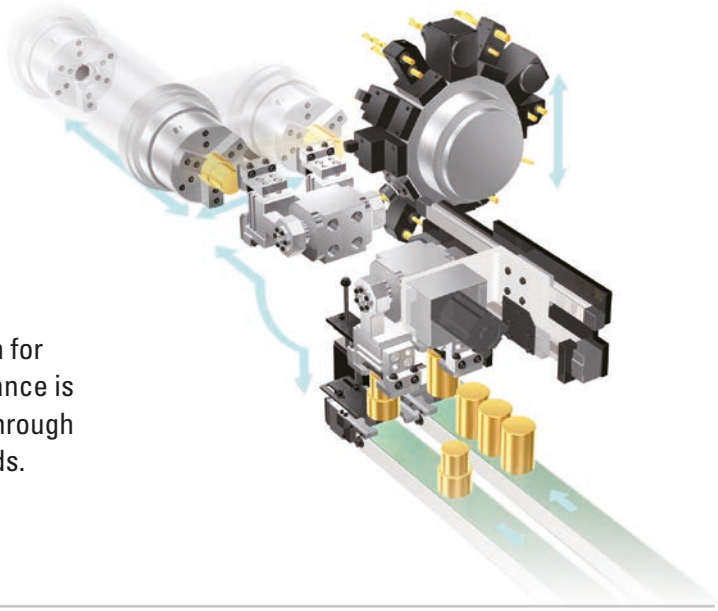
These are high-precision chucking machines equipped with a general-purpose in-machine loader head. The loading time is shortened substantially through coordinated operation of the loader head and spindle.

By constructing the turret with a single slide in the Y axis direction only (01RY), and by assigning the X axis and the Z axis that runs on a linear guide to the spindle, both rigidity and high-speed travel are achieved.

The enriched system configuration designed based on the loader head accommodates a wide range of automation needs.

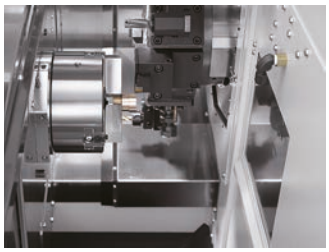

CITIZEN
LZ01

Parts loader.



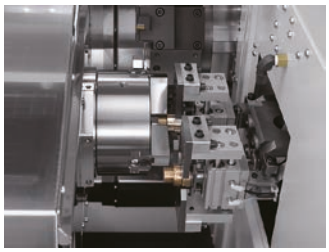
The loader head and spindle operate in coordination for loading/unloading, which means that the travel distance is reduced, and this helps to shorten machining time through high-speed loading with a loading time of 5.5 seconds.

Loader cycle

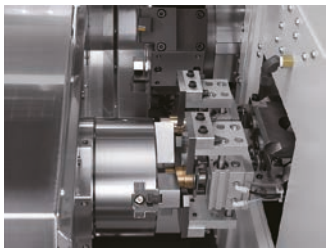


1. In the tooling zone: machining of the workpiece is completed.

2. At the loader side: the IN hand grips a blank and carries it into the tooling zone.

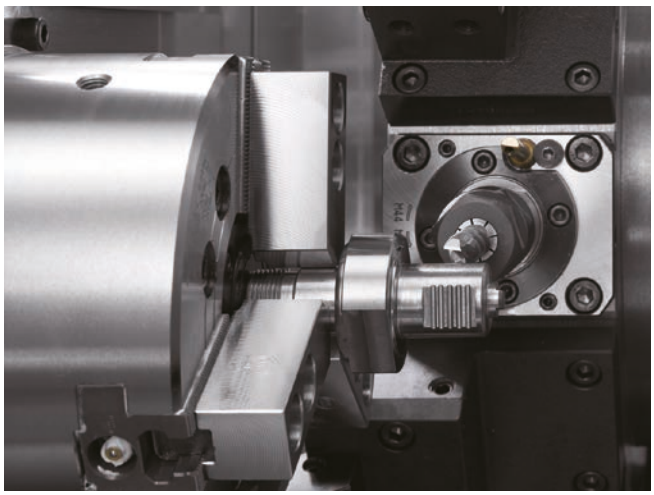


3. The OUT hand receives the machined workpiece.



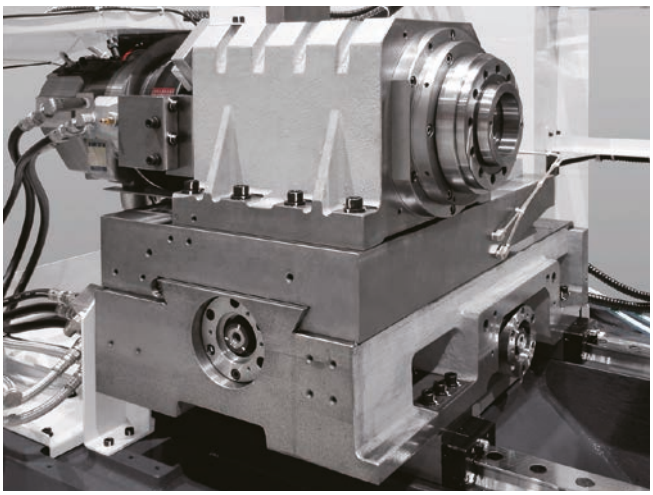
4. The spindle moves to the position of the IN hand and receives the blank from the IN hand.

Highly Rigid Turret



Combining an original double-column type Y-axis mechanism (01RY) with a turret slide on the Y-axis only instead of having X-axis and Z-axis slides enables high-precision machining in turning work.

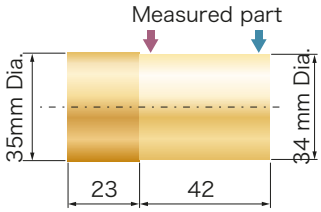
High-rigidity Spindle and Roller Type Linear Guide



Adopting a linear guide for the Z-axis allows increased speed, with a rapid traverse rate of 24 m/ min.
And because a roller type linear guide is used, the rigidity is equivalent to that of a square slide.

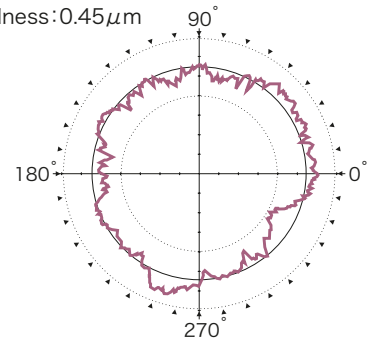
Accuracy.

Roundness

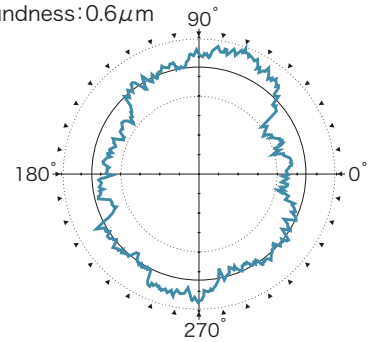


Material : BSBM
Spindle speed : 3,000 m^{-1}
Feed rate : 0.06mm/ rev
Depth of cut : 0.1mm

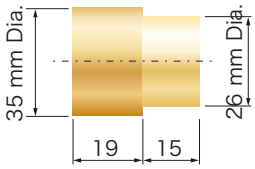
Roundness:0.45μm



Roundness:0.6μm



Dimensional accuracy

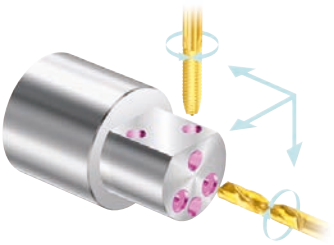


Material : BSBM
Spindle speed : 3,000 m^{-1}
Feed rate : 0.06mm/ rev
Depth of cut : 0.1mm

Outside diameter - Max. value:0.0μm Mini. value: -6.0μm
Overall length - Max. value:0.0μm Mini. value:-29.0μm

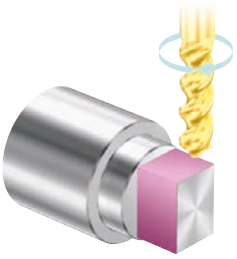
Examples of Complex Machining.

Basic complex machining



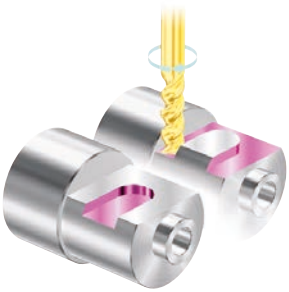
By using the Y-axis, the machining time for off-center drilling and off-center tapping can be shortened. The tapping accuracy with a rigid tap is also improved. (01RY)

High precision milling



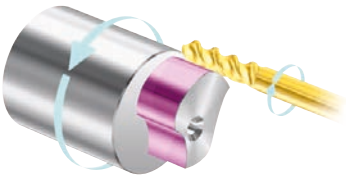
Accurate positioning by the C-axis and high precision combined machining by the Y-axis allow for a wider range of machining.(01RY)

Flat milling



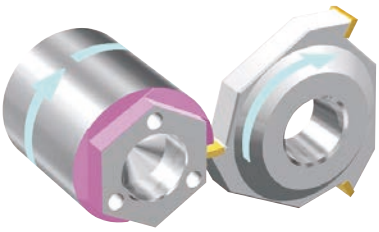
Separating the machining into rough cutting and finishing improves both the accuracy and the quality of the machined surface. (01RY)

Contouring



Simultaneous 2-axis control including the C axis in combination with the X, Z or Y axis can be used for contouring. (01RY)

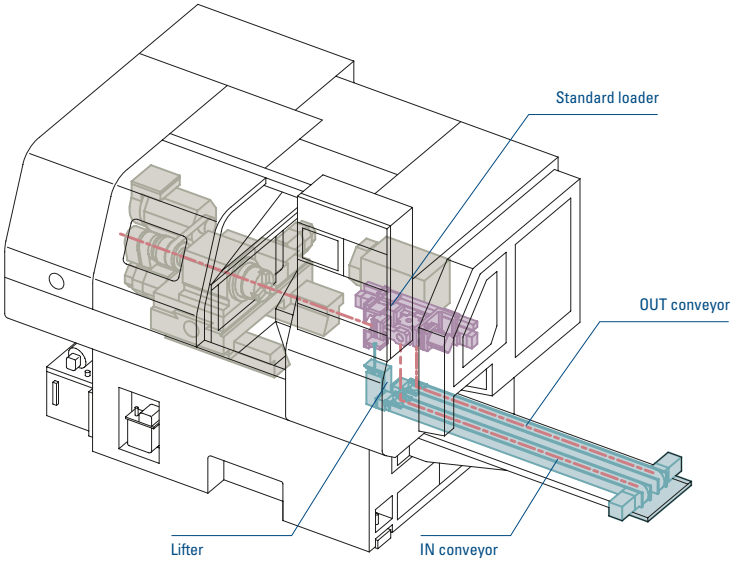
Polygon machining



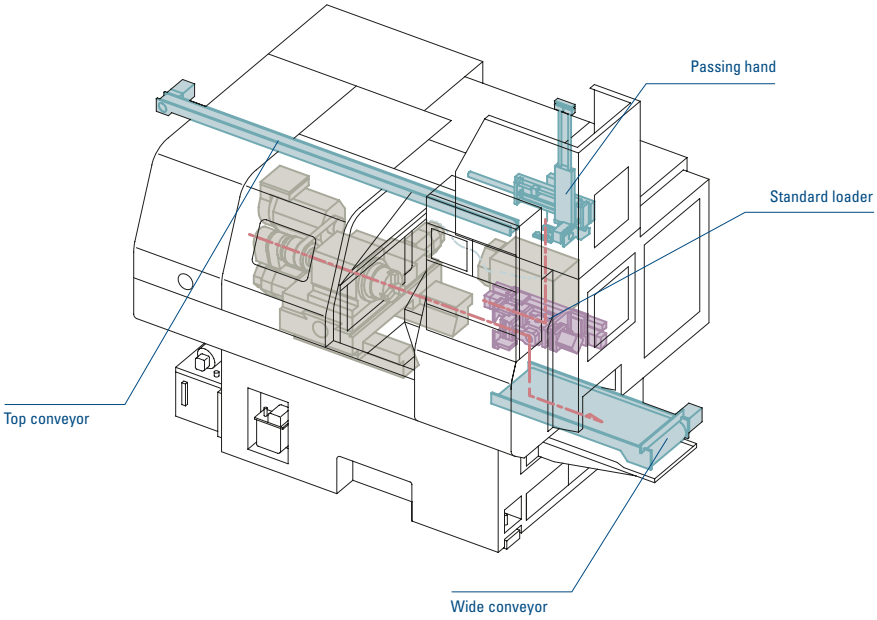
Synchronizing the revolving tool speed with the spindle speed at two times permits polygon machining, such as two-, four- and six-sided machining, with a polygon cutter.

Automation systems.

Underconveyor system (standard)

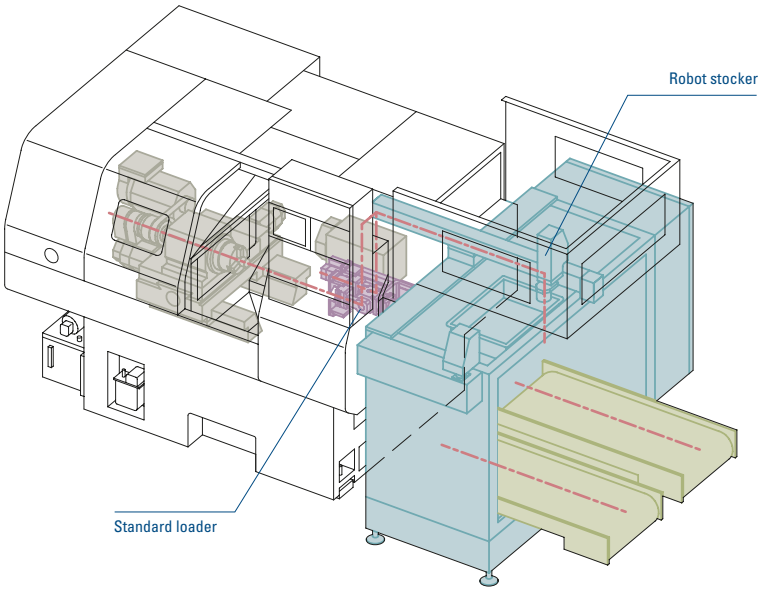


Top conveyor system (semi-standard)

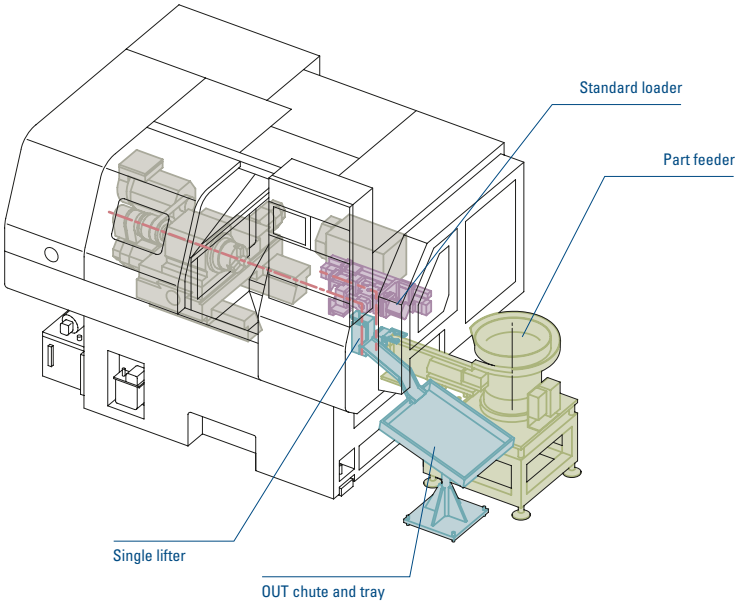


Automation systems.

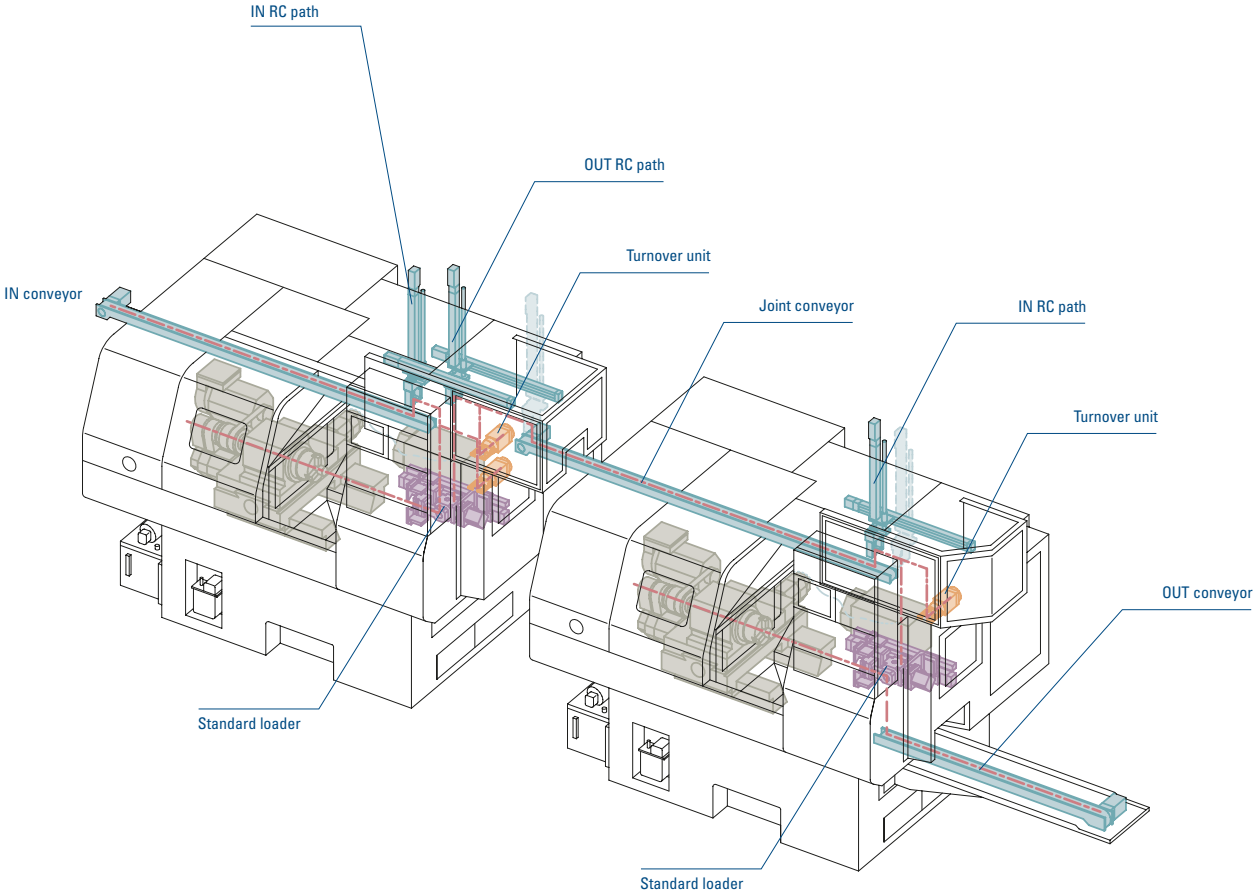
Robot stocker system (standard)



System with part feeder underneath (semi-standard)



Tandem Connection Specification (Special Specification)

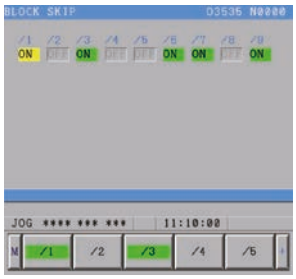


NC Custom Menu.

Custom menu

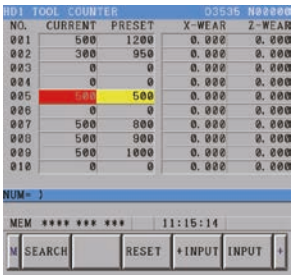
Displays the list of custom screens.

Block skip



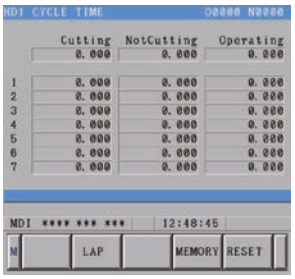
Used to set block skip 1 to block skip 9.

Tool counter



Used to set and reset the tool counter stop value and enter the tool wear offsets.

Cycle time

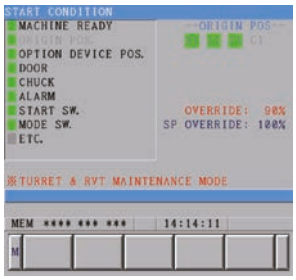


Measures the cutting time, non-cutting time and running time in each cycle.

Automatic running monitor

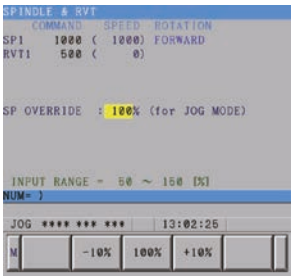
Displays the control status of each axis.Used to set ON / OFF for the machine lock function.

Start condition



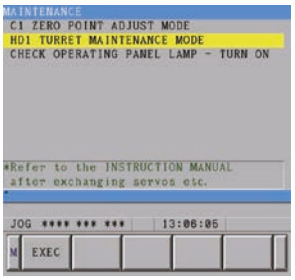
Used to set the start conditions for automatic running.

Spindle & RVT



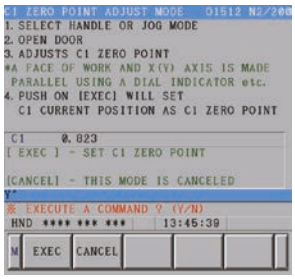
Used to set the rotational speed of the spindle and revolving tools. Used to set the spindle override.

Maintenance



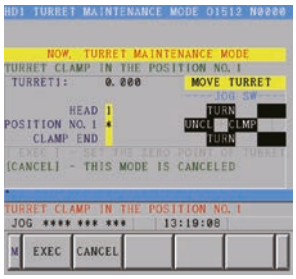
Used to set ON / OFF for the maintenance items. Used to set ON / OFF for turret zero point adjustment.

C Zero point adjust mode



Easy to adjust the C axis zero point .

Turret Maintenance

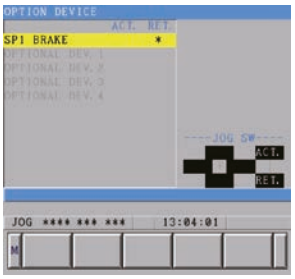


Used to adjust the turret zero point.

Manual operation

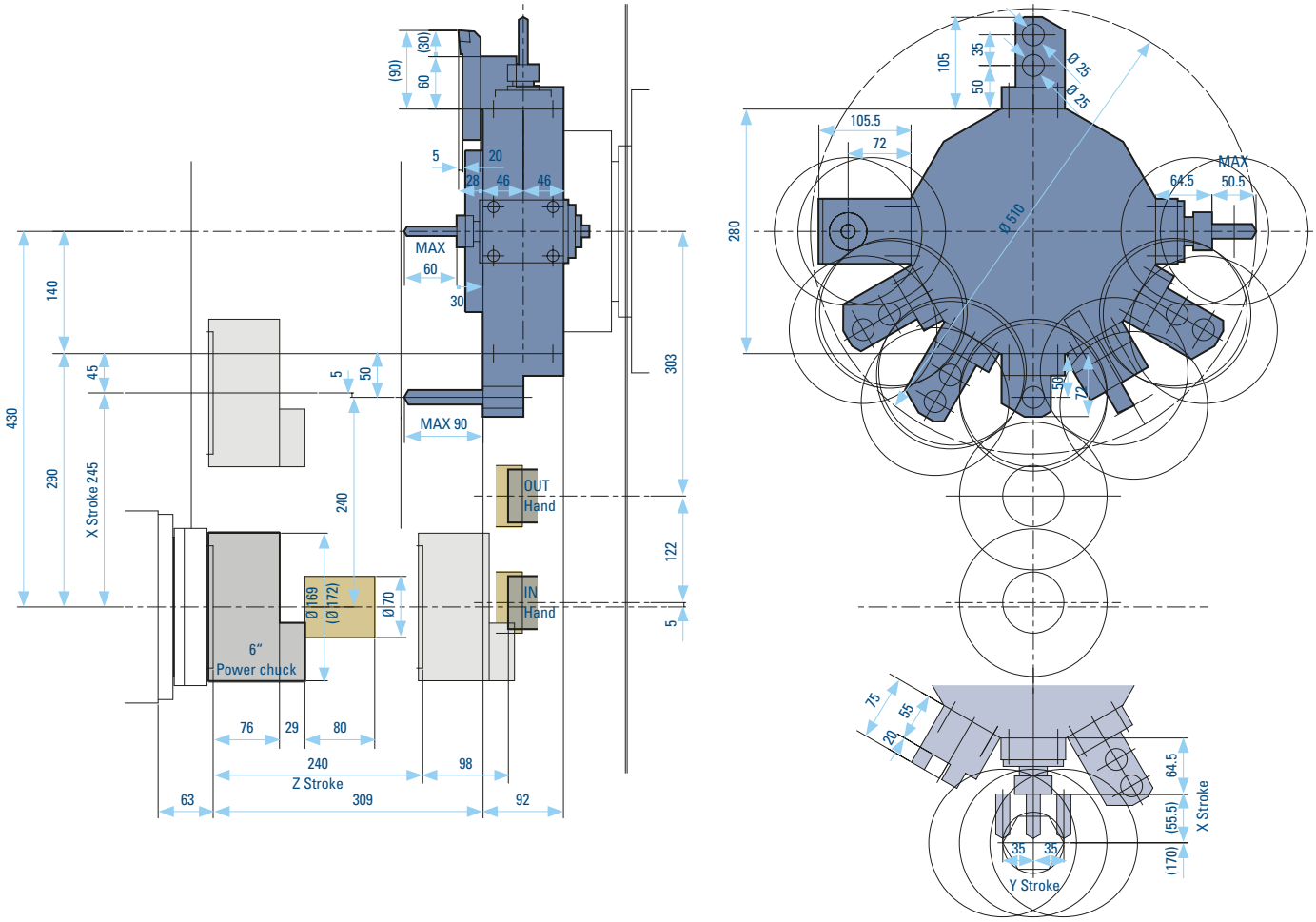
Displays the zero point lamp status and the machine coordinate of each axis.

Option device

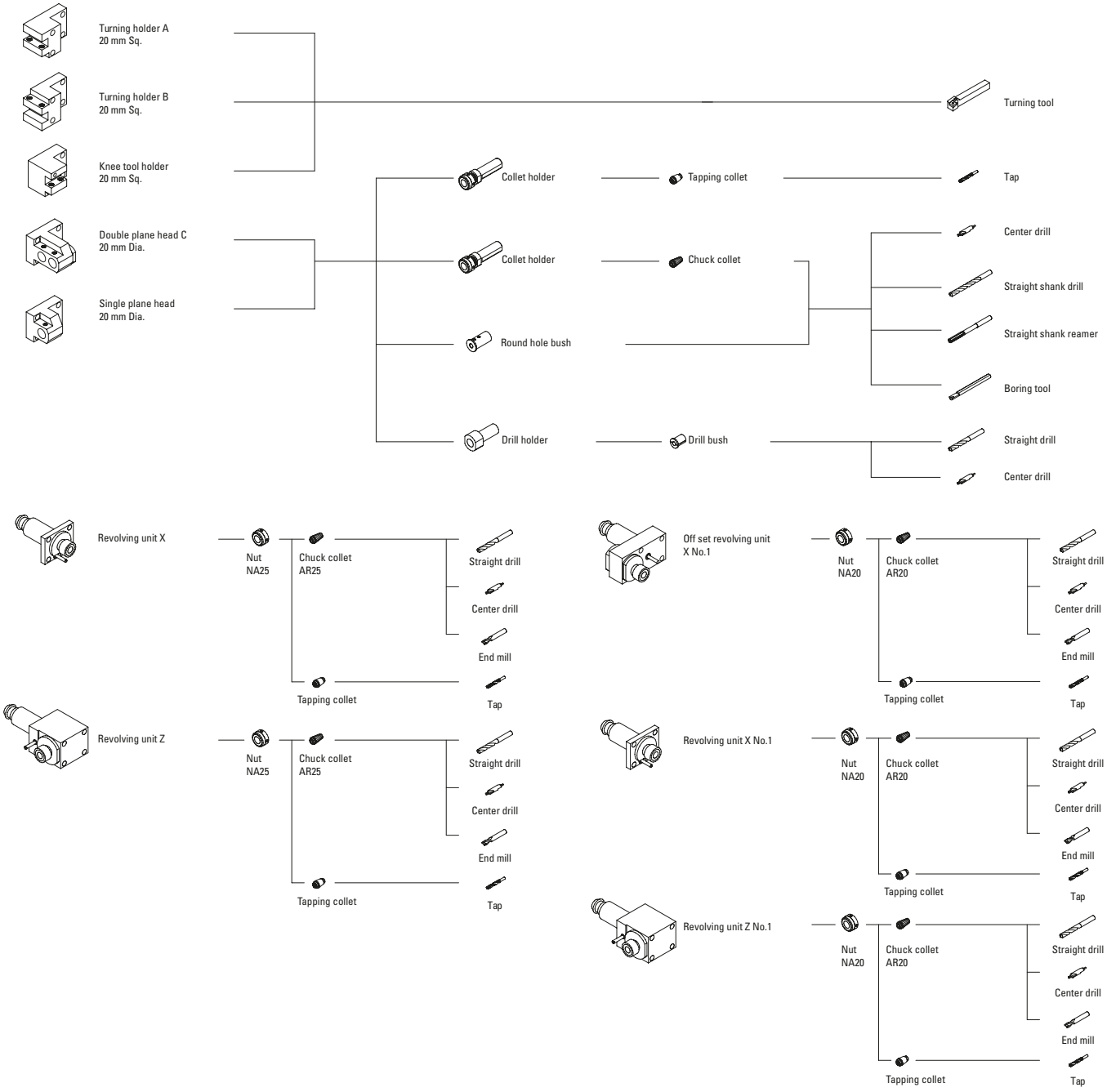


Used to select an auxiliary device such as a spindle brake to be operated manually.

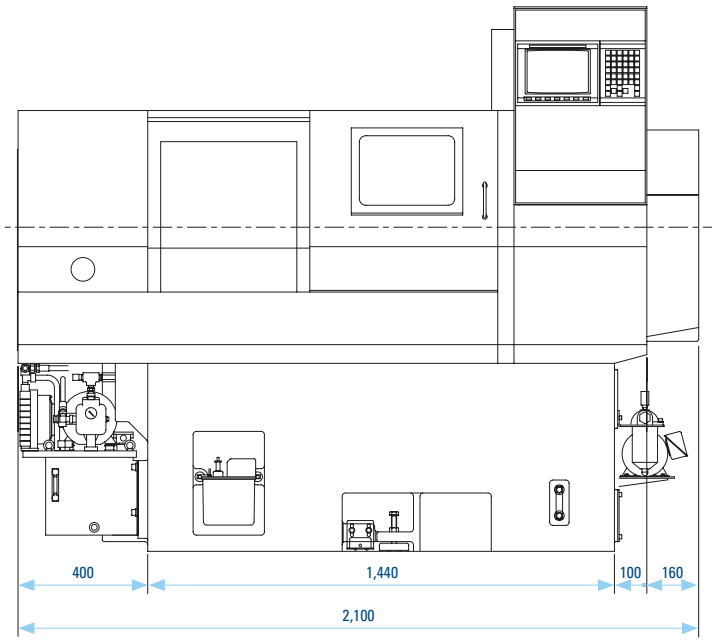
Tooling area.

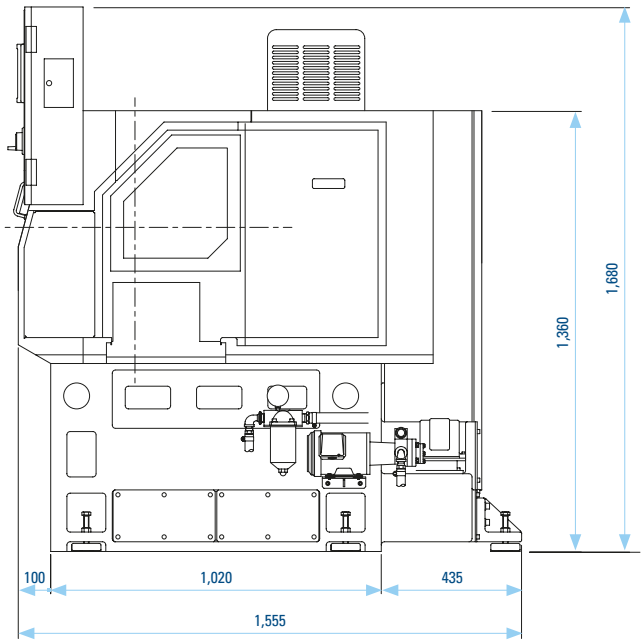


Tooling system.



External view.





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CITIZEN

Machine specifications

Item		LZ-01R2	LZ-01RY2
Machining capacity			
Max. work length		80 mm	
Max. blank diameter			
	Power chuck	Ø 70 mm	
	Collet chuck	Ø 50 mm	
Spindle			
Number of spindle		1	
Spindle speed range		60–6,000 min^{-1}	
Inner diameter of draw tube		Ø 32 mm	
Chucking system		Hydraulic cylinder	
Type of collet chuck		Spring collet chuck	
Power chuck size and type		6" Hydraulic chuck	
Turret			
Number of turret		1	
Turret stations		12 st.	
Tool shank size		20 mm Sq.	
I.D. tool hole size		Ø 25 mm	
Index time		0.2 sec./1 pos.	
Slide			
Slide stroke	X-axis	245 mm	
	Z-axis	240 mm	
	Y-axis	–	± 35 mm
Rapid traverse rate	X-axis	20 m/min.	
	Z-axis	24 m/min.	
	Y-axis	–	12.5 m/min.
Revolving tool			
Number of revolving tool		MAX. 6	
Spindle speed range		100–4,000 min^{-1}	
Machining capacity	Drilling	MAX. Ø 13 mm	
	Tapping	MAX. M8 x 1.25	
Tank capacity			
Hydraulic tank capacity		17 L	
Lubricating tank capacity		2 L	
Coolant tank capacity		140 L	
Machine dimensions			
Machine height		1,680 mm	
Floor space		2,100 mm x 1,555 mm	
Machine weight		3.600 kg	
Motors			
Spindle motor 50% ED/Cont.		7.5/5.5	
Revolving tool motor		2.5 kW	
Power supply			
Voltage		AC 200 V ± 10%, 50/60 Hz ± 1 HZ	
Capacity		19 KVA	20 KVA
Air supply		0.5 MPa (5 kgf/cm^2)	
Fuse		75 A	
Loader specification			
Hands type		Double hands	
Max. work size		70 x 80 mm Dia	
Min. work size		10 x 10 mm Dia	
Max. work weight		0.7 kg x 2	
Servicing time		6.0 sec	
Control & driving method		PMC & air operating	
Others			
Transfer detecting device, Tool compensation number:64, Cs-axis drive unit, Splashguard interlock, Revolving tool drive (LZ-01RY2), Pneumatic system, High-pressure coolant			

NC specifications	FANUC 0i-TD
Axis controlled	LZ-01R2 : X, Z, C, A (Option)
	LZ-01RY2 : X, Z, Y, C, A
Number of simultaneous control axes	4 axis
Min. input incremental	0.001 mm, 0.001deg.
Min. output resolution	X axis: 0.0005mm, Z axis: 0.001mm
Part program storage	512 kbyte (1,280m)
Spindle function	S4 digit (G97), Constant surface speed control (G96)
Feed rate	F3.4 mm/ rev, F6 mm/ min
Feed rate override	0 - 150% (10% Step)
Interpolation functions	G00, G01, G02, G03
Thread cutting	G32, G92
Canned cycles	G90, G92, G94
Tool function	Taabb (aa=Tool number and geometry, bb=Wear offset number)
Tool position direct input function	by measured MDI
Input/output interface	Memory card,USB,
Autmatic operation	1 cycle/Automatic operation, Single block, Block delete, Machine lock, Optional block skip, Dry run, Feed hold
Others	8.4" color LCD/ MDI, Program storage capacity addition: 400 pieces, A decimal point input, Manual pulse generator, Memory protect.
NC standard function	The circle radius R command, Nose radius compensation, Constant surface speed control (G96), Back ground editing, Programmable date input (G10), Run hour/Parts count display, Polar coordinate interpolation, Multiple repetitive cycles (G70 - G76), Rigid tap, Cylindrical interpolation, Custom macro, Canned cycles for drilling (G80 - G86) Tool life management.
NC option	Helical interpolation

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