

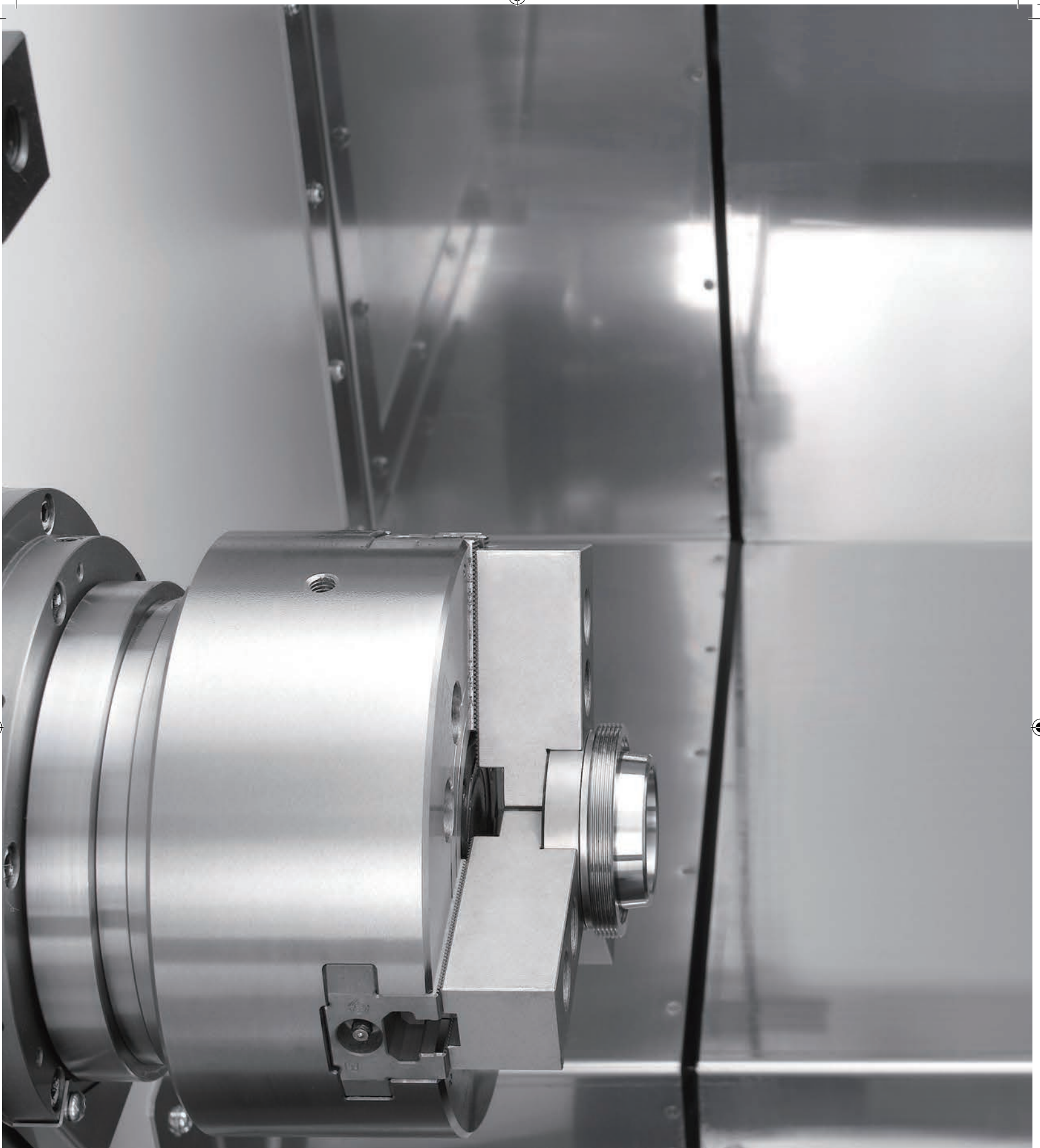
CITIZEN

Miyano

LX08c

CNC Lathe

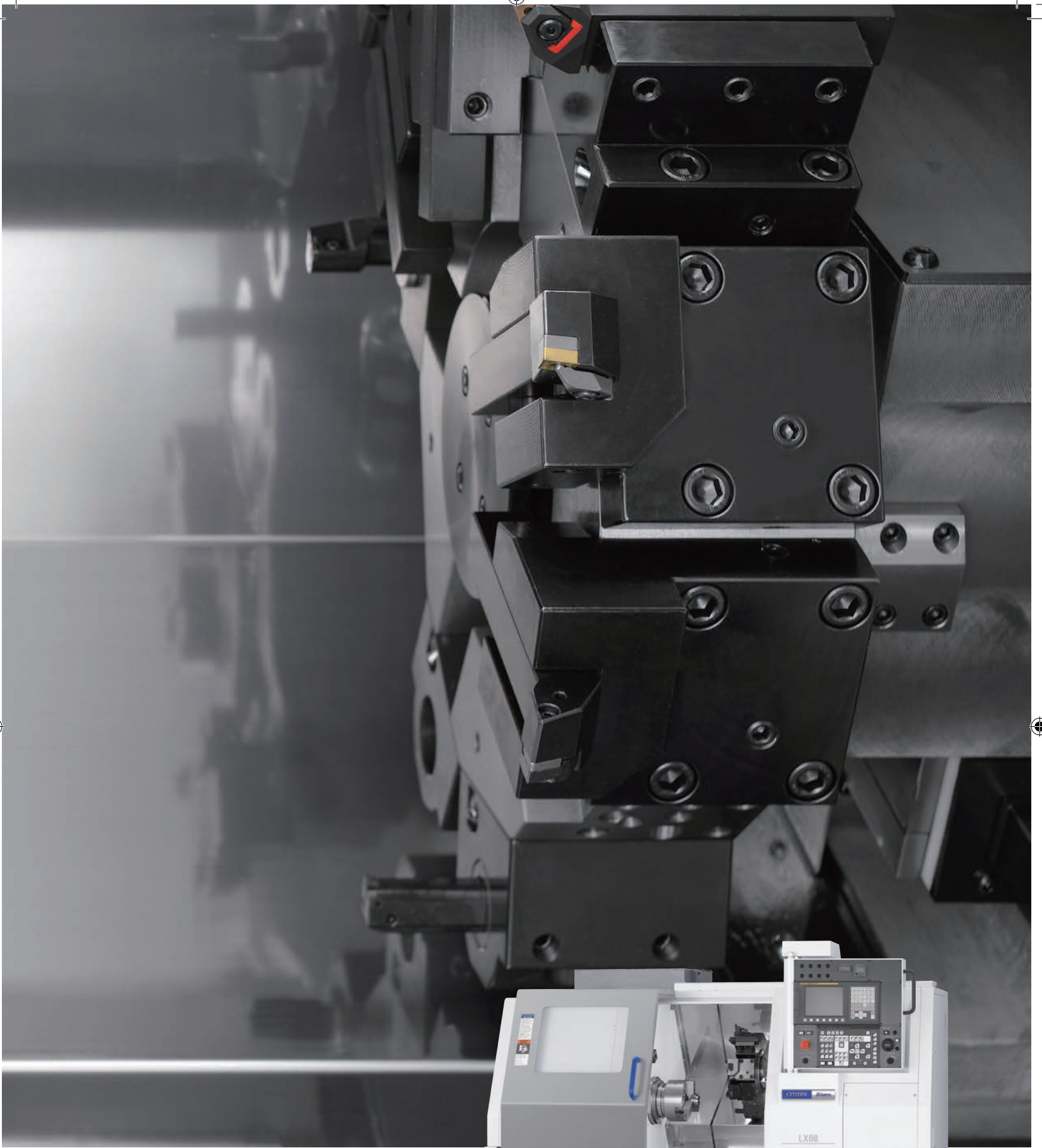




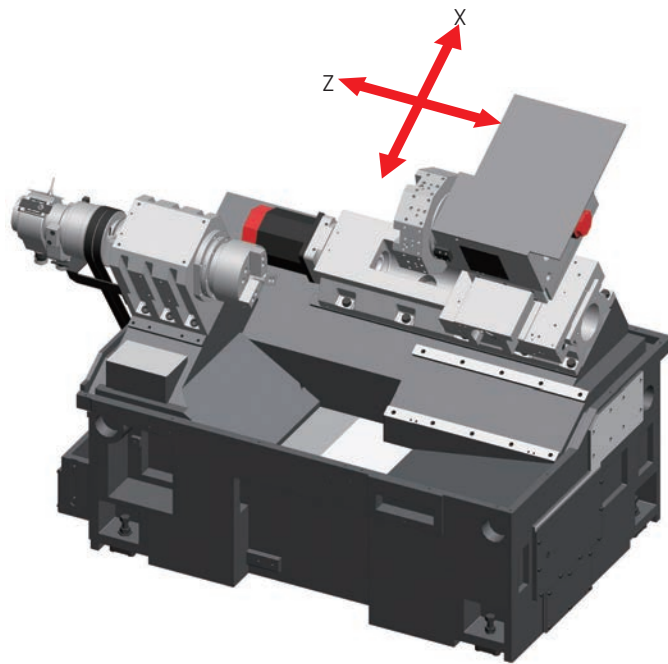
We proudly introduce an 8-inch chucking machine, developed through and close study of the basic performance required of machine tools.

The rigid turret uses precision scraped square guideways providing excellent vibration damping characteristics, the rigid spindle is supported by double-row cylindrical roller bearings and angular contact ball bearings, and the heavy 30° slanted bed is in a platform-like surface table where the turret and the spindle are mounted.

The high levels of basic performance accomplished give consistently high machining accuracy.



## Rigid Base



### Heavy bed, the basis for the machine's high performance

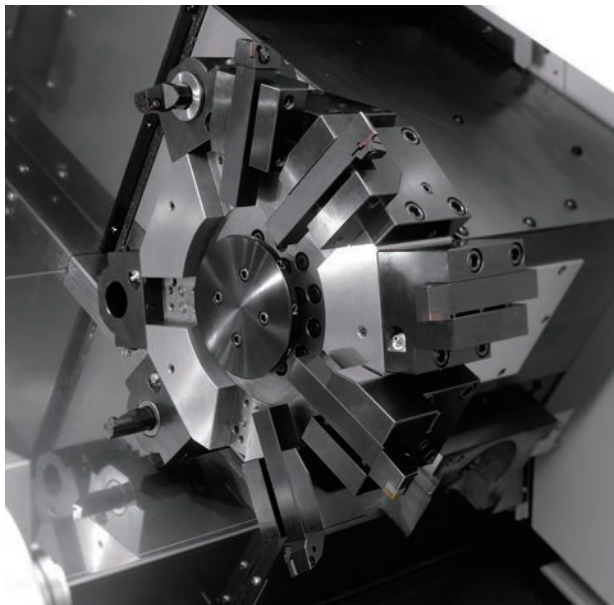
The 30° slanted bed, which is cast in one piece, provides outstanding thermal stability thanks to smooth chip flow to minimise dimensional changes during machining, and supports high-precision machining as a closed-structure rigid body.

### Reliable flat faces to mount major machine units

The flat faces of the 30° slanted bed where major machine units such as spindles and tool slides are mounted assure rigidity by adopting the platform-like surface table.

This structure maintains stable flatness in the face of external and internal factors that work to impair machining accuracy, minimising changes in relative dislocation between the workpiece and tool nose.

## Turret



### Highly rigid turret

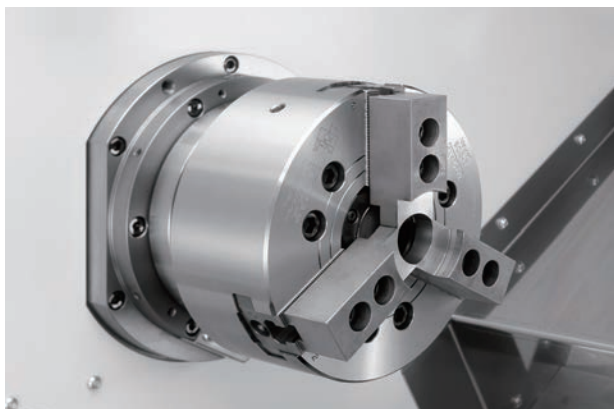
For the turret, subject to cutting forces and vibration under severe conditions, precision scraped square guideways are used on all axes to increase rigidity and vibration damping characteristics.

A two-piece curvic coupling is used to clamp the turret, prioritising rigidity. This also realises a compact mechanical structure.

### Heavy cutting by direct mounting of tools

Since 25-mm square tools can be directly mounted on the turret, tools can be clamped securely with a short overhang, enabling heavy cutting.

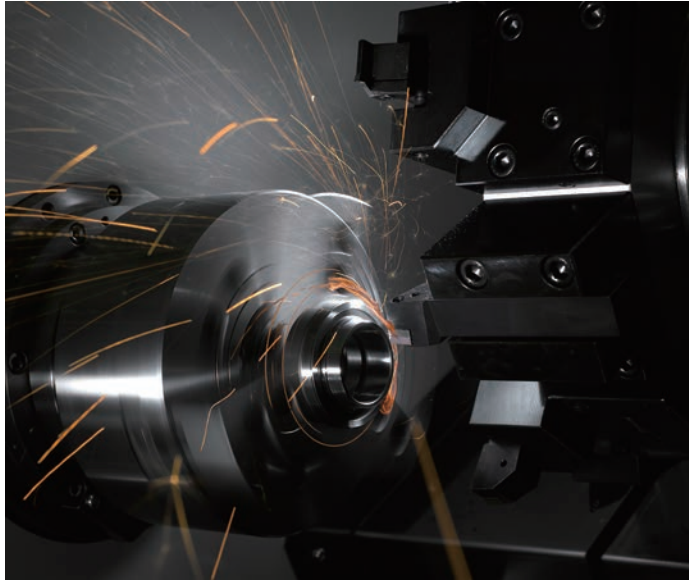
## Spindle



### Rigid 8-inch spindle

The spindles manufactured in the dedicated in-house production lines feature rigid double-row cylindrical roller bearings and angular contact ball bearings to support the spindle at the front and rear. By spacing them sufficiently far apart, the bearable moment load and straightness of the centre of rotary axis are improved.

# Hard turning



## From grinding to hard turning

Hard turning is a kind of turning process for machining quenched materials on an NC lathe using CBN or ceramic tools.

## Advantages of hard turning over grinding

Initial investment cost (machine price) is low.

Several grinding processes can be integrated into turning processes performed on a single NC lathe.

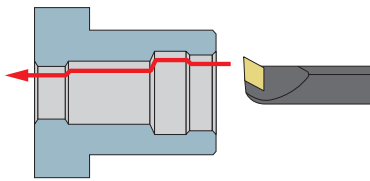
Since all machining processes including outer and inner turning, circular machining and free-form surface machining can be performed in one chucking, geometrical accuracy, such as straightness, squareness and concentricity, is considerably improved.

Cycle time can be reduced thanks to short loading and unloading time.

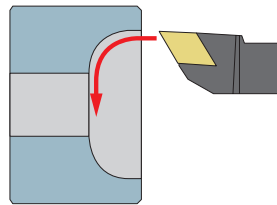
Dry cutting is environmentally friendly - reduced use of coolant, and recovery of resources by recycling chips instead of disposing of the sludge generated in grinding.

## Examples of circular and free-form surface machining

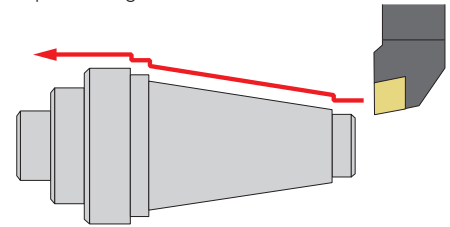
Internal turning  
(thread cutting, stepped internal turning)



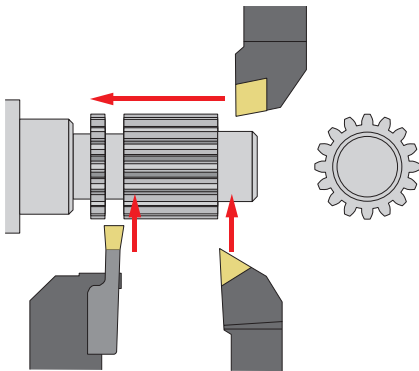
Spherical and free-form surface turning



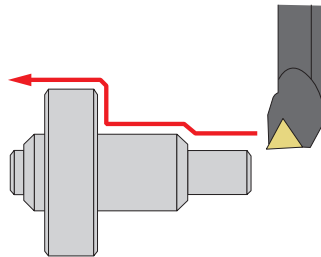
Taper turning



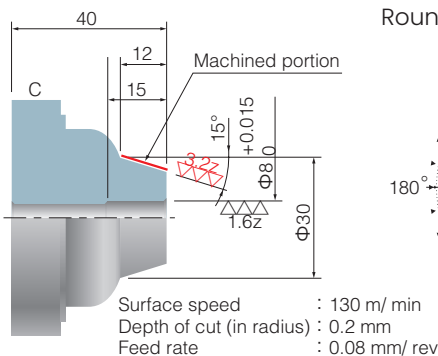
Grooving and width setting turning



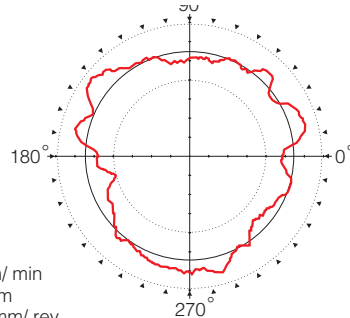
External + Face turning



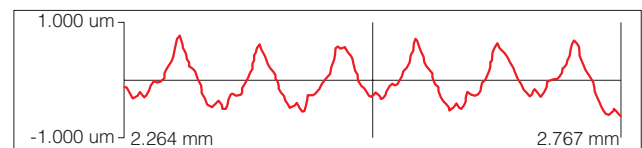
## Machining accuracy in hard turning



Roundness: 0.45  $\mu\text{m}$

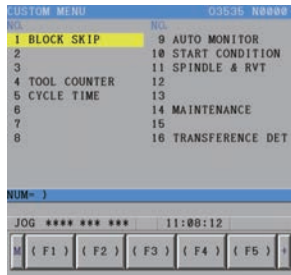


Surface roughness: 1.301  $\mu\text{m}$

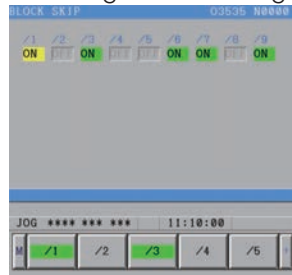


# NC Custom menu

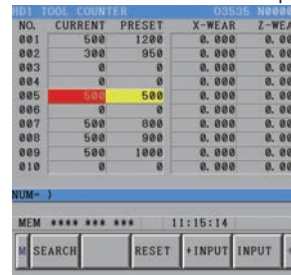
The functions convenient for machining and checking can be called in one-touch operations.



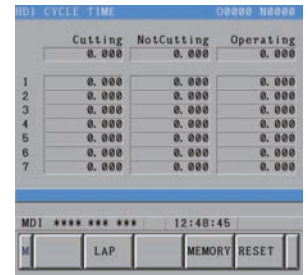
**Custom menu**  
Displays the list of custom screens.



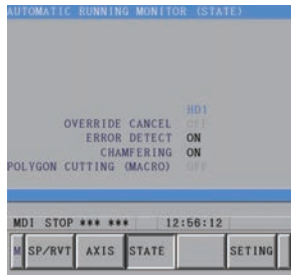
**Block skip**  
Used to set block skip 1 to block skip 9.



**Tool counter**  
Used to set and reset the tool counter stop value and enter the tool wear



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



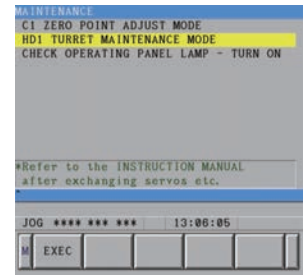
**Automatic running monitor**  
Displays the control status of each axis.  
Used to set ON / OFF for the machine lock function.



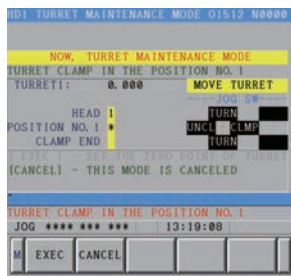
**Start condition**  
Used to set the start conditions for automatic running.



**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.



**Turret maintenance**  
Used to adjust the turret zero point.

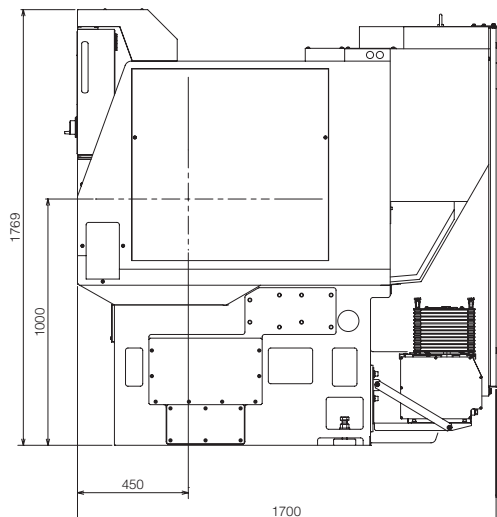
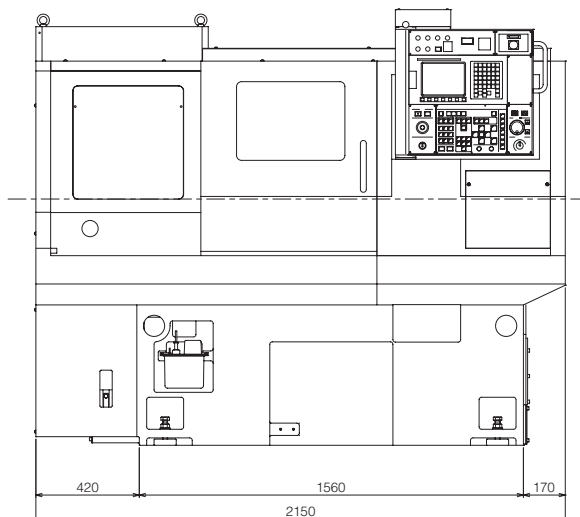


**Manual operation**  
Displays the zero point lamp status and the machine coordinate of each axis.

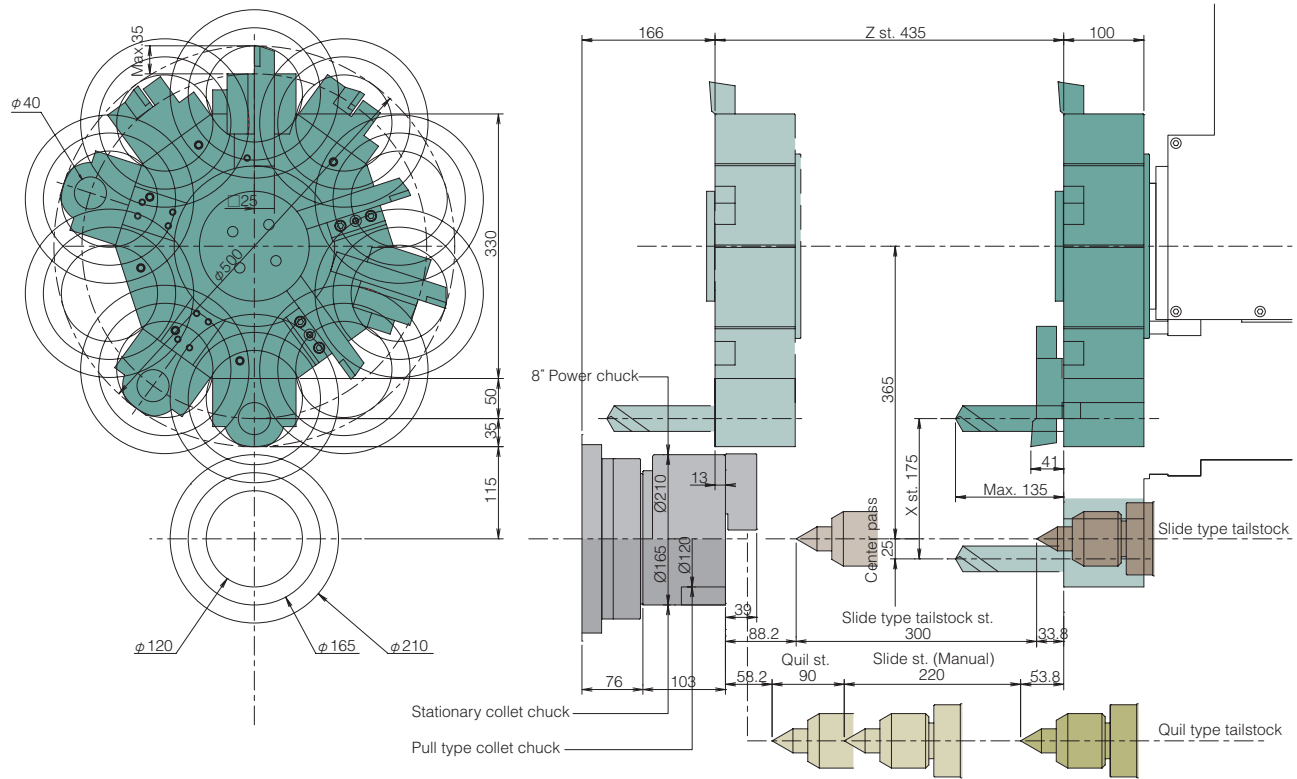


**Option device**  
Used to select an auxiliary device such as a part catcher to be operated manually.

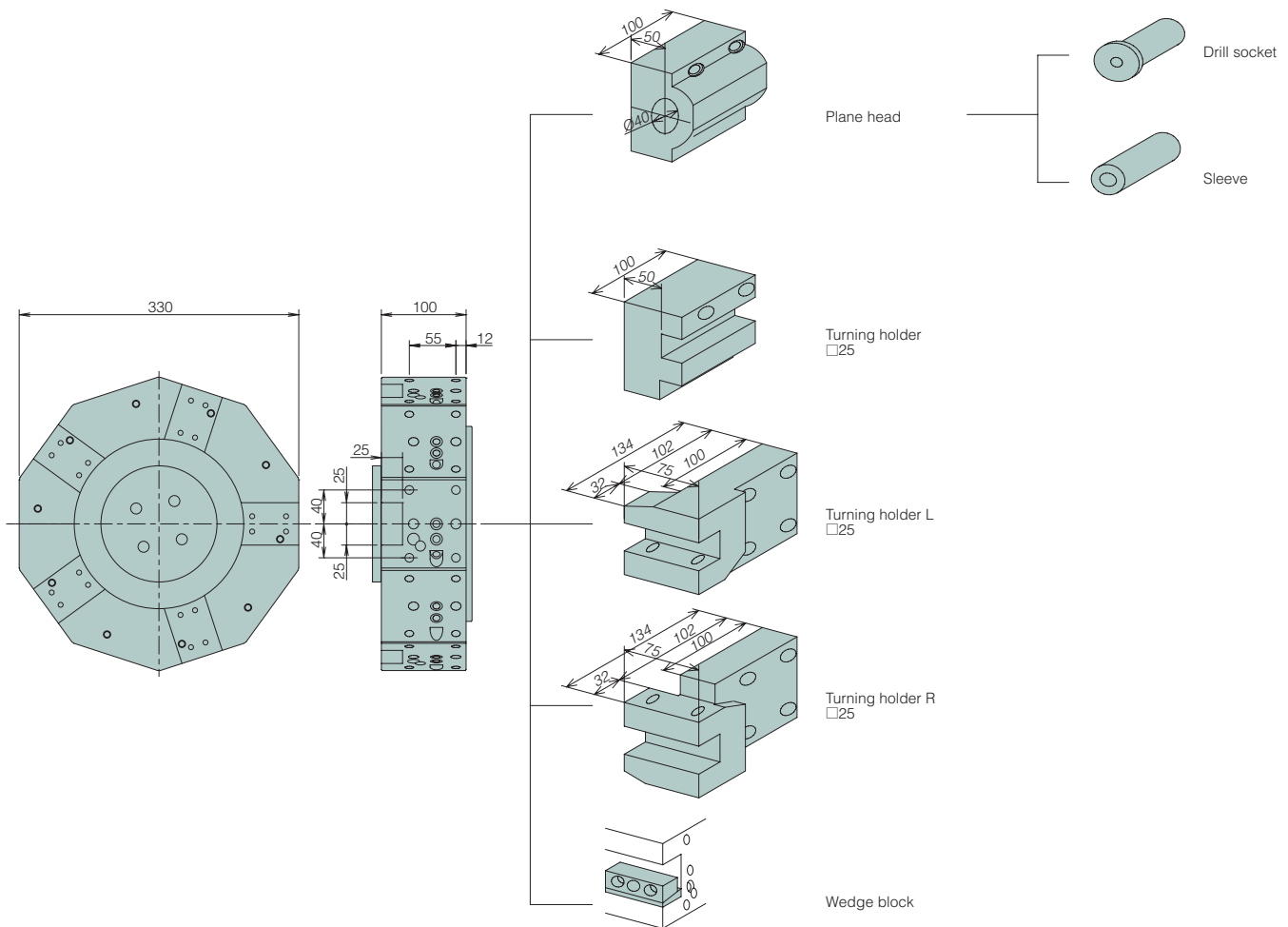
# External view



## Tooling area



## Tooling system



# Machine specification

Item	LX-08C
Machining capacity	
Maximum work length	320mm
Maximum bar diameter	Max. 210mm Dia.
Spindle	
Number of spindles	1
Spindle speed range	40 - 4,000min <sup>-1</sup>
Spindle draw tube dia.	52mm Dia.
Type of chucking system	Hydraulic thru-hole chuck cylinder
Collet chuck type	Hardinges22 with pad
Power chuck type	8" thru-hole power chuck
Tool slide	
Number of Tool slide	1
Type of tool slide	10st. turret
Size of Turning Tools	25mm Sq.
Size of Drill & Boring Tools	40mm Dia.
Turret Index Time	0.26 sec./1pos.
Slide	
Slide travel	X-axis 175 mm Z-axis 435 mm
Rapid Feed rate	X-axis 12 m/ min. Z-axis 16 m/ min.
Tailstock (Option)	
Slide type	Hydraulic
Max. slide travel	300 mm
Live centre size	MT4
Max. slide thrust	4.3 kN/ 3.4 MPa
Min. slide thrust	0.36 kN/ 0.3 MPa
Quill type	Hydraulic
Max. slide travel	Quill 90 mm + Manual 220 mm
Tank capacity	
Hydraulic oil tank capacity	10 L
Lubricating oil tank capacity	2 L
Coolant tank capacity	150 L
Machine dimensions	
Machine height	1,734 mm
Floor space	2,150 mm x 1,728 mm
Machine weight	4,500 kg
Motors	
Spindle drive	AC 7.5/ 11
Coolant pump	AC 0.18 kW
Power supply	
Voltage	AC 200 V ± 10%, 50/ 60 Hz± 1%
Capacity	22 KVA
Air supply	0.5 MPa (5 kgf/ cm <sup>2</sup> )
Fuse	100 A
Others	
Splash guard interlock, Foot switch	
Option	
Collet system, Power chuck system, Pneumatic Unit, Chuck air blow,	
Spindle inner air blow Automatic fire-extinguishing equipment,	
Automatic power shut-off, Parts catcher, Parts conveyor, High pressure coolant,	
Tail stock, Chip conveyor, Chip box, Total & preset counterCoolant mistcollector,	
Oil mist damper, Warning light, 110V, RS-232C, etc.	

NC specification	
Model device	FANUC 0i-TD
Axial control	X, Z
Simultaneous control axis	2 axis (Positioning, Linear interpolation)
Minimum setting unit	0.001mm
Minimum output unit	X: 0.0005 mm Z: 0.001 mm
Interpolation functions	G00, G01, G02, G03
	512Kbyte (1280 m)
Spindle function	S4 digit direct spindle speed input (G97)
	Constant cutting speed control (G96)
Feed	F3.4 digit feed per revolution, F6 digit feed per min.
Feed rate override	0 - 150% (10% step)
Rapid feed	X: 12m/ min, Z: 16m/ min
Interpolation functions	G01, G02, G03
Thread cutting	G32, G92
Canned cycle	G90, G92, G94
Tool function	T AABB (AA=Tool number and geometry, BB=Wear offset number)
Tool position direct input function	by measured MDI
Automatic operation	PC card slot, USB memory interface,
Auto cycle	1 cycle/ Automatic operation, Single block, Block delete, Machine lock Optional block skip, Dry run, Feed hold
Others	8.4" colour LCD/ MDI, Program storage capacity addition:400 A decimal point input, Manual pulse generator Memory protect, AC digital servo motor, etc.
Standard NC functions	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, Multiple repetitive cycles (G70 - G76), Spindle rigid tap, Polar coordinate interpolation, Custom macro B, Canned cycles for drilling (G80 - G86), Tool life management.

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