

CITIZEN

Miyano

BNJ-51 sy

Fixed Headstock Type CNC Automatic Lathe



EcoBalance Machine



EcoBalance Machine Certification Model for a Sustainable

LFV (Low Frequency Vibration Cutting) technology resolves various issues related to chips, improving productivity.

The model is equipped with environmentally friendly features that minimize energy use, such as power consumption reduction technology, air consumption reduction technology, and visualization of CO2 emissions.



EcoBalance Machine

CITIZEN MACHINERY aims to create a sustainable society by innovating customers' manufacturing workflow with a focus on their future issues as well as their current ones. We work to continuously enhance corporate value through "sustainable management" that takes into account social issues such as human rights and the global environment throughout the value chain, while certifying products and services that contribute to a sustainable society, including our proprietary technologies typified by LFV (low frequency vibration cutting) technology and the "FA-friendly" robot systems, as "EcoBalance Machines" centering on the Cincom and Miyano brands.

able Society

CITIZEN

Myano

EcoBalance Machine

BNJ51SY

LFV
technology

The best seller under the Miyano brand, the BNJ, has undergone a full revamp

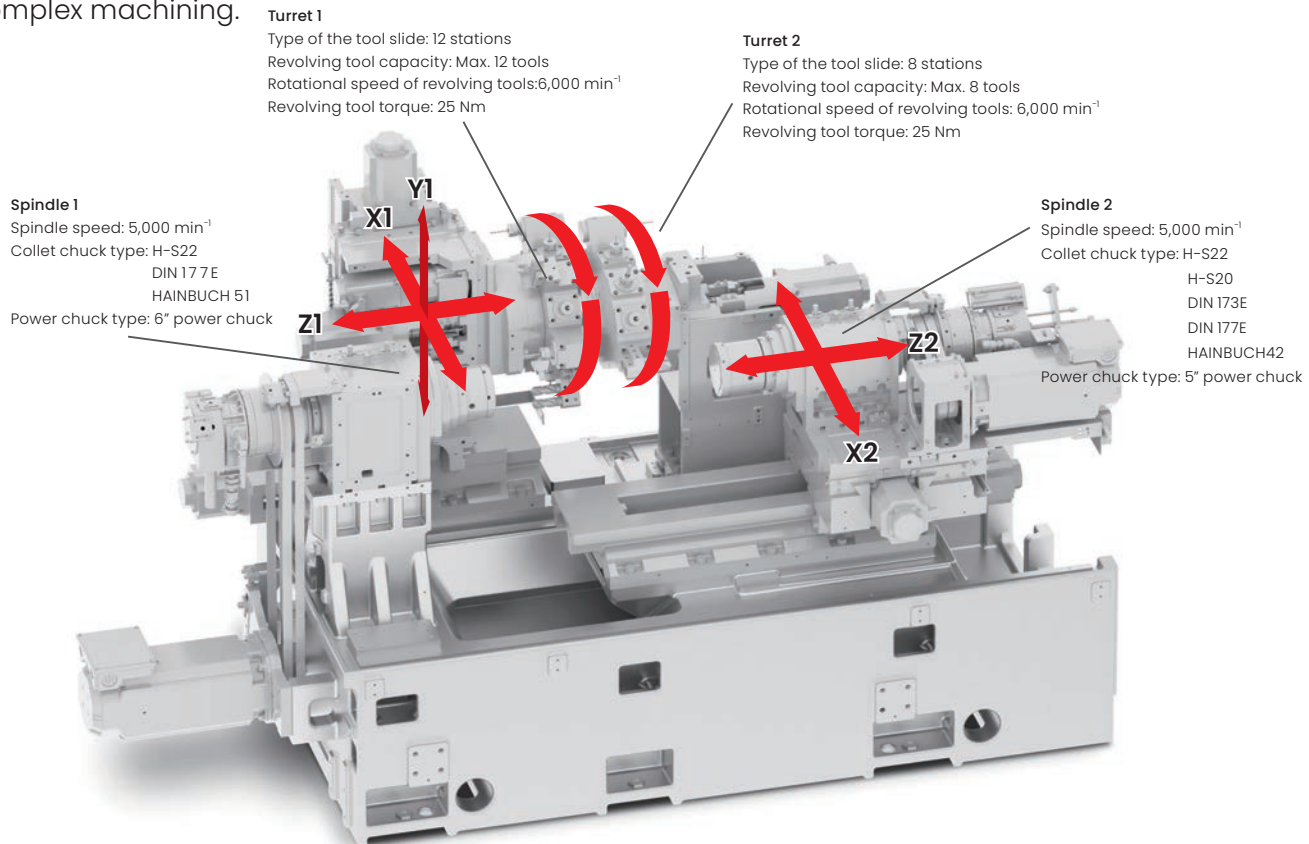
Despite being a high-performance 2-spindle, 2-turret machine, it has a small footprint. The new product design incorporating a large window improves visibility, and future system expansion needs are accommodated by providing a variety of optional devices and functions for automation and labor savings.



Basic construction

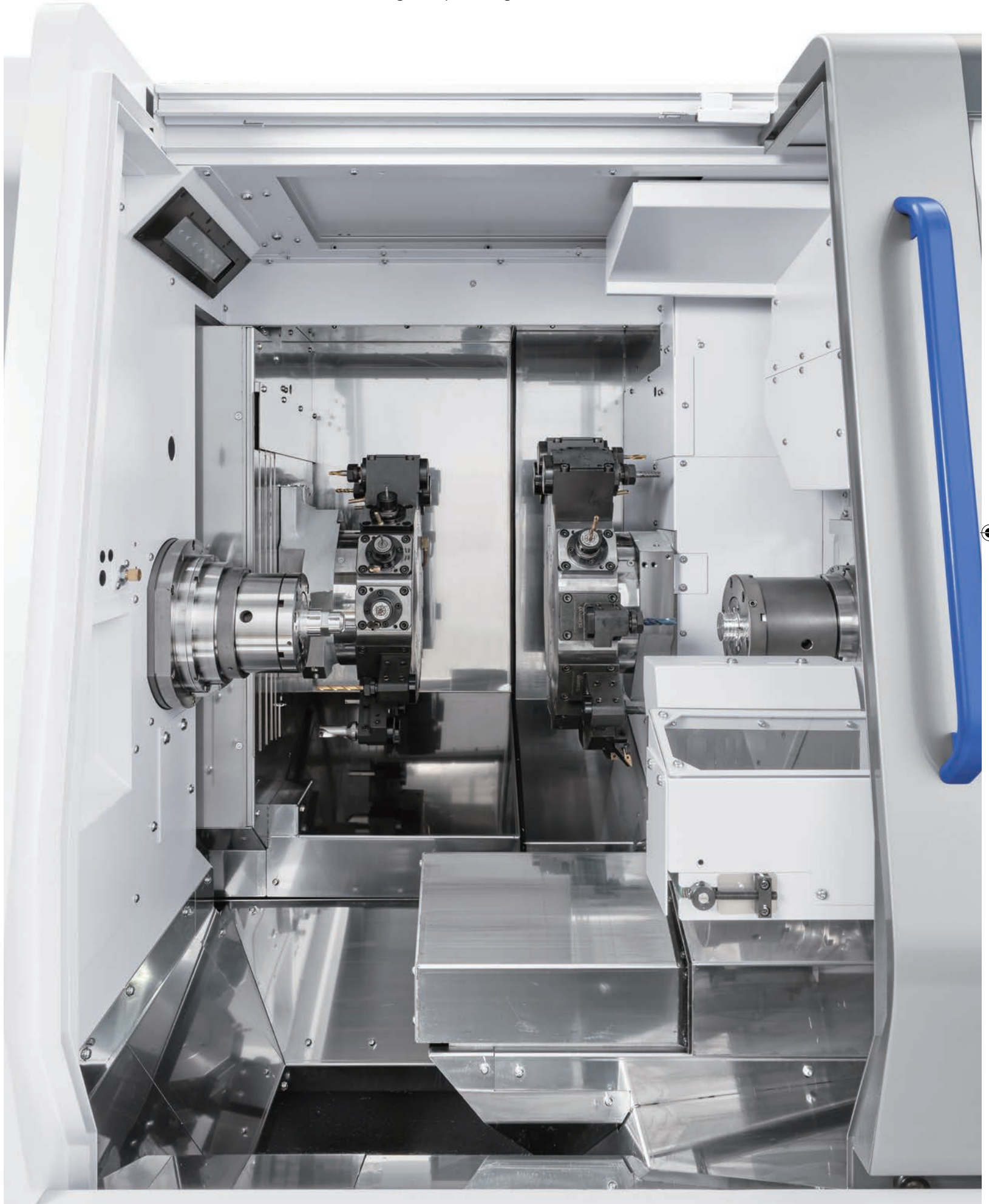
These bar work machines are capable of complex machining on front and back faces using a combination of a turret 1 equipped with a Y-axis, a uniquely-shaped turret 2, a spindle 1, and a spindle 2 that can be moved on the X2 and Z2 axes.

The increased ball screw diameter of $\varnothing 32\text{mm}$ on all axes improves basic performance and extends service life, while the highly rigid bed and box slideways support stable machining, enabling efficient complex machining.



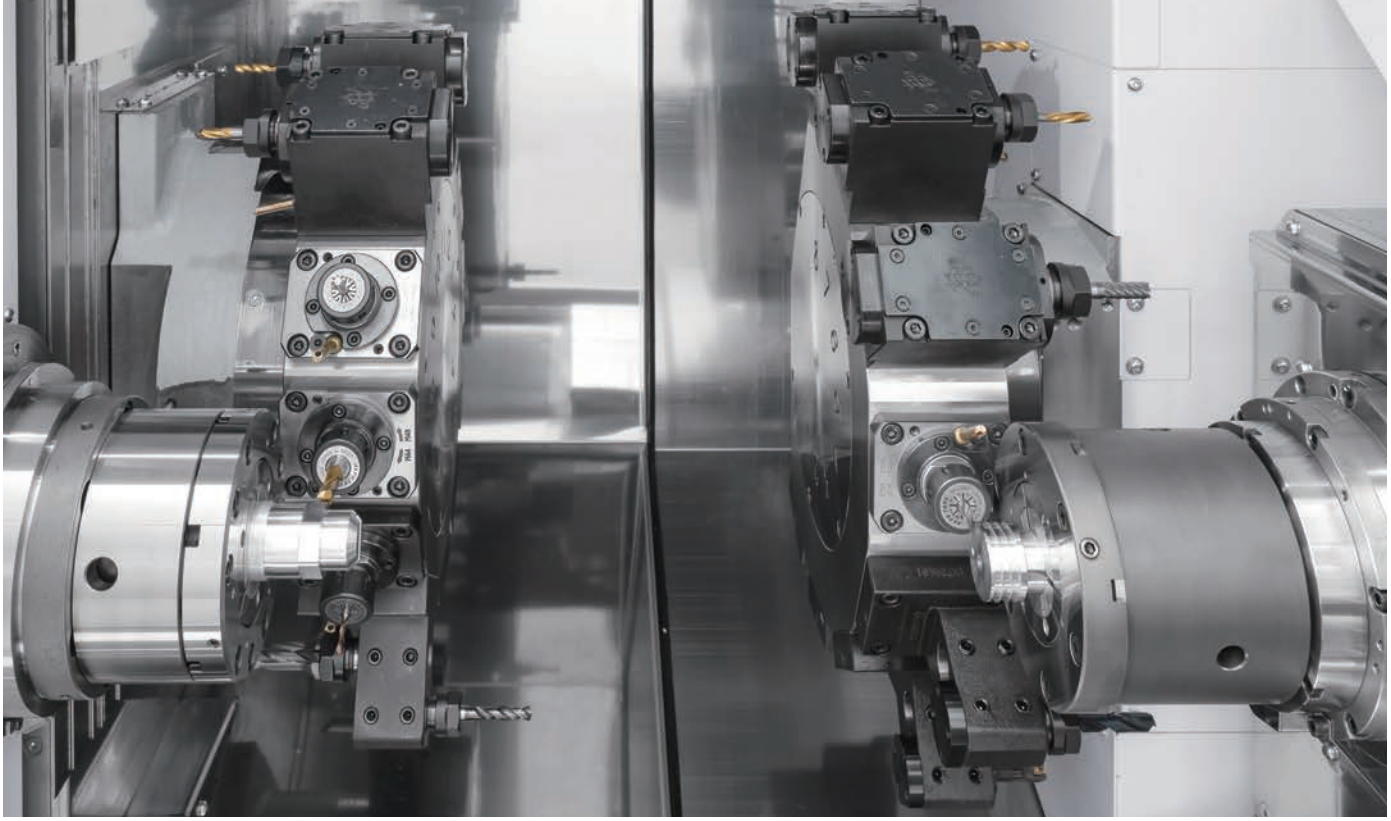
Improved access to the machining chamber

A large sliding door is used for better working convenience inside the tooling area. The end face of the chucks and the machining point can be checked at a glance, and the generous opening gives good access and reduces the workload during setup changes.



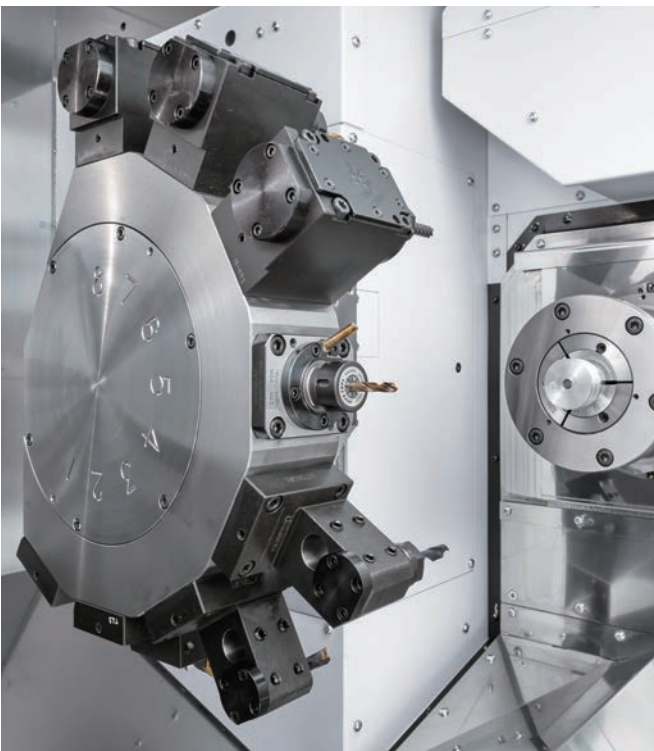
Revolving tools with the same capabilities on the right and left turrets

Single drive has been adopted for revolving tools on turret 2. Tools for turret 2 are common-use with turret 1, increasing the revolving tool capacity to 8 tools. The rotational speed of the revolving tools on turret 2 has been increased from 3,000 min⁻¹ to 6,000 min⁻¹, and the torque from 10 Nm to 25 Nm, equalising the capabilities at the right and left turrets.



Expanded machining area for spindle 2

The machining area at the back side has been extended by 65 mm compared to the existing machines, enabling a $\varnothing 51$ mm chuck dedicated to spindle 2 to be mounted. (Photo shows H-S22)



Shortened cycle times

Cycle times are reduced by adopting the latest spindle motors to cut acceleration and deceleration times, increasing the rapid traverse rate on the slides from 20 m/min to 24 m/min, and by using the latest NC unit.



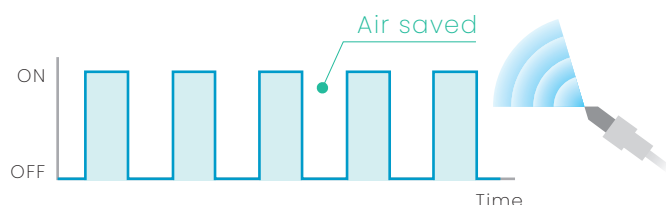
Technology Supporting “EcoBalance Machine”

Idling stop function

Used to stop unnecessary machine operation in the standby status where no programmed operation is in progress, thereby reducing power consumption.

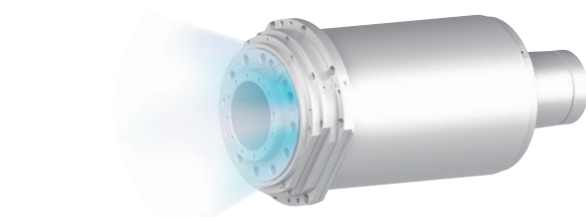
Air blow intermittent discharge function

Air consumption is reduced by approximately 60% while maintaining the effect and performance of the air blow.

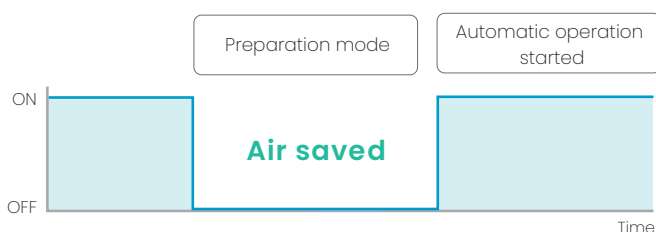


Air purge control function

Spindle air purging is shut off when the preset time has elapsed, thereby greatly reducing air consumption during standby.



Air purge OFF during setup or non-operation, and air purge ON during coolant discharge or machine operation



Eco II

“Eco II”, which supports customers’ efforts to save power, provides visibility into the power consumption, CO2 emissions, and reduction effects for each function.

It facilitates efforts to reduce power consumption.

POWER MONITOR(INDIV. CYCLE) [kWh]		
	After	Before
Total (ENTIRE)	0.166	0.171
SP1 Motor	0.019	0.021
SP2 Motor	0.018	0.019
RVT Motor	0.012	0.012
FEED AXES MOTOR	0.010	0.012
UNLOADER	0.000	0.000
OTHERS	0.000	0.000

LFV (low frequency vibration cutting) technology



The slideways incorporate the LFV technology. Simultaneous four-axis control is possible while maintaining machine rigidity. LFV on the X2 and Z2 axes can be specified for back machining while LFV on the X1 and Z1 axes are specified for front machining. Cutting down the volume of chips shortens the downtime, due to tank cleaning and chip trouble, and extends the possible duration of unmanned operation.



Chips generated by conventional cutting



Chips with LFV



LFV mode 1

When you want to thoroughly break up chips

Method where the number of vibrations per revolution of the workpiece is specified



LFV mode 3

When you want to break up chips in thread cutting

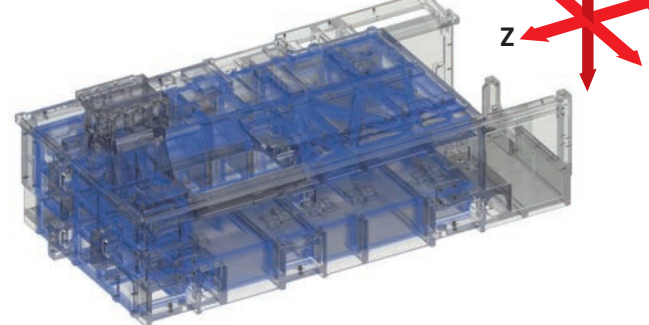
Method where machining is performed while changing the vibration timing every thread cutting pass



Improved machine rigidity

The structure of castings like the bed has been revised, and machine rigidity has been increased through an optimised rib arrangement, resulting in significantly improved machining accuracy and tool lives.

Ribbed structure of the bed



Percentage increase in static rigidity of each axis compared to existing machines

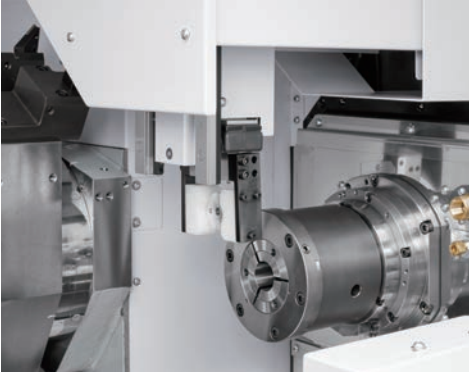
X axis	Y axis	Z axis
10%	60%	40%

Optional

A range of options are available. Contact your sales representative.

Unloader

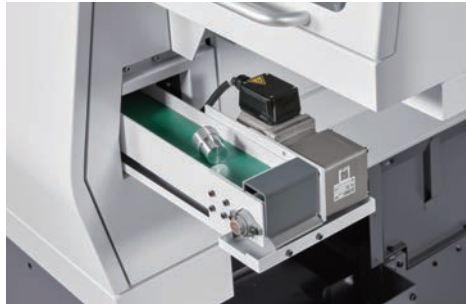
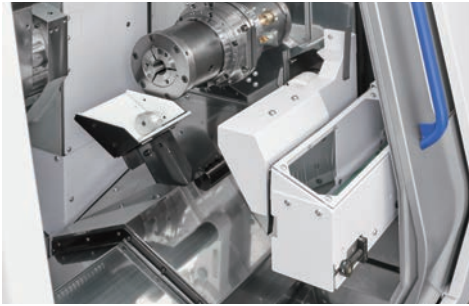
It contributes to automation and labor savings by preventing dents and transferring workpieces to the next process.



Max. unloadable workpiece weight: 4.0 kg
Workpiece size: $\varnothing 51 \text{ mm} \times 255 \text{ mm}$
(SP2 chuck H-S22)

The size of workpiece that can be collected varies depending on the chuck used on spindle 2.

Workpiece separator & conveyor

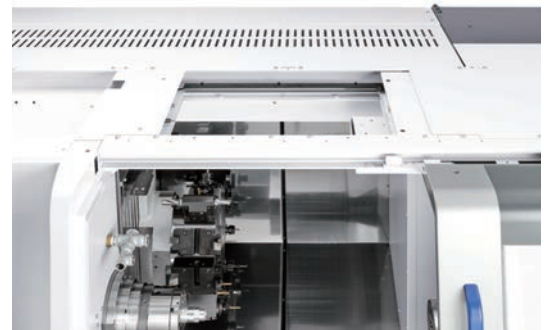


Workpiece size: $\varnothing 51 \text{ mm} \times 120 \text{ mm}$

FA Friendly

“FA Friendly” is a solution that addresses automation and labor saving needs. FA Friendly helps achieve factory automation at customers’ plants together with a group of products that can solve problems at the production site, from workpiece supply to unloading and storage.

FA Friendly



Automatic shutters for loading and unloading hands for an on-machine robot or gantry loader are provided on the top of the machine.



By unloading workpieces from the optional unloader unit used in combination with the FA Friendly on-cart type robot, downstream processes such as simple cleaning, air blow, and storage can be automated.



FA Friendly on-cart type



Combination with an FA Friendly on-machine type robot and stocker.

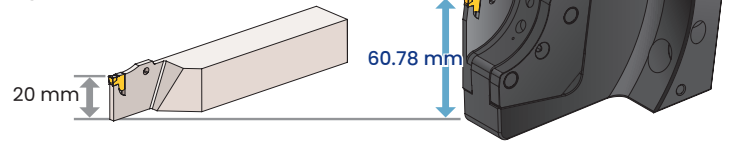
High performance tools

High feed cut off tool holder

High feed cut-off machining has been achieved by employing a new concept and dedicated design for a cut-off tool structure integrated with a tool holder. The shorter machining times make a great contribution to reducing running costs.



MOVIE



Cut-off time comparison for diameter 40 mm material

Cutting speed 80 m/min
(constant surface speed)

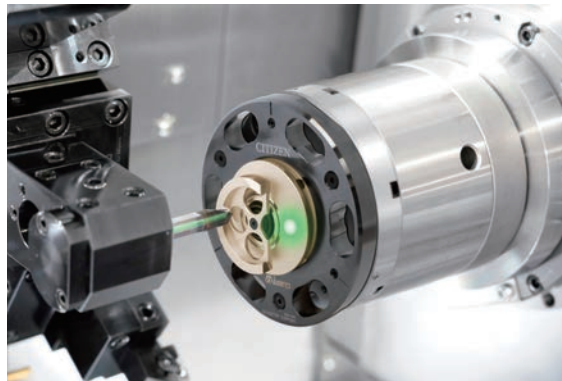
Feed rate 0.10 mm/rev 11.7 sec.

Cutting speed 80 m/min
(constant surface speed)

Feed rate 0.30 mm/rev 4.8 sec.
(3 mm blade)

Geometry Support

Geometry offset setting is supported by the touch type sensor. Offsetting can be completed just by bringing the cutting edge to be measured into contact with the sensor and pressing the button corresponding to the position where the sensor has been contacted on the dedicated NC screen.



HD1 OFFSET GEOMETRY					
NO.	X	Z	R	T	Y
001	-4.000	-5.000	0.000	0	0.000
002	0.000	0.000	0.000	0	0.000
003	0.000	0.000	0.000	0	0.000
004	0.000	0.000	0.000	0	0.000
005	0.000	0.000	0.000	0	0.000
006	0.000	0.000	0.000	0	0.000
007	0.000	0.000	0.000	0	0.000
008	0.000	0.000	0.000	0	0.000
009	0.000	0.000	0.000	0	0.000
010	0.000	0.000	0.000	0	0.000
SFT	654	50.000	657	-15.000	Y 0.000

ADR=>

<<H 6 SFT X O.D. X I.D. Z SP1 Z SP2



MOVIE

Applicable chucks
H-S16, S20, S22
DIN171E, 173E, 177E

Connected with IoT Friendly to make the most of the machine with alkapplysolution

The IoT Friendly function connects automatic lathes to the network. Simply plug the LAN cable into the connection port at the side face of the machine to connect to the network. Various alkapplysolution software packages can be used depending on the purpose, such as for inputting/outputting NC programs or grasping a variety of information by monitoring machine operation data.

alkapplysolution



alkarttransfer
Enables inputting/outputting of NC programs via the network.



alkartalert
Notifies you about machine alarms via email in a timely manner.



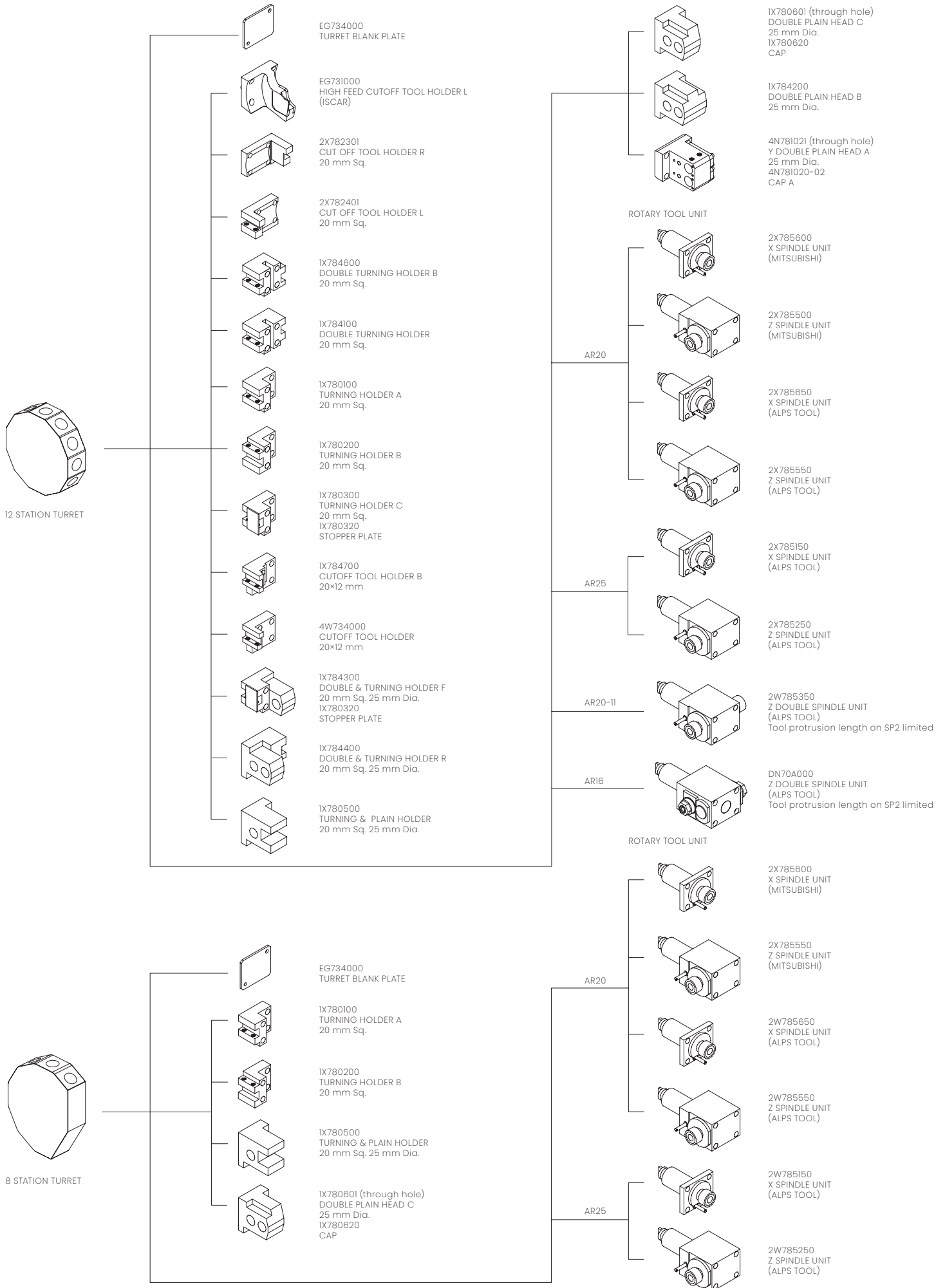
alkartlive 2
This is a "machine data collection tool" that visualizes production results, operating status, etc.

Changing the way you work with alkartlive 2

alkartlive 2 helps you to improve production efficiency by visualizing the machine stop times and causes. Data is automatically aggregated to reduce man-hours, and the accumulated data can be used for consideration in preventative and predictive maintenance.



Tooling System



Machine Specifications

Item	BNJ-51SY7	
Performance Capacity		
Distance between spindle end faces		825 mm
Standard workpiece collection length		120 mm
Standard machining diameter	SP1	51 mm
	SP2	51 mm
Spindle		
Number of spindles		2
Max spindle speed	SP1	5,000 min ⁻¹
	SP2	5,000 min ⁻¹
Draw tube through-hole diameter	SP1	52 mm
	SP2	43 mm
Collet chuck type	SP1	H-S22, DIN177E, Hainbuch 51
	SP2	H-S22, H-S20, DIN173E
Power chuck type	SP1	6" hollow chuck
	SP2	5" hollow chuck
Tool slide		
Number of tool slides		2
Type of tool slide	TR1	12 St
	TR2	8 St
Tool		ø20 mm
Sleeve		ø25 mm
Revolving Tool		
Revolving tool capacity	TR1	Max. 12
	TR2	Max. 8
Revolving tool drive type	TR1	Single drive mechanism
	TR2	Single drive mechanism
Rotational speed of revolving tools	TR1	6,000 min ⁻¹
	TR2	6,000 min ⁻¹
Max. drilling diameter	TR1	Max. ø13 mm
	TR2	Max. ø13 mm
Max. tapping diameter	TR1	Max. M12x175 (S45C)
	TR2	Max. M12x175 (S45C)
Slide stroke		
Turret slide stroke	X1 axis	188 mm
	Z1 axis	250mm
	Y1 axis	±40mm
Spindle slide stroke	X2 axis	88 mm
	Z2 axis	650 mm
Feed rate		
Rapid feed rate	X1 axis	24 m/ min
	Z1 axis	24 m/ min
	Y1 axis	18 m/ min
	X2 axis	24 m/ min
	Z2 axis	24 m/ min
Motor		
Motor for spindle	SP1 Cs	15 / 11 kW (15 min/cont.)
	SP2 Cs	7.5 / 5.5 kW (15 min/cont.)
Motor for revolving tools	TR1	22 kW
	TR2	22 kW
Motor for feed axes		1.7 kW (X1, Z1, Y1, Z2, X2)
Motor for hydraulics		1.5 kW
Motor for lubricating oil		0.004 kW
For coolant pump		0.25 kWx1, 0.18 kWx1
Turret indexing motor		1.0 kW
Required power source		
Power source used		AC 200±10%
Power capacity		33 kVA
Load operation average power consumption		18.9 kVA
Pneumatic source		0.5 MPa
Main breaker capacity		125 A
Tank capacity		
Hydraulic tank capacity		18 L
Lubricating oil tank capacity		4 L
Coolant tank capacity		276 L
Machine size		
Machine height		1,775 mm
Machine body dimensions		2,881 x 1,578 mm
Machine weight		5,550 kg

Standard NC Functions

NC units	FANUC 0i-TF Plus
10.4-inch colour LCD	USB slot
Collision detection function	Product counter: Max. 8 digits
Tool offset pairs: 128	Automatic power-off function
B code I/F	Program storage area
Corner chamfering/Corner rounding	Optional block skip (9 sets)
Spindle constant surface speed control function	Spindle C-axis function
Spindle synchronised function	Canned drilling cycle
Helical interpolation function	Polygon turning function
Synchronised tapping function	Sub-micron function
Thermal displacement correction function	Milling interpolation function
Power consumption monitor	Eco II

Special Additional NC Functions

LFV mode 1	LFV mode 3
Geometry support	3D chamfering
Tool monitor	

Optional

Spindle brake	Air blower
Workpiece ejector	Chip box
Workpiece conveyor	Medium-pressure coolant (1 MPa)
Through-spindle air blower	Turret air blower
Workpiece separator	Part box
Mist collector duct & fire prevention damper	Chip conveyor
Through-spindle bushing	3-colour signal tower
RS232C	Cut-off tool breakage detector
Drill breakage detector	Auto shutter
Unloader	

Citizen Machinery UK Ltd

1 Park Avenue, Bushey WD23 2DA, UK
 Hurst Business Park, Narrowboat Way, Brierley Hill DY5 1UF, UK
 Tel. +44 (0) 1923 691500 | sales@citizenmachinery.co.uk

www.citizenmachinery.co.uk

ASIA

Headquarter Japan | Citizen Machinery Co., Ltd., 4107-6 Miyota, Miyota-machi, Kitasaku-gun, Nagano-ken, 389-0206, Japan, Tel. +81-267 325 901

EUROPE

Headquarter Europe | Germany | Mettinger Straße 11, 73728 Esslingen, Tel. +49-711 3906 100 | France | Citizen Machinery France S.A.S., ZAE des Lacs 3, 1385 Avenue du Mole, 74130 AYESE, France, Tel. +33-450 985 269 | Italy | Citizen Macchine Italia s.r.l., Via Campo Romano 11/13 - 24050 Spirano (BG), Italy, Tel. +39-035 877 738 | Spain | Egasca, S.A., Poligono Industrial Erisono 2, 20600 Eibar, Gipuzkoa, Spain, Tel. +34-943 200 300 | UK | Citizen Machinery UK Ltd, 1 Park Avenue, Bushey, WD23 2DA, UK, Tel. +44-1923 691 500

Images may differ from the original. Technical data is subject to change without notice. The product falls under the export regulations and is subject to the foreign exchange and external trade law. Before exporting this product please refer to your CITIZEN dealer. Please also contact your CITIZEN dealer before you intend to resell, export or take this product somewhere else. Any copy of this product no matter whether in whole or in parts as well as its relating technologies and software is forbidden. In case of export the export licence issued by the competent authorities has to be presented to CITIZEN. The machine operation may be started upon confirmation and approval by CITIZEN. CITIZEN is a registered trademark of Citizen Watch Co. Japan. Subject to technical changes and error. Specifications only apply to the European market. Published 03/2026.