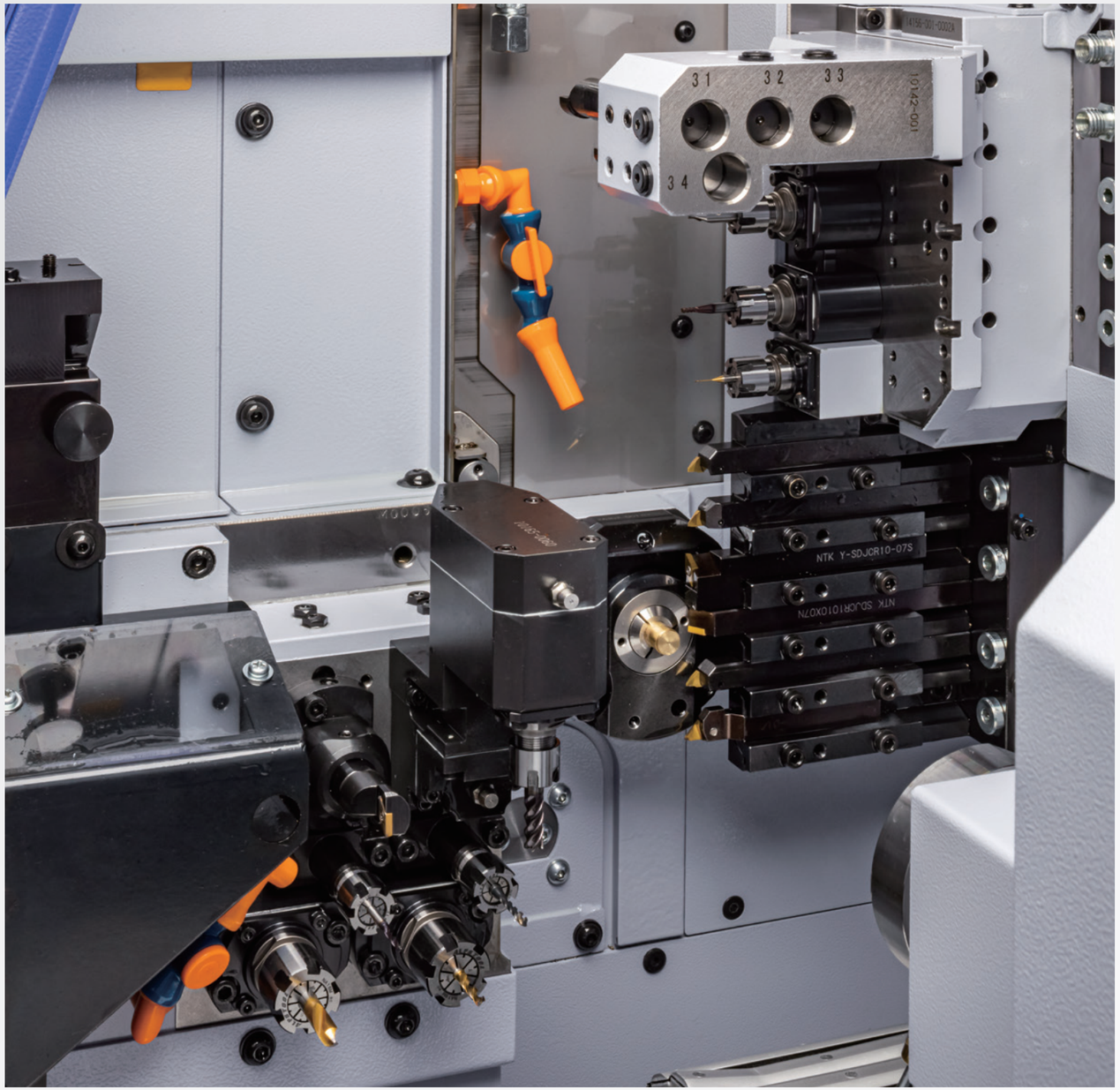
CNC SWISS TYPE AUTOMATIC LATHE

SL-7/10

STAR Environmental Standards Conformity models

High-spec and Compactness
A New Generation Machine Specialized in Small Diameter Processing from Star Micronics



01

Condensed high-spec technology fulfilling updated needs by new design idea

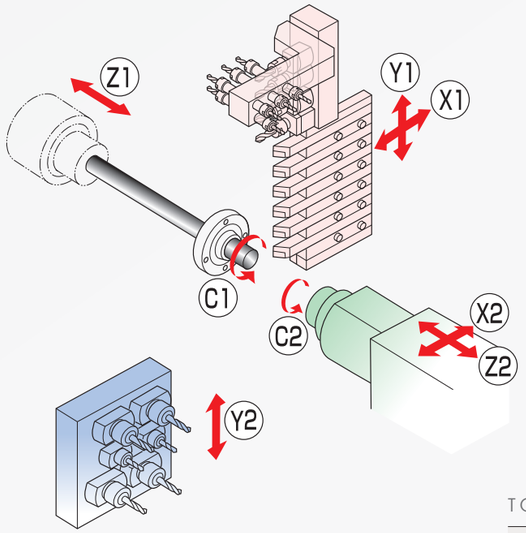
State-of-the-art small diameter processing is made possible by yet another evolution of design by Star Micronics. The single gang type tool post is laid out vertically to save space which is a new design concept. The combination of a 5-spindle cartridge-type cross drilling unit and the backworking 6-spindle unit with Y-axis control offers a variety of multi-processing activities. At the same time, the main spindle and faster power-driven tools are designed to optimize small diameter processing. The debut of the SL-7/10 with its compact body and high performance marks the arrival of the new generation of small diameter processing special models for you.

SL-7/10

CNC SWISS TYPE AUTOMATIC LATHE

Machine composition :

- Main spindle
- Sub spindle
- Gang type Tool post
  Cartridge-type 5-spindle cross drilling unit
- Backworking 6-spindle unit with Y-axis control



02

TOOLING SYSTEM

■ Tool holder	Turning tool	6 tools
■ Sleeve holder (Cartridge Type)	Front-end stationary tool	4 tools or 6 tools
	Rear-end stationary tool	4 tools or 6 tools
■ Power-driven tool	Special tool for cross drilling :	1 tools+Cartridge type (4pos.)
■ Backworking 6-spindle unit with Y-axis control	Stationary tool	Max.6 tools
	Power-driven tool	Max.4 tools

We have optimized small diameter processing through enhanced precision, functionality, and productivity wherever possible.

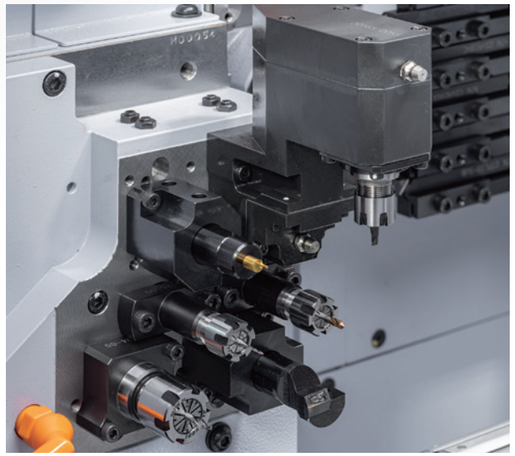
In Pursuit of Higher Functionality and Performance

Main Tool Post with 5-spindle Type Cross Drilling Unit

The main tool post with a 5-spindle type cross drilling unit provides four cartridge positions to mount various tool units for a wide variety of processes.

A Backworking Tool Post that Expands the Range of Multi-Processing Tasks

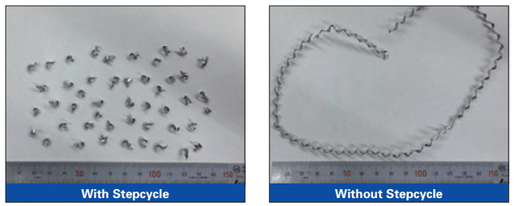
The tool post is specially designed for a 6-spindle backworking unit with Y-axis control. This expands the variety of backworking processes with mounted power-driven tool units (up to four positions) or coolant-through tools.



A Stepcycle Is Equipped as Standard for Effective Chip Breaking

All you have to do is follow the flow chart and set the command coefficient based on the processing conditions (surface speed and feed rate).

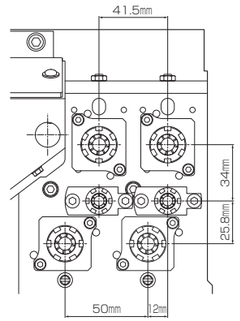
Chip Breaking



※For A6061 material for 2.0 mm cutting, surface speed at 100 m/min, and feed rate at 0.03 mm/rev

A Wider Pitch Between Tools on Backworking Tool Posts

A backworking tool post laid out in three rows of two spindles side by side provides a wider pitch between the tools which reduces the constraints of adjacent tools for more flexible tooling.



Motors with Higher Power

High-output motors provide ample power for machining.

▪ Main spindle motor	3.7／5.5kW
▪ Cross machining tool motor	1.0／1.2kW
▪ Backworking tool motor	1.0／1.2kW

Optimized Spindle Speed for Small Diameter Processing

＊With fixed G.B.

▪ Main spindle	18,000min^{-1} ＊
▪ Sub spindle	12,000min^{-1}
▪ Cross machining tool	12,000min^{-1}
▪ Backworking tool	12,000min^{-1}

Realization of Higher Rigidity and Precision

Main and Sub Spindles Designed for High Accuracy Indexing

The main spindle with a built-in motor and the belt-driven sub spindle with a built-in sensor ensure high accuracy indexing.

Mechanism and Structure to Control Heat

The motor for cross machining is equipped with a cooling fan, and the pedestal is covered with sheet metal to avoid direct contact with coolant to prevent overheating.

Sensors Correct Thermal Displacement

Sensors in various parts of the machine enable highly accurate and flexible corrections of thermal displacement.

A Backworking Tool Post with High Rigidity

The tool post for backworking is specially designed to withstand loads and to ensure the rigidity of the backworking 6-spindle unit with Y-axis control.

Improved Operability and Workability

Optimally Angled Operation Panel

The 10.4-inch color LCD and the operation panel angled toward the operator improve visibility during operations.

Ejects Workpieces During Stoppages

The ON/OFF switch on the product conveyor allows you to eject a workpiece even when the machine has stopped running.

Flip-up Door

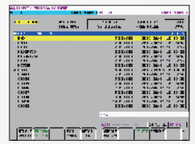
A flip-up door with a large opening in the cutting chamber provides ample workspace.

Operation and Work Support Software Has Been Expanded

- An automatic backup function enables the restoration of parameters and programs.
- Useful functions to support the setup are provided. The tool unit screen lets you review the tool unit dimensions to be mounted, and the batch program data input/output screen enables the management of various types of data including geometry offset.

❶Multi-Path Program Management Screen

You can input, output, copy, and delete programs with the same program number (or name) in a batch on all paths.

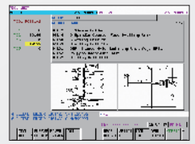


❷Batch Program Data Input/Output Screen

Use this screen to input or output the selected program with tool unit data, geometry offset data, and wear offset data in a batch.

❸Tool Unit ID No. Input Screen

The tool unit ID No. can be registered at the tool position number where the tool unit is to be mounted while checking the shape and dimensions of the tool unit.

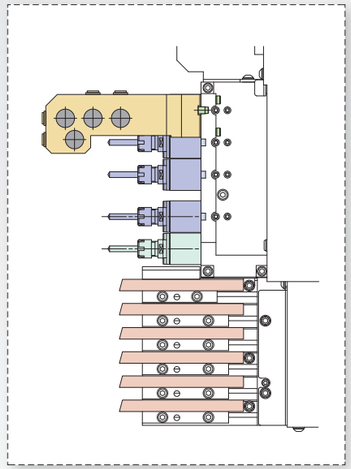


❹Counter Screen

The count, preset values, and cycle time can be reviewed on this screen. The estimated time to reach the count incorporating the time needed to replace materials can also be checked. Inputting the stock length and remnant length calculates the amount of materials required.

Main Tool Post

TOOLING SYSTEM
Cartridge-type 5-spindle cross drilling unit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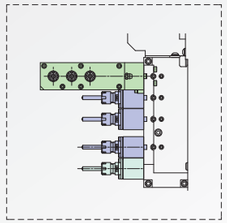
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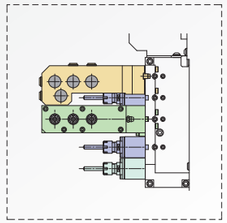
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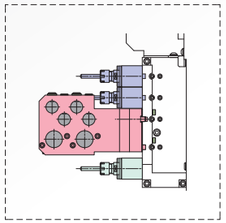
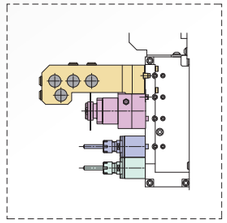

VARIATION 05

- Milling unit
- 4-spindle sleeve holder
- 6-spindle sleeve holder
- 3-spindle counterface drilling unit
- Skewed hole processing unit
- Slotting unit
- Thread whirling unit
- Polygon machining unit
- Gear hobbing uni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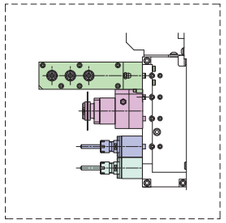
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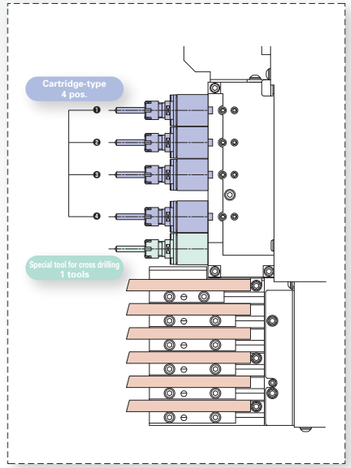

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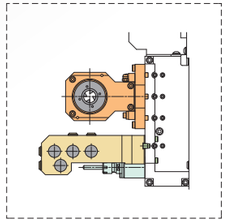
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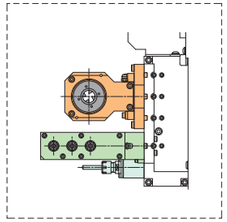
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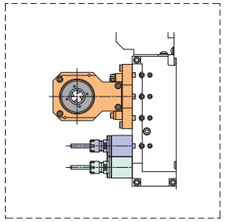
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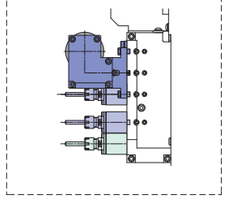
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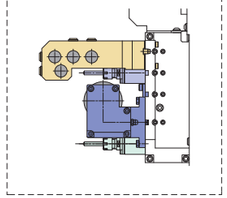
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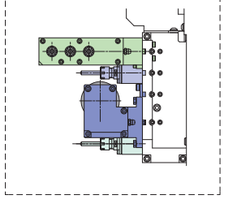
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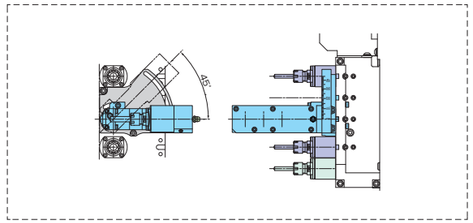

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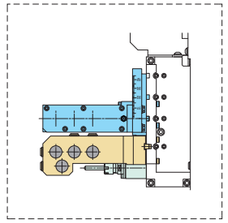
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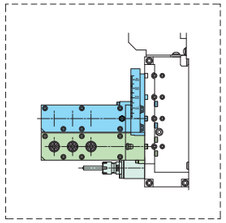
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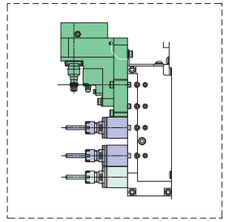
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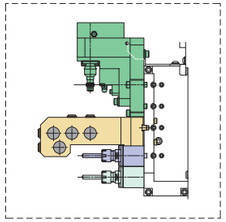
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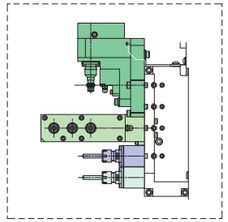
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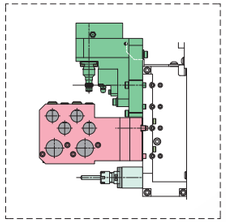
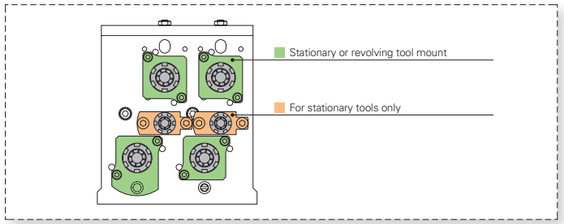
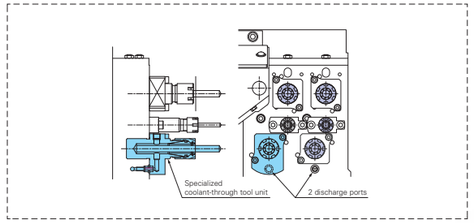

VARIATION 20

Backworking Tool Post

TOOLING SYSTEM
Backworking 6-spindle unit with Y-axis control





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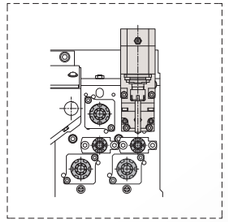
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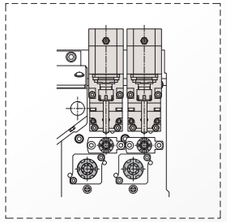
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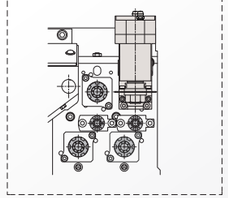
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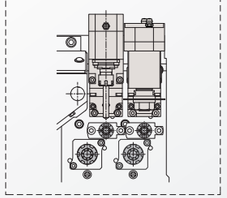
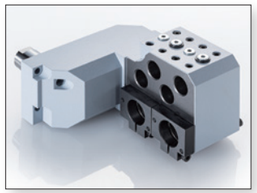

VARIATION 05

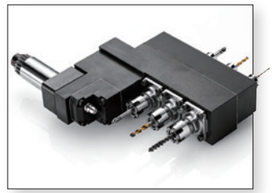
Main Tool Post

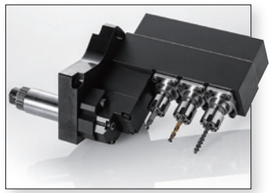
Tool Units

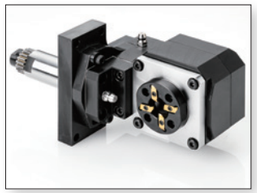

■ Milling unit


■ 4-spindle sleeve holder


■ 6-spindle sleeve holder


■ 3-spindle counterface drilling unit

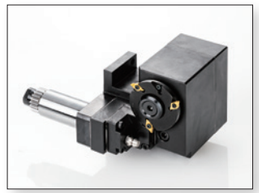

■ Skewed hole processing unit


■ Thread whirling unit

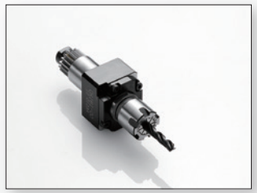

■ Slotting unit

Backworking Tool Post

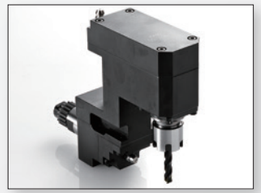
Tool Units


■ Polygon machining unit

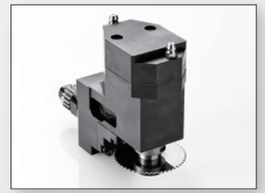

■ Gear hobbing unit


■ Milling unit


■ Drill sleeve


■ Cross drilling unit


■ Specialized coolant-through tool unit


■ Slotting unit

Standard Machine Specifications

Item		Specifications
Max. machining diameter		φ10mm(25/64in)
Max. headstock stroke	Stationary G.B. type	135mm(5-5/16in)
	R.G.B. type	105mm(4-9/64in)
	R.M.G.B. type	75mm(2-61/64in)
Tool	Number of tools	6 tools
	Tool shank	□8mm / □10mm
Sleeve holder	4-spindle	φ16mm(5/8in)×4 tools
	6-spindle	φ16mm(5/8in)×4 tools
		φ22mm(55/64in)×2 tools
	Max. drilling capability	φ6mm(15/64in)
	Max. tapping capability	M5×P0.8
Power driven attachment	Number of tools	Cross milling 1 tools(ER11)＋Cartridge type 4 positions
	Max. drilling capability	φ5mm(3/16in)
	Max. tapping capability	M4×P0.7
	Spindle speed	Max.12,000min^{-1}
	Drive motor	1.0kW(continuous) / 1.2kW(5min./30%ED)
Rapid feed rate		35m/min (X1, X2,Y1, Z1, Z2), 15m/min (Y2)
Main spindle indexing angle		C-axis control
Main spindle speed	Stationary G.B. type	Max.18,000min^{-1}
	R.G.B. type	Max.15,000min^{-1}
Main spindle motor		3.7kW(continuous) / 5.5kW(10min./25%ED)
Coolant tank capacity		109 ℓ
Dimensions (W×D×H)		1,865×795×1,815mm
Weight		1,600kg
Power consumption		3.8kVA
A-weighted sound pressure : note-1		Max.74dB(A)

Backworking Attachment Specifications

Item			Specifications
Max. chucking diameter			φ10mm(25/64in)
Max. length for front ejection			70mm(2-3/4in)
Max. parts projection length			20mm(25/32in)
Back 6-spindle unit	Number of tools		6 tools
	Max. drilling capability	Stationary tool	φ6mm(15/64in)
		Power driven tool	φ5mm(3/16in)
	Max. tapping capability	Stationary tool	M5×P0.8
		Power driven tool	M4×P0.7
	Power-driven att. spindle speed		Max.12,000min^{-1}
	Power-driven att. drive motor		1.0kW(continuous) / 1.2kW(5min./30%ED)
Sub spindle indexing angle			C-axis control
Sub spindle speed			Max.12,000min^{-1}
Sub spindle motor			0.55kW(continuous) / 1.1kW(15min./40%ED)

＊The specification value depending on the type of sub-spindle chuck. Please confirm the details with the sales manager.

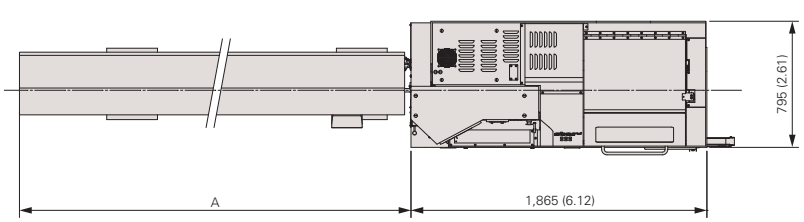
External Dimensions and Floor Space

unit : mm(ft)

●Bar Feeder

Type \ Length	Max. Bar dia.	Amm(ft) 2.5M	3.0M	4.0M
OS12VS Ⅱ-10	φ10	3,300(10.82)	3,800(12.46)	4,800(15.74)
OS121E-10	φ10	3,213(10.54)	3,713(12.18)	4,713(15.46)
OS12RE Ⅱ-10	φ10	3,130(10.27)	3,630(11.91)	—
AZ12X	φ11	3,469(11.38)	3,969(13.02)	—
ALPHA 112	φ12	3,492(11.45)	4,192(13.75)	—

Overall height : 1,815mm(5.95ft)



Standard Accessories and Functions

1. CNC unit FANUC 32i-B
2. Operation panel 10.4-inch color LCD display
3. Pneumatic unit
4. Coolant level detector
5. Automatic centralized lubrication unit
6. Door interlock system
7. Cs contouring control (Main / Sub)
8. Spindle clamp unit (Main / Sub)
9. Revolving guide bush unit
10. Drive unit for revolving guide bush
11. Air purge for revolving guide bush
12. Main / Sub collet
13. 6-station tool holder (□8 mm or □10 mm)
14. 4-spindle sleeve holder
15. 5-spindle cross drilling unit
16. Broken cutoff tool detector
17. Backworking attachment
18. Back 6-spindle unit
19. Drive unit for power-driven (6-spindle backworking unit)
20. Sub spindle air purge unit
21. Sub spindle air blow unit
22. Parts ejection detector
23. Work light
24. Leakage breaker

Optional Accessories and Functions

1. Manual pulse generator
2. Coolant flow detector
3. Check valve
4. Parts conveyor
5. Parts receptacle in Machine
6. Oil pan cover
7. Water separator
8. Oil mist filter
9. Beacon
10. Main spindle inner tube
11. Rotary magic guide bush unit
12. Parts ejector (Spring type)
13. Parts ejector (Air cylinder type)
14. Parts ejector with guide tube
15. Product separator system, A-type
16. Coolant unit (2.5MPa/0.7MPa)
17. Coolant unit signal cable
18. Coolant unit power cable
19. Coolant valve
20. Coolant pipings
21. Coolant pump with defoaming function
22. 400 W coolant pump
23. Automatic bar feeder interface
24. LAN/RS232C interface
25. Chip conveyor interface
26. Transformer
27. Transformer CE marking version
28. CE/UKCA marking

Note)
The machining capacities apply to SUS303 material. The machining capacities may differ from listed values depending on the machining conditions, such as the material to be machined or the tools to be used.

note-1 : ● Measures conforming to ISO standard.
● A-weighted sound pressure is a general assessment standard characteristic that corrected the sound level to human acoustic sense.

※Design features, specifications and technical execution are subject to change without prior notice.
※This product is an export control item subject to the foreign exchange and foreign trade laws. Thus, before exporting this product, or taking it overseas, contact your STAR MICRONICS dealer.

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