AUTOMATIC

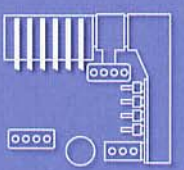
SR-20RII

CNC SWISS TYPE AUTOMATIC LATHE

Network

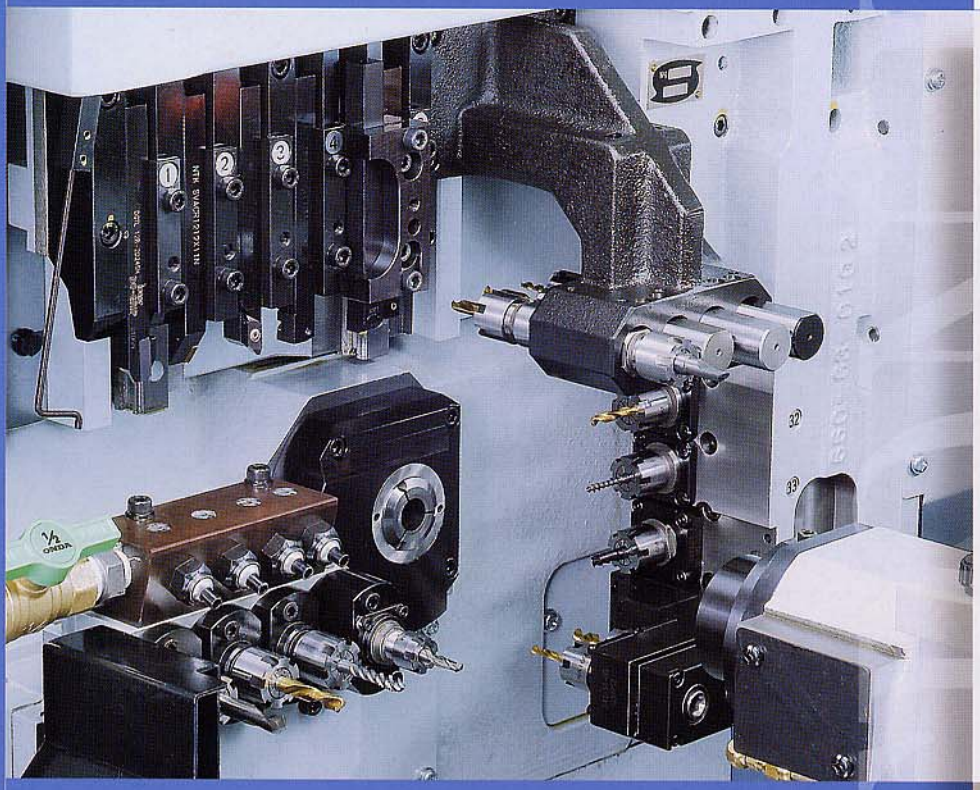
In pursuit of higher productivity and value-added performance, SR models have made further advances.

□ TOOL POST



□ WORK SIZE (MAX.)

□ CONTROL SYSTEM



EVOLUTION POINT 1

Responding to the needs of machining difficult materials, the Performance and Capability of the machine has been enhanced by mounting additional drilling and power-driven tools★ with 1.2kw high powered motors and optional setting of medium-pressure coolant unit.

EVOLUTION POINT 2

Mounting of a large-capacity chip bucket and 155L coolant tank facilitates continuous operations for long periods that realize further improvement on productivity.

★Maximum 4 counter-face drill sleeves and 10 cross and front power-driven tools can now be mounted.

With enhanced adaptability to machine difficult-to-cut materials and improve productivity by extended periods of operation, the best selling machine SR-20RII has made further significant developments.

Tool Post & Tooling

Gang tool Post

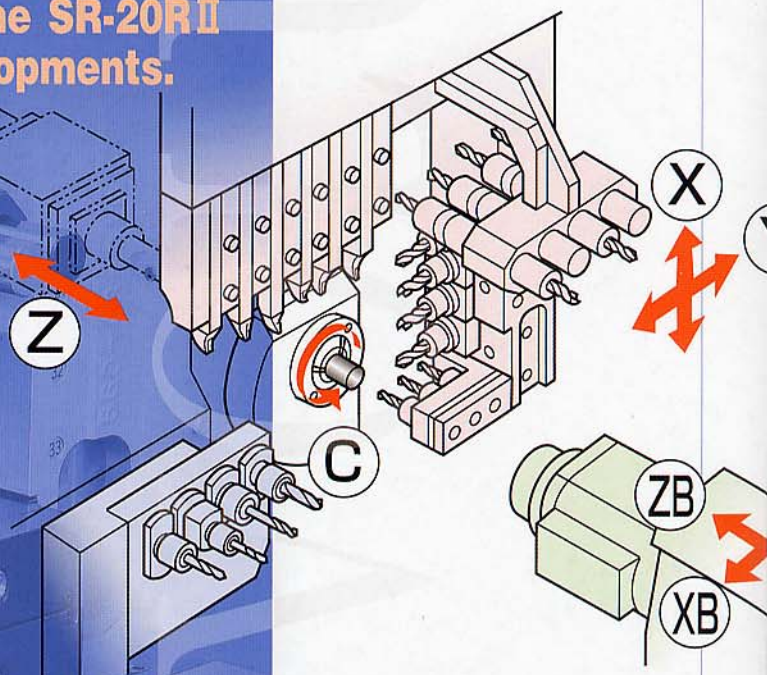
a	Tool holder	Turning tool	● 6 tools
b	Sleeve holder	Front-end Working Stationary tool	● 4 tools
		Rear-end Working Stationary tool	● 4 tools
c	Power-driven tool	Cross Working Driven Tool	● 5 tools(Max.) ※1 ※2
		Front-end Working Driven Tool	● 5 tools(Max.) ※2 ※3

※1 Upper 3 positions are a fixed body unit.
※2 The units of lower 2 positions are changeable.
※3 By selecting a 2-spindle counter-face type front drilling unit, 2 power-driven tools for back-working can also be accommodated.

Back 4-Spindle Unit ※4

Stationary tool	●	4 tools (Max.)
Power-driven tool	●	

※4 Stationary tool unit and power-driven units are selected by option.



Tool post structure separates main and sub spindle machining therefore overlapping opportunities increase and cycle times can be reduced.

# of complete profile parts with using the Star NICS system.

Processes from creation of ECAS data to starting of machining operation•••

01 NC program writing
- ☐ Creation by SD-EDITOR (PC side)
- ☐ Creation by e camo (PC side)
- ☐ Creation by NC code (PC side)
- ☐ Input by NC code (Machine side)

02 Program optimisation

Conversion to motion control data
- ☐ Automatic conversion in a batch (Machine side)

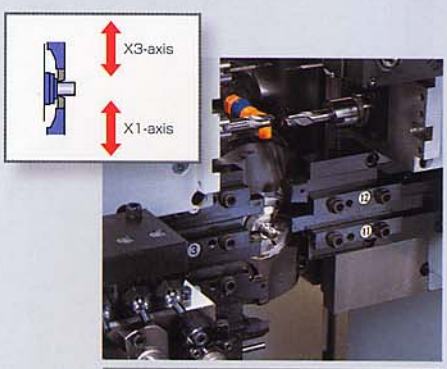
03 Machining
- ☐ Motion control

(All machining processes by MC control)

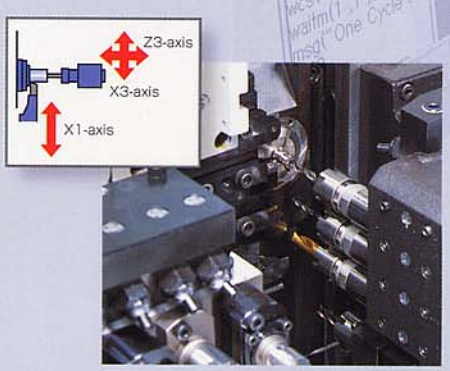
★ SD-EDITOR
- Complicated secondary machining program can be generated only by inputting any parameters for tool location, machining conditions,etc in dialog method.
- Machining path can be displayed when creating or editing program. Each process can be displayed in 3-dimension.
- Machining geometry, time and interference checks using on screen 3D simulation make it a simple process to confirm on the actual machine.

★ Using Easy Cam (e camo)
- With this system it is so easy to define geometry and complete machining data supported by a menu selection system with setting value input.
- Machining geometry, time and interference checks using on screen 3D simulation make it a simple process to confirm on the actual machine.
- Machining data, once created can be stored in the memory and made available for future use. The data store makes programme creation faster and simpler.
- Programme editing and modification can be achieved with complete ease.

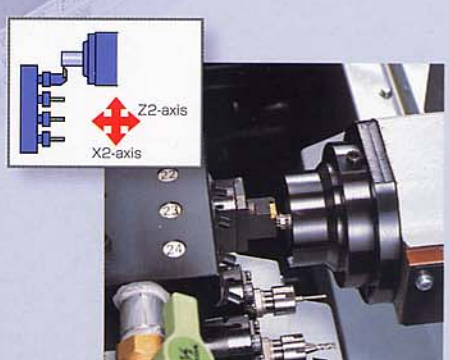
PROCESSING VARIATION



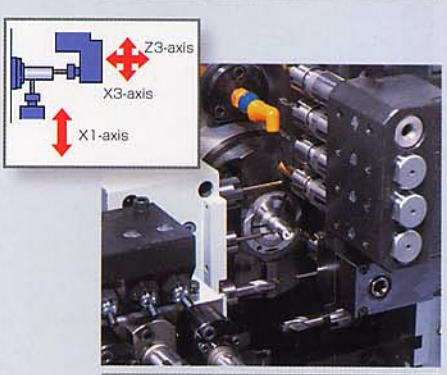
Balance cut machining including milling



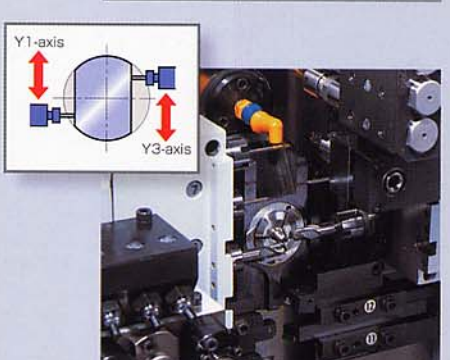
Simultaneous machining



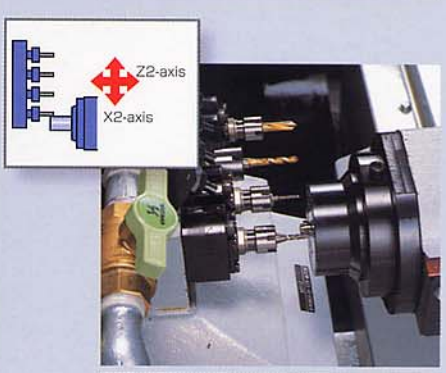
Back-face turning



Front off-center hole drilling + cross milling



Counter-face cross milling



Back eccentric machining

Pursuing high productivity
- ☐Simultaneous machining plus drilling by counter-face tool post becomes possible, by which the cycle time of machining can substantially be reduced.
- ☐Using the motion control system, tool selection is optimised and formation of continuous tool path without interference is realised.
- ☐Machine construction that completely separates front and back machining is adopted. Division of processes is optimised by which reduction of machining time is realised.
- ☐Development of the high-speed chucking unit has made it possible to have the chuck opened/closed without revolution variation of the main spindle.
- ☐Easy CAM [e camo] developed exclusively by Star greatly reduces the time and labour needed for creating programmes.
- ☐By adopting a non-hydraulic system (electrical system), the idle time between activities of each axis has been significantly reduced.
- ☐By supplying the motor on the sub spindle with the same power as the main spindle, the back face machining capability is enhanced and the freedom to programme efficiently is improved.

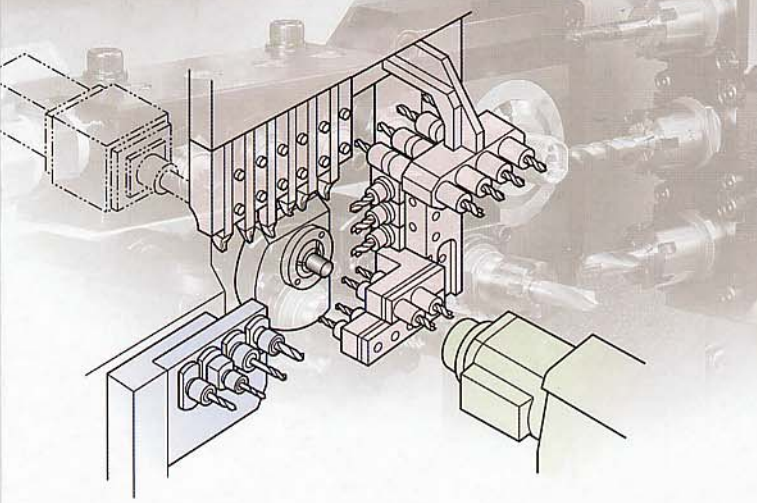
Pursuing High Precision
- ☐By using high-speed and high-precision servo controls, machining of corners during turning is improved.
- ☐Greater accuracy when thread cutting is also assured.

Improved operability
- ☐The machine can also be operated in the same way as traditional CNC machines. For operators who are experienced with NC machines, they will set and operate the machine with ease.
- ☐By e camo simulation system, time and labour for the work such as interference checks on the actual machine can substantially reduced.

Variation & Versatility

SR EVOLUTION MODEL

Optional specifications significantly improve the scope of machining variations.



For driven tools • • •

The drive unit A consists of 5 available positions with the upper 3 positions as a fixed unit for drilling and milling tools and the lower 2 positions that allows variations to be fitted. Mounting a front drilling unit★ on the lower 2 positions makes it possible to increase the available power tools to a maximum of 10 (3 cross working driven tools, 5 front-end working driven tools, 2 rear-end working driven tools) that realizes many machining possibilities including off centre drilling and tapping.

TOOLING PATTERN

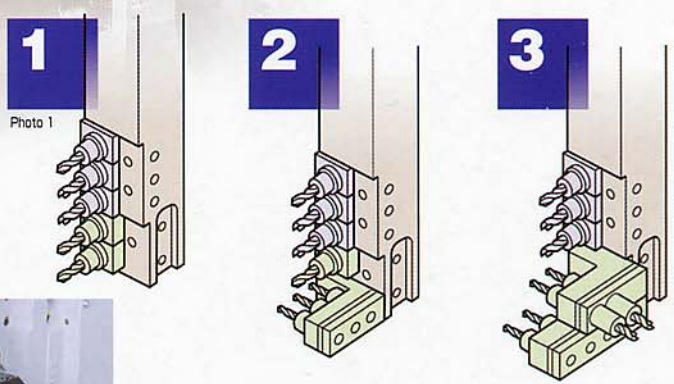


Photo 1

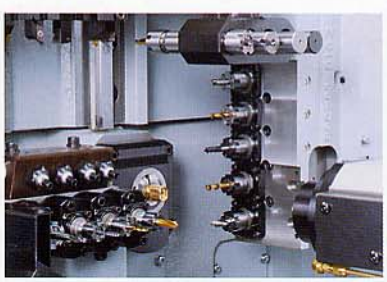


Photo 1 ● 5 cross-Working tools

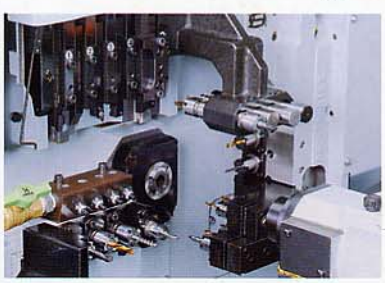
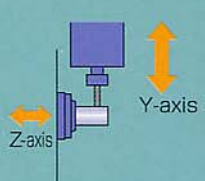


Photo 2 ● Example of additional installation

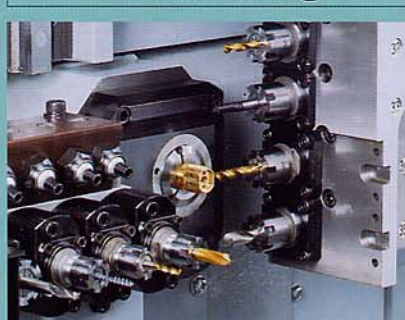
Variation

SR EVOLUTION MODEL

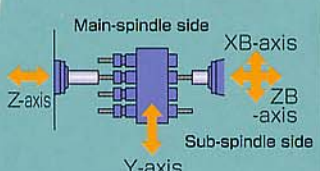
variation-① Cross milling



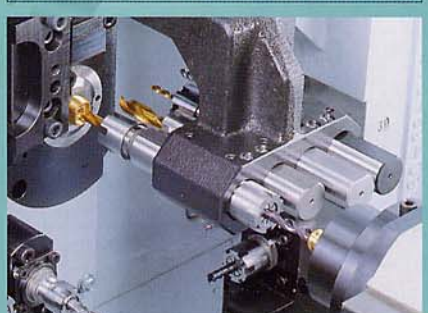
Cross rigid tapping using a cross milling unit is possible.



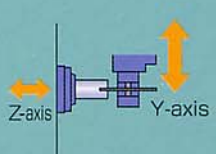
variation-④ Main/sub spindle simultaneous drilling



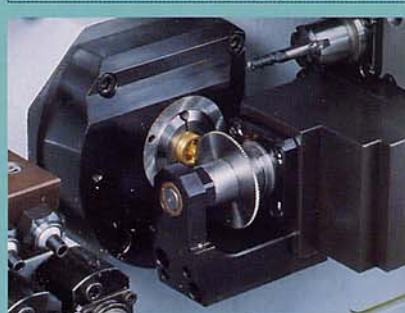
Use of counter-face type tool unit makes this machining possible.



variation-⑤ Slotting



Cutters up to φ50mm can be mounted.



Design Philosophy

SR EVOLUTION MODEL

The machine provides user friendly operation and high-level productivity coupled with outstanding environmental safety performance.

HIGH PRODUCTIVE DESIGN ■ High productivity

For reducing machining time.

☐ Advanced CNC unit for faster processing

High speed-program processing by the latest CNC unit.

☐ Servo motor for tool selection

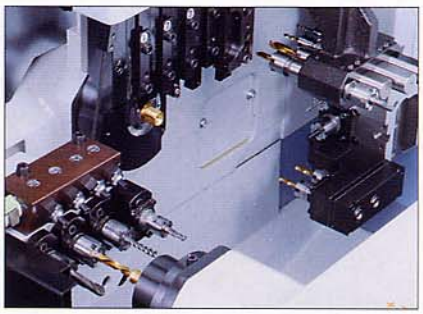
Quick tool selection using the servomotor also greatly contributes to reducing idle time.

☐ High-speed rapid traverse

Faster slide positioning time achieved by 20m/min. rapid traverse.

☐ New design provides for long periods of continuous operation.

Mounting of a large-capacity chip bucket and 155L coolant tank facilitates continuous operations for long periods that realize further improvement on productivity.



☐ Free overlap machining

Machining of HEAD1 and HEAD2 are completely independent. Therefore, overlap machining is possible without being influenced by each other. This also realizes an optimal machining process for reducing cycle time.

☐ New mechanism for collet open / close

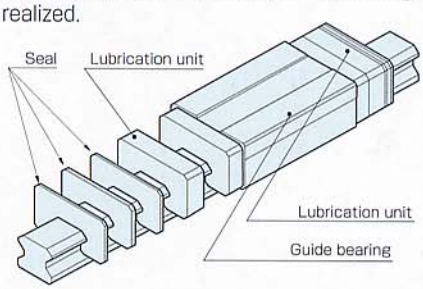
Collet opening / closing is possible during main spindle rotation at high speed.

USER FRIENDLY DESIGN ■ Safety・Comfort・Environment

For comfortable and safe working environment.

☐ Easy maintenance with self-lubrication unit

A self-lubrication unit is adopted at the part of the rectilinear guide bearings. Maintenance-free system is being realized.



☐ Easy and quick preparation

Set up skills and time are reduced by the new automatic adjusting function which controls the collet gripping force (main and sub spindle) and the clearance between the guide bush and bar material.

※5 When water-soluble coolant is used, select revolving guide bush unit.

☐ Absolute position detection

Absolute position detection is standard giving instant zero return when power is turned on.

☐ Water-soluble coolant oil

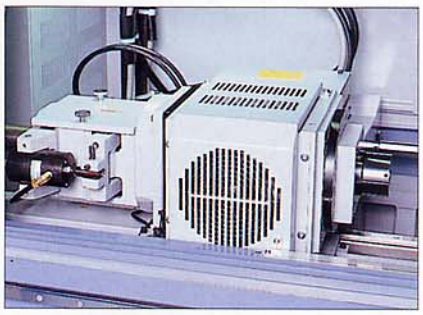
Water-soluble coolant oils can be used to reduce heat at the tool and donate towards a cleaner environment. ※5

☐ Free position operation panel

With movement combining rotation and sliding, the control panel can be positioned to best suit the needs of the setter and operator.

☐ CE marking specifications

CE marking specifications. EMC and low voltage directives are standard in Europe.



☐ Built-in motor drive

The spindle driven by a built-in motor has achieved a large improvement on developing low-noise and high-precision revolution mechanism.

☐ 400W coolant pump

The coolant pump reinforced to 400W that increases coolant discharge amount.

CNC SWISS TYPE AUTOMATIC LATHE **SR-20RII**

■ Standard Machine Specifications

OP : Option

Item		Specifications
Max. machining diameter		φ20mm(25/32in)
Max. headstock stroke	Standard	205mm(8in)
	With gripping unit	195mm(7-11/16in)
Tool	Number of tools	6 tools
	Tool shank	□12mm×100~135mm, □12.7mm×100~135mm
4-Spindle sleeve holder	Number of tools	Front 4 tools
		Rear 4 tools
	Max. drilling capacity	φ10mm(25/64in)
	Max. tapping capacity	M8×P1.25
	Max. die cutting capacity	M8×P1.25
Power driven att.	Number of tools	5~10 tools : including OP
	Max. drilling capacity	φ8mm(5/16in)
	Max. tapping capacity	M6×P1.0
	Max. milling capacity	φ10mm(25/64in)
	Max. slotting capacity	1.5mm(W)×4mm(D)
Main spindle min. indexing degree		0.01° (C-axis control)
Main spindle speed		Max.10,000min^{-1}
Main spindle motor		2.2kw(continuous)/3.7kw(15min.)
Power-driven att. spindle speed		Max.8,000min^{-1}
Power-driven att. drive motor		AC servo motor 1.2kw
Coolant tank capacity		155ℓ
Dimensions (W×D×H)		2,210×1,102×1,700mm
Center height		1,060mm(3.48ft)
Weight		2,200kg
Power consumption		7.0KVA

■ Standard Accessories and Functions

1. Pneumatic unit
2. Coolant level detector (low level)
3. Door interlock system
4. Main spindle C-axis control
5. Revolving guide bush unit
6. Sub spindle 15° indexing unit
7. 6-station tool holder
8. 4-spindle sleeve holder
9. Drive system for power-driven attachment A
10. Coolant flow detector
11. Sub spindle air blow unit
12. Automatic barfeeder interface
13. Broken cut-off tool detector
14. Parts ejection detector

■ Optional Accessories and Functions

1. Transformer with CE marking
2. Rotary magic guide bush unit
3. Parts conveyor
4. Parts separator
5. Barstock gripping unit
6. Tool setter
7. Main spindle inner tube 11.7mm
8. Main spindle inner tube 6.5mm
9. Sub spindle 1° indexing unit
10. Sub spindle C-axis control unit
11. Back 4-spindle unit
12. Drive system for power-driven attachment B
13. Long parts ejector with guide tube
14. 2-spindle front drilling unit
15. 3-spindle front drilling unit
16. 2-spindle counter-face drilling unit
17. Polygon machining unit / function
18. Thread whirling unit
19. Coolant unit 0.8MPA

■ Backworking Attachment Specifications

OP : Option

Item			Specifications
Max. chucking diameter			φ20mm(25/32in)
Max. length for front ejection			80mm(3-5/32in)
Max. parts projection length			30mm(1-3/16in)
Back 4-Spindle unit	Number of tools		4 tools : OP
	Max. drilling capacity	Stationary tool	φ8mm(5/16in)
		Power driven tool	φ5mm(3/16in)
	Max. tapping capacity	Stationary tool	M8×P1.25
		Power driven tool	M4×P0.7
Sub spindle min. indexing angle			15°/1° : OP/C-axis : OP
Sub spindle speed			Max.8,000min^{-1}
Sub spindle motor			1.5kw(continuous)/2.2kw(15min.)

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.

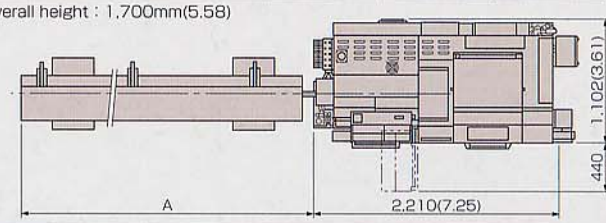
■ External Dimensions and Floor Space

unit : mm(ft)

●Bar Feeder

Type \ Length	Max. dia.	Amm(ft) 2.5M	3.0M	3.7M	4.0M
Single barfeed unit	φ20	—	—	5,335(17.50)	—
S163	φ16	3,277(10.75)	3,777(12.39)	—	4,777(15.67)
S204	φ20	3,527(11.57)	4,027(13.21)	—	5,027(16.49)

Overall height : 1,700mm(5.58)



※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.

STAR MICRONICS CO., LTD.

Machine Tools Division

1500-34 Kitanoya, Misawa, Kikugawa, Shizuoka, 439-0023 Japan

America, Europe Sales Sec. TEL.+81-537-36-5594 FAX.+81-537-36-5607
Asia Sales Sec. TEL.+81-537-36-5574 FAX.+81-537-36-5607

http://www.star-m.jp/eng/

Star CNC Machine Tool Corporation
123 Powerhouse Road, Roslyn Heights,NY11577,U.S.A.
TEL.+1-516-484-0500 FAX.+1-516-484-5820

Star Micronics GB Limited
Chapel Street,Melbourne,Derbyshire DE74 8JF,U.K.
TEL.+44-1332-86-44-55 FAX.+44-1332-86-40-05

Star Micronics GmbH
Untere Reute 44,D-75305 Neuenbürg,Germany
TEL.+49-7082-79200 FAX.+49-7082-792020

Star Micronics AG
Lauetstrasse3,CH-8112 Otelfingen,Switzerland
TEL.+41-43-411-60-60 FAX.+41-43-411-60-66

Star Machine Tool France SAS
55 Avenue du Mont Blanc,F-74950 Scionzier,France
TEL.+33-450-96-05-97 FAX.+33-450-96-91-54

Shanghai Xingang Machinery Co.,Ltd.
229 Fute Road(N) Waigaoqiao F. T .Z,Shanghai200131,P.R.China
TEL.+86-21-5868-2100 FAX.+86-21-5868-2101

Star Micronics (Thailand) Co.,Ltd.
49/30 M.4 Soi Kingkaew 30,Kingkaew RD.,T.Rachathewa A.Bangplee,Samutprakarn10540,Thailand
TEL.+66(0)2-750-4083 FAX.+66(0)2-750-4085

2006.11-7-5000