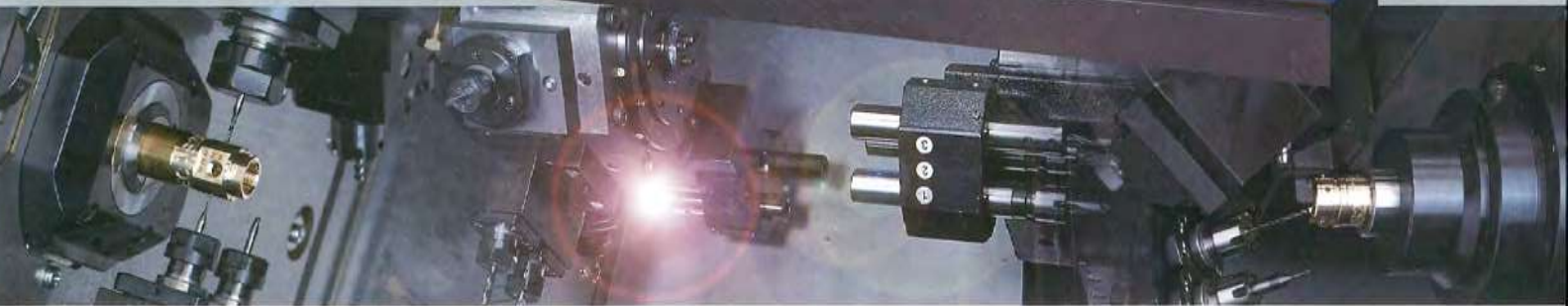




SWISS TYPE AUTOMATIC LATHE equipped with star motion control system 

ST-20

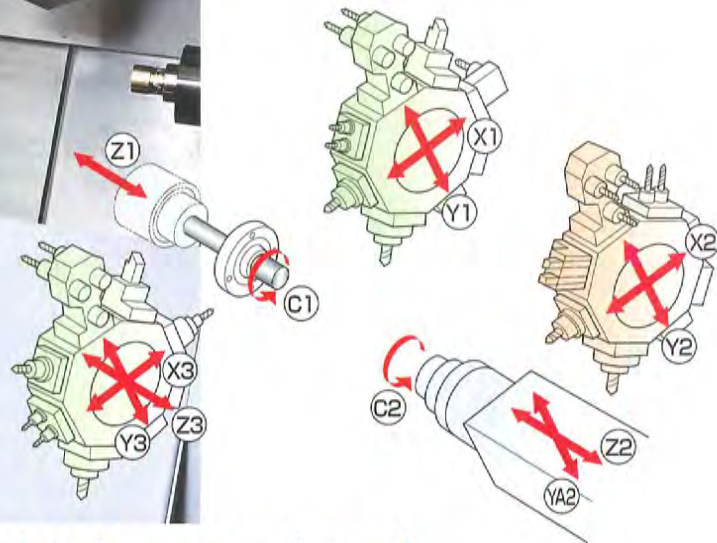




SWISS TYPE AUTOMATIC LATHE
equipped with star motion control system

ST-20

- Opposing turret tool posts for simultaneous machining
- Universal and varied overlap machining achieved by employing three turrets
- Complex machining capabilities equal to the front end by using a turret exclusively designed for back working
- The sub spindle employs a spindle motor with output power equivalent to that of the main spindle



Three turrets allows ultra high speed and flexible machining of complicated components!

The latest model in the ST series equipped with the highest level specifications and functions in the $\phi 20$ -class aimed at high productivity. Due to complex machining capability, this model is the best choice for suppliers of high-value added parts in the automobile, medical and aircraft industries.

High productivity

- Simultaneous machining such as turning, milling, etc. by opposed twin turret tool post reduces the machining time drastically.
- Overlap machining of front and rear ends by back working turret tool post for shorter machining time.
- Several tools mounted on one side of the turret station for reducing the number of times of indexing and tool change time.
- The Star motion control system for reducing the control path change over time, enhancing auxiliary functions and reducing the processing time.
- The number of tools mounted on the turret tool post allows multi-process machining without setup arrangement.
- The direct C-axis indexing function reduces the spindle indexing time.

Machining capability

- The back working turret enable complex machining equal to main spindle machining.
- The motors for the main and sub spindles have the same power so enhanced back working capability is equal to that of front working.
- The headstock stroke of 350mm (R1), allowing machining of bar materials up to 350mm only by one chucking. ※ 1 R.M.G.B. type : 317mm
- Combination with the high-pressure coolant unit enables deep-hole drilling (maximum 100mm) on both the front and rear ends.

By the program optimization, the time required for the processes of [Retracting], [Next tool selection] and [Approach] can be minimized to reduce the non-cutting time.

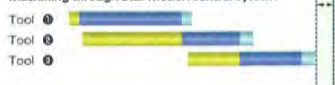
Reduction of Non-Cutting Time Star Motion Control System

1 Concept of reduction of non-cutting time

Conventional CNC-controlled machining



Machining through Star motion control system



2 Concept of cutting time reduction

Conventional CNC-controlled machining



Machining through Star motion control system



ST-20 tool post configuration

ST-20 with complex machining capabilities enhanced for both the front and rear ends equally. Machining of complicated components can be dramatically changed.

* Opposing turrets on the front side



Tool post on the front side

Complex machining such as turning, milling, skewed hole drilling and deep hole drilling can be done simultaneously by opposed two turrets, reducing the cutting time.

Simultaneous machining reduces cutting time

Opposing turret type tool post by independent control



Tool post on the rear side

Complex machining is possible equally and simultaneously with the front end machining. Even eccentric components can be picked up and machined on the rear ends.

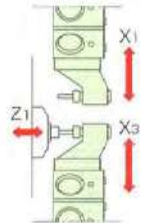
Process divided for efficient machining

Turret-type tool post designed for back working

Variation of front end machining



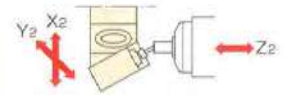
variation 01 Machining and Positioning of the Twin Turrets



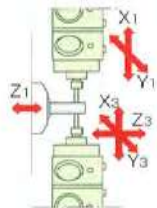
Variation of rear end machining



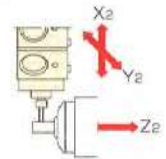
variation 01 Skewed Hole Drilling



variation 02 Cross Drilling+Cross Milling



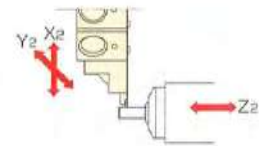
variation 02 Back Cross Milling



Main Spindle The headstock stroke of 350mm



variation 03 Independent Back Machining



ST-20 Tool units

- ① Slotting unit
- ② 2-spindle front drilling unit
- ③ Polygon machining unit
- ④ 2-spindle Cross drilling unit
- ⑤ 2-spindle skewed hole drilling unit
- ⑥ Thread whirling unit



□ Standard Machine Specifications

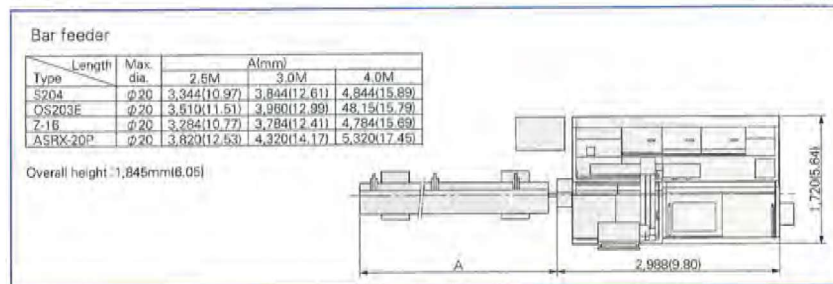
Item	Specifications	
Max. machining diameter	φ20mm(25/32in)	
Max. headstock stroke	Standard 350mm(13-25/32in) With R.M.G.B. 317mm(12-31/64in)	
Front working turret tool post	8 stations	
Back side turret	8 stations	
Number of turning tools	Max. 3 tools/station	
Tool shank	12mm/16mm	
Sleeve holder	Number of tools	Max. 3 tools/station
	Max. drilling capability	φ14mm(35/64in)
	Max. tapping capability	M10×P1.5
Power driven att.	Number of tools	Max. 2 tools/station
	Max. drilling capability	φ8mm(5/16in)
	Max. tapping capability	M6×P1.0
	Spindle speed	Max. 5,750min ⁻¹
Drive motor	2.5kw	
Rapid feed rate	30m/min (X1, X2, X3, Z1, Z2, Z3)	
	15m/min (Y1, Y2, Y3) , 3.9m/min (YA2)	
Main spindle indexing angle	C-axis control	
Main spindle speed	Max. 10,000min ⁻¹	
Main spindle motor	3.7w(continuous)/5.5kw(10min/60%ED)	
Coolant tank capacity	213	
Dimensions(Width×Depth×Height)	2,988×1,720×1,845mm	
Center height	1,083mm(3.55ft) (including leveling pads)	
Weight	4,850kg	
Power consumption	8.5KVA	
A-weighted sound pressure : note-1	Max. 70dB (A)	

□ Backworking Attachment Specifications

Item	Specifications	
Max. chucking diameter	φ20mm(25/32in)	
Max. part pick-up length	150mm(5-7/8in)	
Max. parts projection length	75mm(2-15/16in)	
Back working turret tool post	8 station	
Number of turning tools	Max. 3 tools/station	
Tool shank	12mm/ 16mm	
Sleeve holder	Number of tools	Max. 3 tools/station
	Max. drilling capability	φ14mm(35/64in)
	Max. tapping capability	M10×P1.5
Power driven att.	Number of tools	Max. 2 tools/station
	Max. drilling capability	φ8mm(5/16in)
	Max. tapping capability	M6×P1.0
	Spindle speed	Max. 5,750min ⁻¹
Drive motor	2.5kW	
Sub spindle indexing angle	C-axis control	
Sub spindle speed	Max. 10,000min ⁻¹	
Sub spindle motor	3.7w(continuous)/5.5kw(10min/60%ED)	

□ External Dimensions and Floor Space

unit : mm(ft)



※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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□ Standard Accessories and Functions

- CNC unit FANUC 31i-B5
- Operation panel 10.4-inch color LCD display
- Hydraulic unit
- Pneumatic unit
- Automatic centralized lubrication unit
- Coolant level detector
- Door interlock system
- Broken cutoff tool detector
- Parts ejection detector
- Drive unit for revolving guide bush
- Revolving guide bush unit
- Main/Sub collet
- C-axis control (Main/Sub)
- Spindle clamp unit (Main/Sub)
- Main spindle cooling unit
- Coolant chiller
- Drive system for power-driven attachment (Turret)
- Air purge for revolving guide bush
- Sub spindle air purge unit
- Sub spindle air blow
- Parts separator
- Parts conveyor
- Automatic bar feeder interface
- High pressure coolant interface
- Work light
- Leakage breaker

□ Optional Accessories and Functions

- Coolant flow detector
- Water removal unit
- Beacon
- Rotary magic guide bush unit
- For pneumatic unit rotary magic guide bush
- Parts ejector (Air cylinder type)
- Parts ejector (Spring type rotary ver.)
- Parts ejector with guide tube
- Parts stopper unit
- Coolant unit (6.9MPa/2.5MPa/0.7MPa)
- Coolant unit signal cable
- Coolant unit power cable
- Coolant valve
- Coolant pipings
- Manual pulse generator
- Transformer CE marking version
- Tool presetter

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.