

star

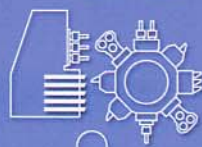
# SV-12/20/32

CNC SWISS TYPE AUTOMATIC LATHE

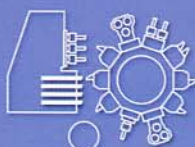


*The SV is the perfection of Speed and Versatility.*

□ TOOL POST



SV-12/20



SV-32

□ WORK SIZE (MAX.)



SV-12/20

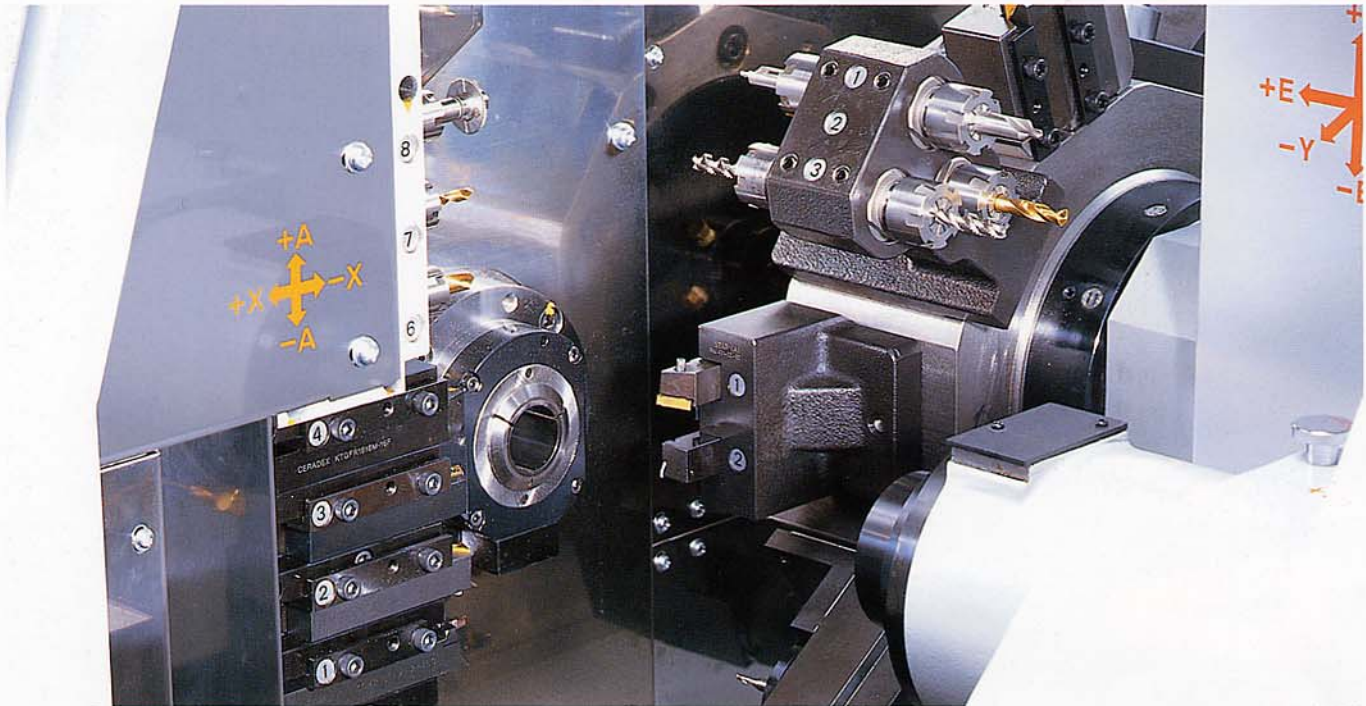
SV-32

□ CONTROL SYSTEM



CNC  
SYSTEM

# Multi-axis machine with multi-series control of value in high precision complex machining of all



※photo : SV-32

## High-speed machining gang tool post

A 2-axis controlled gang tool post with quick change tooling is provided for main spindle machining. Several turning tools and power-driven attachments can be mounted on that tool post. Versatile machining is achieved with multiple control combinations of the X, A, Z1 and C axes.

## Multiple machining performance turret

The turret is for both main and sub spindle machining. Power-driven attachments can be mounted on all faces of the turret. 2 or 3-station toolholder and 2-spindle cross drilling units can be fitted to increase the number of tools and to reduce the turret indexing idle time. With Y, B, and E axes of control, and ample tooling combinations, the scope for complex shape machining is enormous.

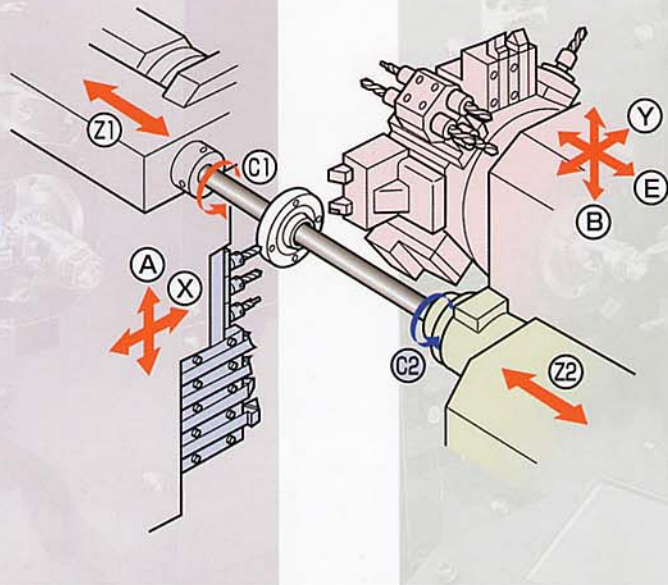
### SV-12/20

- Turning tool **5 tools**(□12mm)
- 4 tools**(□16mm)
- Power-driven tool **3 tools**

### SV-32

- Turning tool **4 tools**
- Power-driven tool **3 tools**

## Tool Post & Tooling



### SV-12/20 (8-face)

- Turning tool **max. 3 tools/face**
- Sleeve **max. 3 tools/face**
- Power-driven tool **max. 2 tools / face**

### SV-32 (10-face)

- Turning tool **max. 2 tools/face**
- Sleeve **max. 3 tools/face**
- Power-driven tool **max. 2 tools / face**

**It was Stars original concept to design a machine configuration that combined high speed performance with total capability to produce parts with a complex geometry in difficult steels.**

# outstanding capacity, creating maximum added difficult cutting materials

## S V V A R I A T I O N

### model SV-12

The model designed to optimise machining of small-diameter material.

This is the model that optimises "complex machining of small-diameter/difficult-to-cut material", while succeeding the merit of SV models characterised by multi-axis control for high-speed complex machining.

- ★ The model, containing a high-output spindle, realises high efficiency in heavy cutting work of difficult-to-cut steels.
- ★ The C-axis control by main and sub spindles together with application of various tool units enables secondary machining of many combinations.
- ★ The model can cope with drilling of small holes by mounting a high-speed rotary tool at 12,000min<sup>-1</sup> revolution.
- ★ By adopting a high-pressure coolant specification\*1, it can also deal with drilling of small-diameter deep holes.

\*1 High-pressure coolant is an optional specification.

9 axis controller (Standard)



### model SV-20

Big prospects of developing new fields of high value-adding machining, aircraft parts and others

The model is suitably designed for producing precise and complex parts from bar material up to 20mm diameter.

- ★ By mounting rotary tools on an 8-station turret, various secondary machining is made possible.
- ★ By applying functions such as approach function, it realises forming continuous tool paths without intermittence.

9 axis controller (Standard)



### model SV-32

The model specifically designed to deal with a large diameter work with reinforced performance for complex machining

The model is designed for producing precise and complex parts from bar material up to 32mm diameter.

- ★ The spindle driven by high-power 2.8kw motor enabled machining of large diameter work with high efficiency.
- ★ Adoption of a 10-station turret realised even wider varieties of tooling.
- ★ The sub spindle C-axis control is set as a standard.

9 axis controller (Standard)



## F E A T U R E O F S V

#### High Productivity

Highly efficient machining is realised with Star's original functions.

Balance cutting and approach functions have been developed to form continuous tool path without intermittence. Turret type tool post by 3-axis control has enabled simultaneous cross milling and simultaneous machining of cross off-center holes.

#### Versatility

Production of complex components is dealt with by comprehensive tool units and C-axis control function.

Variations of rotary tools can be mounted on a twin tool post independently controlled. By using counter face drill, slotting and skewed hole machining units together with C-axis control function, various needs for complex milling can be accomplished.

#### Friendliness

Star pursue machine design that excels in operability and working ease.

Adoption of the free-position operating panel is one thing. Other items pursued in designing a machine for handling ease are adoption of functions such as the tool setter that performs automatic correction of tool inside the machine, the quick change system that makes mounting/dismounting of turret tooling simple and the chip/cutting oil disposal system.

#### Safety

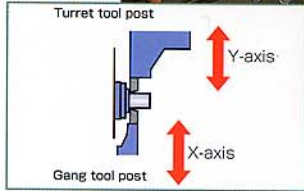
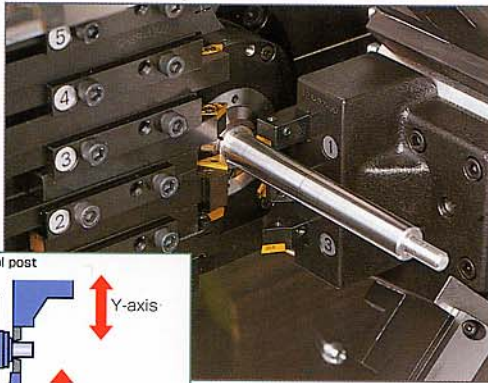
The machine is designed to conform to global safety standards and environmental safeguard.

The machine complies with the requirements of CE marking rules as standard specification \*1. Use of water-soluble coolant is adaptable, complying with the latest standard of environmental needs. All the reputable safety devices such as door interlock and damper mechanism are also provided.

\*1 This conforms to all of machine command, EMC command and low voltage command.

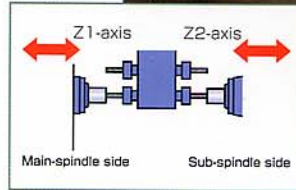
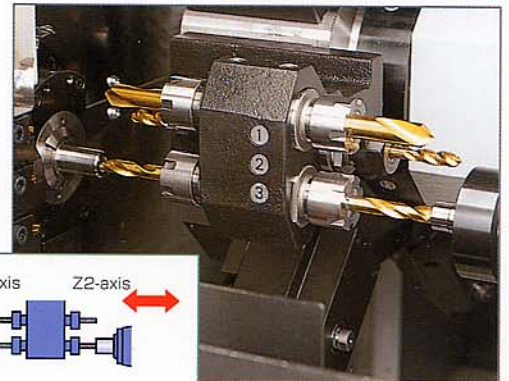
# P R O C E S S I N G

## Balance cut machining



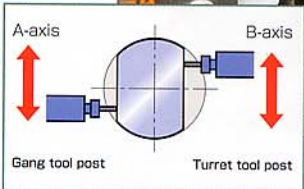
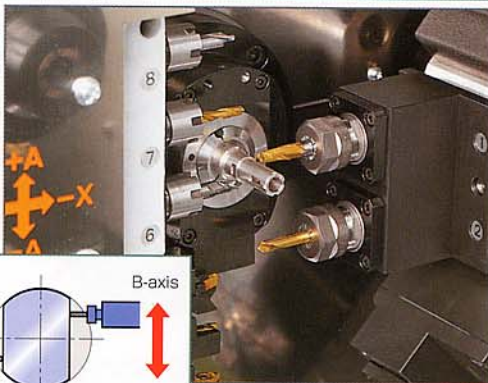
Balance cutting (simultaneous outer diameter cutting with two tools) and simultaneous cross drilling/tapping are possible by using synchronous control of the gang tool post and the turret.

## Front/back simultaneous drilling



Installation of counterface tool unit on the turret makes main/back simultaneous drilling/tapping possible.

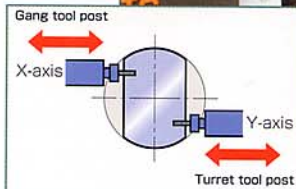
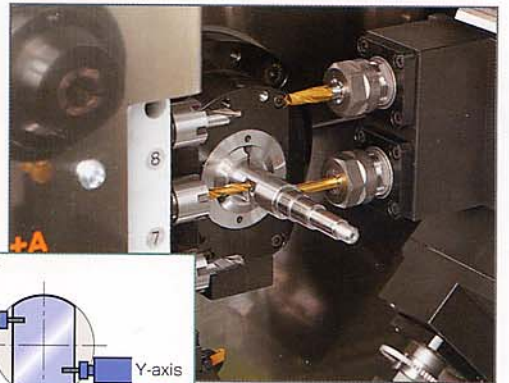
## Simultaneous cross milling



\*Note

Each of the gang-type tool holder and the turret-type tool holder has vertically moving control axis (A, B-axis). This makes it possible to process counter-face simultaneous cross milling such as D cutting.

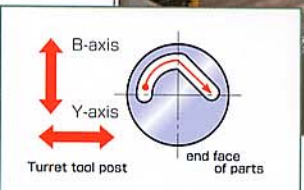
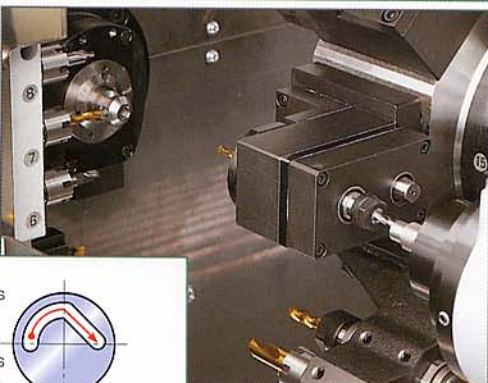
## Simultaneous off-center cross drilling



\*Note

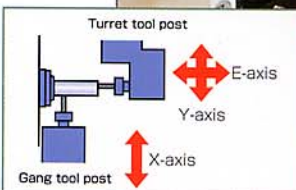
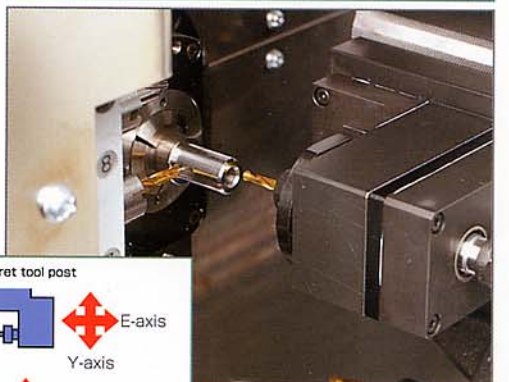
Each tool holder having vertical control axis, milling work such as simultaneous off-center cross drilling and tapping is made possible.

## End face of parts



Interrelating Y and B-axis movements, milling work is freely applicable to the end face of parts by using a face-drilling unit.

## Cross drilling + off-center front drilling

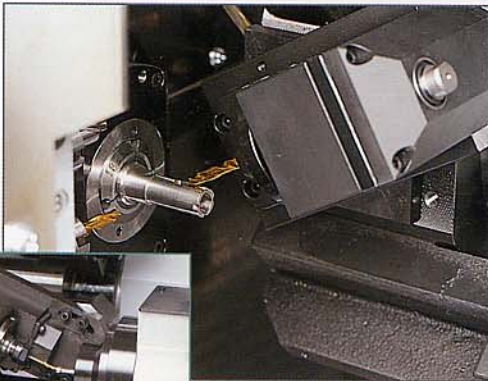


Use of E-axis control enables the machine to simultaneously handle secondary milling by a gang-type tool holder with face off-center hole drilling and tapping by a turret-type tool holder.

\*Note When a 2-axis type cross drill unit is used, there are restrictions in applying the above machining works.

# V A R I A T I O N

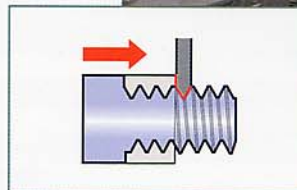
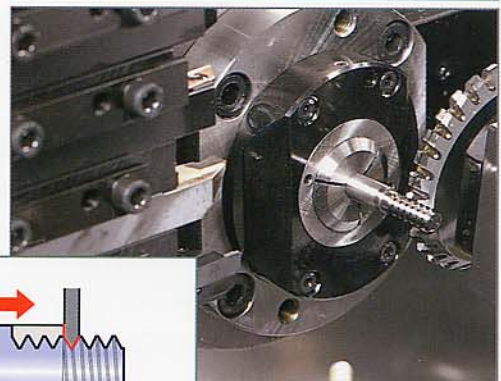
## Skewed hole machining



\* Skewed hole machining unit for back face

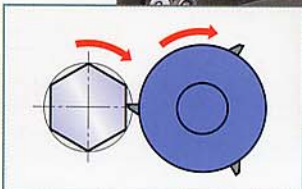
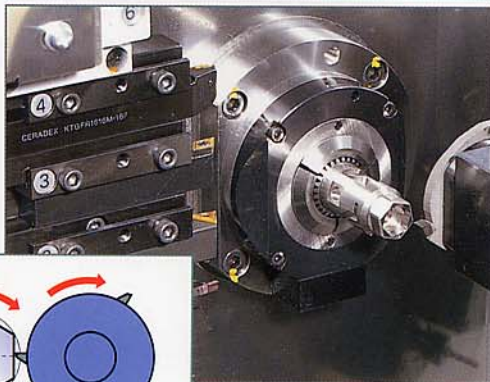
This is purely a Star's original mechanism under pending patent. The unit is inclined by 0~90° (0~180° when backside inclination is added), whereby hole drilling of any angle can be achieved.

## Thread milling



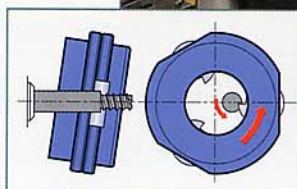
This system is most effective in machining long threads on outside diameters. It is also suitable for machining parts of high precision, as the work is fixed firm by GB.

## Polygon machining



A powerful 2.8kw servomotor is used to drive the turret mounted polygon turning unit to remove metal more quickly.

## Thread Whirling



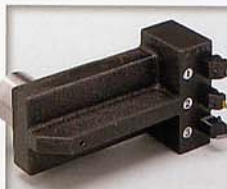
The C axis control combined with the oscillating motion of the whirling unit allows precision threading direct from raw material stock size on all types of material.

Making the best use of various tool units could further increase potential ability of the machine.



2-station toolholder

Available to SV-32



3-station toolholder

Available to SV-12 / 20



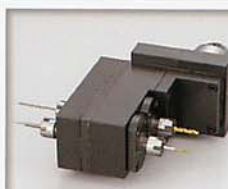
Triple sleeve holder

Available to SV-12 / 20 / 32



2-spindle cross drilling unit

Available to SV-12 / 20 / 32



2-spindle counterface drilling unit

Available to SV-12 / 20 / 32



Slotting unit

Available to SV-12 / 20 / 32



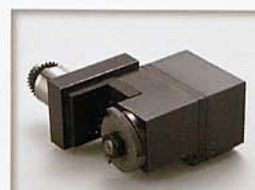
Skewed hole machining unit for front working

Available to SV-12 / 20 / 32



Skewed hole machining unit for back working

Available to SV-12



Polygon machining unit

Available to SV-12 / 20 / 32



Thread milling unit

Available to SV-12



Thread Whirling

Available to SV-12 / 20 / 32

\* Some units having the same name may be different in specifications depending on the type of machine.

# S P E C I F I C A T I O N S

## ■ Standard Machine Specifications

Item		SV-12	SV-20	SV-32
Max. machining diameter		φ 13mm(1/2in)	φ 20mm(25/32in)	φ 32mm(1-1/4in)
Max. headstock stroke ※		Standard 205mm(8in)	195mm(7-11/16in)	Standard 310mm(12-13/64in) 300mm(11-13/16in)
Tool post configuration		Tool + Power-driven attachment		
Gang type		8 face		10 face
Tool	Number of tools	5 tools(□12mm), 4 tools(□16mm) : OP		4 tools
	Gang type	1 tools/1 face(□16mm) : OP, 3 tools/1 face(□12mm) : OP		Max.2 tools/1 face : OP
	Turret type	□12mm×95~135mm, □16mm×95~135mm		□16mm×95~135mm
Tool shank	Gang type	□12mm×70~78mm, □16mm×65~70mm		□16mm×60~78mm, 80~88mm
	Turret type			
Sleeve	Number of tools	Max.3 tools/1 face : OP		
	Max. drilling capacity	φ 10mm(25/64in)	φ 14mm(35/64in)	φ 23mm(29/32in)
	Max. tapping capacity	M8×P1.25	M10×P1.5	M12×P1.75
Max. die cutting capacity		M8×P1.25	M10×P1.5	M12×P1.75
Power-driven attachment	Number of tools	3 tools : OP		
	Gang type	Max.2 tools/1 face : OP		
	Turret type	φ 8mm(5/16in)		
	Max. drilling capacity	φ 8mm(5/16in)		φ 10mm(25/64in)
	Gang type	M6×P1.0		
	Turret type	M6×P1.0		M8×P1.25
Max. milling capacity		φ 10mm(25/64in)		
Max. slotting capacity		2mm(W)×6mm(D)		2mm(W)×10mm(D)
Main spindle min. indexing angle		C-axis control		
Main spindle rotation speed		Max.12,000min <sup>-1</sup>	Max.10,000min <sup>-1</sup>	Max.7,000min <sup>-1</sup>
Main spindle motor		2.2kw(continuous)/3.7kw(15min.)	3.7kw(continuous)/5.5kw(30min.)	5.5kw(continuous)/7.5kw(30min.)
Power-driven att. spindle speed	Gang type	Max.6,000min <sup>-1</sup>		
	Turret type	Max.5,750min <sup>-1</sup>		Max.5,700min <sup>-1</sup>
Power-driven att. drive motor		0.5kw(Gang type), 2.8kw(Turret type)		
Coolant tank capacity		170ℓ		180ℓ
Dimension (W×D×H)		2,670×1,375×1,660mm(including leveling pads)		2,645×1,405×1,680mm(including leveling pads)
Weight		3,400kg		3,800kg
Power consumption		9.0KVA		8.0KVA

OP : Option ※ Blue colored values shall represent the amount of stroke when using the grip unit.

## ■ Backworking Attachment Specifications

OP : Option

Item		SV-12	SV-20	SV-32
Max. chucking diameter		φ 13mm(1/2in)	φ 20mm(25/32in)	φ 32mm(1-1/4in)
Max. length for front ejection		130mm(5-1/8in)	150mm(5-7/8in)	
Max. part projection length		55mm(2-11/64in)	75mm(2-15/64in)	
Turret type	Number of tools	Max.3 tools/1 face : OP		
	Max. drilling capacity	φ 8mm(5/16in)	φ 10mm(25/64in)	φ 13mm(1/2in)
	Max. tapping capacity	M8×P1.25		M12×P1.75
	Max. die cutting capacity	M8×P1.25		M12×P1.75
Sub spindle min. indexing angle		C-axis control		
Sub spindle speed		Max.12,000min <sup>-1</sup>	Max.10,000min <sup>-1</sup>	Max.7,000min <sup>-1</sup>
Sub spindle motor		2.2kw(continuous)/3.7kw(15min.)		2.2kw(continuous)/3.7kw(30min.)

Note) The described machining capacity is for the S45C material to be cut. The machining performance may differ from the described values depending on the material to be cut and tools used, etc.

## ■ Standard Accessories and Functions

Name	SV-12	SV-20	SV-32	Name	SV-12	SV-20	SV-32
Backworking Attachment	○	○	○	Rigid Tapping (Turret)	○	○	○
Drive system for Power-Driven Attachment	○	○	○	Absolute Position Detection Function	○	○	○
Main Spindle C-Axis Control	○	○	○	Custom Macro B	○	○	○
Sub Spindle C-axis control	○	○	○	Background Editing Function	○	○	○
Parts Separator	○	○	○	Coolant Oil Flow Sensor	○	○	○
Broken Cut-off Tool Detector	○	○	○	Automatic Barfeeder Interface	○	○	○
Revolving Guide Bushing Unit	○	○	○	Canned Cycle for Drilling	○	○	○
Tool Holder (Using Gang Tool Post)	○	○	○	Run Hour Display Function	○	○	○
Parts Ejection Detector	○	○	○	Constant Surface Speed Control	○	○	○
Sub Spindle Air Blow Unit	○	○	○	Main Spindle Speeds Fluctuation Detection Function	○	○	○
Lubricating Oil Level Detector	○	○	○	Tool Nose Radius Compensation	○	○	○
Door Interlock Unit	○	○	○	Programmable Data input	○	○	○
Main/Sub Spindle Speeds Synchronous Control	○	○	○				
Rigid Tapping (Main/Sub Spindle)	○	○	○				
Rigid Tapping (Gang Tool)	○	○	○				

# C A T I O N

## External Dimensions and Floor Space

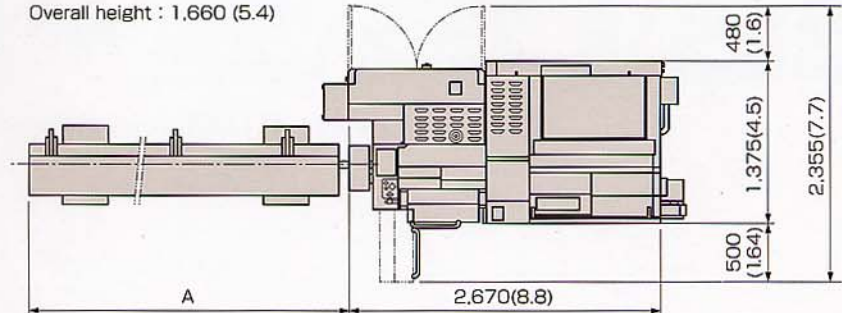
Unit : mm(ft)

### SV-12

●Barfeeder (Ikura and Alps)

Type	Length		
	2.5M	3.0M	4.0M
OS121	2,901(9.5)	3,401(11.2)	4,401(14.4)
S13A	2,848(9.3)	3,348(11)	4,348(14.3)
PF-V02	3,052(10)	3,552(11.6)	—
ASP-12	3,054(10)	3,554(11.6)	—

Overall height : 1,660 (5.4)

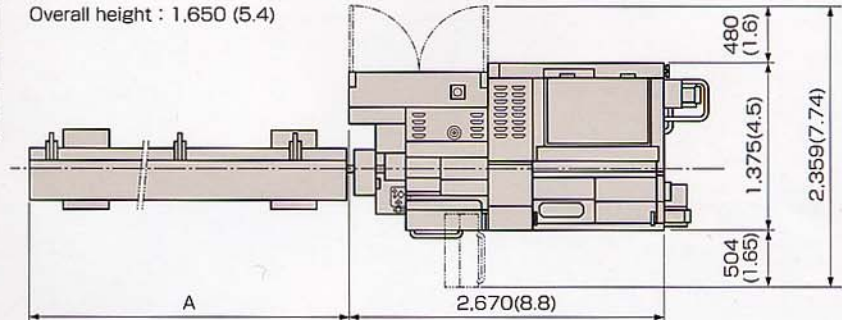


### SV-20

●Barfeeder (Ikura and Alps)

Type	Length			
	2.5M	3.0M	3.7M	4.0M
Single barfeed unit	—	—	5,010(16.4)	—
S204	3,104(10.2)	3,604(11.8)	—	4,604(15.1)
PF-V1S	2,915 (9.6)	3,415(11.2)	—	4,415(14.5)
ASR X-20	3,210(10.5)	3,710(12.2)	—	4,710(15.4)

Overall height : 1,650 (5.4)

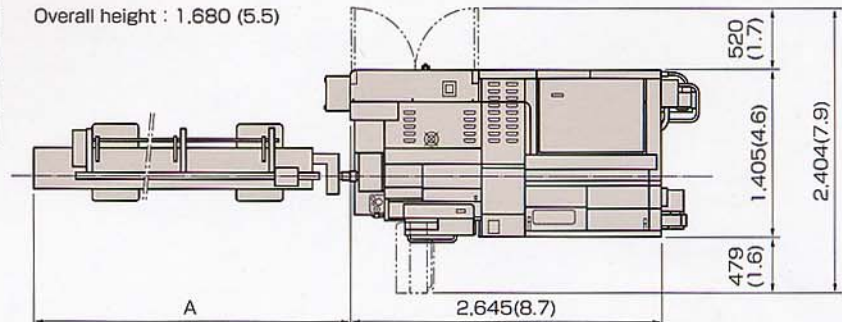


### SV-32

●Barfeeder (Ikura and Alps)

Type	Length			
	2.5M	3.0M	3.7M	4.0M
Single barfeed unit	—	—	5,237(17.2)	—
S302	3,570(11.7)	4,070(13.3)	—	5,070(16.6)
ASR X-32P	3,510(11.5)	4,010(13.2)	—	5,010(16.4)
PF-V3S	3,380(11.1)	3,880(12.7)	—	4,880 (16)

Overall height : 1,680 (5.5)



※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.