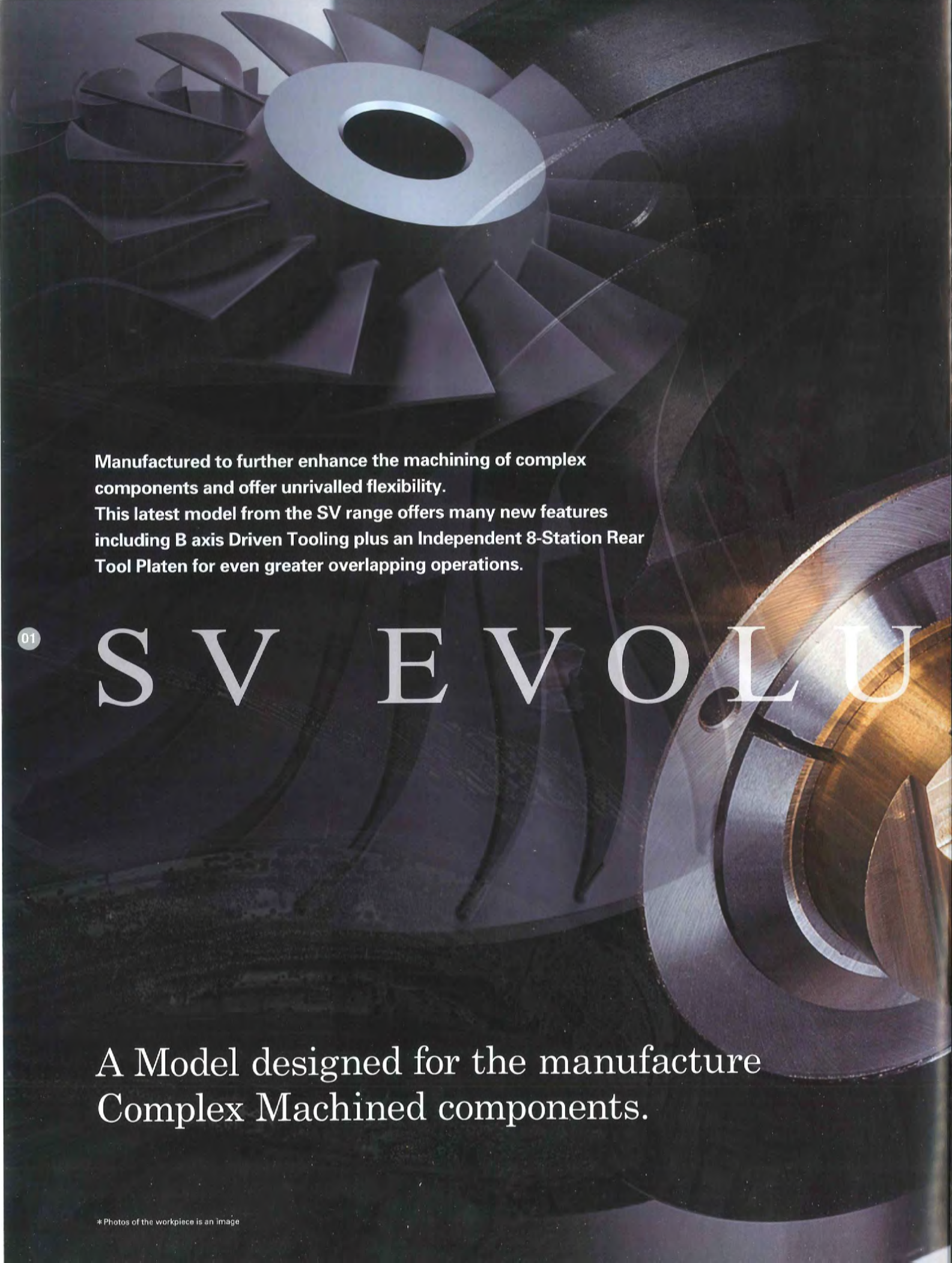




SWISS TYPE AUTOMATIC LATHE equipped with star motion control system 

# SV-38R





Manufactured to further enhance the machining of complex components and offer unrivalled flexibility. This latest model from the SV range offers many new features including B axis Driven Tooling plus an Independent 8-Station Rear Tool Platen for even greater overlapping operations.

01

# SV EVOLU

A Model designed for the manufacture  
Complex Machined components.





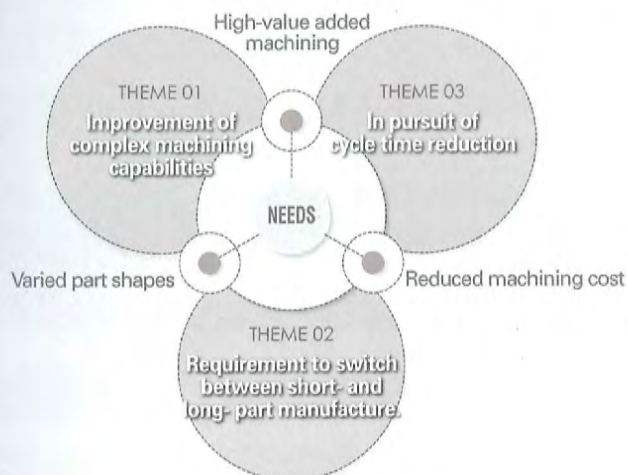
**This latest model in the SV range offers the user even more versatility and power together with an increase in bar diameter to 38mm. The production of complex Mill-Turn components for Medical, Automotive, Telecommunications and Aerospace are further enhanced with the new SV-38R.**

**FEATURE**

- Turret-type tool post with B-axis control mechanism for simultaneous 5-axis machining of complicated parts.
- G.B./N.G.B. switching function to achieve optimum machining of both long and short workpieces with a single machine.
- 8-spindle backworking unit with driven tooling further enhances overlapped operations and reduces cycle time.
- Latest CNC unit equipped with high-power motor and high-performance CPU to contribute to enhanced productivity.
- Operator-friendly software & hardware to enable simplified setup and maintenance works.

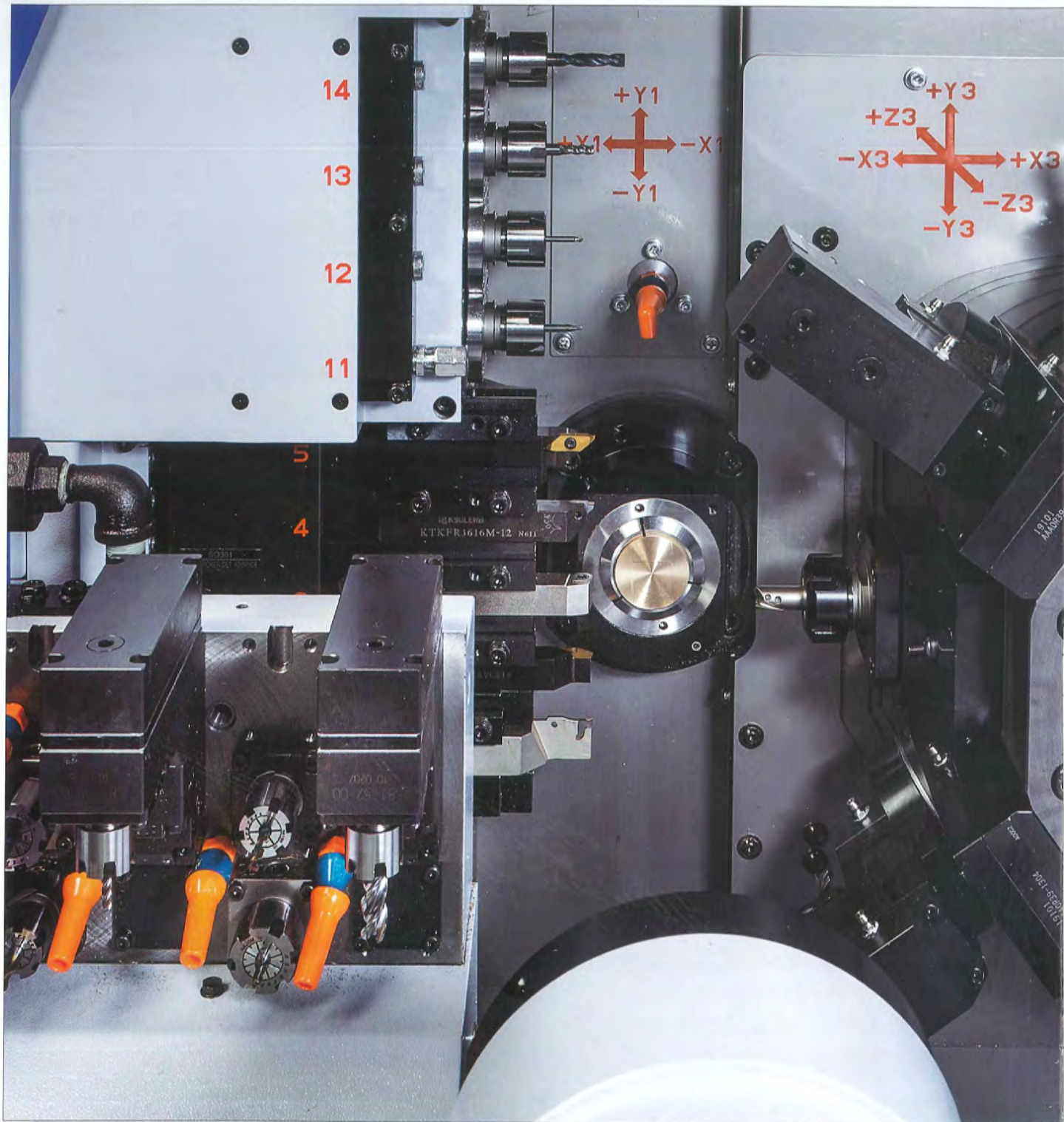
02

TION



**SV-38R**





03

Complex machining performance  
Designed to meet the requirements of modern part manufact





**9-station platen + 10-station turret+ Backworking-station :**  
**Offers even greater flexibility in the manufacture of highly complex Mill-Turn components.**

Platen tool post + 10-station turret-type tool post with B axis control + Backworking tool station with additional Y axis control: For high-level complex machining and superb productivity. G.B./N.G.B. switching function also enables flexible response to the machining of workpieces of different lengths. The combination of the machine design and expanded support software contributes to improved operability and workability. Performance required for parts machining today are thoroughly explored for from every angle to provide the latest and strongest models in the SV series. SV-38R, the model for the next generation in complex Multi-Axis machining.

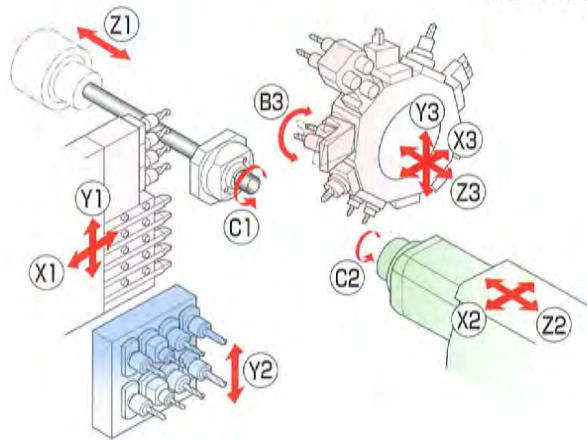
# SV-38R

CNC SWISS TYPE AUTOMATIC LATHE  
 equipped with Star motion control system

- Control method : CNC control by Star motion control system
- Machine composition :
- Main spindle
  - Sub spindle
  - Platen Tool post
  - Turret type Tool post
  - 8-spindle unit especially designed for back-working (with Y-axis control)



Illustration of tool layout : Guide bush type



## TOOLING SYSTEM

|                         |                   |   |
|-------------------------|-------------------|---|
| ■ Platen Tool post      | Turning tool      | 5 tools ( □20mm × 1 tools, □16mm × 4 tools )                    |
|                         | Power-driven tool | 4 tools ( ER20 )  |
| ■ Turret type Tool post | Turning tool      | 1 tools / station ( □20mm )<br>max. 2 tools / station ( □16mm ) |
|                         | Sleeve            | max. 3 tools / station  |
|                         | Power-driven tool | max. 2 tools / station  |
|                         | Stationary tool   |   |
| ■ Back B-spindle unit   | Stationary tool   | Total 8 tools ( Power-driven tool : max. 6 tools )              |
|                         | Power-driven tool |   |

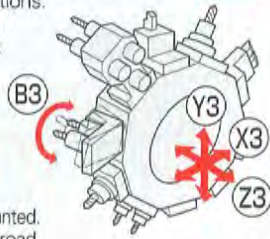


## High functionality

## Improvement of complex machining capabilities

### ① 10-position turret-type tool post with B axis control mechanism

- 2-spindle power tool unit for B-axis control can be mounted on a maximum of 5 turret positions.
- Machining of inclined surfaces including angular holes on both the front and back sides is possible.
- Simultaneously controlled 5-axis machining is possible. (Photo ① on Page 9)

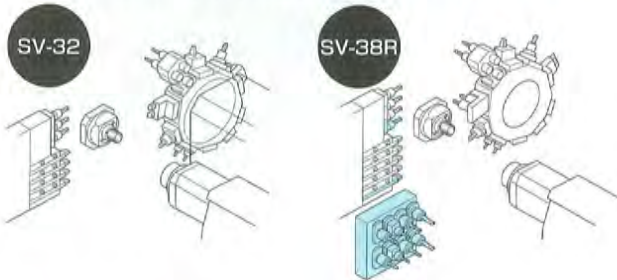


### ② 8-spindle unit with Y-axis control for backworking

- A maximum of 6 power tool units can be mounted.
- Various power tool units are ready for a broad range of complex machining on the back side.
- Combination with the 2-spindle (X2/Z2) controlled sub spindle enables 3D machining.

### ③ Increased number of tools positions available

- Ten additional tools can be mounted. (Compared to Star SV-32 as shown below)

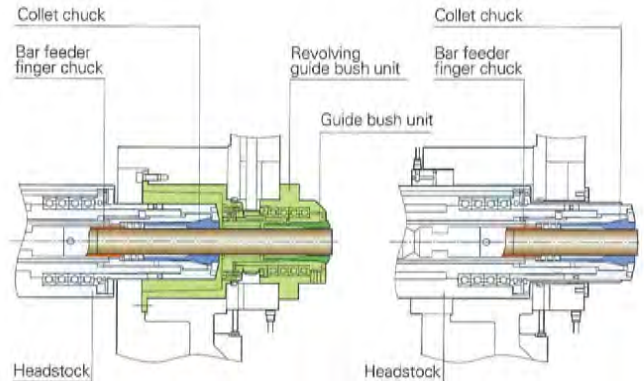


## High functionality

## Configure machine depending on component length

### ① G.B./N.G.B. switching function

- The ability to switch between G.B. & N.G.B. offers greater flexibility. The G.B. type is for machining long workpieces and prevents workpiece bend thus achieving high accuracy. The N.G.B. type is for machining short workpieces and significantly reduces remnant bar length.



For machining long workpieces

For machining short workpieces

Guide bush type

Remnant bar length : 223mm

Non-guide bush type

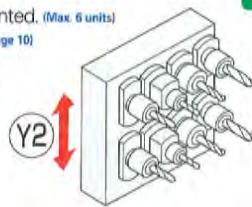
Remnant bar length : 85mm

## High productivity

## Cycle time reduction (for mechanical system)

### ① 8-spindle unit with Y-axis control function especially for back machining

- Various power tool units can be mounted. (Max. 6 units)
- Flexible overlap machining (Photo ① on Page 10) ensures efficient process separation between the front and back sides to reduce cutting time.



## High productivity

## Cycle time reduction (for control system)

### ① Star motion control system on board

- Reduction of non-cutting time for switching the control system, changing tools, etc.

### ② Latest NC unit on board

- Reduction of program processing time thanks to high speed processing by highly efficient CPU.

### ② Increased motor power and rapid feed rates (compared with Star SV-32)

#### Comparison of motor power

|  | SV-32     | → | SV-38R    |
|--|-----------|---|-----------|
| ① Main spindle motor                               | 5.5/7.5kw | → | 7.5/11kw  |
| ② Sub spindle motor                                | 2.2/3.7kw | → | 5.5/7.5kw |
| ③ Platen tool post (Power driven att. drive motor) | 0.5kw     | → | 2.2kw     |

#### Comparison of rapid feed rates

|                         | SV-32  | →       | SV-38R    |
|-------------------------|--------|---------|-----------|
| ① Main/sub spindles     | Z axis | 18m/min | → 30m/min |
|                         | X axis | 15m/min | → 30m/min |
| ② Platen tool post      | X axis | 15m/min | → 30m/min |
|                         | Y axis | 15m/min | → 30m/min |
| ③ Turret-type tool post | Z axis | 18m/min | → 30m/min |
|                         | X axis | 15m/min | → 30m/min |
|                         | Y axis | 15m/min | → 15m/min |
|                         | Y axis | 15m/min | → 15m/min |



## 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



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



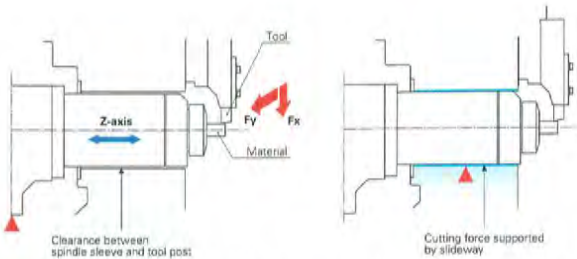


**High rigidity** Machine structure to achieve high accuracy

① Spindle sleeve slide guide way structure (N.G.B. type)



• A system to guide the Z axis spindle nose through the headstock is introduced. This concept enables great rigidity and stability at the cutting point to facilitate accurate machining.



↑ For ordinary non-guide bush type

↑ For SV-38R non-guide bush type

② Built-in spindle for accurate indexing

• The built-in sensor enhances C-axis indexing accuracy.

**Operability & workability** Setup support software

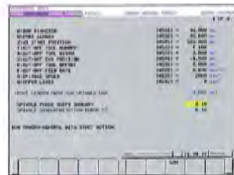
**Support function①**  
Center height adjustment function

Tool center height setting on the Platen can be performed by the use of the handwheel.



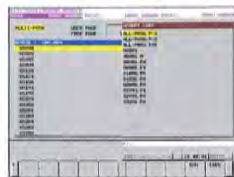
**Support function②**  
Spindle phase synchronization adjustment

By simply following the operation guidance displayed on the NC screen, the spindle phase adjustment is possible.



**Support function③**  
Multi-system program control function

By combining the programs of three systems into one file, input/output operations can be reduced to one third and controlling programs following output is easily done.



**Operability & workability** Machine design in consideration of setup and maintenance

① Working area door is enlarged

• By employing a folding door, the opening to the working area is enlarged to improve access when setting.



Working area : folding door

② Headstock area door is enlarged

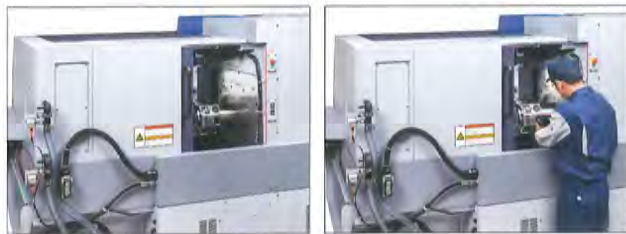
• By employing a link door, which opens upward, the opening to the headstock area is enlarged to improve access to the main spindle and Guide Bush areas.



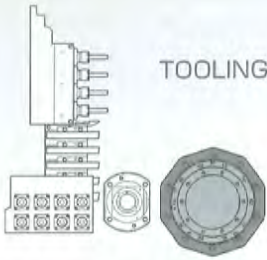
Headstock area : link door

③ Cutting area rear door

• By providing a door on the rear side of the cutting area, easy access to the turret-type tool post for setup is provided.



The search for increased function, productivity and accuracy through both mechanical and control systems.



TOOLING SYSTEM

Turret type Tool post

The wide range of attachments available cover multiple machining requirements.



Tool unit (turret side)

| On-board unit                              | Mountable positions |      |
|--|---------------------|------|
| Fixed type tool holder                     | ●                   | ●    |
| Fixed type tool holder (for 2 tools)       | ●                   | ●    |
| 3-spindle sleeve holder                    | ●                   | ●    |
| 1-spindle sleeve holder (for deep hole)    | ●                   | ●    |
| 1-spindle sleeve holder (for backworking)  | ●                   | ●    |
| 2-spindle programmable drilling unit       | ●                   | ● *1 |
| 2-spindle angular adjustable drilling unit | ●                   | ● *1 |
| Angular adjustable drilling unit           | ●                   | ● *1 |
| Gear hobbing unit                          | ●                   | ● *2 |
| 2-spindle cross drilling unit              | ●                   | ●    |
| Cross drilling unit                        | ●                   | ●    |
| Milling unit                               | ●                   | ●    |
| 2-spindle face drilling unit               | ●                   | ●    |
| 2-spindle counterface drilling unit        | ●                   | ●    |
| Polygon machining unit                     | ●                   | ●    |
| Slotting unit                              | ●                   | ●    |
| Thread whirling unit                       | ●                   | ●    |



Fixed type tool holder (for 2 tools)



3-spindle sleeve holder



1-spindle sleeve holder (for deep hole)



2-spindle programmable drilling unit



2-spindle angular adjustable drilling unit



Gear hobbing unit



2-spindle cross drilling unit



Milling unit



2-spindle counterface drilling unit



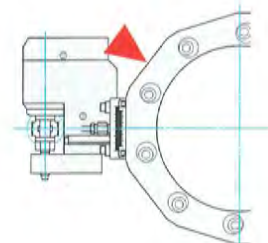
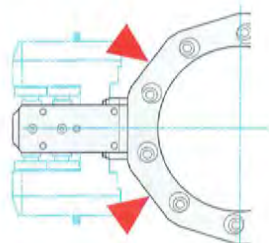
Polygon machining unit



Slotting unit



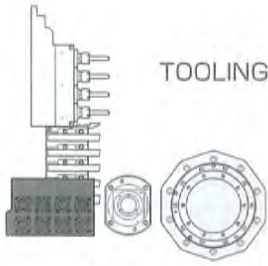
Thread whirling unit



\*1. When mounting a unit on both neighboring positions, the swivel angle is limited.

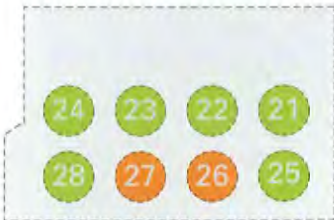
\*2. No unit can be mounted inside and above the adjoining turrets.





TOOLING SYSTEM


8-spindle unit especially for backworking



\* Two slotting units and polygon machining units can be mounted respectively (on positions not adjoining).  
 ● Usage together with a milling unit / cross drilling unit is possible. ● A slotting unit and a polygon unit can be used together.

 Power driven tool / Stationery tool mountable positions       Positions especially for Stationery tool

Power driven tools (on the back side)

| On-board unit  | Mountable positions  |
|--|----------------------|
|  | 24 23 22 21<br>28 25 |

Milling unit ER16

| On-board unit   | Mountable positions |
|---|---------------------|
|  | 24 23 22 21         |

Cross drilling unit ER16

| On-board unit   | Mountable positions |
|---|---------------------|
|  | 24 23 22 21         |

Slotting unit \*

| On-board unit   | Mountable positions |
|---|---------------------|
|  | 23 22 21            |

Polygon machining unit \*

Stationary tools (on the back side)

| On-board unit   | Mountable positions        |
|---|----------------------------|
|  | 24 23 22 21<br>28 27 26 25 |

Drill sleeve ER20

| On-board unit  | Mountable positions        |
|--|----------------------------|
|  | 24 23 22 21<br>28 27 26 25 |

Bowling sleeve

| On-board unit  | Mountable positions |
|--|---------------------|
|  | 22 21<br>26 25      |

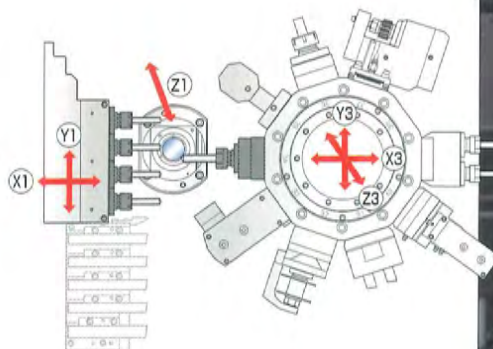
Drill sleeve ER25

There are numerous tooling units available for milling, drilling, slotting and polygon machining for the 8-station rear tool post. This variety ensures that the user can achieve significant overlapping operations and further reduce component cycle time.

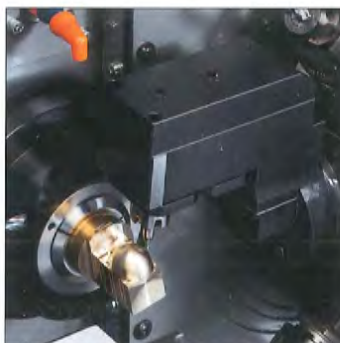
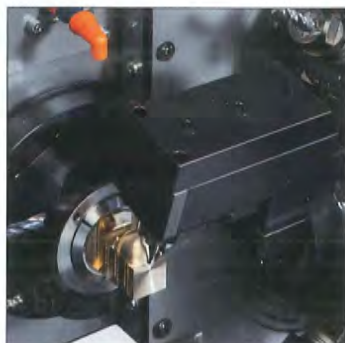
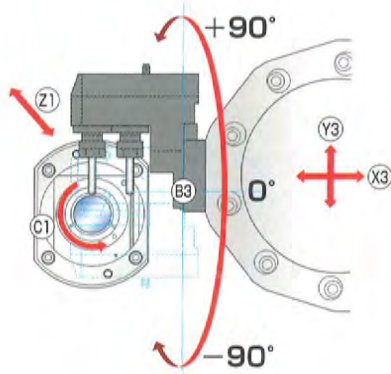


# Machining Capabilities to Meet Diversified Needs for Parts

VARIATION 01  
Front-end working  
Opposing cross machining



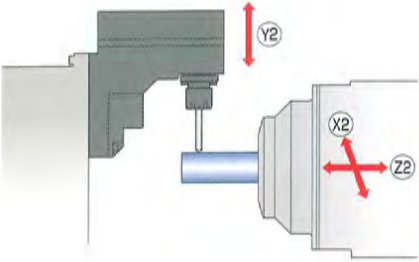

VARIATION 02  
Front-end working  
Simultaneous 5-axis controlled machining



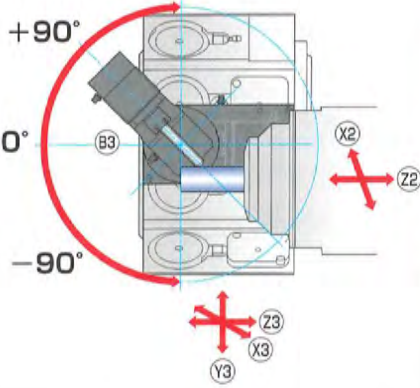



# Machining.

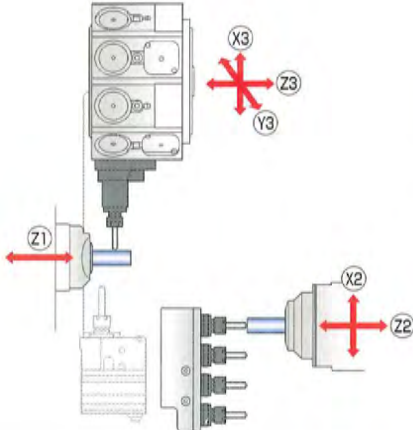
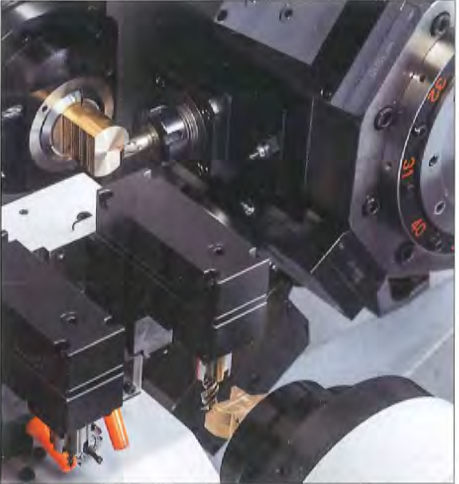
VARIATION 03  
Rear-end working  
Back cross machining

VARIATION 04  
Rear-end working  
Back slanting machining with B-axis power tools

VARIATION 05  
Front-end working  
+  
Rear-end working  
Main/back simultaneous machining



## □ Standard Machine Specifications

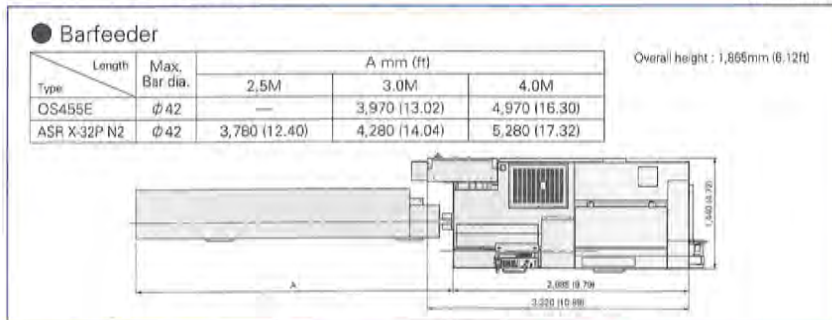
| Item                              | Specifications   |  |  |
|-----------------------------------|--|--|--|
| Max. machining diameter           | φ38mm(1-1/2in)   |  |  |
| Max. headstock stroke             | Standard   | 350mm(13-25/32in)                                    |  |
|                                   | R.M.G.B. type  | 315mm(12-13/32in) : OP                               |  |
|                                   | N.G.B. type  | Bar diameter×2.5(Max.95mm)(Max.3-47/64in)            |  |
| Tool post configuration           | Platen type  | Turning tool + Power-driven tool                     |  |
|                                   | Turret type  | 10 stations  |  |
| Tool                              | Platen type  | 5 tools(□20mm × 1 tools + □16mm × 4 tools)           |  |
|                                   | Turret type  | 1 tool / station(□20mm), Max.2tools / station(□16mm) |  |
| Sleeve                            | Number of tools  | Max.3tools / station                                 |  |
|                                   | Max. drilling capability                                 | φ 23mm(29/32in)                                      |  |
|                                   | Max. tapping capability                                  | M16×P2.0   |  |
| Power driven attachment           | Number of tools  | Platen type  | 4 tools  |
|                                   |  | Turret type  | Max.2tools / station(mountable at each 10 positions) |
|                                   | Max. drilling capability                                 | Platen type  | φ 10mm(25/64in)                                      |
|                                   |  | Turret type  | φ 10mm(25/64in)                                      |
|                                   | Max. tapping capability                                  | Platen type  | M8×P1.25   |
|                                   |  | Turret type  | M8×P1.25   |
| Spindle speed                     | Platen type  | Max.6,000min <sup>-1</sup>                           |  |
|                                   | Turret type  | Max.5,700min <sup>-1</sup>                           |  |
| Drive motor                       | Platen type  | 2.2kW  |  |
|                                   | Turret type  | 2.7kW(continuous) / 4.0kW(5min. / 30%ED)             |  |
| Rapid feed rate                   | 30m/min(X1,X2,X3,Y1,Z1,Z2,Z3)<br>20m/min(Y2),15m/min(Y3) |  |  |
| Main spindle indexing angle       | C-axis control   |  |  |
| Main spindle speed                | Max.7,000min <sup>-1</sup>                               |  |  |
| Main spindle motor                | 7.5kW(continuous) / 11kW(10min. / 25%ED)                 |  |  |
| Coolant tank capability           | 220ℓ   |  |  |
| Dimensions (W×D×H)                | 3,320×1,440×1,865mm                                      |  |  |
| Center height                     | 1,125mm  |  |  |
| Weight                            | 4,300kg  |  |  |
| Power consumption                 | 9.5kVA   |  |  |
| A-weighted sound pressure: note-1 | Max.76.5dB   |  |  |

## □ Backworking Attachment Specifications

| Item                            | Specifications                            |                   |                 |
|---------------------------------|---|-------------------|-----------------|
| Max. chucking diameter          | φ 38mm(1-1/2in)                           |                   |                 |
| Max. length for front ejection  | 150mm(5-7/8in)                            |                   |                 |
| Max. parts projection length    | 75mm(2-61/64in)                           |                   |                 |
| Back 8-Spindle unit             | Number of tools                           | Stationary tool   | 8 tools         |
|                                 |   | Power driven tool | Max.6 tools     |
|                                 | Max. drilling capability                  | Stationary tool   | φ 16mm(5/8in)   |
|                                 |   | Power driven tool | φ 10mm(25/64in) |
| Max. tapping capability         | Stationary tool                           | M12×P1.75         |                 |
|                                 | Power driven tool                         | M8×P1.25          |                 |
| Power-driven att. spindle speed | Max.5,000min <sup>-1</sup>                |                   |                 |
| Power-driven att. drive motor   | 1.2kW(continuous) / 2.2kW(5min./30%ED)    |                   |                 |
| Sub spindle indexing angle      | C-axis control                            |                   |                 |
| Sub spindle speed               | Max.7,000min <sup>-1</sup>                |                   |                 |
| Sub spindle motor               | 5.5kW(continuous) / 7.5kW(10min. / 40%ED) |                   |                 |

## □ External Dimensions

Unit : mm(ft)



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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
- Drive unit for revolving guide bush
- Revolving guide bush unit
- Main / Sub collet
- C-axis control (Main / Sub)
- Spindle clamp unit (Main / Sub)
- 5-station tool holder
- Turret-type tool post with B-axis control
- Drive system for power-driven attachment (Platen / Turret)
- Back 8-Spindle unit
- Y-axis control for back-working tool post
- Drive system for power-driven attachment B (Back 8-spindle unit)
- Air purge for revolving guide bush
- Sub spindle air purge unit
- Sub spindle air blow (for pipe discharge)
- Parts conveyor
- Automatic bar feeder interface
- RS-232C interface
- Work light
- Leakage breaker

## □ Optional Accessories and Functions

- Coolant flow detector
- Parts ejection detector
- Water removal unit
- Beacon
- Non-guide bush type
- Main spindle inner tube
- Rotary magic guide bush unit
- For pneumatic unit rotary magic guide bush
- Parts ejector (Air cylinder type)
- Parts ejector (Spring 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
- 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

※ 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.

**9001 ISO 14001**  
CERTIFIED

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