

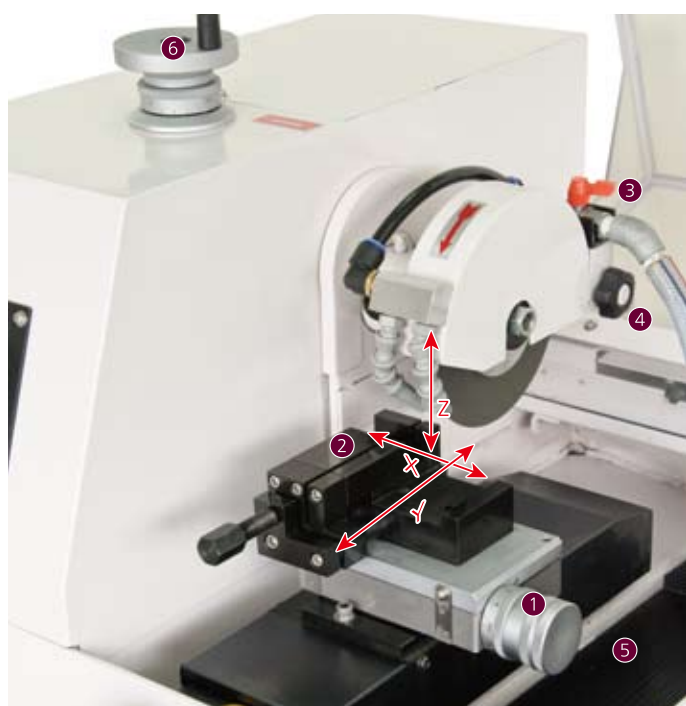
# Bench Top Universal Automatic Cutting Machine

## フインカット HS-25/25A

FINECUT

Manual Cutting Type

Automatic/Manual Cutting Type



This bench top precision cutting machine was developed for use in research field. It is suitable for use in cutting crystalline structures to study their physicality, removing sample flakes for electronic microscopes, and other samples of electronic materials/ceramics/various metals.

Travel along the X-Axis (right/left travel of work table), Y-Axis (front-rear travel of work table), and Z-Axis (vertical movement of spindle) are all supported in thereby corresponding to various cutting conditions.

### Characteristics

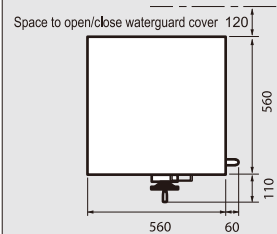
- 1 Easy measurement of up/down of cutting wheel (1/10mm scale) and right/left of work table (4/100mm scale) via vertical movement of spindle and precision slide table.
- 2 Equipped with a clear cover interlock (safety device).
- 3 Full-covered type that prevents spattering of water soluble cutting fluid.
- 4 Space-saving bench type.

### Optional Specifications Line Up

- 1 Surface rotary vise
- 2 Machine stand with casters
- 3 Spindle rotation inverter  OP-RCO
- 4 Antirust treated machine body  OP-AC

\* See the available options on pages 12-13 for the lineup of optional accessories and specifications.


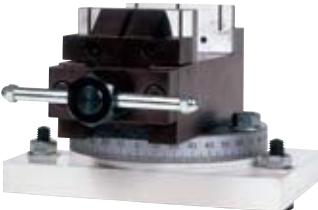
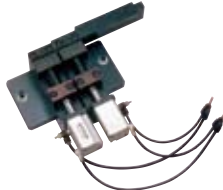
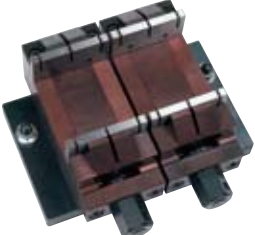

### Required Floor Space



- 1 Scale ring for work table side travel
  - 2 Accessory vise [jaw opening size 0-25mm]
  - 3 Coolant discharge adjustment cock
  - 4 Cutting wheel fixing knob
  - 5 Embedded coolant tank
  - 6 Spindle vertical steering wheel
- X Work table travel: 60 cross feed (manual)  
 Y Cutting direction travel: 150mm front to rear movement (auto)/(manual with front steering wheel)  
 Z Spindle travel: 50mm vertical movement (manual with upper steering wheel)

### Standard Specification

	HS-45AC	HS-25 (manual)	HS-25 (auto/manual)
Standard cutting capacity	□ pipe 40mm, ● solid bar 30mm, ▬ plate 15mm x 75mm	□ pipe 25mm, ● solid bar 20mm, ▬ plate 5mm x 50mm	
Flake cutting	0.2mm at φ20mm (hard metals)	0.2mm at φ20mm (hard metals)	
Cutting tolerance	Squareness 0.05mm, parallelism 0.1mm for SK steel φ20mm	Squareness 0.05mm, parallelism 0.1mm for SK steel φ20mm	
Work table travel (X, Y)	210mm in cutting direction (manual)·60mm in cross feed (manual)	60mm in cross feed (manual)·150mm in cutting direction (manual)	
Spindle travel (Z)	190mm vertically (front steering wheel operation)	50mm vertically (manual)	
Automatic cutting, Return speeds	6-100mm per min. (stepless), 100mm per min. (fixed)	-	3-47mm/3-57mm (50/60Hz) per min. (stepless)
Diameter of cutting wheel	φ230mm·φ205mm/φ25.4mm	φ150mm/φ25.4mm	
Diameter of flange	φ110mm (φ90mm: optional accessory)	φ80mm	
Diameter of spindle, Revolutions per minute	φ25.4mm, 3000rpm	φ25.4mm, 3400rpm (50Hz)/4100rpm (60Hz)	
Spindle motor	AC200V·3 phase·2P·1.5kW	AC200V·3 phase·400W	
Coolant pump, Tank	AC200V·3 phase·40W, 30 liters	AC200V·single phase·10W, built-in type	
Automatic cutting motor	AC200V·single phase·10W		-
Dimensions (W x L x H)	720mm x 1035mm x 1450mm	620mm x 670mm x 580mm	
Machine weight	290kg	85kg	
Accessories	Stainless steel standard vise, cleaning water gun, 1 set of cutting wheels for testing, FINECOOL, spindle oil, and 1 set of Paper Filters	Dedicated vise, 1 set of cutting wheels for testing, FINECOOL, spindle oil, and spindle stopper	

	<p>① Long Vise SP - V11</p> <p>Effective when cutting wider pieces of work that do not fit standard vises. The jaw opening size can be as wide as 120mm.</p>	<p>⑤ Long-type Double Vise SP - V15</p> <p>Long version of double vise (jaw opening size: 0-120mm).</p>	
	<p>② Surface Rotary Vise SP - V12</p> <p>Combination of a vise and flat table that rotates up to 90 degrees on both sides. Ideal for detailed cuttings that require the cutting position to be finely adjusted (jaw opening size: 0-80mm, scale of table: 1 degree).</p>	<p>⑥ Double Vise with Scale SP - V18</p> <p>Highly effective in constant-size cutting; the measuring stopper with fine adjustment scale enables more precise cutting.</p>	
<p>③ Long-type Surface Rotary Vise SP - V13</p>	<p>Combination of ② surface rotary vise and ① long vise. (jaw opening size: 0-120mm)</p>		<p>⑦ Air Vise SP - V17</p> <p>One-touch clamp with pneumatic ON/OFF switch.</p>
	<p>④ Double Vise SP - V14</p> <p>Ideal for not only fragile samples but also samples that can easily crack or be burred. (jaw opening size: 0-80mm)</p>		<p>⑧ Gonio Stage SP - V16</p> <p>A stage for cutting crystal orientations that supports angles from the flat surface up to up to 30 degrees along the X-axis and 20 degrees along the Y-axis.</p>
<p>⑨ Dedicated Jigs</p> <p>Dedicated jigs can be designed and produced corresponding to cut cores, glass lens, profiles, etc.</p>		<p>⑩ Special Flanges SP - W17</p> <p>Flanges of the required size can be produced.</p>	

### List of Optional Vises and Products for FiNECUT Series

○ Applicable — Not applicable

Product Name	Model	Code No.	HS-100G	HS-45AC	HS-25/25A	ACE20	SP-7
① Long Vise		SP - V11	○	○	—	—	—
② Surface Rotary Vise		SP - V12	○	○	Dedicated type for 25	—	Dedicated type for SP
③ Long-type Surface Rotary Vise		SP - V13	○	○	—	—	—
④ Double Vise		SP - V14	○	○	—	—	Dedicated type for SP
⑤ Long-type Double Vise		SP - V15	○	○	—	—	—
⑥ Double Vise with Scale		SP - V18	○(requires consultation)	○(requires consultation)	—	—	Dedicated type for SP
⑦ Air Vise		SP - V17	○	○	—	—	Dedicated type for SP
⑧ Gonio Stage		SP - V16	○	—	Dedicated type for 25	—	—
⑨ Dedicated Jigs			○	○	○	○	○
⑩ Special Flange		SP - W17	○	○	○	○	○

### Application Example of FiNECUT Series Cutting








#### Bundle Cutting

Place fine materials such as injection needles or materials to be cut in a thermal shrinking tube, heat the tube to shrink and thus bundle the materials, and then cut them in one go.

\* Please use air or oil dryer or boiling water for the heating process.  
\* Please contact us for more detailed product information on the tubes.



Parts Name (nominal folding width: mm)	Applicable bundle diameter (mm)	Code No.
29.0	17.0	HC-15
41.0	24.0	HC-20
50.0	29.0	HC-25
59.5	34.0	HC-30
66.5	38.0	HC-35

	<p>① Simple Filter Separator</p> <p>ST – TF</p> <p>Removes abrasive grains and cut material contained in the coolant fluid easily.</p>		<p>④ Settling Tank Separator</p> <p>Separates sludge with a high specific gravity. Can also be used to collect noble metals.</p>
	<p>② Magnet Separator</p> <p>ST – TM</p> <p>Suitable for removing any magnetic material such as iron powder.</p>		<p>⑤ Pressure Filter Separator</p> <p>Excellent filtering capabilities; works very well with the precision cutting of nickel alloys and tungsten materials in which any coolant contamination can affect the cutting precision.</p>
	<p>③ Centrifugal Separator</p> <p>ST – TC</p> <p>Suitable for removing non-magnetic material such as carbon, glass, and stainless steel.</p>		<p>⑥ Standard Stainless Filter</p> <p>Stainless steel version of standard filter as a more environmentally-friendly option.</p>
			<p>⑩ Multi-blade</p> <p>OP – HM</p> <p>Multiple blades and spacers on the spindle enable multiple parts to be simultaneously processed.</p>

### List of Optional Specifications for FiNECUT Series

Recommended option    Standard equipment    ○ Applicable    — Not applicable

Type	Product Name	Code No.	HS-100G	HS-45AC	HS-25/25A	ACE20	SP-7
Coolant	① Simple Filter Separator	ST-TF	○	○	—	○	○
	② Magnet Separator	ST-TM	○	○	—	○	○
	③ Centrifugal Separator	ST-TC	○	○	—	○	○
	④ Settling Tank Separator		○	—	—	○	○
	⑤ Pressure Filter Separator		○	○	—	○	○
	⑥ Standard Stainless Filters		○	○	—	○	○
Safety Measures	⑦ Earth Leakage Circuit Breaker	OP-ELB	Standard Equipment	Standard Equipment	○	Standard Equipment	Standard Equipment
	⑧ Emergency Stop Button		○	○	○	○	○
	⑨ Front Cover Interlock	OP-IL	Standard Equipment	○	Standard Equipment	—	Standard Equipment
	⑩ Right/Left Cover Interlock		○	○	—	—	—
	⑪ Interlock with Magnetic Lock		○	○	—	—	○
	⑫ Indication Lights		○	○	○	○	○
Environment Measures etc.	⑬ Cleaning Water Gun (coolant circulation)	OP-WA	Standard Equipment	Standard Equipment	—	Standard Equipment	Standard Equipment
	⑭ Internal Light (ceiling moisture-proof LED)	OP-LF	○	○	—	—	Standard Equipment/○
	⑮ Moisture-proof LED Spot Light	OP-LS	○	○	—	—	○
	⑯ Multi-blade	OP-HM	○	—	—	—	—
	⑰ Enhanced Spindle Motor	OP-HI	—	—	—	—/○	○/—
	⑱ Embedded Spindle Rotation Inverter	OP-RCO	○	○	○	○/Standard Equipment	—/Standard Equipment
	⑲ Mist Collector	OP-MC	○	○	—	—	○
	⑳ Stainless Steel Upper Body Cover		○	○	—	—	○
	㉑ Antirust Treated Internal Body	OP-AC	○ (requires consultation)	○ (requires consultation)	○ (requires consultation)	○ (requires consultation)	○ (requires consultation)
	㉒ Colored Body	OP-CO	○	○	○	○	○
	㉓ Line Marker		○	○	—	—	—

### Wax Cutting

Using thermo-softened wax materials that are difficult to clamp or are breakable are powerfully adhered to jigs for cutting. The material can be removed from the jig after the cutting by heating the wax.

Sample Cutting

\* Please use an industrial dryer or hotplate for the heating process.

### Wax Set

WS

- ① A wax (general purpose): softens at 68 degrees C/adhesive force 44kg/cm<sup>2</sup>
  - ② B wax (small adhesive area): softens at 75 degrees C/adhesive force 162kg/cm<sup>2</sup>
  - ③ Cleaning liquid I/II
  - ④ Cleaning tray
  - ⑤ Wax melting container
  - ⑥ Abrasive stick WA/GC (for dresser)
  - ⑦ Glass mount plate for cutting samples
  - ⑧ Bake mount plate for fixing vice
- (10 of the above 8 types of items are included in a set.)



# Cutting Counseling Service



FAX  
TO: HEIWA TECHNICA,  
FINE CUT SALES  
81-(0)46-255-5840

If you have any inquires, please feel free to contact us!  
Please copy this page and fill up following:

Name \_\_\_\_\_

Company name \_\_\_\_\_

Department \_\_\_\_\_

Address \_\_\_\_\_

Country \_\_\_\_\_

TEL : \_\_\_\_\_ FAX : \_\_\_\_\_

e-mail : \_\_\_\_\_



•Please select as below:

- Send your products catalogue
- Select a suitable cutting machine
- Select a suitable cutting wheel
- Would like to see demonstration
- Free test-cutting my work piece and provide test-cutting data
- Paid test-cutting my work piece and provide test-cutting data
- Any other requests

• Please inform us current cutting method (→New)

• Purpose of cutting

- QC, Checking, study
- Production

QTY \_\_\_\_\_

Work piece, conditions

Material	
Size	
Precision	
Machine, model name	
Current cutting wheel	
Process condition	

•Please write your concerns as bellows:

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