



SEIBU ELECTRIC & MACHINERY CO., LTD. is a factory that has acquired ISO 9001 quality management system and ISO 14001 environmental management certification.

## SEIBU ELECTRIC & MACHINERY Co., LTD.

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[www.seibudenki.co.jp](http://www.seibudenki.co.jp)  
(for the North America market visit [www.Kgki.com](http://www.Kgki.com))



Be sure to read the "Instruction Manuals" and "Safety Precaution Manual" before use to ensure proper and safe use.

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Seibu Electric & Machinery Co.,Ltd.

search



4149-2  
Issue: February 2024

# Seibu

## High-Precision Seibu EDM Technology

SuperMM80B  
MM75B  
M75B

MM50UP  
MM35UP  
M50HP  
M35HP

Installed by

Smart NC





## Lineup of water specification wire EDM machines



\*Refer to the MEX15 catalog concerning the MEX15.

## Combining traditional manufacturing practices and techniques with the latest technology

Seibu created the world's first CNC wire electrical discharge machine (W-EDM) in 1972.

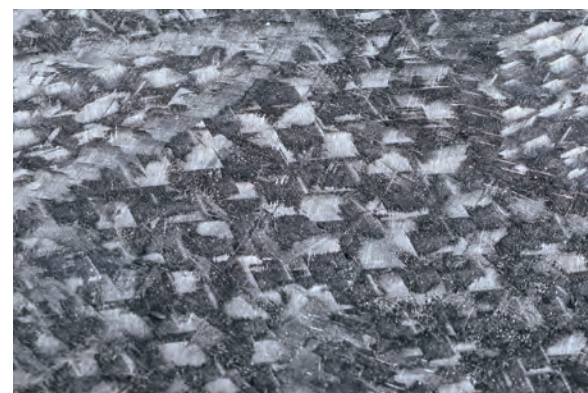
Since then, we have steadily improved the productivity and precision of our expanding line of W-EDM systems. Adding new functions, Seibu is constantly researching and improve the user's productivity.

Seibu developed oil type Ultra Precision Wire EDM "M25LP" which brings EDM manufacturing to a wider range of products. M25LP is ideal, for the manufacturing of lead frames, carbide machining, small electronic and medical components.

The secret behind our unsurpassed precision is repeated "Kisage" hand scraping, while attaining a level of flatness that cannot be reached with machining.



Our traditional "Kisage" scraping technique



Scraped surface



Scraping

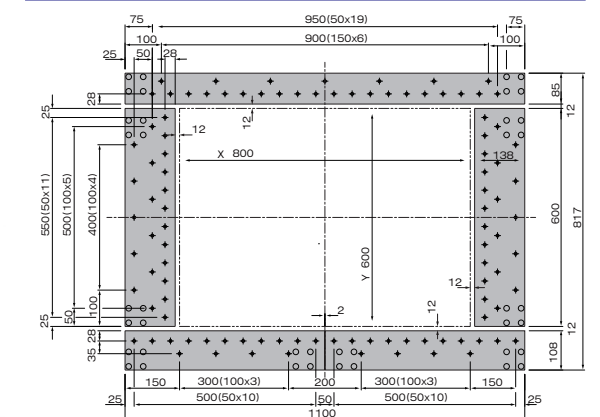
Ultra-precision machine 800 x 600

Achieves an incredible pitch accuracy of  $\pm 1 \mu\text{m}$  with the largest cutting area in the series

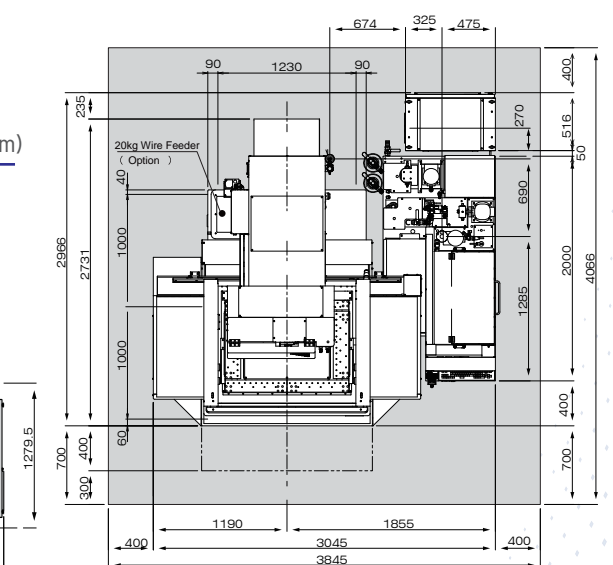
# SuperMM80B



Work Table

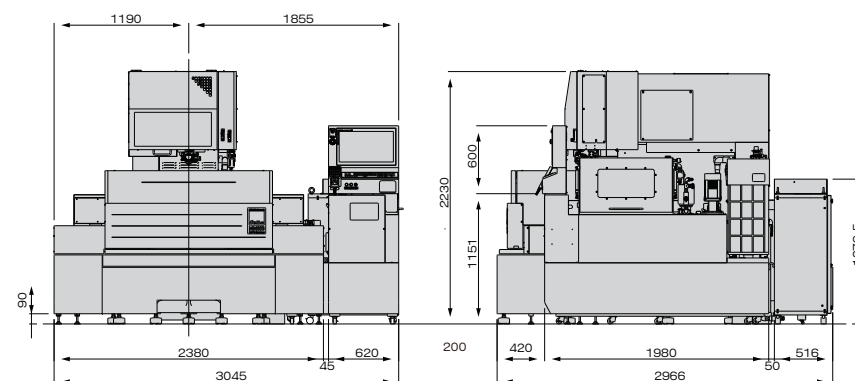


Layout



Dimension

(Unit: mm)



Standard Specifications		SuperMM80B	Power Supply	MPSC-20
Max. workpiece dimensions	WxDxH	1,000x800x150mm	Input power source	3-phase 200V/220V $\pm 10\%$ 11kVA, 50/60Hz
Max. workpiece weight		600kg	Weight	160kg
Axis travel range	XxYxZ	800x600x230mm	Filtration device	MF1100BD
Automatic wire feeding device		AWF-4 equipped as standard	Tank capacity	1,100L
U-V axis travel	UxV	$\pm 60 \times \pm 60 \text{mm}$	Filter element	4 paper filters $\Phi 340 \times 300 \text{mm}$
Max. taper angle		$\pm 10^\circ$ /work thickness 150mm ( $\pm 45^\circ$ /40mm: Option)	Deionizer	Ion exchange resin 20L
Dimensions	WxDxH	2,380x2,400x2,155mm	Weight	350kg
Weight		6,300kg	Wire diameter : $\Phi 0.1 \text{mm}$ to $0.3 \text{mm}$ ( $\Phi 0.2 \text{mm}$ is standard.)	
Control device		SmartNC		
Input system		MDI, Ethernet, USB		
Display		21.5 inch TFT multi-touch screen		
Axis controlled		5 axis (simultaneously 4 axis)		
Least input increment		0.01 $\mu\text{m}$		
Least command increment		0.01 $\mu\text{m}$		
Program memory capacity		1GB		

High precision machine

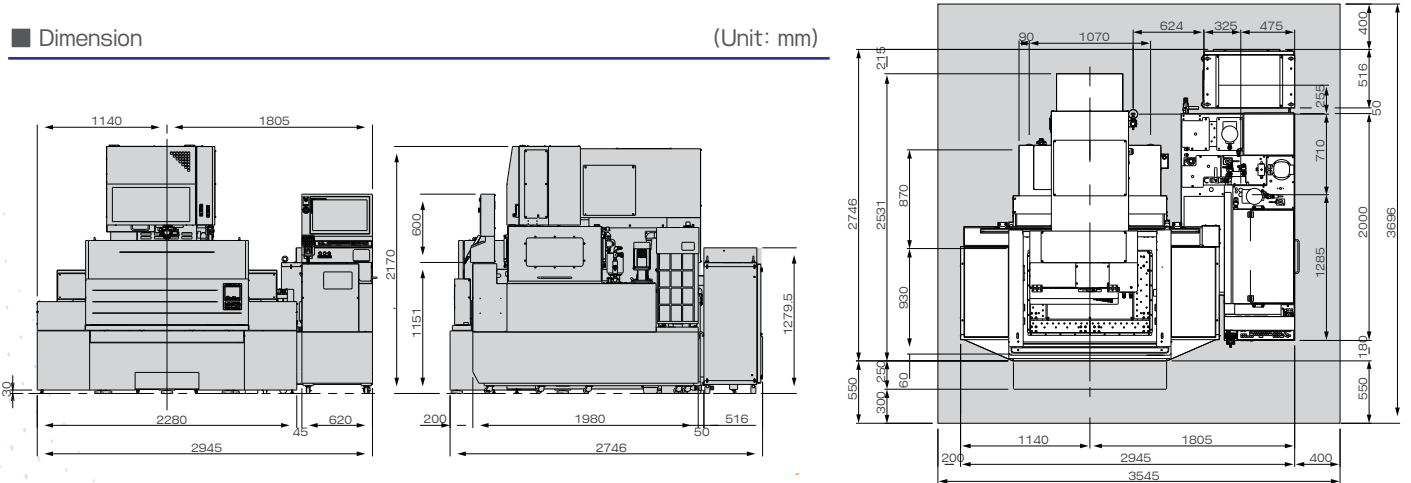
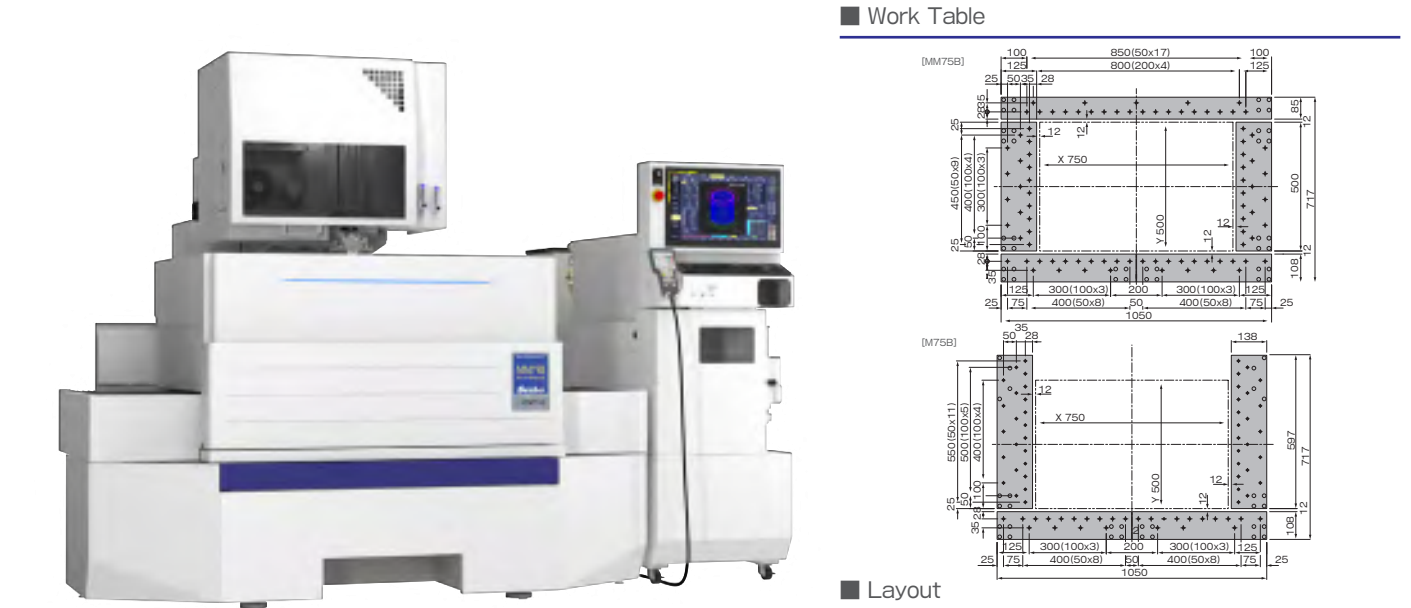
Precision machine

750x500

750x500

# MM75B/M75B

High precision, large workpiece



Standard Specifications	MM75B	M75B
Max. workpiece dimensions WxDxH	900x700x220(270*1)mm 900x700x250(300*2)mm	
Max. workpiece weight	1,000kg	
Axis travel range XxYxZ	750x500x280mm	750x500x310mm
Automatic wire feeding device	AWF-4 equipped as standard	
U-V axis travel UxV	±60x±60mm	
Max. taper angle	±10° /work thickness 270mm ±10° /work thickness 300mm (±45° /40mm: Option)	
Dimensions WxDxH	2,280x2,200x2,155mm	
Weight	5,100kg	
Control device	SmartNC	
Input system	MDI, Ethernet, USB	
Display	21.5 inch TFT multi-touch screen	
Axis controlled	5 axis (simultaneously 4 axis)	
Least input increment	0.01 (MMB)/0.1 (MB)μm	
Least command increment	0.01 (MMB)/0.1 (MB)μm	
Program memory capacity	1GB	

Power Supply	MPSC-20
Input power source	3-phase 200V/220V±10% 11kVA, 50/60Hz
Weight	160kg

Filtration device	MF1100BD
Tank capacity	1,100L
Filter element	4 paper filters φ340×300mm
Deionizer	Ion exchange resin 20L
Weight	350kg

Wire diameter: (Φ0.2mm is standard.)	
MM75B	M75B
Φ0.05mm to 0.3mm	Φ0.07mm to 0.3mm

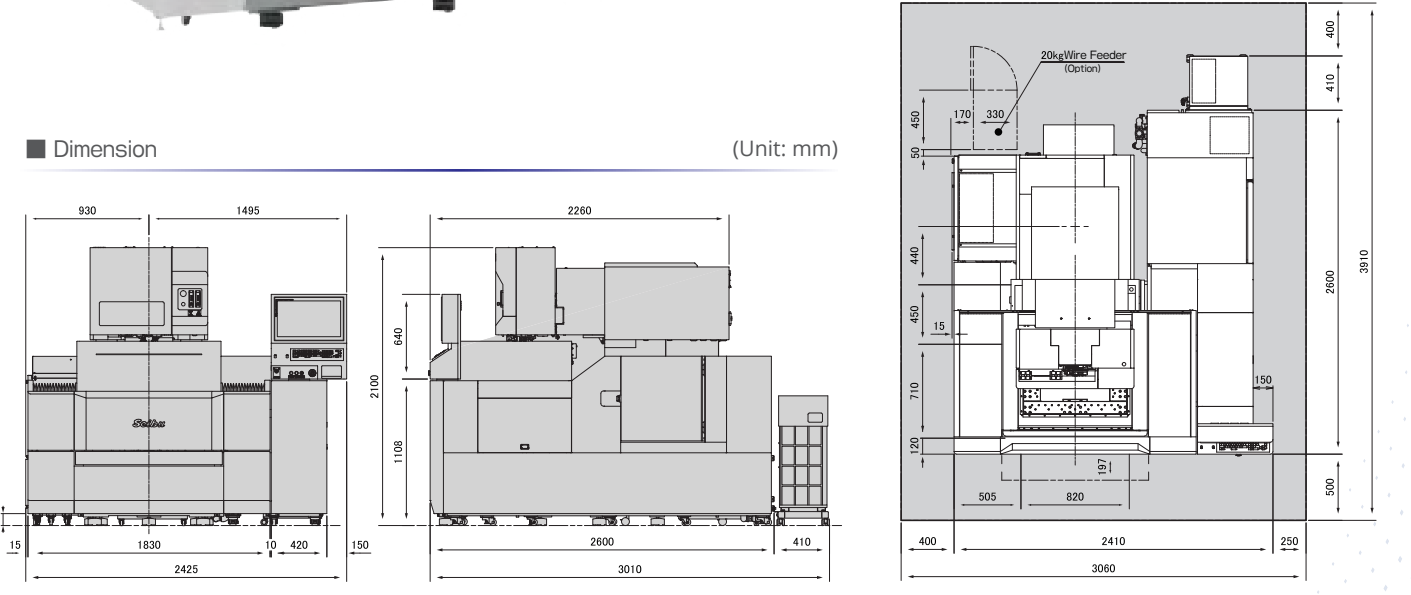
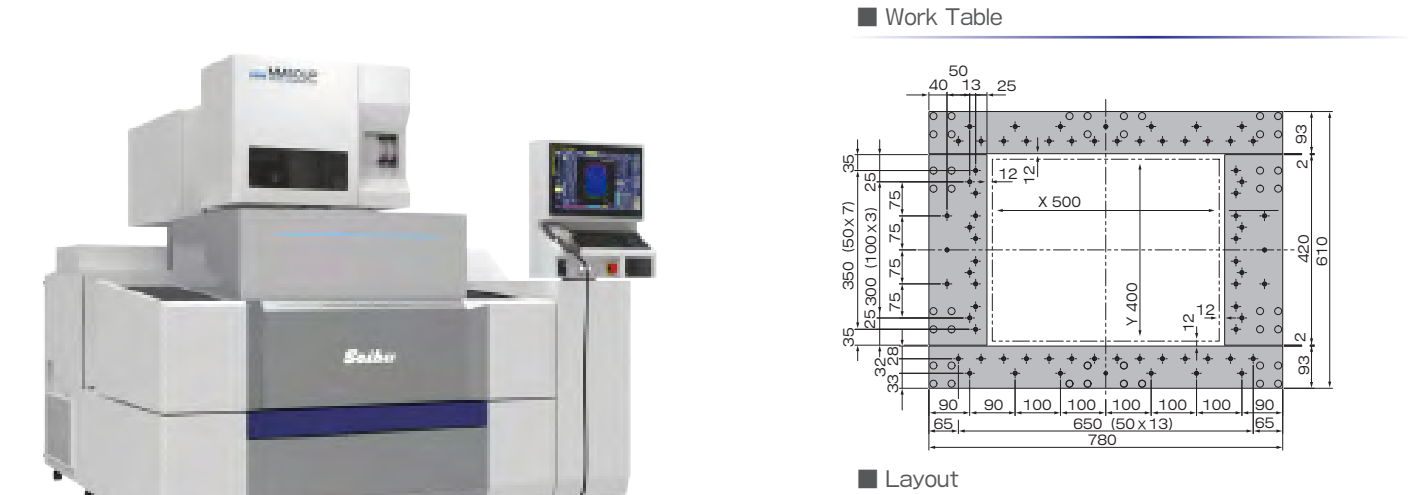
\*1 Flush cutting available for work 220 to 270mm high (MM75B).  
\*2 250 to 300mm (M75B)

Ultra-precision machine

500x400

# MM50UP

±1μm pitch accuracy is achieved to reduce the jig grinding process, which contributes to shortening delivery time in high-precision die production.



Standard Specifications	MM50UP
Max. workpiece dimensions WxDxH	850×730×300mm
Max. workpiece weight	800kg
Axis travel range X×Y×Z	500×400×310mm
U-V axis travel U×V	±60× ±60mm
Max. taper angle	±10° /work thickness 300mm (±45° /40mm: Option)
Dimensions WxDxH	1,915×2,260×2,035mm
Weight	3,300kg

Power Supply	MPSC-20
Input power source	3-phase 200V/220V±10% 11 kVA, 50/60Hz
Weight	160kg

Filtration device	MF50
Tank capacity	740L
Filter element	4 paper filters Φ340×300mm
Deionizer	Ion exchange resin 20L
Weight	430kg

Wire diameter : Φ0.05 to Φ0.3mm (Φ0.2mm is standard.)	
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Control device	SmartNC
Input system	MDI, Ethernet, USB
Display	21.5 inch TFT multi-touch screen
Axis controlled	5 axis (simultaneously 4 axis)
Least input increment	0.01μm
Least command increment	0.01μm
Program memory capacity	1GB



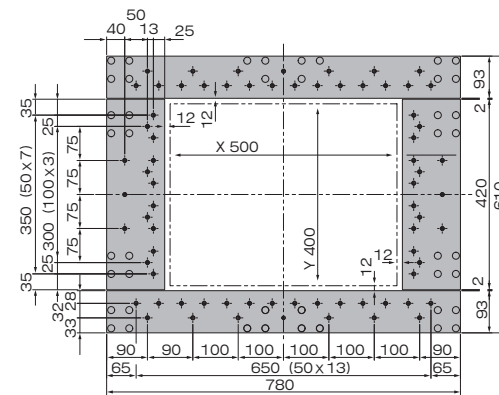
Precision machine

500 x 400

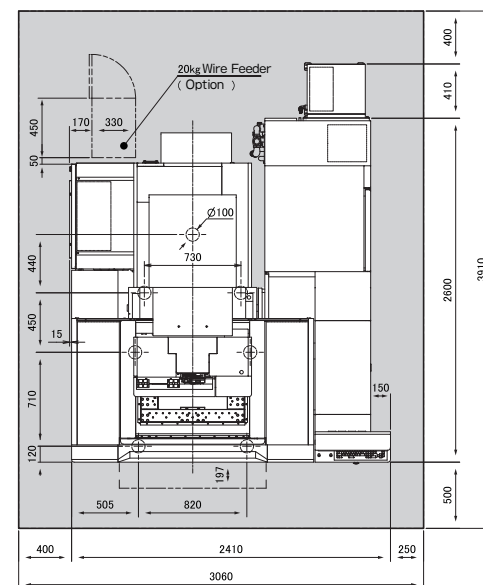
# M50HP

Standard type with high speed, high precision, and advanced functions

■ Work Table

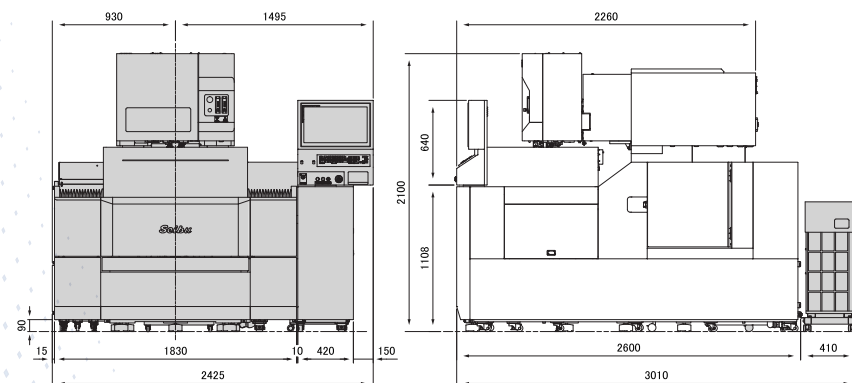


■ Layout



■ Dimension

(Unit: mm)



Standard Specifications		M50HP
Max. workpiece dimensions	W×D×H	850×730×300mm
Max. workpiece weight		800kg
Axis travel	X×Y×Z	500×400×310mm
U-V axis travel	U×V	±60× ±60mm
Max. taper angle		± 10° /work thickness 300mm (±45° /40mm: Option)
Dimensions	W×D×H	1,915×2,260×2,035mm
Weight		3,300kg
Control device		SmartNC
Input system		MDI, Ethernet, USB
Display		21.5 inch TFT multi-touch screen
Axis controlled		5 axis (simultaneously 4 axis)
Least input increment		0.01 μm
Least command increment		0.01 μm
Program memory capacity		1GB

Power Supply	MPSC-20
Input power source	3-phase 200V/220V±10% 11 kVA, 50/60Hz
Weight	160kg
Filtration device	MF50
Tank capacity	740L
Filter element	4 paper filters Φ340×300mm
Deionizer	Ion exchange resin 20L
Weight	430kg

Wire diameter : Φ0.07 to Φ0.3mm  
(Φ0.2mm is standard.)

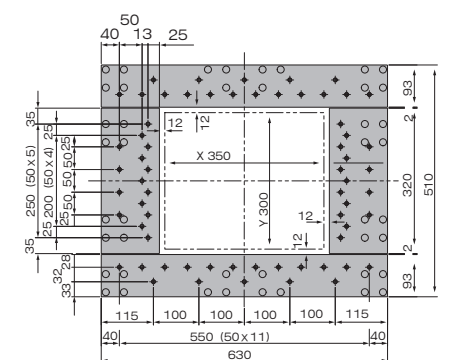
Ultra-precision machine

350 x 300

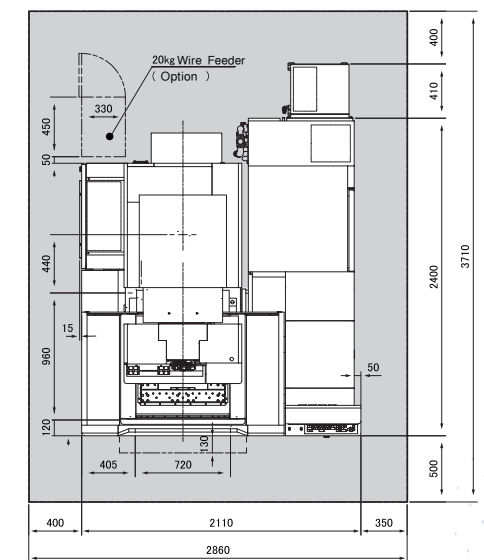
# MM35UP

±1μm pitch accuracy is achieved to reduce the jig grinding process, which contributes to shortening delivery time in high-precision die production.

■ Work Table

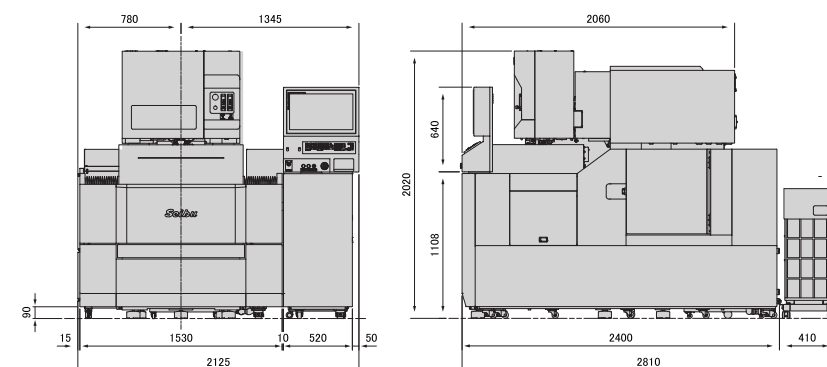


■ Layout



■ Dimension

(Unit: mm)



Standard Specifications		MM35UP
Max. workpiece dimensions	W×D×H	700×630×220mm
Max. workpiece weight		350kg
Axis travel range	X×Y×Z	350×300×230mm
U-V axis travel	U×V	±60× ±60mm
Max. taper angle		±10° /work thickness220mm (±45° /40mm: Option)
Dimensions	W×D×H	1,640×2,060×1,955mm
Weight		2,500kg
Control device		SmartNC
Input system		MDI, Ethernet, USB
Display		21.5 inch TFT multi-touch screen
Axis controlled		5 axis (simultaneously 4 axis)
Least input increment		0.01 μm
Least command increment		0.01 μm
Program memory capacity		1GB

Power Supply	MPSC-20
Input power source	3-phase 200V/220V±10% 11 kVA, 50/60Hz
Weight	160kg
Filtration device	MF35
Tank capacity	700L
Filter element	4 paper filters Φ340×300mm
Deionizer	Ion exchange resin 20L
Weight	400kg

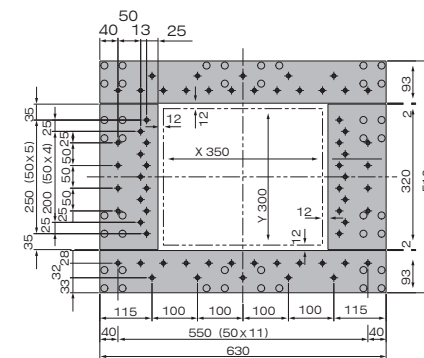
Wire diameter : Φ0.05 to Φ0.3mm  
(Φ0.2mm is standard.)



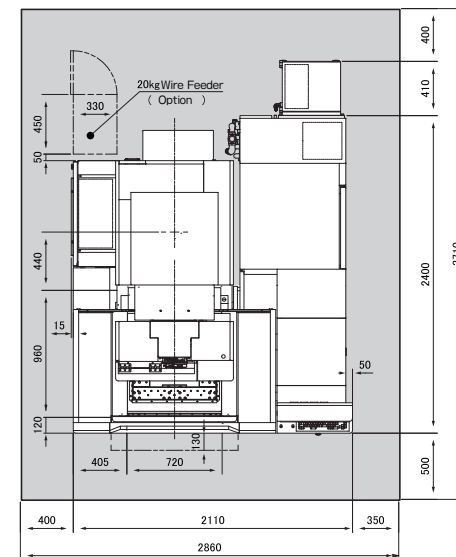
Standard type with high speed, high precision, and advanced functions

# M35HP

## ■ Work Table

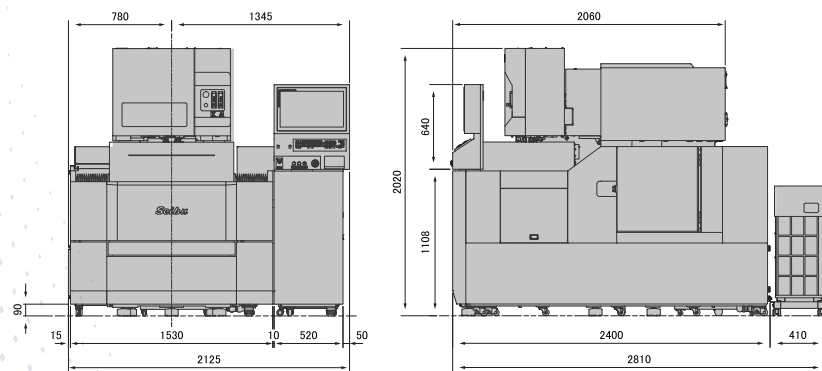


## ■ Layout



■ Dimension

(Unit: mm)



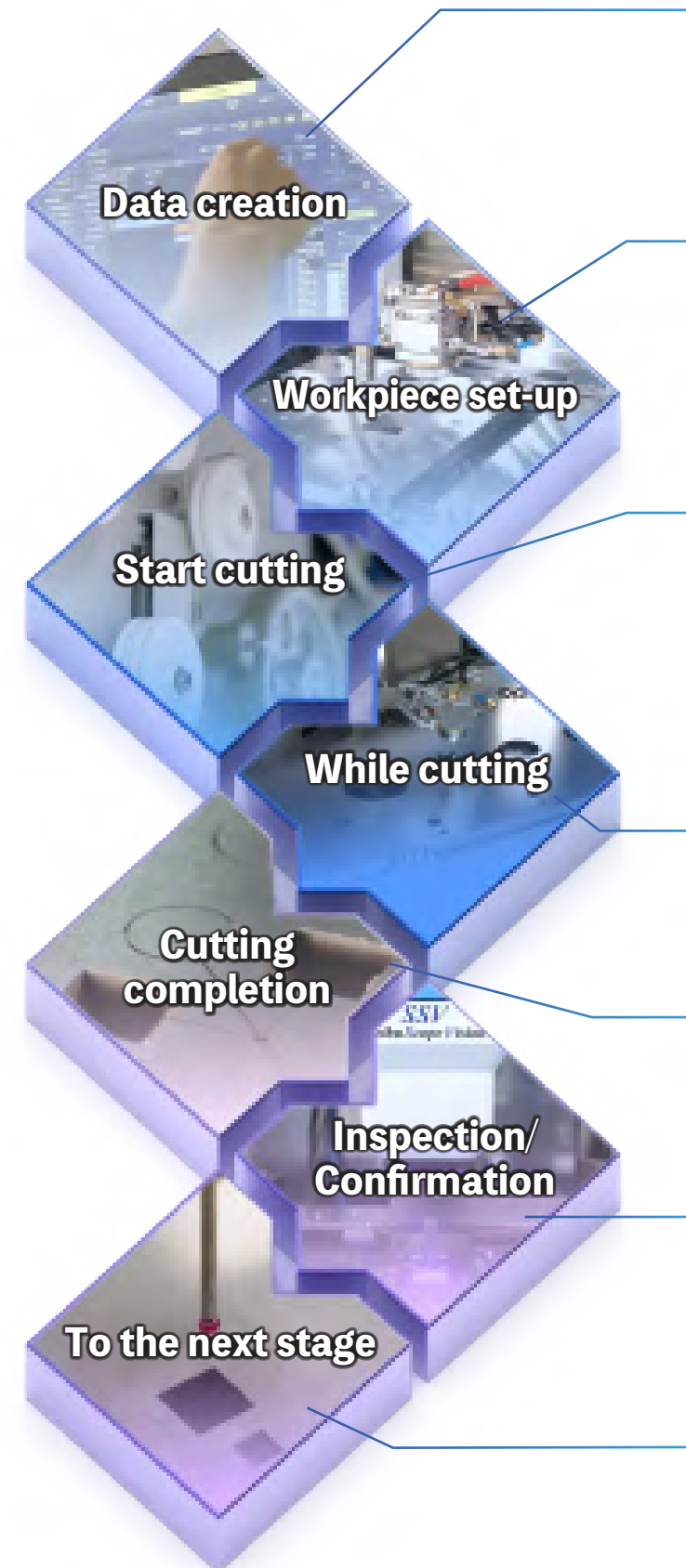
Standard Specifications		M35HP
Max. workpiece dimensions	W×D×H	700×630×220mm
Max. workpiece weight		350kg
Axis travel	X×Y×Z	350×300×230mm
U-V axis travel	U×V	±60× ±60mm
Max. taper angle		±10° /work thickness 220mm (±45° /40mm: Option)
Dimensions	W×D×H	1,640×2,060×1,955mm
Weight		2,500kg
Control device		SmartNC
Input system		MDI, Ethernet, USB
Display		21.5 inch TFT
Axis controlled		5 axis (simultaneously 4 axis)
Least input increment		0.01μm
Least command increment		0.01μm
Program memory capacity		1GB

Power Supply	MPSC-20
Input power source	3-phase 200V/220V±10% 11 kVA, 50/60Hz
Weight	160kg
Filtration device	MF35
Tank capacity	700L
Filter element	4 paper filters Φ340 ×300mm
Deionizer	Ion exchange resin 20L
Weight	400kg

Wire diameter :  $\Phi 0.07$  to  $\Phi 0.3\text{mm}$   
( $\Phi 0.2\text{mm}$  is standard.)

## Seibu functions supporting ultra-precision cutting

◆ **Seibu advanced functions aligned with an ultra-precision cutting workflow**



## User-friendly

P9-P10

Smart NC	Maintenance screen
SO-Assist	Explanatory video
CC-Support	SS-Link

## Easy Set-Up

P11-P12

Square tables  
Y-axis stroke extension  
3D Level Adjust  
Start hole device (SHM2)

## Reliable feeding Technology

P12-P13

Twist tension dancer roller	
Automatic wire feeding device	Wire feeding in water
Friction sensor	Feed at wire break point
Skip figure function	Thin wire feeding
Reliable feeding to difficult workpiece	
Diamond die guide	
Jet feed guide	

## Always accurate

P14

Function of reducing flaw of approach Taper cutting  
Best surface finish/Improvement of cutting surface finish  
Improved roundness

## Stable precision

P15

Increased machine rigidity  
Power Supply MPSC-20  
Thermal Adjust 24

## Task reduction

P16-P17

- Core Stitch
- Core Catch
- SSV Vision measurement function
- EL Coating

## Zero tolerance

P17-18

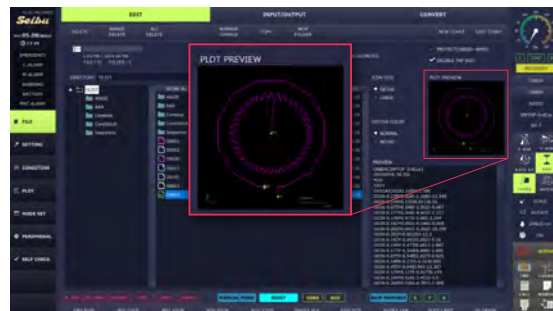
Mold production without jig grinding process  
Cutting Samples



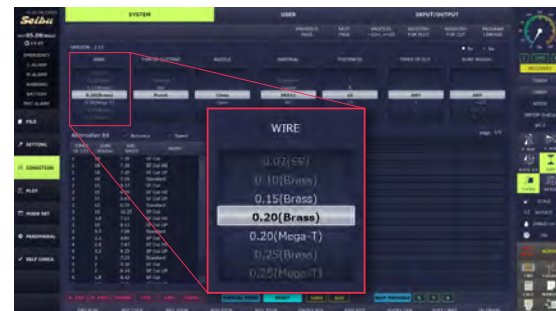
## ◆ Operating interface with easy-to-see graphics with a smartphone feel

We have achieved an operating environment with a smartphone feel by using a multi-touch panel with a large screen of 21.5 inch. For the screen design we have maintained the same system of operation while using graphics to improve the clarity and user-friendliness.

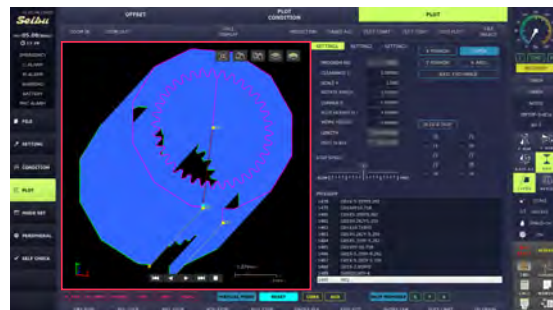
1. Edit: additional multi-editing feature that is self-explanatory with the preview function



2. Cutting Conditions: set the conditions quickly with the scrolling search engine



3. Drawing: easy check with expanding, shrinking, and rotation using the multi-touch feature



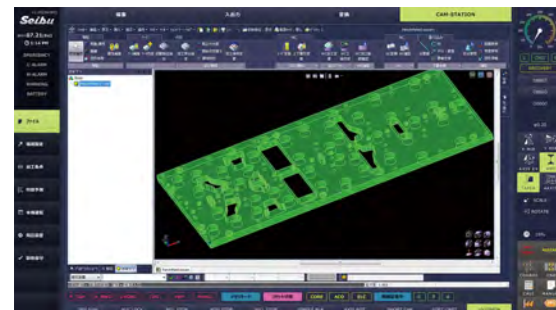
4. Positioning: increase the set-up efficiency with the abundant types of positioning functions



5. Cutting: confirm the cutting progress in real time



CAM-Station: NC program conversion is possible from the CAD data (2D/3D)

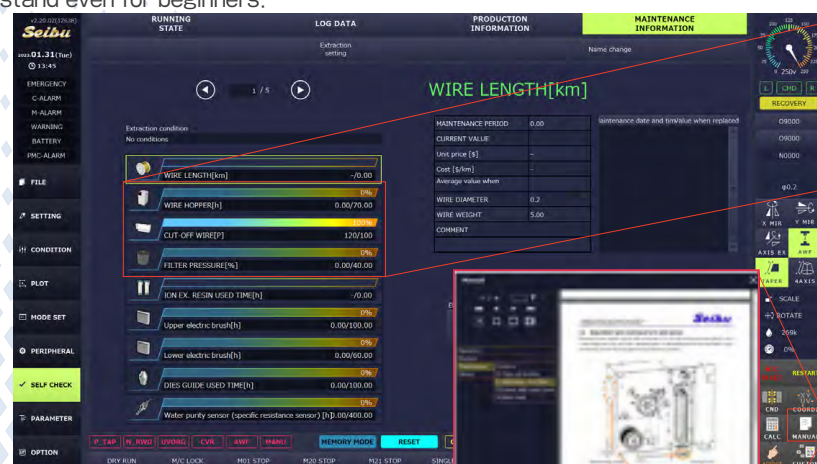


\*Option

## ◆ New maintenance screen

(MM-UP/M-HP Series)

We have added a cost calculation feature, a history feature, and a feature for viewing the replacement and cleaning procedures. The replacement and cleaning procedures can be checked in our videos or manual, so support is provided that is easy to understand even for beginners.



A manual that is text searchable.



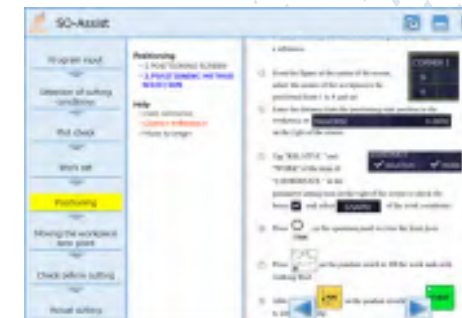
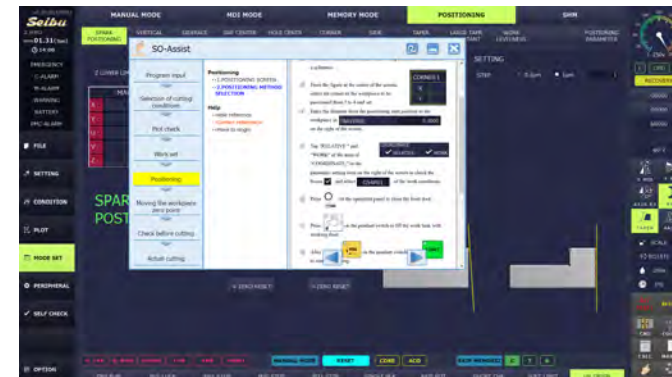
Easy-to-understand usage status with the icon and graph for each part.



Explanatory video

## ◆ Simple operation assist SO-Assist

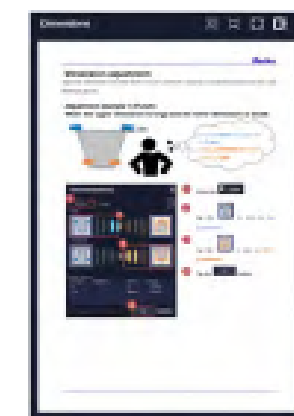
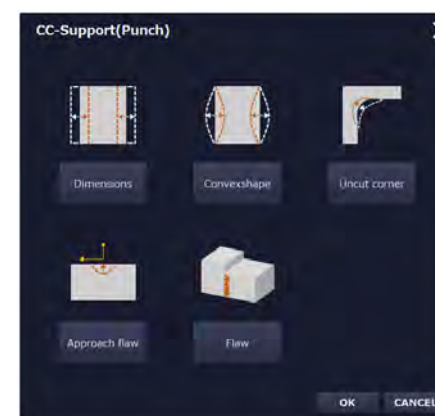
We have developed an assist feature that can confirm in order of process the operations required from entering the program into the machine up to the processing. The required operations can be confirmed with the operation assist feature when the operator is inexperienced or confirmation of the operations is desired.



The process flow on the operation assist screen is linked to the main screen.

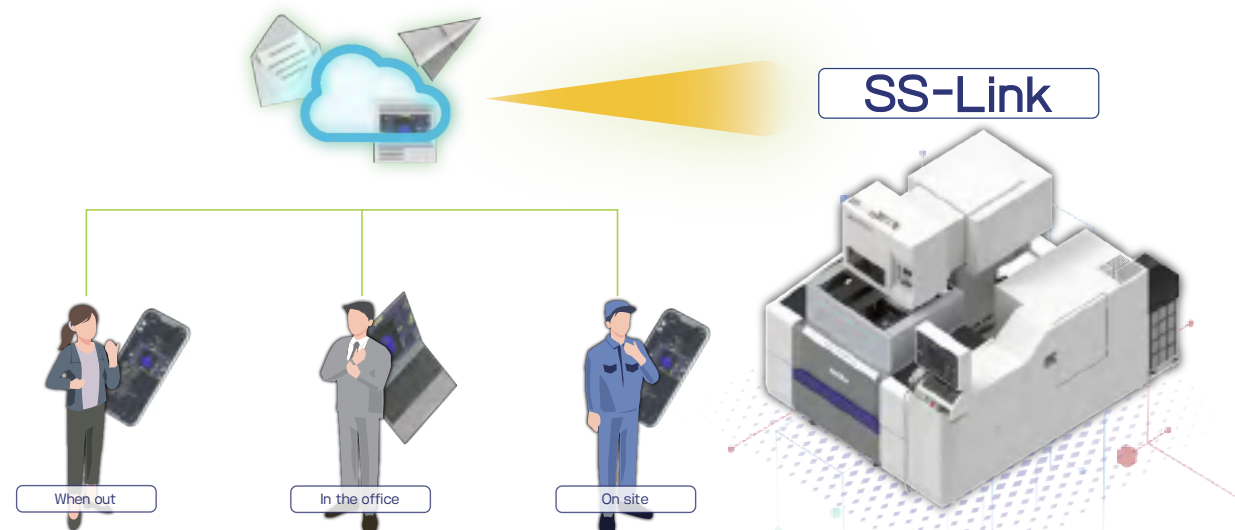
## ◆ Cutting condition support CC-Support

We have added a cutting condition adjustment feature for measurements, straightness, corner dull and leftovers, approach flaws, and step flaws. It is easy to adjust the cutting conditions by setting the meter to the desired adjustable amount.



## ◆ Operation Status Notification Feature SS-Link

The user can confirm the progress while the machine is cutting anytime and anywhere on a smartphone, tablet, PC, etc. The feature now also supports social media such as LINE and Slack.



- The M-HP Series, MM-UP Series support this feature as standard.
- This feature is an option for machines with Windows 10 Version SmartNC, such as MEX15, the MB Series, the MMB Series, UltraMMB, SuperMMB80B (Available after shipment)

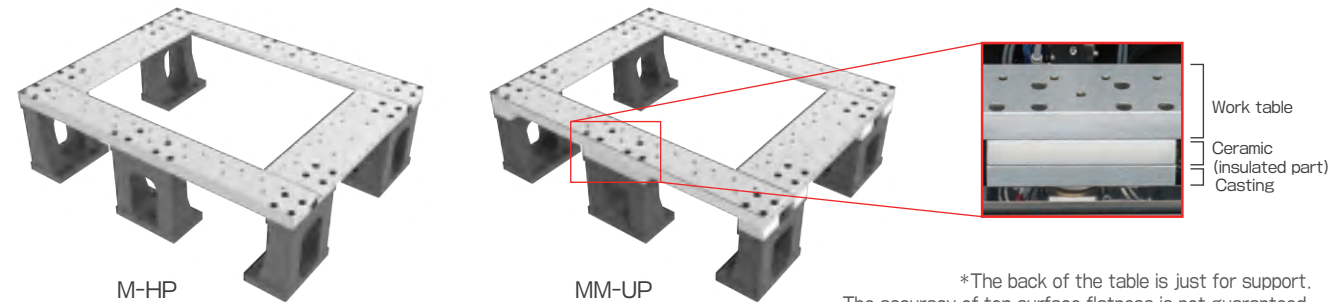


## Easy Set-Up

## Newly Designed Work Table (MM-UP/M-HP Series)

### ◆ Square tables equipped as standard

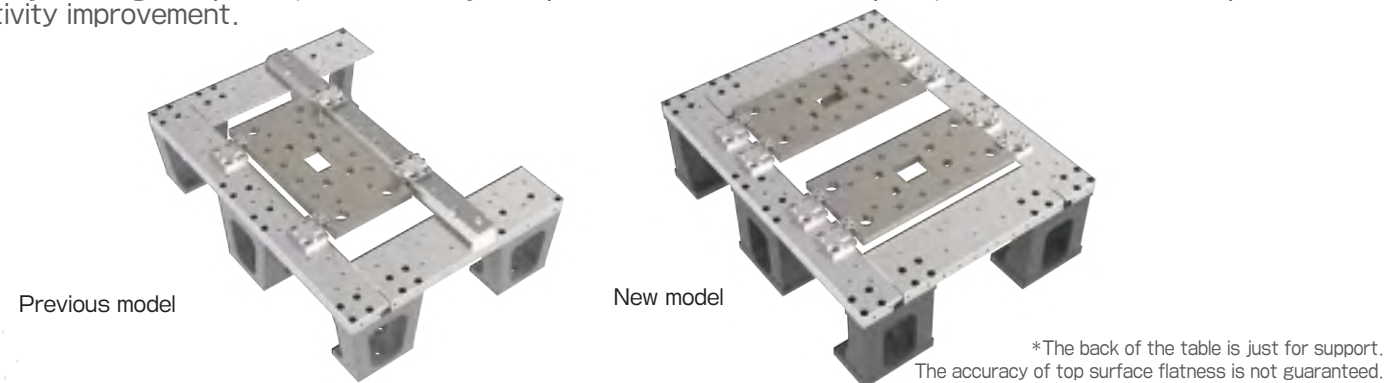
All models are equipped with square-type work table as standard. Since workpiece set-up is possible at the back of the table, workability can be improved. Work table insulation specification is available for MMUP series only. (Not applicable to M-HP series.)



\*The back of the table is just for support. The accuracy of top surface flatness is not guaranteed.

### ◆ Y-axis stroke extension

Y axis stroke has been extended by 50 mm to expand the cutting range. By setting two plates, whereas only one plate could be set in the past, which contributes to productivity improvement.



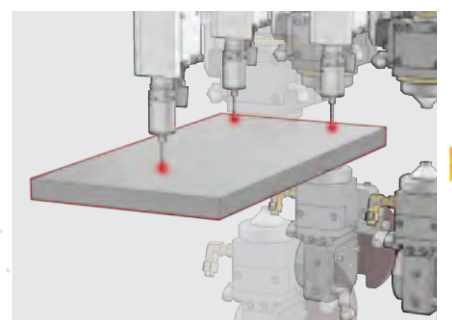
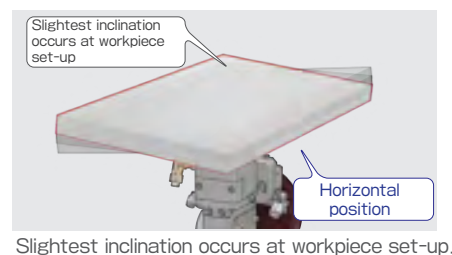
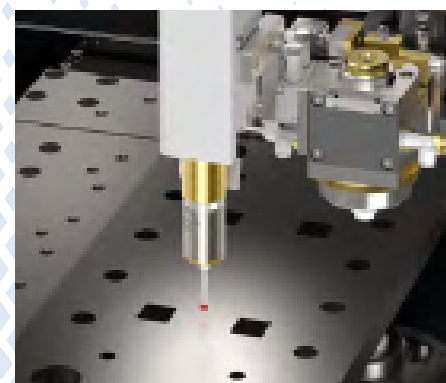
\*The back of the table is just for support. The accuracy of top surface flatness is not guaranteed.

## Easy Set-Up

## 3D Level Adjust® (Option)

### ◆ Automatic correction for vertical accuracy

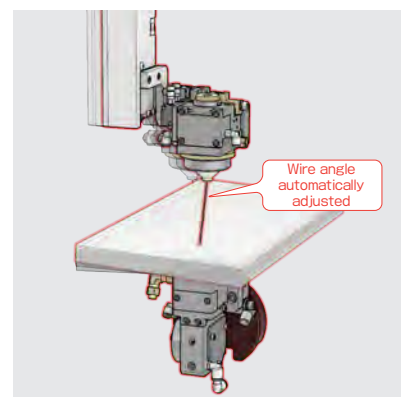
Three points on the upper face of workpiece can be measured with high precision touch probe sensor mounted on the upper head. It is possible to adjust the wire alignment automatically with reference to the workpiece inclination to the work table. Spark positioning and horizontal adjustment jig becomes unnecessary due to this function, which reduces set-up time.



Three points on the upper face of workpiece are measured with touch probe sensor and the inclination of workpiece is calculated.

#### [3D Level Adjust Plus]

Shape measurement after cutting can be performed by adding software to this option.



UV axis are automatically adjusted so that wire can become vertical to the workpiece.

## Easy Set-Up

## Start hole device® SHM2 (Option)

### ◆ SHM = Simple type start-hole cutting device

SHM2 is a start-hole drill that can be easily mounted on a machine. Hole-drilling is possible for hardened workpiece or tungsten carbide (WC).

- Standard  $\Phi 1.0$  pipe electrode
- Max. workpiece thickness 60mm
- Drilling speed 10mm/min (SKD11)

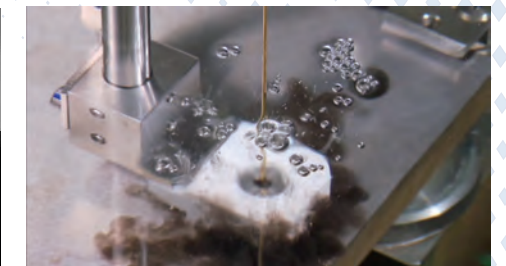
Setting operation cutting conditions can be easily performed using a dedicated operation screen.

- Applicable electrode diameter  $\Phi 0.3, \Phi 0.5, \Phi 0.8, \Phi 2.0, \Phi 3.0$

Start hole device (SHM2) is Seibu unique function.



Start hole device (SHM2) mounting



Start hole drilling



Dedicated screen

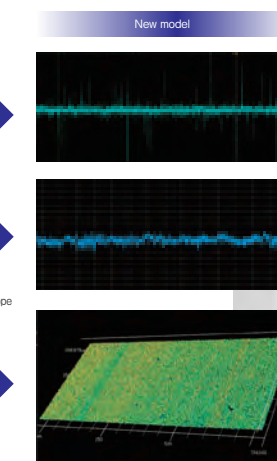
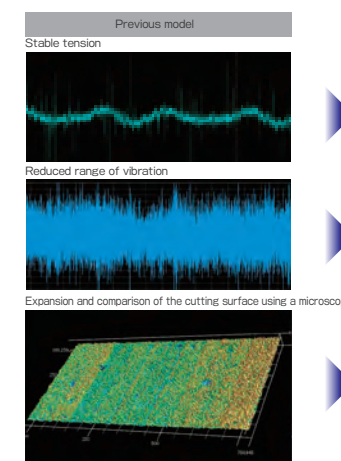
Electrode diameter	SKD11		WC	
	Maximum drilling height (mm)	Average drilling speed (mm/min)	Maximum drilling height (mm)	Average drilling speed (mm/min)
$\Phi 3.0$	60	5.0	40	1.5
$\Phi 2.0$	60	7.0	40	3.0
$\Phi 1.0$	60	10.0	40	4.0
$\Phi 0.8$	40	4.0	20	2.5
$\Phi 0.5$	10	3.0	10	1.0
$\Phi 0.3$	5	0.5	5	0.5

## Reliable feeding technology

## Thin wire travel (SMM80B/MM75B/MM-UP Series)

### ◆ Twin tension dancer roller

Through improvement in the wire tension system, we have achieved stable tension and reduced vibration when the wire is traveling. This has improved the cutting surface quality during finish cutting.

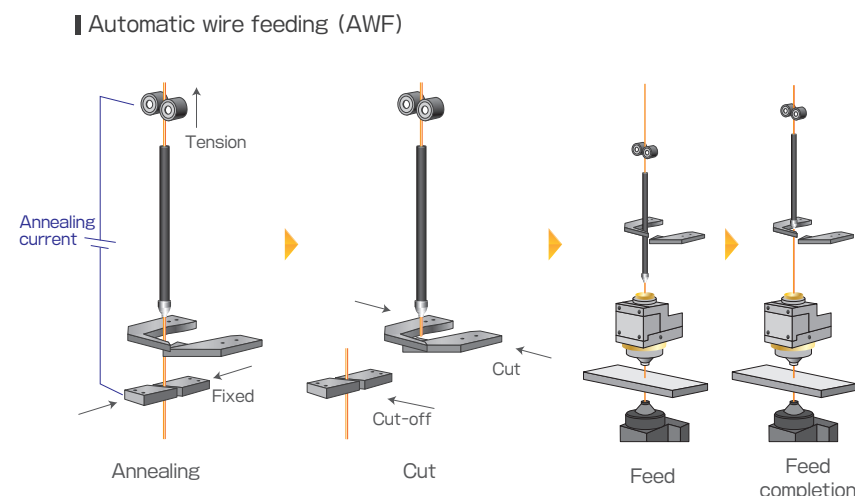




## Greatly improved automation efficiency

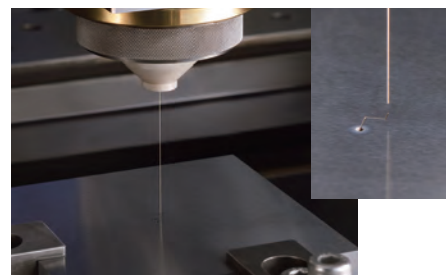
We have used the anneal dry method consistently since 1981. In recent years, we developed functionality that allows annealing in a fixed position without rotating the rollers.

We are continuing advances that increase the wire feeding rate. This feature is essential for increasing the utilization rate and for automation of wire EDM.



## All-in-one AWF

### Feed at wire break point



Wire can be reliably threaded even at the break point. This is an essential function for core stitch cutting.

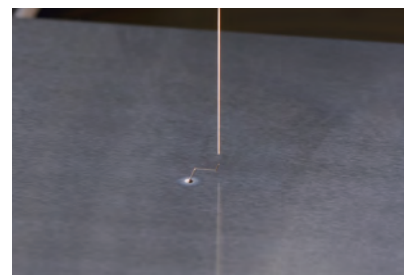
### Wire feeding in water

It is possible to thread wire in water, through slot due to anneal dry method.

### Thin wire feeding

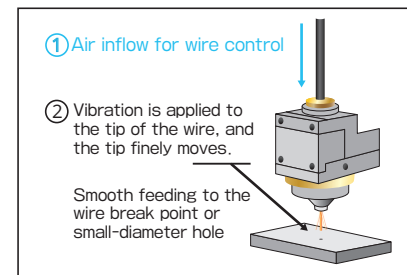
It contributes to the automatization of microfabrication.

### Friction sensor



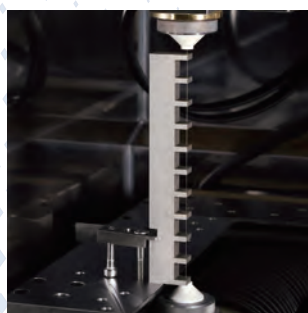
Using Seibu's patented "Friction sensor" technology, the wire can thread reliably through a start hole or slot. (PATENTED)

### Friction Sensor Wire Feeding System



## Various functions

### Reliable feeding to difficult workpiece | Round diamond die guide



It is possible to feed automatically through the slit of comb-shaped workpiece with annealing and friction sensor.



A Round guide is used that focuses on cutting accuracy. (Common to the upper and lower guides)

### Jet feed guide Option



Water jet (option) is flushed from upper head nozzle to enhance the success rate of feeding. (Guides are not common to upper and lower guide.)

## Function of reducing flaw of approach

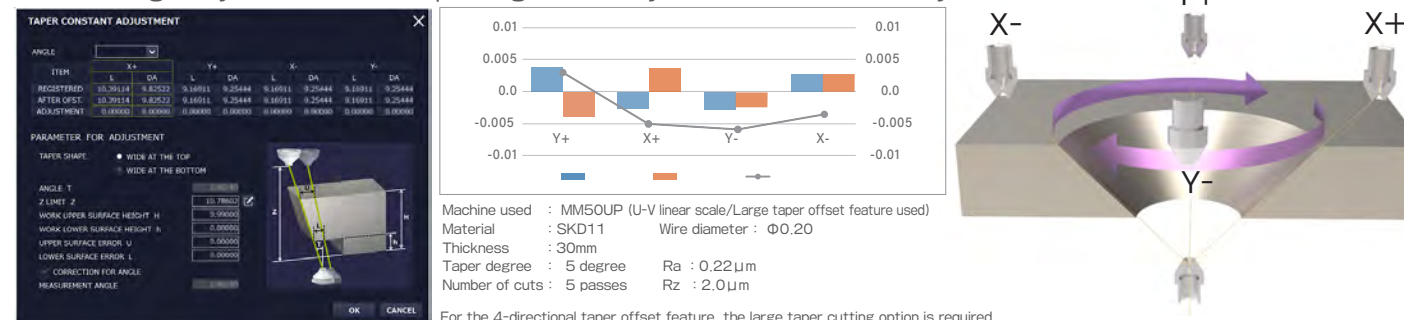
In general cutting, the discharge flaw was caused by passing two approach points (at approach and at escape). It is possible to reduce the flaw of approach part by correcting the path of both approach and escape. For other correction function, corner shape correction and taper cut correction are available.



## Feature for increasing taper cutting accuracy

We have developed a feature that can recalculate the taper dimensions from the results of test cutting, and simultaneously correct the angle and dimension accuracy.

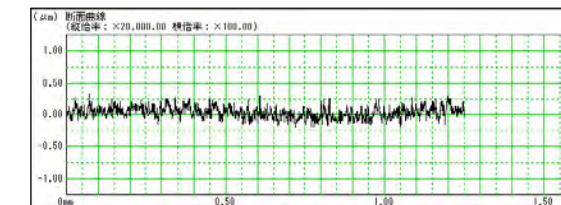
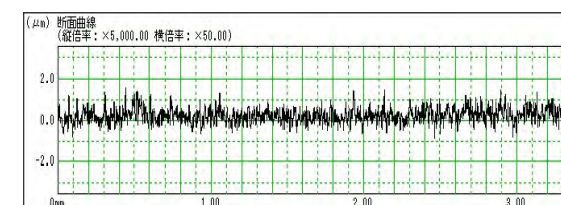
We have greatly increased the taper angle accuracy and dimension accuracy.



## Best surface finish/Improvement of cutting surface finish

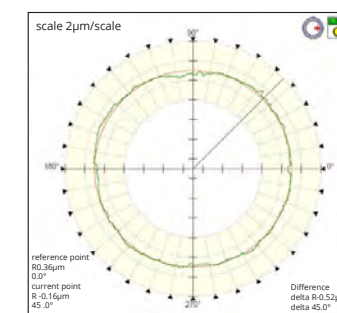
The effect of the insulation table enables stable output of micro current pulses, resulting in improved surface finish, shorter finishing stroke, and shorter total cutting time. Especially we could achieve under Rz 0.5  $\mu\text{m}$  with steel.

Material : SKD11	Number of cuts : 4 passes	Surface finish	Material : SKD11	Number of cuts : 9 passes	Surface finish
Thickness : 30mm	Model : M35HP	Ra 0.264 $\mu\text{m}$	Thickness : 30mm	Model : MM50UP	Ra 0.064 $\mu\text{m}$
Wire diameter : $\Phi 0.20$		Rz 2.092 $\mu\text{m}$	Wire diameter : $\Phi 0.10$		Rz 0.448 $\mu\text{m}$



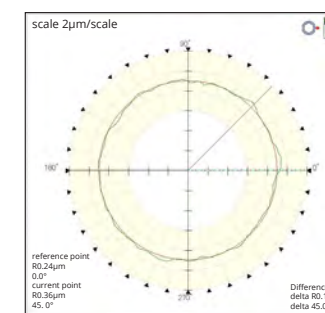
## Roundness

Straightness of XY axis has been improved and achieved roundness 0.81  $\mu\text{m}$  by stable table feed.



Material : STAVAX  
Nozzle state : open nozzle  
Wire diameter :  $\Phi 0.20$   
Hole dia.:  $\Phi 12\text{mm}$   
Model: M50HP

Roundness  
1.32  $\mu\text{m}$



Material: WC (G5)  
Nozzle state: open nozzle  
Wire diameter:  $\Phi 0.20$   
Hole dia.:  $\Phi 10\text{mm}$   
Model: MM50UP

Roundness  
0.81  $\mu\text{m}$



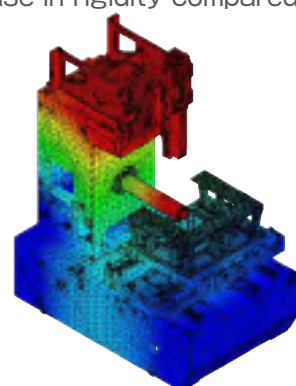
## Stable precision

## High Rigidity Mechanical Structure

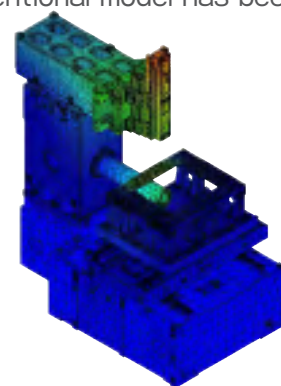
### ◆ Increased machine rigidity

To achieve further stable cutting accuracy than MB Series, we reviewed the machine structure using CAE analysis, and 25% increase in rigidity compared to conventional model has been achieved.

Large displacement  
Small displacement



Previous model

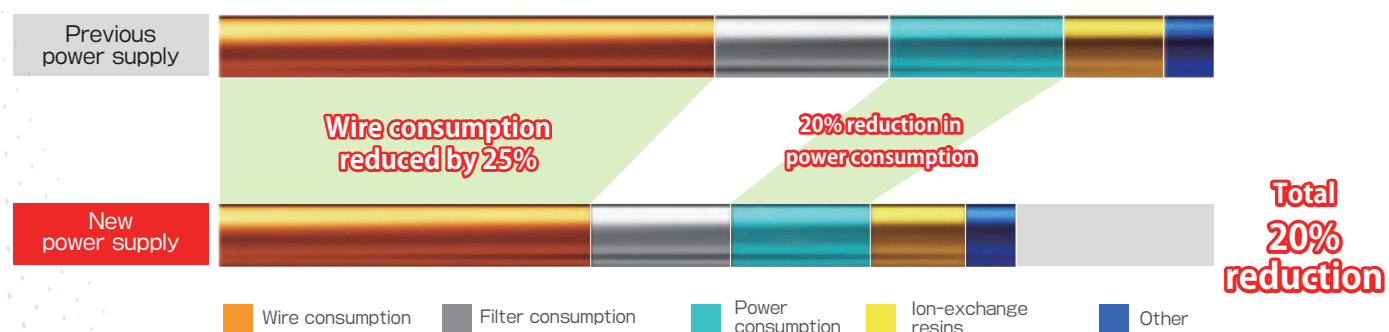


New model MM50UP

## Stable precision

## High Precision, Highly Efficient Power Supply MPSC-20

### ◆ Reduced power and wire consumption, energy savings, and low running cost

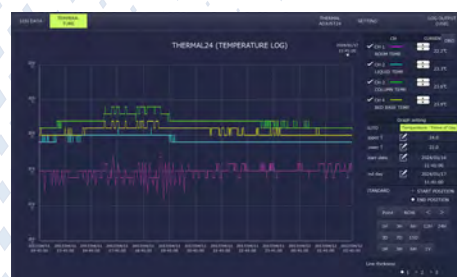


## Stable precision

## Thermal Adjust 24<sup>®</sup> (Option)

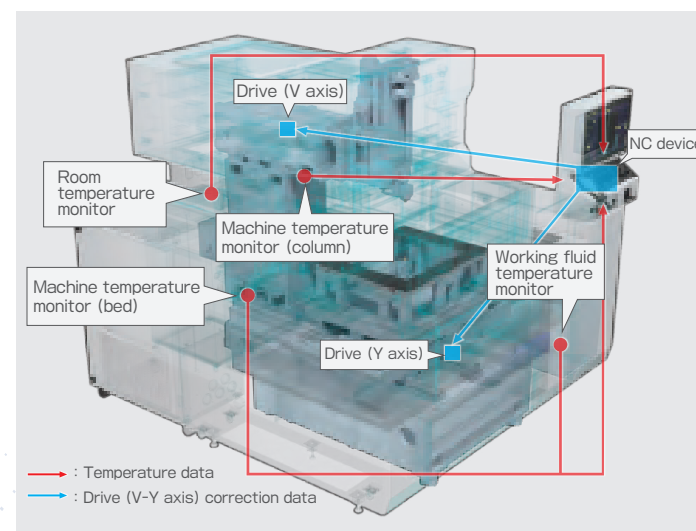
### ◆ Thermal displacement can be corrected by CNC.

Thermal Adjust 24 is a function to maintain wire verticality by correcting the thermal displacement caused by the temperature change between upper and lower head.



Temperature monitor screen

Wire vertical error was improved by 62% using this function. (in Seibu factory)



## Task reduction

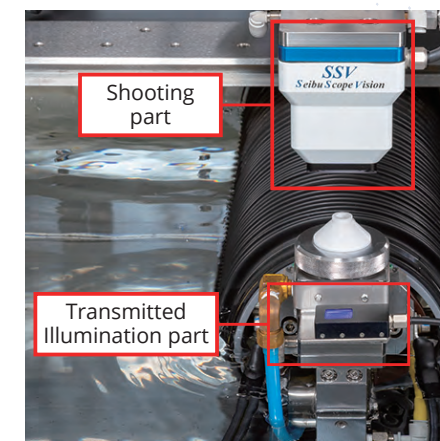
## Vision measurement function SSV [Seibu Scope Vision<sup>®</sup>] (Option)

### ◆ High-precision automatic measurement on the machine

High-precision vision measurement with a camera is possible on the machine without removing the workpiece after cutting is completed.

A wide variety of measurement options are available for measuring various shapes. It is also possible to check the CAD data and the machined shape and perform the difference measurement.

- High-precision measurement of fine shapes
- Can be measured without removing the workpiece after cutting
- High-precision edge detection with transmitted illumination
- Available in a wide variety of measure options for measuring various machined workpieces
- CAD drawings (DXF) can be read for contour verification and difference measurement



SSV Mounting

Specifications	
Shooting part	1.3 million-pixel color camera
Magnification	Optical magnification 4x, monitor magnification approx. 100x
Digital zoom	Approx. 1600 times (at maximum zoom factor)
Lighting	Epi-illumination, Transmission (simultaneous lighting)
Focal distance	Standard 40mm
Measurement function	Points, lines, circles, squares, intersections, distances
External output	CSV output
CAD loading	DXF compatible (simultaneous movement possible)
Dimensions of the shooting part	66×66×70mm



Circle measurement screen



CAD verification screen

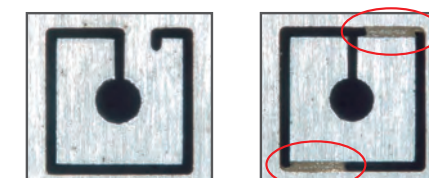
## Task reduction

## Core Stitch<sup>®</sup> (Option)

### ◆ Greatly improved automation efficiency

Since the brass can be welded on the part 1 mm from the upper face, it is possible to knock out the welded part by tapping on the slugs.

Conventional cut-off Core Stitch



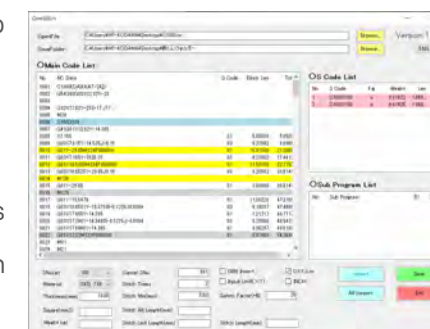
- You can solve the conventional problems quickly. (e.g. man-hour reduction, mistake prevention, relief of simple task)
- Simplification of NC program (Programming for cut-off part is not necessary.)
- Simple task by only tapping on the core

### ◆ Core Catch (Option)



Core Catch enables you to process welded core automatically. The hammer mounted on upper head knocks off the core made after Core Stitch cutting and the core can be automatically collected. This fully automated process realizes unmanned operation for die plate finish cut.

### ◆ Core Stitch conversion software (Option)



This is software for PC that optimizes the welding point and distance by analyzing NC programs and automatically inserts core stitch codes into NC programs.



## Task reduction

## EL Coating (Option)

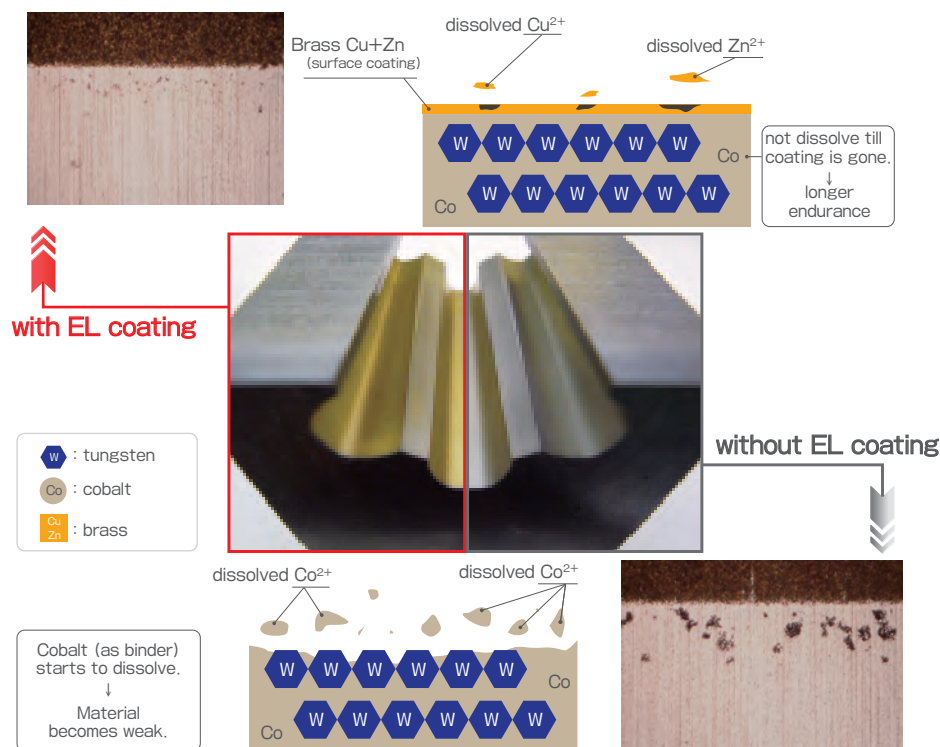
### Measure against tungsten corrosion

EL coating is unique technology that prevents cobalt (Co) from dissolving in water by means of coating the cutting surface with brass. This increases the endurance of the mold. This makes it possible to cut in water (not in oil), which reduces maintenance work.

When tungsten carbide material is cut in water, the cobalt (as binder) starts to dissolve in water. As a result, the material becomes weak.

**EL Coating**  
Cutting surface is coated with thin brass layer.

- Anti-corrosion is possible in water.
- Compared with cutting in oil, maintenance work is very easy.
- Endurance of mold is equal to mold produced in oil.



## Zero tolerance

## Ultra-precision Plate Cutting

### Mold production without jig grinding process (MM50UP: cutting example)

Inserting the pins into three plates separately cut with different thickness (T20, 22, 25mm)

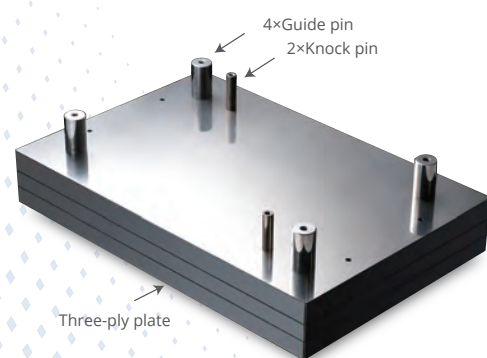
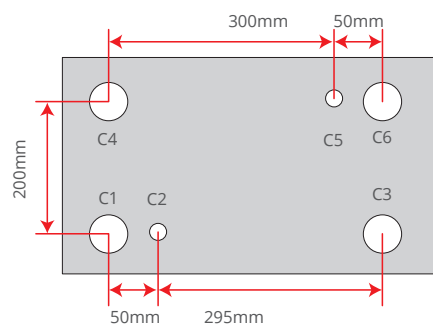
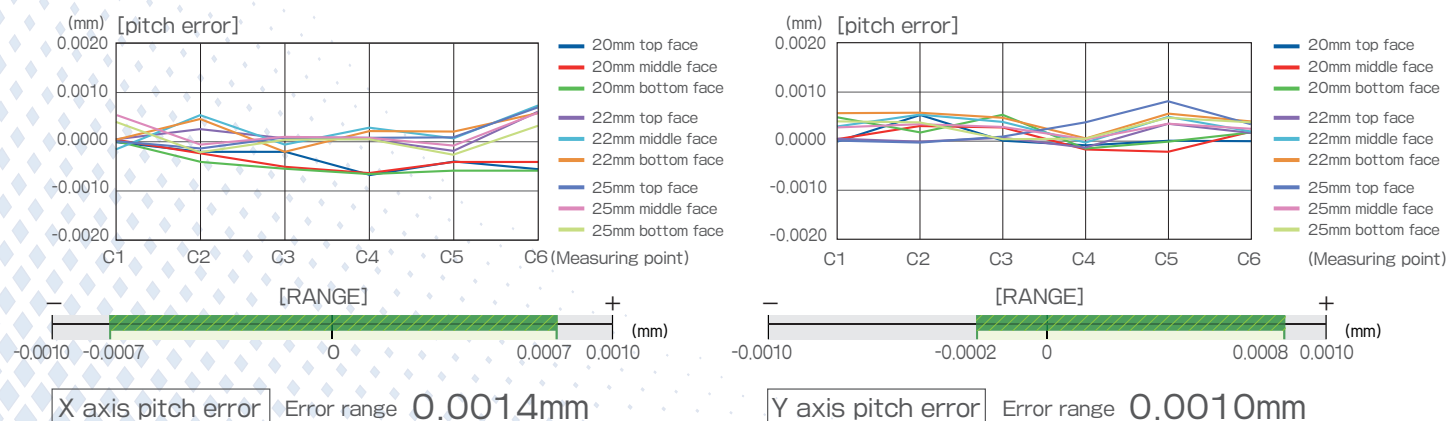


Plate cutting pitch accuracy



Material : SKD11  
Thickness : 20, 22, 25mm  
Number of cuts : 6 Passes  
Wire diameter :  $\Phi 0.2$   
Ra :  $0.19\mu\text{m}$



## Zero tolerance

## Cutting Samples

Combination cutting



Material: SKD11 Surface finish: Ra  $0.25\mu\text{m}$  Rz  $2.00\mu\text{m}$   
Wire diameter:  $\Phi 0.2$  Cutting time: 50 hours  
Thickness: 60mm

Tall thickness cut



Dimension accuracy (mm)			
	Height	surface1	surface2
Top	120	20.0000	19.9990
	90	19.9990	19.9992
Middle	60	20.0000	19.9997
	30	20.0002	20.0000
Bottom	0	20.0004	20.0002

Material: SKD11 Surface finish: Ra  $0.31\mu\text{m}$  Rz  $2.50\mu\text{m}$   
Wire diameter:  $\Phi 0.2$  Cutting time: 3.5 hours  
Thickness: 120mm

High-precision step combination cutting



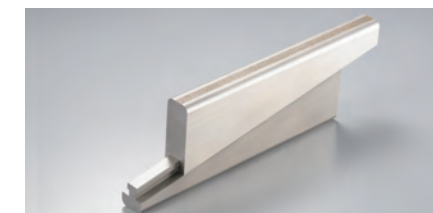
Material: SKD11 Surface finish: Ra  $0.25\mu\text{m}$  Rz  $2.00\mu\text{m}$   
Wire diameter:  $\Phi 0.25$  Cutting time: 7 hours 18 minutes  
Thickness: 60, 80mm Dimension accuracy  $\pm 2\mu\text{m}$

Best surface finish



Material: SKD11 Surface finish: Ra  $0.06\mu\text{m}$  Rz  $0.50\mu\text{m}$   
Wire diameter:  $\Phi 0.1$  Cutting time: 3 hours  
Thickness: 30mm

Tall thickness taper combination cut



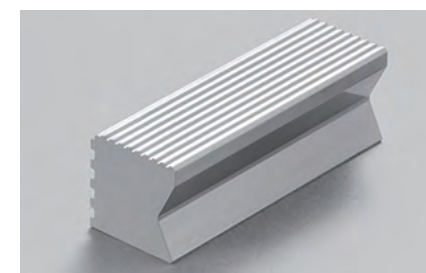
Material: SKD11 Surface finish: Ra  $0.30\mu\text{m}$  Rz  $2.80\mu\text{m}$   
Wire diameter:  $\Phi 0.25$  Cutting time: 4 hours  
Thickness: 100mm Taper angle:  $10^\circ$

Large angle 45 taper cut



Material: SKD11 Surface finish: Ra  $0.50\mu\text{m}$  Rz  $4.50\mu\text{m}$   
Wire dia.:  $\Phi 0.2$  (Megacut-T) Cutting time: 5 hours  
Thickness: 40mm

Best surface finish



Material: SKD11 Surface finish: Ra  $0.08\mu\text{m}$  Rz  $0.65\mu\text{m}$   
Wire diameter:  $\Phi 0.20$  Cutting time: 4 hours 16 minutes  
Thickness: 30mm Dimension accuracy  $\pm 2\mu\text{m}$

High-thickness fit cutting



Material: SKD11 Surface finish: Ra  $0.55\mu\text{m}$  Rz  $4.41\mu\text{m}$   
Wire diameter:  $\Phi 0.25$  Cutting time: 21 hours (Total)  
Thickness: 200mm Dimension accuracy  $\pm 2\mu\text{m}$

Full circumference cutting of small-diameter gears



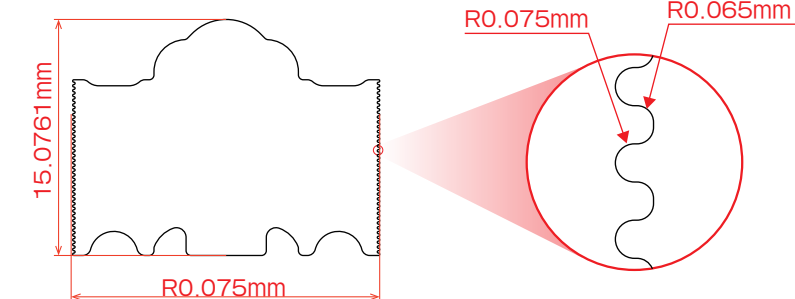
Material: SKD11 Surface finish: Ra  $0.28\mu\text{m}$  Rz  $2.28\mu\text{m}$   
Wire diameter:  $\Phi 0.10$  Cutting time: 1.5 hours  
Thickness: 3mm Dimension accuracy  $\pm 2\mu\text{m}$

Serration cutting (die/punch)



Die  
Material: SKD11 Surface finish: Ra  $0.15\mu\text{m}$  Rz  $1.21\mu\text{m}$   
Wire diameter:  $\Phi 0.10$  Cutting time: 3 hours 50 minutes  
Thickness: 20mm Dimension accuracy  $\pm 2\mu\text{m}$   
Punch  
Material: WC (RG3) Surface finish: Ra  $0.12\mu\text{m}$  Rz  $0.98\mu\text{m}$   
Wire diameter:  $\Phi 0.10, \Phi 0.25$  Cutting time: 8 hours 10 minutes  
Thickness: 60mm Dimension accuracy  $\pm 2\mu\text{m}$

Serration details



Measurement results (The numerical values show error values in mm.)



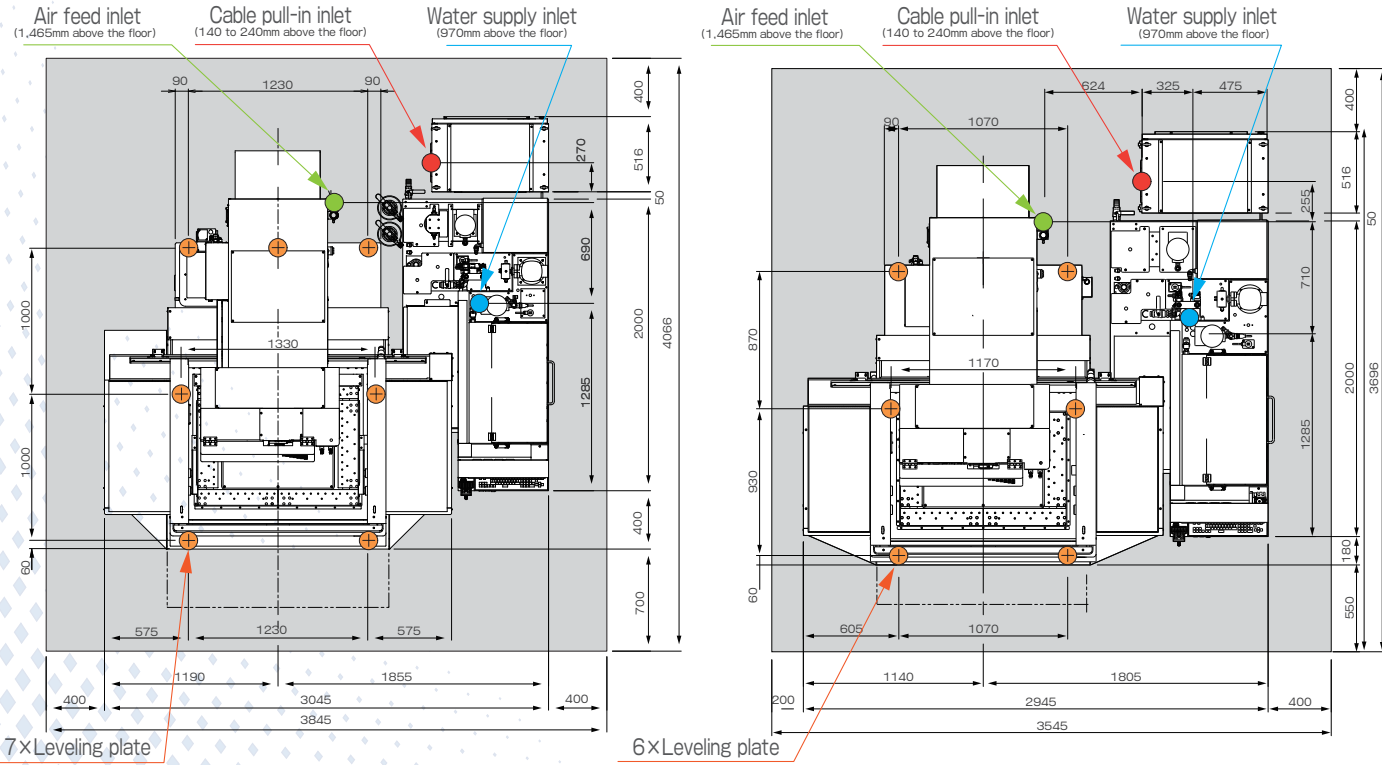


Installation environment (SuperMM80B/MM75B/M75B)

Installation environment		
Electrical equipment	Primary power source	3-phase 200/220V±10%
	Frequency	50/60Hz±1%
	Connecting terminal board	M5 (5.5mm² to 14mm²)
	Electric capacity (machine)	11kVA*1
	Electric capacity (cooling device)	1.43kW
Installation work	C-type electrical earth construction work for each machine (the electrical earth resistance is at most 10Ω; at least 14mm² of flexible copper stranded wire)	
Compressed air equipment	Pressure	0.5MPa or over
	Flow	100ℓ/min (ANR)*2 or more
	Connecting port	Nylon with an external diameter of Φ8mm, urethane tube joints
Installation location	Operational Temperature range	10° C to 40° C
	Recommended temperature	20° C (±1° C)
	Humidity	30% to 75% R.H. (no condensation)
	Environment (Atmosphere)	No corrosive gas such as acid mist or dust
	Elevation	1,000m or less
	Foundation	Concrete thickness of 400 mm or more is recommended.
	Floor inclination (difference in level)	Within 5mm/m (5mm tilt or step per meter)
	Allowable vibration	Acceleration rate 0.5Gal or less, and vibration amplitude 1 μm or less (1Hz≤f≤50Hz)
	Radio interference	If the surroundings experience radio interference due to the installation of the wire EDM machines, the machine should be installed in a sealed room.
Amount of heat generated	Power supply equipment	Maximum: 1,678 kcal/h
	Machine	Maximum: 955 kcal/h
	Working fluid cooling device	Maximum: 3,829 kcal/h

\*1 Example installment: breaker capacity machine main unit 50A constant temperature device 10A

\*2 ANR: reference standard atmosphere (temperature 20° C, absolute pressure 101.3 kPa (760 mmHg),relative humidity 65% of the air)



SuperMM80B

2,380×2,400×2,155mm (delivered size)

MM75B/M75B

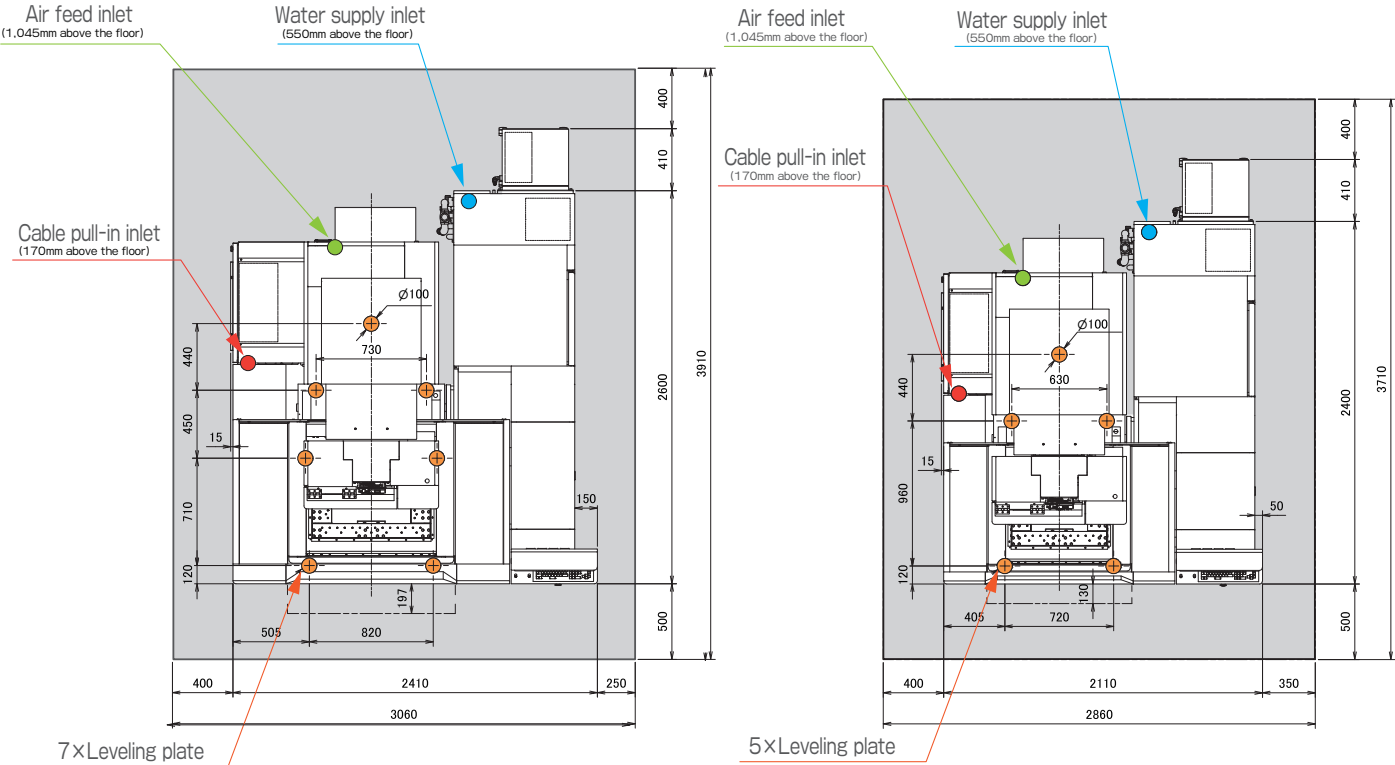
2,280×2,200×2,155mm (delivered size)

Installation environment (MM50UP/M50HP/MM35UP/M35HP)

Installation environment		
Electrical equipment	Primary power source	3-phase 200/220V±10%
	Frequency	50/60Hz±1%
	Connecting terminal board	M5 (5.5mm² to 14mm²)
	Electric capacity (machine)	11kVA*1
	Electric capacity (cooling device)	1.43kW
Installation work	C-type electrical earth construction work for each machine (the electrical earth resistance is at most 10Ω; at least 14mm² of flexible copper stranded wire)	
Compressed air equipment	Pressure	0.5MPa or over
	Flow	100ℓ/min (ANR)*2 or more
	Connecting port	Nylon with an external diameter of Φ8mm, urethane tube joints
Installation location	Operational Temperature range	10° C to 40° C
	Recommended temperature	20° C (±1° C)
	Humidity	30% to 75% R.H. (no condensation)
	Environment (Atmosphere)	No corrosive gas such as acid mist or dust
	Elevation	1,000m or less
	Foundation	Concrete thickness of 400 mm or more is recommended.
	Floor inclination (difference in level)	Within 5mm/m (5mm tilt or step per meter)
	Allowable vibration	Acceleration rate 0.5Gal or less, and vibration amplitude 1 μm or less (1Hz≤f≤50Hz)
	Radio interference	If the surroundings experience radio interference due to the installation of the wire EDM machines, the machine should be installed in a sealed room.
Amount of heat generated	Power supply equipment	Maximum: 1,678 kcal/h
	Machine	Maximum: 955 kcal/h
	Working fluid cooling device	Maximum: 3,829 kcal/h

\*1 Example installment: breaker capacity machine main unit 50A constant temperature device 10A

\*2 ANR: reference standard atmosphere (temperature 20° C, absolute pressure 101.3 kPa (760 mmHg),relative humidity 65% of the air)



MM50UP/M50HP

1,915×2,260×2,035mm (delivered size)

MM35UP/M35HP

1,640×2,060×1,955mm (delivered size)



# Options



X-Y linear scale



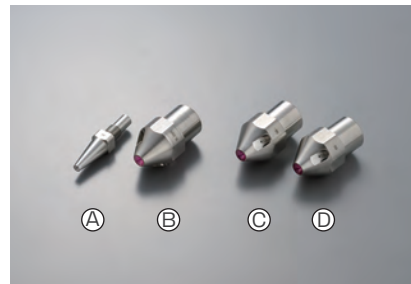
U-V linear scale



Suction unit of wire take-up for thin wire  
Wire can be easily taken-up when using thin wire ( $\Phi 0.05$  to  $\Phi 0.07$ ).



Jet feed unit for thin wire  
Wire feeding can be helped by water jet when using thin wire.



Ⓐ: UDU die guide Ⓑ~Ⓓ: UD die guide



Large taper nozzle  
Standard nozzle



20kg Roll wire feeder



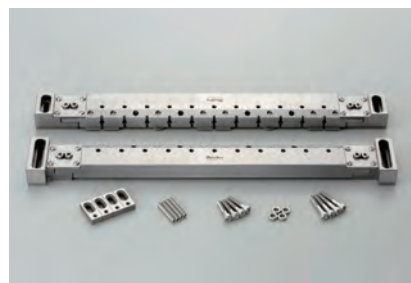
Height adjustment jig  
Jig for adjusting flatness when plate cutting.



Automatic vertical square jig  
Wire alignment can be automatically measured.



Sub work table



Bridge



Vise



Start hole device (SHM2) including  $\Phi 1.0$  pipe  
 $\Phi 0.3$ ,  $\Phi 0.5$ ,  $\Phi 0.8$ ,  $\Phi 2.0$ ,  $\Phi 3.0$  selectable



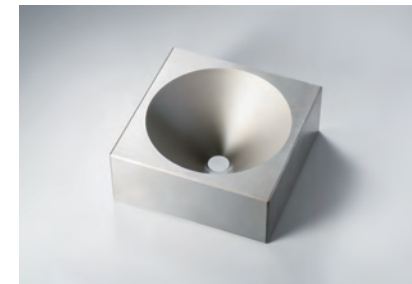
Deionizer  
Ion exchange resin 10Lx2



Rust-proof unit  
Rust prevention



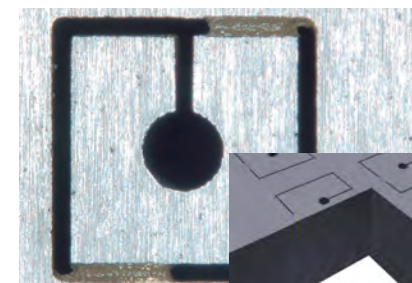
Exterior signal light  
Integrated LED on the work tank front door enables operator to view the machine's operating status.



Large taper cutting  
Large taper cut up to 45 degrees is available.



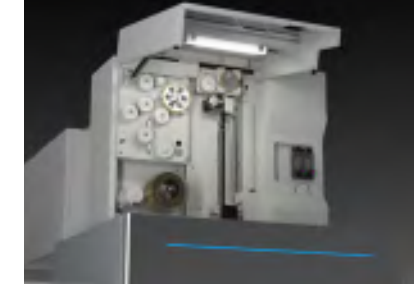
Rotary Table



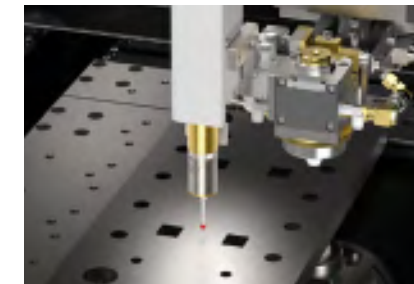
Core Stitch  
Includes Core Stitch function and program conversion software for PC



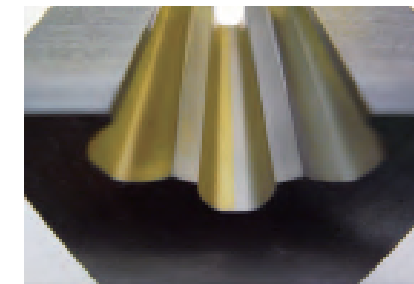
Inclination compensation software  
Straightness of X,Y axis can be corrected.



Internal lamp  
LED lamp



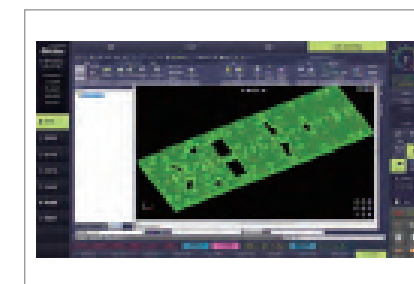
3D Level Adjust  
Correction function for workpiece upper surface



EL Coating  
SF unit is required. (Specifications of  $\Phi 0.10$  or more)



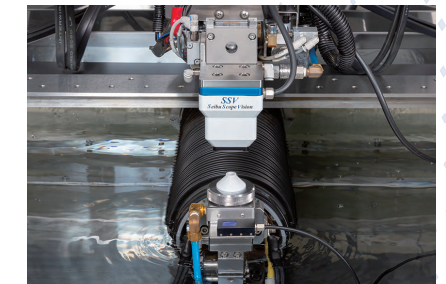
Core Catch  
Automatic device for core. This is used together with Core Stitch function. (Core Stitch function is necessary.)



CAM-Station  
CAD/CAM software (2D data: CAD/CAM 3D data: CAM)



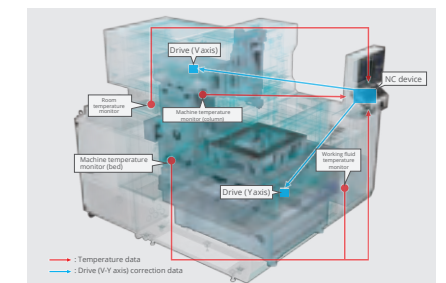
External lamp for work tank  
LED lamp



SSV  
Vision measuring device using a CCD camera



Signal lamp  
Status display light (2-lamp, 3-lamp type)



Thermal Adjust 24  
Monitors the temperature inside the machine and around the machine to compensate for thermal displacement



Optional tool set



# SuperMM80B/MM75B/M75B Options

◎Standard ○Option (available after shipment) ●Option (not available after shipment) ×Not available

Options	MB	MMB	Super MMB	Remarks
X-Y linear scale	○	◎	◎	
U-V linear scale	○	○	○	
Insulation table spec.	●	◎	◎	Square shaped for UMMB&MMB, U shaped for MB
Thin wire travel (Twin tension type)	×	◎	◎	Tension variation and wire vibration can be reduced.
Φ0.10, Φ0.15, Φ0.25, Φ0.30	○	○	○	You can choose the wire diameter. (Φ0.20 is standard) ※1
Φ0.05 thin wire specification	×	○	×	This is necessary when using Φ0.05 wire. ※3
Φ0.07 thin wire specification	○	○	×	This is necessary when using Φ0.07 wire. ※2
Φ0.10 thin wire specification	○	○	○	This is necessary when using Φ0.10 wire.
Suction unit of wire take-up for thin wire	○	○	○	Wire can be easily taken-up when using thin wire (Φ0.05 to Φ0.07).
Jet feed unit for thin wire	○	○	○	Wire feeding can be helped by water jet when using thin wire.
20kg Roll wire feeder	○	○	◎	
Large taper nozzle	○	○	○	
Height adjustment jig	○	○	○	Jig for adjusting flatness when plate cutting.
Automatic vertical square jig	○	○	○	Wire alignment can be automatically adjusted.
Sub work table	○	○	○	
Bridge	○	○	○	
Vise	○	○	○	
Start hole device (SHM) including Φ1.0	○	○	○	Φ0.3, Φ0.5, Φ0.8, Φ2.0, Φ3.0 selectable
Unit for mounting SHM	○	○	○	Start hole device (SHM) function can be used. The main unit is not included.
Working fluid cooling device	○	◎	◎	Inverter working fluid cooling device
Deionizer	○	○	○	Ion exchange resin 10L×2
Rust-proof unit	○	○	○	Rust prevention
Sponge sheet for drain	○	◎	◎	Wire sludge can be removed.
Unit for filter replacement	○	○	○	Auxiliary device for filter replacement
Specified color	●	●	●	
Exterior signal light	○	○	○	Integrated LED on the work tank front door enables operator to view the machine's operating status.
Internal lamp	○	○	○	LED lamp
External lamp for work tank	○	○	○	LED lamp
Large taper cutting	○	○	○	Large taper cut up to 45 degrees is available.
3D Level Adjust	○	○	○	Correction function for workpiece upper surface
3D Level Adjust Plus	○	○	○	Probe measurement function is added to the correction function for workpiece upper surface.
SSV	○	○	○	Vision measuring device using a CCD camera
Unit for mounting SSV	○	○	○	SSV can be used. The main unit is not included.
Rotary table	○	○	○	
SF unit	○	◎	◎	Unit for finish cut
EL Coating	○	○	○	SF unit is required. (Specifications of Φ0.10 or more)
Power off unit	○	○	○	Power can be automatically cut off by the command of NC program.
External alarm output unit	○	○	○	This is an output unit for external signal.
Signal lamp	○	○	○	Status display light (2-lamp, 3-lamp type)
Core Stitch	○	○	○	Brass wire of Φ0.10 to Φ0.25
Core Stitch conversion software	○	○	○	Includes Core Stitch function and program conversion software for PC
Core Catch	○	○	○	Automatic device for core removal. This is used together with Core Stitch function. (Core Stitch function is necessary.)
Thermal Adjust 24	○	○	○	Monitors the temperature inside the machine and around the machine to compensate for thermal displacement
Inclination compensation software	○	○	◎	Can correct the pitch error of X,Y axis.
Straightness compensation software	○	◎	◎	Straightness of X,Y axis can be corrected.
CAM-Station	○	○	○	Integrated CAM software (2D data: CAD/CAM 3D data: CAM)
Smart CAD	○	○	○	Integrated CAM software (2D data:CAD/CAM 3D data:CAM)
Optional tool set	○	○	○	

※1: Adjustment of automatic feeding is done for the specified diameter only before shipment. If you think the other diameter may be needed in future, specify the diameter.

※2: For Φ0.07, take-up suction unit is included. ※3: Includes jet feeder and take-up suction unit.

※The back of the square-shaped insulation table is for auxiliary use. The accuracy of top surface flatness is not guaranteed.

## CAD format CAM-Station

DXF, DWG, 2D/3D-IGES  
Parasolid, STL, SOLIDWORKS, STEP, IDI, BMI

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SOLIDWORKS is a registered trademark of (US) DS Solidworks.  
Parasolid is a registered trademark of SIEMENS.

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# MM50UP/35UP/M50HP/35HP Options

◎Standard ○Option (available after shipment) ●Option (not available after shipment) ×Not available

Options	M-HP	MM-UP	Remarks
X-Y linear scale	○	◎	
U-V linear scale	○	○	
Insulation table spec.	×	◎	
Thin wire travel (dancer roller type)	×	◎	Tension variation and wire vibration can be reduced.
AWF wire dia. selector※1	○	○	You can choose the wire diameter. (Φ0.20 is standard)
Φ0.07, Φ0.10, Φ0.15, Φ0.2, Φ0.25, Φ0.30 ※2	○	○	
AWF thin wire spec. Φ0.05 ※3	×	○	
Suction unit of wire take-up for thin wire	○	○	Wire can be easily taken-up when using thin wire (Φ0.05 to Φ0.07).
Jet feed unit for thin wire	○	○	Wire feeding can be helped by water jet when using thin wire.
20kg Roll wire feeder	○	○	
Large taper nozzle	○	○	
Height adjustment jig	○	○	Jig for adjusting flatness when plate cutting.
Automatic vertical square jig	○	○	Wire alignment can be automatically adjusted.
Sub work table	○	○	
Bridge	○	○	
Vise	○	○	
Start hole device (SHM2) including Φ1.0	○	○	Φ0.3, Φ0.5, Φ0.8, Φ2.0, Φ3.0 selectable
Unit for mounting SHM2	○	○	Start hole device (SHM) function can be used. The main unit is not included.
Working fluid cooling device	○	◎	Inverter working fluid cooling device
Deionizer	○	○	Ion exchange resin 10L×2
Rust-proof unit	○	○	Rust prevention
Sponge sheet for drain	○	◎	Wire sludge can be removed.
Specified color	●	●	
Exterior signal light	○	○	Integrated LED on the work tank front door enables operator to view the machine's operating status.
Internal lamp	○	○	LED lamp
External lamp for work tank	○	○	LED lamp
Large taper cutting	○	○	Large taper cut up to 45 degrees is available.
3D Level Adjust	○	○	Correction function for workpiece upper surface
3D Level Adjust Plus	○	○	Probe measurement function is added to the correction function for workpiece upper surface.
SSV	○	○	Vision measuring device using a CCD camera
Unit for mounting SSV	○	○	SSV can be used. The main unit is not included.
Rotary table	○	○	
SF unit	○	◎	Unit for finish cut
EL Coating	○	○	SF unit is required. (Specifications of Φ0.10 or more)
Power off unit	○	○	Power can be automatically cut off by the command of NC program.
External alarm output unit	○	○	This is an output unit for external signal.
Signal lamp	○	○	Status display light (2-lamp, 3-lamp type)
Core Stitch	○	○	Brass wire of Φ0.10 to Φ0.25
Core Stitch conversion software	○	○	Includes Core Stitch function and program conversion software for PC
Core Catch	○	○	Automatic device for core removal. This is used together with Core Stitch function. (Core Stitch function is necessary.)
Thermal Adjust 24	○	○	Monitors the temperature inside the machine and around the machine to compensate for thermal displacement
Inclination compensation software	○	◎	Can correct the pitch error of X,Y axis.
Straightness compensation software	○	◎	Straightness of X,Y axis can be corrected.
CAM-Station	○	○	Integrated CAM software (2D data: CAD/CAM 3D data: CAM)
Smart CAD	○	○	Integrated CAM software (2D data:CAD/CAM 3D data:CAM)
Optional tool set	○	○	

※1: Adjustment of automatic feeding is done for the specified diameter only before shipment. If you think the other diameter may be needed in future, specify the diameter.

※2: For Φ0.07, take-up suction unit is included. ※3: Includes jet feeder and take-up suction unit.

## CAD format CAM-Station

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Parasolid, STL, SOLIDWORKS, STEP, IDI, BMI

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# History of Seibu Wire Electrical Discharge Machine which continues to demand evolution

1972~



**EW-20**  
Development of world's first  
CNC wire EDM machine

1972



**EW-25**  
High-speed cutting  
realized by high-speed  
power transistors

1979



**EW-400E**  
Developed AWF1 for  
automatic wire feeder

1981



**EWP-300A**  
Development of  
high-precision double-column  
wire EDM

1983

1985~



**EW-450K**  
Developed wire auto-feeding device  
AWF2B (annealing method)  
Feeding at wire break point

1985



**EW-A5S**  
Development of  
submerged type wire EDM

1991



**EWP-B3S**  
Development of submerged-type  
ultra-precision wire EDM

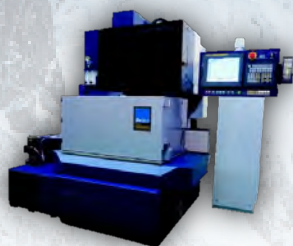
1996



**M500S**  
Adoption of  
FANUC CNC

2003

2008~



**SuperMM500S**  
Achieves pitch accuracy  
of  $\pm 1\mu\text{m}$

2008



**M25LP**  
Development of wire EDM  
using oil

2013



**MEX15**  
Oil-spec ultra-precision machine  
applicable for  $\Phi 0.03$  wire

2018



**MM50UP**  
Expansion of workspace  
Addition of new IoT features

2022

## Memo

Ultra-precision Wire EDM Machine for Oil Applications

## MEX15/M25LP



### Features

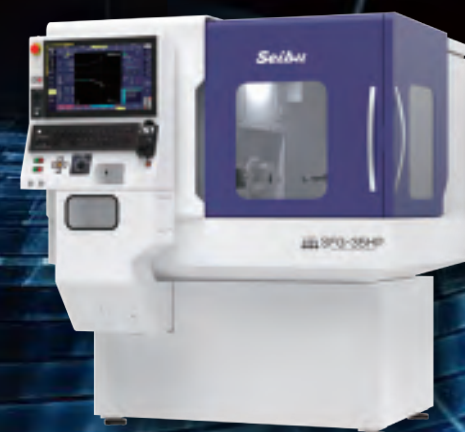
Improved Machining Precision in Small Corners

Enhanced Precision and Quality Through  
Oil Processing, Elevating to the Next Level

Ultra-precision realm with machining  
accuracy of  $\pm 1\mu\text{m}$

High-precision free-form Internal grinding machine

## SFG-35HP/28HP



**SFG-35HP**  
Precision machining up to 6-inch workpieces

### Features

Combined Machining with  
Cutting and Grinding

Capable of creating interactive  
machining programs「SmartNC」

Achieving a polish-free finish!



Material	WC (G5)
Surface roughness	Rz0.15 $\mu\text{m}$
GrindStone	SD#1,500