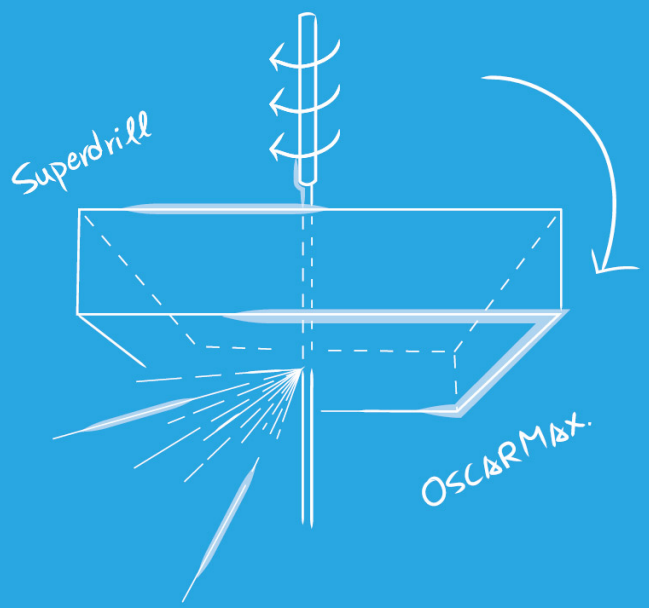


OSCAR E.D.M. COMPANY LTD.

No. 359, Xuetian Rd., Wuri Dist., Taichung City 41451, Taiwan

No.43, Aly. 11, Ln. 58, Gongyequ 1st Rd., Xitun Dist., Taichung City 407, Taiwan

TEL: +886-4-2338-5818 FAX:+886-4-23380035

Website:www.oscaredm.com.tw

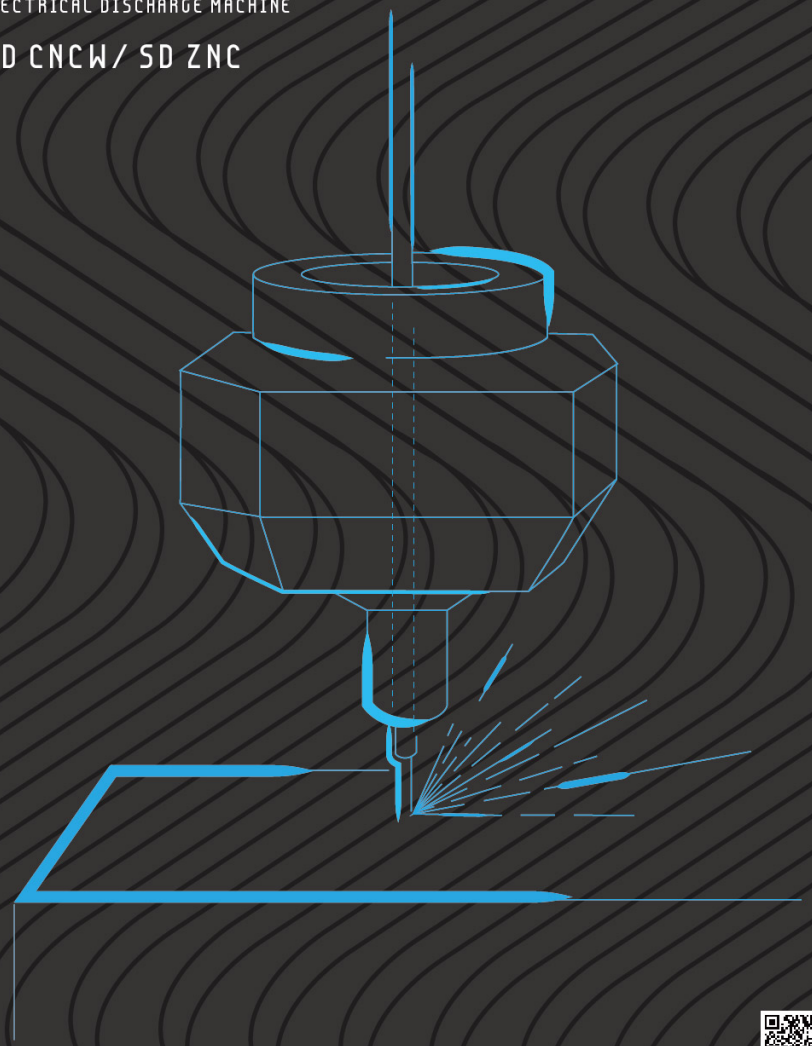
| Email:oscaredm@oscaredm.com.tw | OscarMaxEDM | |

OSCARMAX.

SuperDrill

ELECTRICAL DISCHARGE MACHINE

SD CNCW / SD ZNC



The Leading EDM Machine in Taiwan. Persistent – Great Effort – Hight Quality MIT

先捷 OSCARMAX
ELECTRICAL DISCHARGE MACHINE

PERSISTENT_ GREAT EFFORT_
HIGH QUALITY MIT

Persistent Quality and Performance / Consistent Technology and Worth

Service and Enthusiasm Oriented

Innovations and Breakthroughs Resulting from Endless Endeavors

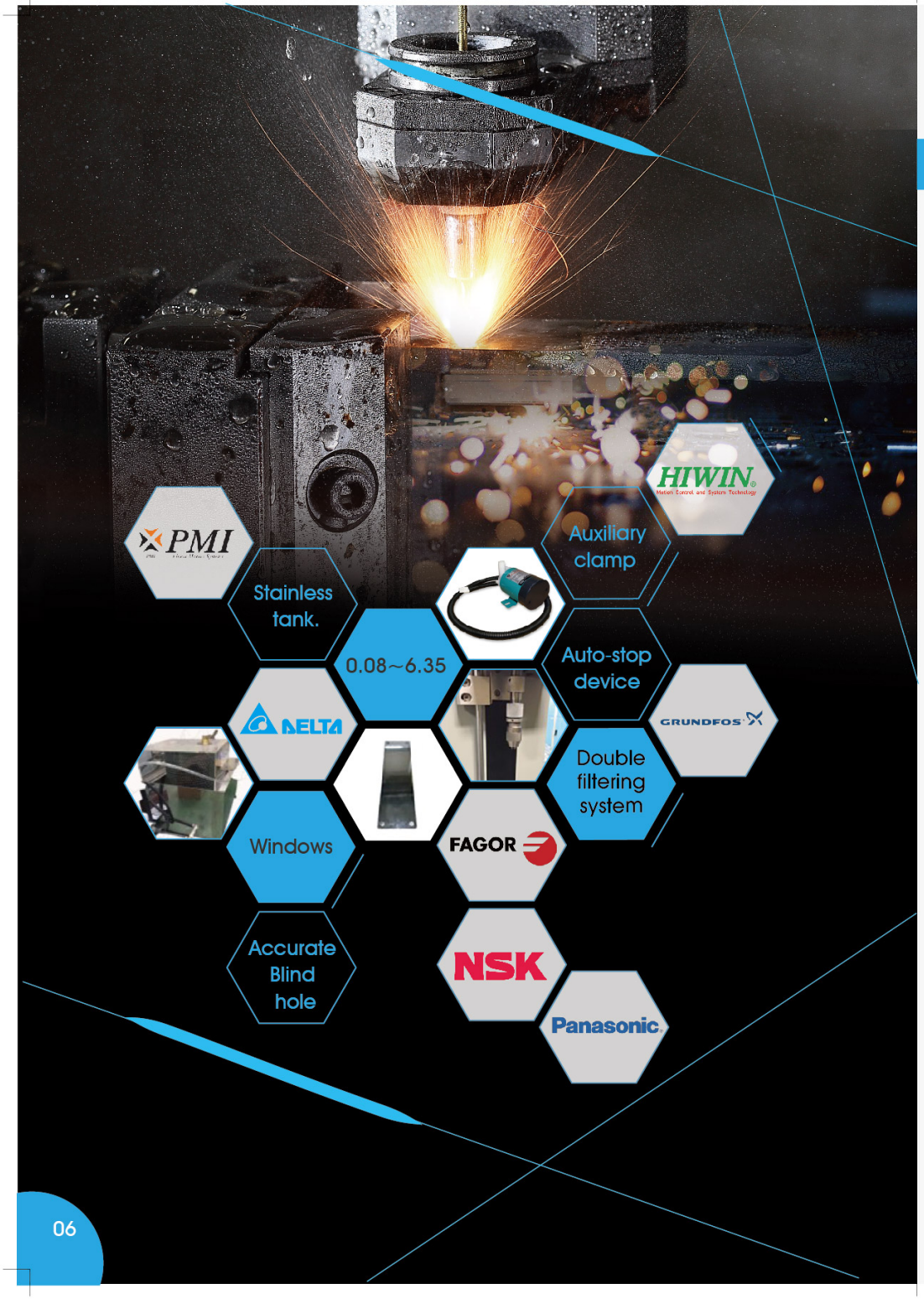
Profile

EXTREME EFFICIENCY
OUTSTANDING QUALITY

OscarMax has been established in 1985, and has been specialized in EDM manufactured, research and development in both machinery and technical sections since then. OscarMax offers over 80 models of EDM based on the sizes and generators for different markets and industries. Moreover, enhancing the communication with the customers and knowing the actual applications on the machines are what we are also focusing on as well. We have been training more engineers into EDM industry and improving the ability of operating the EDM machines. Providing the best coordination such as T-on and T-off just like how we should balance from the work and break to perform the best result. As the result, we also have been improving ourselves by enhancing our accuracy of machines to meet the quality of aerospace industry and be one of the suppliers. Let's soaring high to the future!

EXPORT

Excellent quality products with reasonable prices has been increasingly welcomed by worldwide buyer, OscarMax EDMs have been sold to over 40 countries in the world. With an aim to present excellence, we OscarMax hasconstantly conduct problem analysis in detail, conclusion and arrangement and execution adjustment.



TECHNOLOGY

Auto-stop device

While tube is breaking through the workpiece and before touch the work table, we have designed an Auto-stop device, when the tube is touching that device it will finish that hole and carry on for the next spark. it can avoid the tube to spark and damage the work table.

CNCW Breakthrough detector

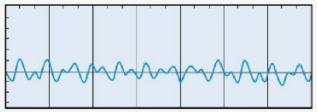
From detecting the Ampere output signal, there will be an interrupted while the hole is broke through. Considering the distance without sparking, the breakthrough can be defined, it is designed for some aerospace parts that is made by casting and the cutting depth is variable, and the part is like sandwich, when the hole is through the next surface is not allow for spark.

Delta control Features

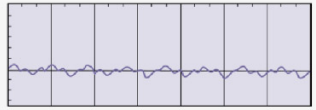
Implements High Precision Positioning Control

- ASDA-B2 Series servo drive supports 20-bit and 17-bit encoders. It satisfies the demand for high-precision positioning control and stable operation with lower speed.
- Applying the encoder with a higher resolution can reduce the cogging torque and improve the motor's precision.

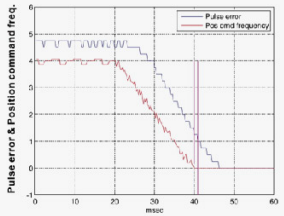
2500ppr of Torque Ripple



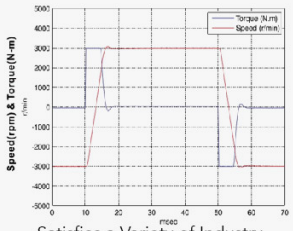
17-bit of Torque Ripple



- Outstanding performance with higher speed: Up to 550Hz frequency response and settling time is below 1ms.
- 10ms acceleration time from -3000r/min to 3000r/min when running without a load.



Example: Frame size 60mm and 400W servo motor



Satisfies a Variety of Industry Requirements

- Three control modes available: Built-in position, Speed, and Torque. (Speed and Torque mode can be controlled by internal parameters or analog voltage.)
- High-speed differential command (up to 4Mpps) for high precision positioning control.
- Three notch filters are provided to suppress the mechanical resonance efficiently and make the system operate more smoothly.
- Lead friction compensation parameter is specified for the application of circular interpolation, Z-axis motion and ball screw, and others to reduce the loading of the controller.
- For bar feeders and other equipment requiring high torque output, motor protection parameters are offered to protect the mechanical system

An encoder measures the actual machine position without the effect of any mechanical inaccuracies. Some of the potential sources of such errors in a machine tool such as lead screw pitch, certain amount of backlash and thermal behavior can be minimized using these encoders.

SD CNCW

Move Column Type

Available to equip with ATC, AGC and stainless rotary table.

Software Features

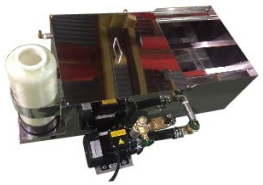
- Auto finding on edge, center of the two points, center of circle, and vertex of right angle and coordinates rotation.
- Allowable to convert between the DXF and wire EDM program file.
- Dialog based program editing function.
- Single and multi-hole machining. Variable thickness machining.
- System designed to determine the precise blind hole.
- Backlash and pitch error compensation function.
- Available to equip with ATC, AGC. (Automatic Tools Changer, Automatic Guides Changer)
- Programmed cutting path simulation.
- Two-stage machining function, processing depth in the preceding paragraph will automatically reduce processing current crater formation on the surface of the workpiece.
- Macro program retrieved by M code.
- Six axes linear interpolation and acceleration and deceleration motion.
- Auto total machining depth compensation after electrode replacement in case the electrode is used up during single- and multi-holes positioning machining.
- Under I/O points, C points, S points, A points, timer and counter status, it is available to equip CAM system of Siemens NX to launch 2.5D program and covert its parameters.

SD500

X :500
Y :400
Z :500
W:500

SD645

X :600
Y :400
Z :500
W:500



120L Stainless tank

SD860

X :800
Y :600
Z :500
W:500

180L Stainless tank

SD CNCW Specification Table

	Structure type			Moving column			
	Model			SD500	SD645	SD860	SD1060
MECHANICAL SPECIFICATION	Servo travel	X	mm (inch)	500(20)	600(24)	800(31)	1000(80)
		Y		400(16)	400(16)	600(24)	600(24)
		W		500(20)	500(20)	500(20)	500(20)
	Guide travel	Z	mm (inch)	500(20)	500(20)	500(20)	500(20)
	Max. Workpiece Weight (W×D)		mm (inch)	820×700 (32×27)	920×700 (46×27)	1230×900 (48×35)	1430×900 (56×35)
	Guide(30mm) to work table		mm (inch)	25-525 (1-20.6)	25-525 (1-20.6)	25-525 (1-20.6)	25-525 (1-20.6)
	Max. Workpiece Weight		kg	650	650	850	850
	Work Table (W×D)		mm (inch)	650×450 (25.6×18)	650×450 (25.6×18)	1050×650 (41×25.6)	1050×650 (41×25.6)
	Weight		kg	1500	2000	2500	3000
FILTERING (SYSTEM)	Capacity		l	120	120	180	180
	Filtration density		μm	10	10	10	10
	Numbers of filters			2	2	2	2
GENERATOR (STANDARD)	Max. Machining Current		A	120	120	120	120
	electric power		KVA	10	10	10	10
	Weight		kg	370	370	370	370

SD CNCW

Moving table type

Available to equip with ATC, AGC and rotary table.

Hardware Features

- Speedy execution with the D2550 Dual-core CPU, capable to deal with the heat without fan.
- EtherCAT communication architecture: Open communication architecture.
- No motion card is needed, which reduce the possibilities of service.
- Expandability – Open communication architecture which allows to expand with other EtherCAT equipment such as servo motor suppliers including Panasonic, Yaskawa, Delta, Hiwin, SEEC and etc.
- Available to equip with ATC, AGC. (Automatic Tools Changer, Automatic Guides Changer)
- Equip with 4 axes AC servo motor control as Standard.
- Equip with type P extended linear guide way, C5 precise double nut ball screw and double sides pre-stretching process to enhance the machine rigidity.
- Dialog based program editing function: G/M code editing with workpiece program capacity up to 10,000 nodes.

SD350

X:350
Y:300
W:345
Z:200+150

SD450

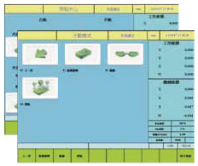
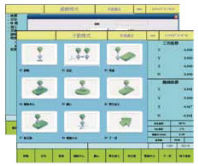
X:450
Y:350
W:345
Z:200+150

RTC Single Axis Controller

- Programmable with up to 20 sets of programs.
- Unequal angle setting with up to 99 sets and allow to work with other control system.
- Equal angle setting – allow to set up to 999 sets of same angles rotate and work with other control system simultaneously.
- Constantly rotating mode with RPM setting.
- Positioning, manual rotate, 3 speed control adjustable.
- Minimum positioning control at 0.001 degree.
- Capable of connecting with other control systems and can be control by GM codes

SD CNCW Specification Table

	Structure type			Moving Table type					
	Model			SD350	SD400	SD450	SD550	SD600	SD755
EXTRA MANUALLY GUIDE TRAVEL	Servo travel	X	mm (inch)	350(14)	400(16)	450(18)	550(22)	600(24)	700(28)
		Y		300(12)	300(12)	350(14)	400(16)	400(16)	550(22)
		W		345(14)	345(14)	345(14)	345(14)	345(14)	345(14)
	Guide travel		mm (inch)	200(8)	200(8)	200(8)	200(8)	250(10)	300(12)
	Manual guide travel		mm (inch)	150(6)	150(6)	150(6)	150(6)	150(6)	150(6)
	Max. Workpiece Weight (W×D)		mm (inch)	915×385 (36×15)	990×460 (39×18)	990×460 (39×18)	1075×540 (42×21)	1135×540 (44×21)	1630×690 (64×27)
	Guide(30mm) to work table		mm (inch)	0-350 (0-13.8)	5-355 (0.2-14)	5-355 (0.2-14)	45-395 (1.7-15.6)	45-445 (1.8-17.5)	145-595 (5.7×23.4)
	Max. Workpiece Weight		kg	370	450	450	1000	1000	2600
	Work Table (W×D)		mm (inch)	600×300 (24×12)	600×300 (24×12)	600×300 (24×12)	800×450 (31.5×18)	800×450 (31.5×18)	1100×600 (43×24)
	Weight		kg	1000	1200	1350	1950	2100	2950
FILTERING (SYSTEM)	Capacity		l	120	120	120	120	120	120
	Filtration density		μm	10	10	10	10	10	10
	Numbers of filters			2	2	2	2	2	2
GENERATOR (STANDARD)	Max. Machining Current		A	120	120	120	120	120	120
	electric power		KVA	10	10	10	10	10	10
	Weight		kg	370	370	370	370	370	370

SD ZNC Plus

Hardware Features

- High speed MOSFET driven machining circuit for fast machining and high, medium and low voltage options. Ideal for fine and micro hole (with reduced copper tube wastes) and special substance machining.
- Auto-Stop-Device.
- The span of structure & support contact are strong design with turcite sheet to keep the casting even in high loading situation can keep machine high accuracy.
- Power failure memory can last for 10 years.
- Equip with copper auxiliary clamp, allows efficient machining for 0.15mm and below tubes.
- Plug-in stainless r tank design for better maintenance of fluid/water.

Software Features

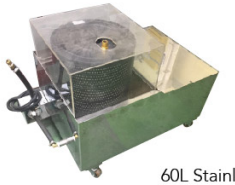
- Two-stage machining function, processing depth in the preceding paragraph will automatically reduce processing current cater formation on the surface of the workpiece.
- Memory of machining parameters and fast retrieve.
- S circuit – capable of machining aluminum alloy and special steel metals.
- Micro-electric function designed to machine with 0.12mm and below tubes.
- Depth setting programmable for blind holes.
- Parameter changes during machining.
- Capable of machining super hard alloy metal in irregular, sphere and curve shapes.

SD300

X:300
Y:250
W:345
Z2:150

SD600

X:600
Y:400
Z:345
Z2:200+150



60L Stainless tank

SD350

X:350
Y:300
W:345
Z2:200+150

SD450

X:450
Y:350
W:345
Z2:200+150

SD ZNC Plus Specification Table

	Structure type			Moving table						
	Model			SD300	SD350	SD400	SD450	SD550	SD600	SD755
MECHANICAL SPECIFICATION	travel	X		300(12)	350(14)	400(16)	450(18)	550(22)	600(24)	700(28)
		Y	mm (inch)	250(10)	300(12)	300(12)	350(14)	400(16)	400(16)	550(22)
	Servo travel	W		345(14)	345(14)	345(14)	345(14)	345(14)	345(14)	345(14)
	Guide travel		mm (inch)	NA	200(8)	200(8)	200(8)	200(8)	250(10)	300(12)
	Manual Guide Travel		mm (inch)	150(6)	150(6)	150(6)	150(6)	150(6)	150(6)	150(6)
	Max. Workpiece Weight (W×D)		mm (inch)	610×420 (24×16)	915×385 (36×15)	990×460 (39×18)	990×460 (39×18)	1075×540 (42×21)	1135×540 (44×21)	1630×690 (64×27)
	Guide(30mm) to work table		mm (inch)	100-250 (4-9.8)	0-350 (0-13.8)	5-355 (0.2-14)	5-355 (0.2-14)	45-395 (1.7-15.6)	45-445 (1.8-17.5)	145-595 (5.7×23.4)
	Max. Workpiece Weight		kg	120	370	450	450	1000	1000	2600
	Work Table (W×D)		mm (inch)	400×260 (16×10)	600×300 (24×12)	600×300 (24×12)	600×300 (24×12)	800×450 (31.5×18)	800×450 (31.5×18)	1100×600 (43×24)
	Weight		kg	700	1000	1200	1350	1950	2100	2950
FILTERING (SYSTEM)	Capacity		l	60	60	60	60	60	60	60
	Filtration density		μm	10	10	10	10	10	10	10
	Numbers of filters			2	2	2	2	2	2	2
GENERATOR (STANDARD)	Max. Machining Current		A	50	50	50	50	50	50	50
	electric power		KVA	4.6	4.6	4.6	4.6	4.6	4.6	4.6
	Weight		kg	NA	NA	NA	NA	250	250	250

APPENDIX

Rotary Spindle

- Unique design of rotary spindle with servo motor and precise chuck to perform machining stability.
- W axis Encoder to read the precise coordination.
- Equip with tube auxiliary clamp to prevent tubes beding (suitable with Ø0.15mm or less)

Electric Pump

electric high pressure pump perform stabilize pressure and easy maintenance, much less noise.

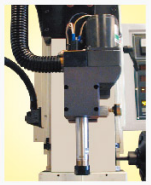
Filter

P-600C input filtering of high pressure pump

Japan Flushing Pump

ER t ype Rotary Spindle (Optional)

Compatible with ER16 collet with Ø0.3~6.35mm tubes



ER type Precise chuck

capable with Ø0.1~3.0mm tubes

Precise chuck

capable with Ø0.1~3.0mm tubes

Precise Pneumatic Chuck [ATC]

capable with Ø0.1~3.0mm tubes

ER type Pneumatic Chuck [ATC]

capable with Ø0.3~6.35mm tubes

Electrode tubes & guides

Standard accessories included: Ø1.0mm electrode guide & 10pcs of Ø1.0mm electrode tubes

Wire EDM type filter

Parallel spacer

Correction rod

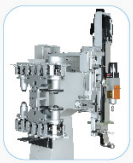
OPTIONAL Accessories

Pnuematic Chuck (Standard with ATC) RPM 200 / adjustable 10-600

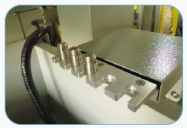
Wheel disc type ATC 16/20 (Moving column type machine)

Stainless submerged type rotary table

Z axis +-45 titling spindle.



ATC16/32+AGC10 system (moving table type machine)



Linear type AGC 5 / 7 system. (Moving column type machine)

Single axis rotary table (with R.T.C. controller)

Water Cycling Cooler System

Water Quality Monitoring System

Standard Accessories

項　目	SD ZNC	SD CNCW
Filter	√	√
Stainless Water Tank	√ (60L)	√ (120/180L)
Tool box	√	√
X Y Axis – 1um Linear Scale	□	√
X Y Axis – 5um Linear Scale	√	—
Electrode Guide Ø1.0mm	√	√
Precise Electrode Chuck Ø0.1~3.0mm	√	√
Electrode Tube Ø1.0mm	√	√
Correction rod Ø6mm, 3mm	√	√
Working Lamp	√	√
Parallel spacer	√	√
Z Axis Encoder	—	√
W Axis Encoder	√	√
XYW Axis Precise Ball screw	√	—
XYZ Axis double nuts Precise Ballscrew	—	√
Auto-stop device.	√	√

√:Standard □:Optional —:No support

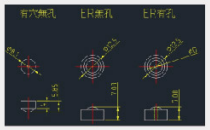
Optional Accessories

項　目	SD ZNC	SD CNCW Moving table type	SD CNCW moving column
LED Working Lamp	□	□	□
ER type Precise Collet Ø0.3~6.35mm	□	□	□
ER to Precise Chuck AdapterØ0.1-3.0mm	□	□	□
Robotic Arm ATC 16/32 Tools	—	□	—
Robotic Arm AGC 10 Guides	—	□	—
Linear ATC 6 Tools	—	—	□
Wheel disc ATC 16/20 Tools	—	—	□
Linear AGC 5 / 7 Guides	—	—	□
Single Axis Rotary Table	□	□	□
AB Axes Rotary Table	—	□	□
Stainless Submerged Working Tank	□	□	□
Water Quality Monitoring System	□	□	□
Water Cycling Cooler System	□	□	□

√:Standard □:Optional —:No support

	None	0.3	05	1.0	2.0	3.0	4.0	5.0	6.0
Standard Rubber Seal	●	●	●	●	●	●			
ER type Rubber Seal	●	●	●	●	●	●	●	●	●

Please choose the size of the rubber seal that is smaller than the diameter of the tubes.

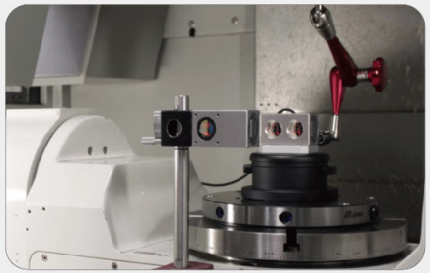


Standard Rubber Seal

ER type Rubber Seal

WE USE THE BEST LASER CALIBRATION SYSTEM TO PROVIDE THE BEST ACCURACY.

Keysight 5530 Laser Interferometer



Equip 5290K/K Rotating measurement to reach the fastest measure、most easily setup and safety rotating measurement.

HP Keysight is the leading dual frequency laser interferometer company, equip with Doppler effect and Zeeman effect theory, not only the system performance accuracy or equipment life span are all much better than monochromaticity of laser, for example the monochromaticity type laser is just like radio AM channel use different amplitude to receive the audio, the noise is more and the signal can't discriminate correctly. However, the dual frequency laser just like FM channel, use tuning frequency to discriminate the audio precisely and good signal strength.

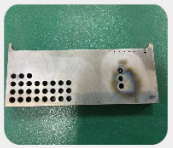
	5530 Detector accuracy	other system Detector accuracy
Material Temperature (0～40°C)	±0.1°C	±0.1°C
Air temperature (0～40°C)	±0.1°C	±0.2°C
Air pressure	±0.008 psi	±0.0145 psi
Air humidity	5%	6%

	5530 System accuracy	other system System accuracy
Air temperature (0～40°C)	±0.1ppm	±0.1ppm
Air pressure	±0.165ppm	±0.299ppm
Air humidity	±0.0625ppm	±0.075ppm
Laser Accuracy	±0.02ppm	±0.05ppm
Total performance	±0.3475ppm	±0.524ppm

Deep hole drilling
Thickness: 200mm
Tool diameter: 1.0mm

Multi. Holes drilling
Thickness: 10mm
Tool diameter: 03/0.5/1.0mm

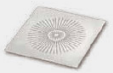
Spherical surface drilling (25 holes)
Diameter: 50mm
Tool diameter: 1.0/0.8/0.5/0.3mm



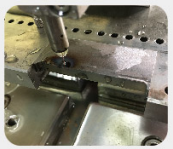
Material: Tungsten 99%
Ø2.0mm
Depth:6.4mm
Time:5mins
Wear: 6.2%
*SD CNCW

Variable depth control drilling
Thickness: 25/50/75mm
Z axis(4th)

Circle pattern drilling (1100 holes)
Hole deepness: 5mm
Tool diameter: 1.0mm

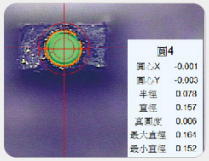


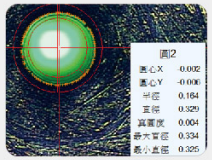
Rectangle pattern drilling.
Hole deepness: 5mm
Tool diameter: 1.0mm

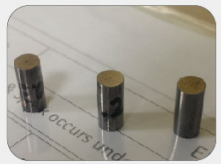


Material: Tungsten 99%
Ø0.7mm
Depth:6.1mm
Time: 90 seconds
Wear out: 6.5%
*SD ZNC performance

Material:TF10(Tungsten carbide)
Ø0.12mm Depth: 4mm
Real hole: Ø0.16mm
Time: 4mins
Wear : 1 : 4
*SD ZNC Plus

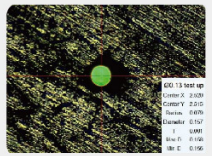


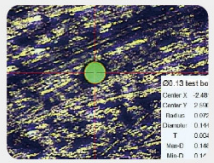




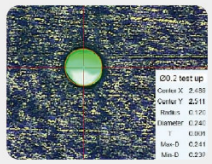
Material:Tungsten carbide
Depth11mm
Finish in 6 mins
Wear out 1:3
*SD ZNC Plus

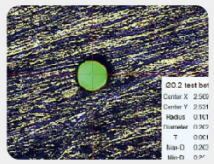
Tube 0.13



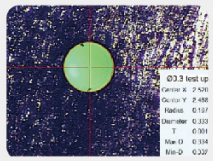


Tube 0.2



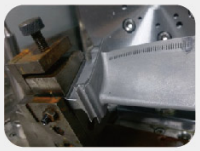


Tube 0.3



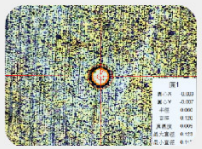
Material: Titanium alloy
Ø0.35mm Depth:175mm
Real hole: 0.48mm
time: 13 mins
Wear: 80%
*SD ZNC Plus

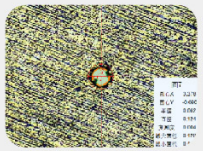
Material: Stainless
Ø1.0 Depth3.8mm
Total: 4 hours *600 holes
Drawing automatic transfer with 6 axes machining
*SD CNCW



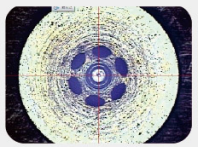
Material: Inconel
Job: Turbine blade x 40 holes
Ø0.7mm with variable holes
Time: 30 mins
with breakthrough detect system
*SD CNCW

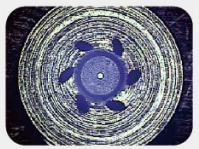
Material: Stainless
Ø0.1mm Depth:0.2mm x 6 holes
Real hole:Ø0.12mm
Time: 2 mins (total)
Equip with rotary table.
*SD CNCW





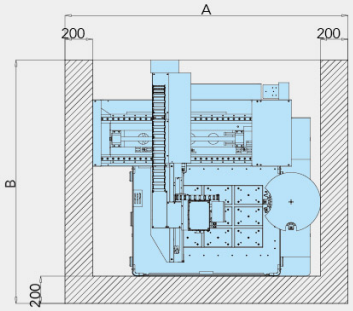
Material: Stainless 420
Ø0.3mm Depth:0.6mm x 6 holes
Time: 2 mins (total)
Equip with titling 30 degree and rotating axes.
*SD CNCW

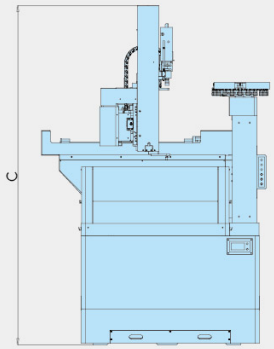




Moving column - Floor plan

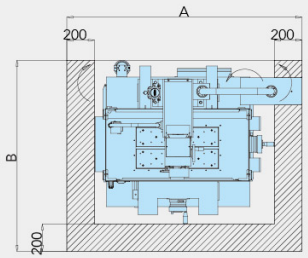
Model	Length A(mm/inch)	Width B(mm/ inch)	Height C(mm inch)
SD500	2062(81)	1774(70)	2475(97)
SD645	2062(81)	1774(70)	2475(97)
SD860	2462(97)	1973(78)	2475(97)
SD1060	2462(97)	1973(78)	2475(97)

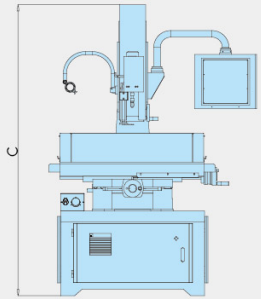




Moving table - Floor plan.

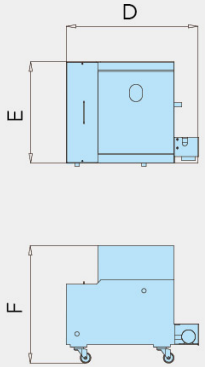
Model	Length A(mm/inch)	Width B(mm/ inch)	Height C(mm inch)
SD300	1404(55)	1383(54)	2150(85)
SD350	1983(78)	1516(60)	2125(84)
SD400	2036(80)	1675(66)	2295(90)
SD450	2036(80)	1675(66)	2295(90)
SD550	1812(71)	1580(62)	2335(92)
SD60 0	2185(86)	1605(63)	2335(92)
SD755	2527(100)	2075(82)	2350(93)



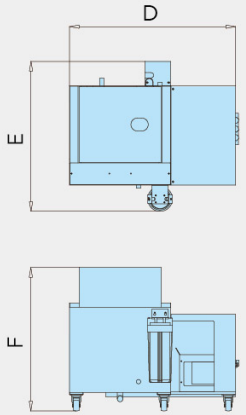


Filtering system	S type stainless tank	M type stainless tank	L type stainless tank	Custom type Stainless tank
Model	SD300-SD450 ZNC Plus	SD350-SD645 CNCW SD550-755 ZNC Plus	SD860-1060 (CNCW)	for Submerged work Tank
SD300-SD450 ZNC Plus	60	120	180	Customize
Length D(mm)	610	1090	1490	—
Width E(mm)	470	680	680	—
Height F (mm)	545	590	590	—
Weight(kg)	17	28	35	—
DI water system	None	None/optional	None/optional	None/optional
Water electrical conductivity detector	None	Standard:6.8L	Standard:6.8L	Standard:6.8L

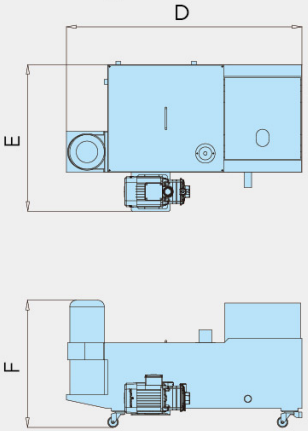
S type stainless tank

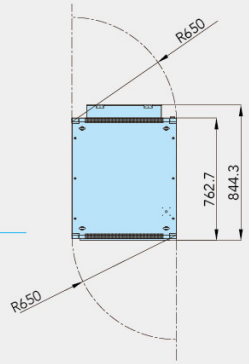


M type stainless tank



L type stainless tank





Generator controller.