

LEAD

ELECTRIC DISCHARGE
MACHINE FOR TIRE MOLD

LEAD

CREATOR INDUSTRY (SUZHOU) CO., LTD.



TIRE MOLD series EDM

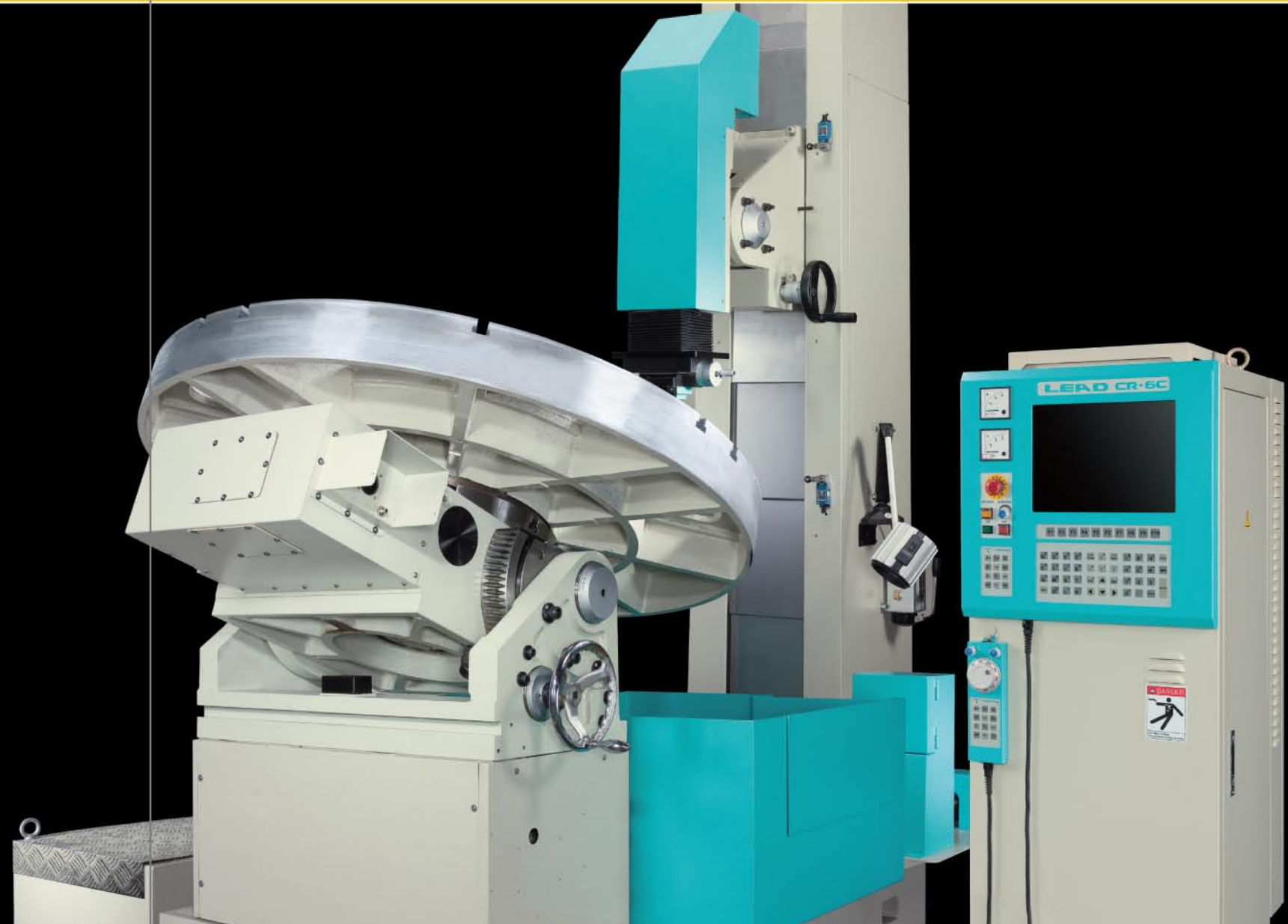
ENVIRONMENT. TECHNOLOGY. APPLICATION





EDM for Tire Molds

A new and Better Way to machine Tire Molds



Mold Samples

Lead EDM has overcome the difficulties encountered with building segmented Tire molds. Lead EDM technology has been accomplished with software developed to control multi axis CNC movement to meet the demands of ease of setup, improved surface finish, and profitable operation.

Lead All New CNC1670T Tire Mold EDM



An advanced EDM that integrates many innovative features, making it unique in the industry.

CNC1670T

- ▶ Closed-loop feedback control on C-axis assures extra high positioning accuracy of up to 0.001° (patented)
- ▶ 30° slant column construction (patented).
- ▶ Spindle tilts ± 90° forward and backward (patented).
- ▶ Designed for machining various tire molds, such as segmented parting mold, two-piece mold and stamping steel plate.
- ▶ The electrical discharge machining system is specially designed for tire mold machining.
- ▶ State-of-the-art CNC control with 15" TFT LCD monitor.
- ▶ Comprehensive lubrication design ensures extra smooth movement.

CNC1670T

Tablet travel (X1-axis)	mm	70
Table travel (Y-axis)	mm	700
Table travel (Z-axis)	mm	180
Quill travel (Z1-axis)	mm	390
Worktable dimension	mm	1300
C-axis angle	degree	360
W-axis (Z-axis F/B) revolving angle	degree	Front(F) 90° / Back(B) 90°
Y-axis resolution	mm	0.001
Z-axis resolution	mm	0.001
C-axis resolution	degree	0.001
Control type (C-axis)		Fully Enclosed
W-axis resolution	degree	0.05

Max. Electrode weight	kg	70
Max. Workpiece weight	kg	2500
Max. Workpiece diameter	mm	1600
Max. Workpiece thickness	mm	600 (with jigs)
Work tank inner dimensions (WxDxH)	mm	1560x750x500
Oil tank dimensions (WxDxH)	mm	3000x900x440
Max. Capacity of dielectric fluid	liter	950
Distance of oil tank up and down	mm	280
Machine unit weight (Including indexing table)	kg	4300
Max. Machining power	A	100
Control system		CR6C CNC Controller

Standard Accessories :

- Tool box
- Halogen lamp
- Remote controller
- Filter
- Magnetic nozzle
- Optical scale
- Extended electrode holder
- Operation manual

Optional Accessories :

- 4-jaw chuck
- EROWA or 3R chuck
- Oil cooler
- Automatic fire extinguisher
- MPG handwheel box
- Jigs for tire mold
- Grease gun

• Continuing improvement will allow the maker to modify the design or specification without notice.

CNC1670T



Rotary Optical Scale on C-axis

- ▶ The C-axis is equipped with an imported high precision rotary optical scale, providing a close-loop feedback control. This is combined with the use of DC servo motor for positioning control, featuring extra high positioning accuracy of up to 0.001°. This outstanding feature makes the machine excellent for producing high precision tire molds. (Patented)



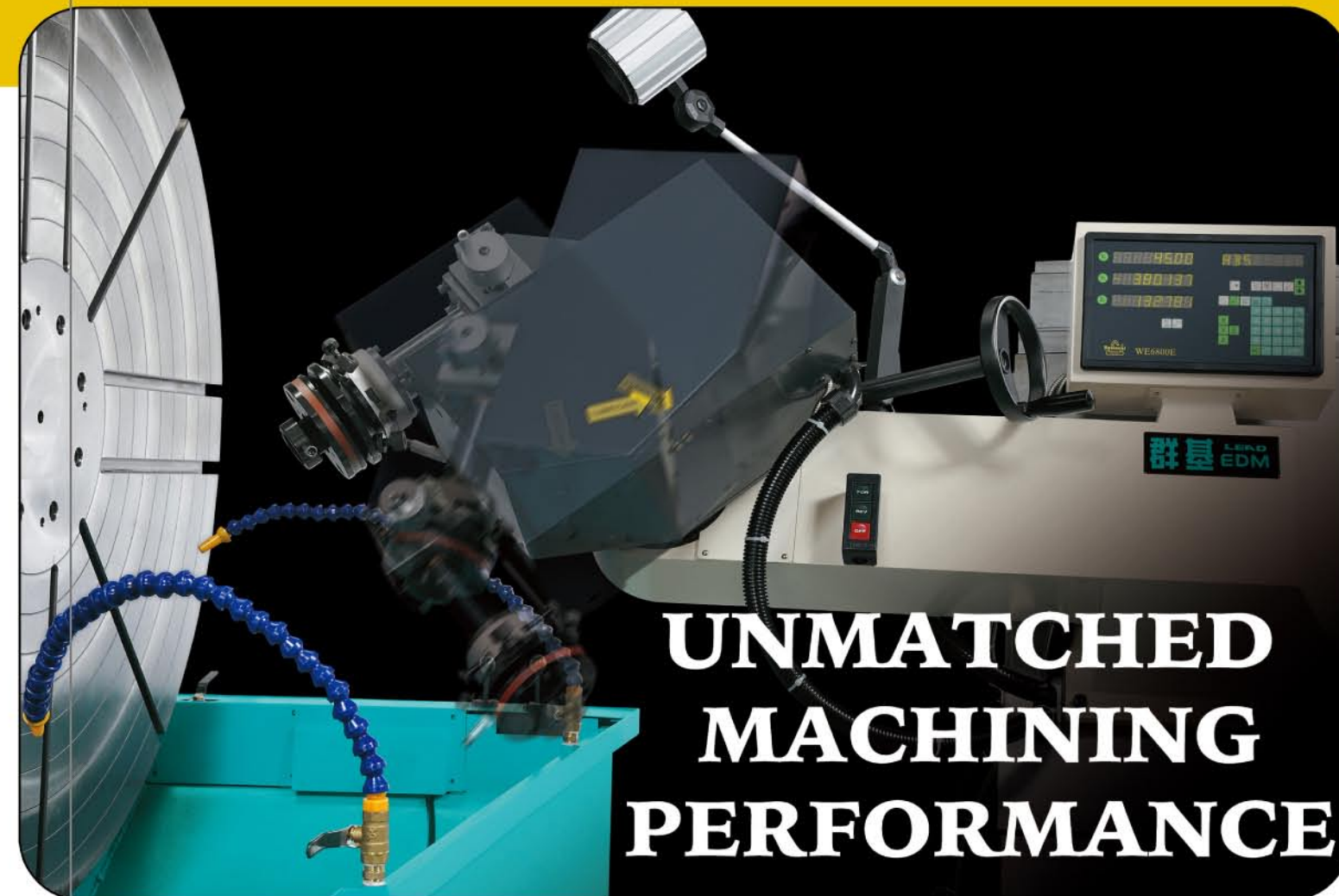
30° Slant Column

- ▶ Unlike conventional machining, the Creator CNC-1760T is specially designed with a slant column. It allows the spindle to perform machining at a 30 degree angle, solving residue removing problem. (Patented)



Spindle Tilting $\pm 90^\circ$

- ▶ The spindle can be tilted 90° forward and backward to allow the machine to produce various tire molds. (Patented)



**UNMATCHED
MACHINING
PERFORMANCE**



Lifting Fluid Tank

- ▶ The fluid tank can be elevated to facilitate immersed machining and mold loading and unloading (Patented).

FEATURES OF THE MACHINE

Creator Tire Mold EDM accommodates widely mold selections, diameters from 200mm to 1200mm.

CJ-580T / CNC600T

- ▶ Designed for radial segmented parting tire molds.
- ▶ The worktable equipped with encoders can ensure positioning accuracy.
- ▶ The worktable can be rotated and tilted to meet the machining requirement for side patterns of radial parting mold and stamping steel plate.
- ▶ Z axis permits tilting for efficient residue exhaust, while upgrading machining stability and efficiency.
- ▶ Micrometer adjustment on X1 and Y axis for ease of electrode setup.
- ▶ The work head can be moved to the side for convenient mold setup.



CJ-580T / CNC600T

X-axis turning angle	degree	0-90	0-90
Table travel (X1-axis)	mm	70	70
Table travel (Y-axis)	mm	480	480 / 700
Table travel (Z-axis)	mm	180	180
Quill travel (Z1-axis)	mm	890	890
Worktable dimension	mm	1300	1300
C-axis angle	degree	360	360
W-axis (Z-axis F/B) revolving angle	degree	30°(F) / 30°(B)	40°(F) / 40°(B)
W1-axis (Z-axis L/R) revolving angle	degree	30°(L) / 30°(R)	30°(L) / 30°(R)
X-axis resolution	degree	0.05	0.05
Y-axis resolution	mm	0.001	0.001
Z-axis resolution	mm	0.001	0.001
C-axis resolution	degree	0.001	0.001
Control type (C-axis)		Semi-loop	Close-loop
Max. Electrode weight	kg	40	40
Max. Workpiece weight	kg	800	2000
Max. Workpiece diameter	mm	1200	1500
Max. Workpiece thickness (including jigs)	mm	470	500
Work tank inner dimensions (WxDxH)	mm	1264 × 764 × 427	1264 × 764 × 427
Oil tank dimensions (WxDxH)	mm	2450 × 800 × 440	2450 × 800 × 440
Max. Capacity of dielectric fluid	Litre	800	800
Machine unit weight (Including indexing table)	kg	4500	5300

• Continuing improvement will allow the maker to modify the design or specification without notice.

Standard Accessories :

- Tool box
- Halogen lamp
- Remote controller
- Filter
- Magnetic nozzle
- Optical scale
- Extended electrode holder
- Operation manual

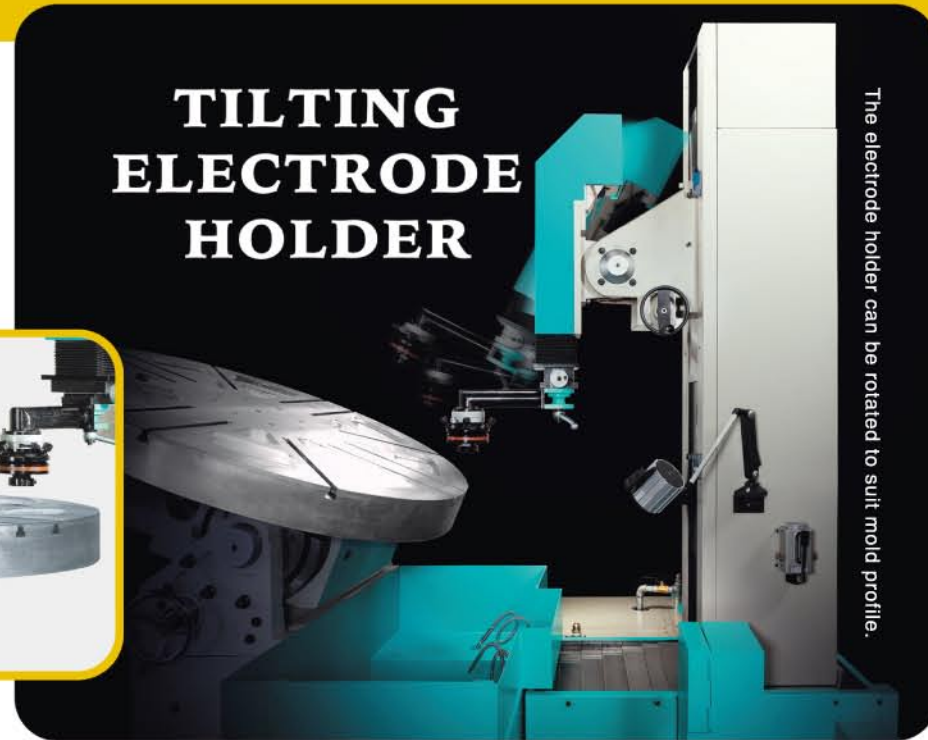
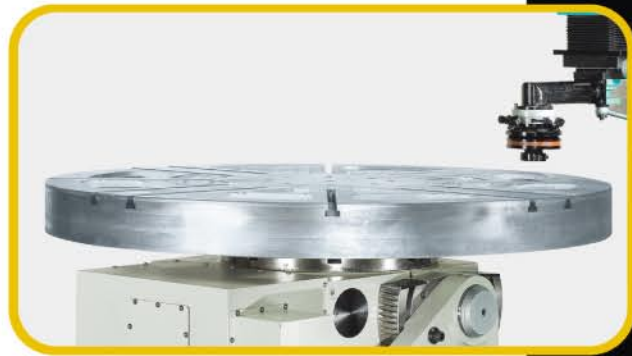
Optional Accessories :

- 4-jaw chuck
- EROWA or 3R chuck
- Oil cooler
- Automatic fire extinguisher
- MPG handwheel box
- Jigs for tire mold
- Grease gun

Features of Indexing Mechanism

TILTING ELECTRODE HOLDER

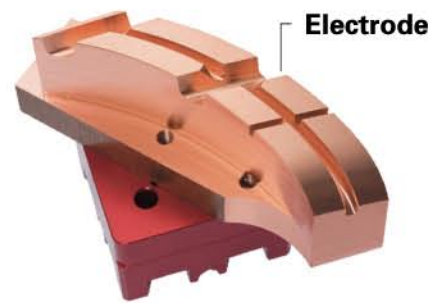
The electrode holder can be rotated to suit mold profile.



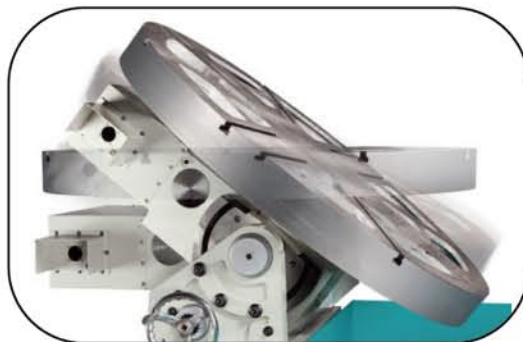
CJ-580T / CNC600T



Filtering unit



Electrode



Encoder

The table tilting mechanism is equipped with an encoder, ensuring high positioning accuracy of mold.

Tilting Table

The table can be tilted 0° – 90°, allowing for convenient mold setup.

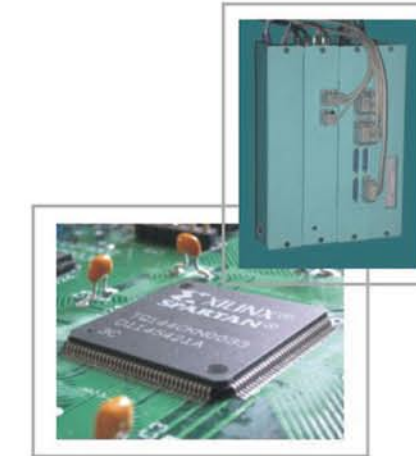
CR-6C 100A

Input voltage	3Ø V	220.346 380.415
Input power	KVA	15
Working voltage (No load)	V	100
High voltage	V	140 or 250
Min. ON TIME	µS	1
Min. OFF TIME	µS	1
Max. Cutting speed	mm ³ / min	1050
Best surface finish	µmRa.	0.2
Min. Electrode wear rate	%	0.3
Weight	kg	360

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Optional :

- CR6C 150A
- CR6C 250A



Modularized Controller Design

Better stability and easy for service

FPGA pulse control circuit

The circuit of full digital discharge pulse controls adopts FPGA to achieve high efficiency pulse management. It increases the spark efficiency and reduce ARC.

Features of CNC Control

- ▶ The control employs INTEL PENTIUM industrial grade master board.
- ▶ 15" TFT LCD monitor.
- ▶ Conversational operation interface.
- ▶ Automatic table type editing for 10-step machining programs creation.
- ▶ Tungsten steel, extra hard and special material eroding circuit.
- ▶ Graphite machining circuit is ideal for machining bronze and graphite.
- ▶ MPG handwheel for micrometric positioning adjustment.(Optional)
- ▶ Unlimited machining programs fully meet flexible machining requirements such as various angles and patterns of tire molds.
- ▶ Relative coordinate, absolute coordinate and constant indexing function make the machine suitable for machining any tire mold.
- ▶ Random home position function. Machining home position can be set as desired.
- ▶ Specially designed protection function to prevent electrode from bumping against the mold.
- ▶ Indexing accuracy 0.001°.
- ▶ Allows for inconsistent indexing machining.

CNC 400T

輪胎模具專用放電加工機

ELECTRIC DISCHARGE MACHINE FOR TIRE MOLD



TIRE MOLD
SERIES EDM



CNC400T 特點

- ◆ 採用日本AC伺服驅動馬達直接驅動放電主軸，加快伺服反應速度，展現高效率、高精度放電加工；
- ◆ 分度盤採用進口研磨蝸輪和變徑蝸杆，搭配日本AC伺服電機，全浸油潤滑設計，背隙小、精度高、壽命長；
- ◆ 全新升降式油槽，全程浸油加工，提升模具精度及表面粗細度；
- ◆ 全新防火主軸設計、浸油設計，主動預防火災發生；
- ◆ 三軸伺服控制，取代一般2軸伺服結構，提升機臺精度及操作之方便性；

規格 Specification

控制器規格 Controller box specs

項目 Item	單位 Unit	規格 Specs
控制器 Controller	套 SET	群基CR6C控制器 CREATOR CR6C CONTROLLER
最大加工電流(選配大電流)Max. working current	A	50A
輸入電壓 Input voltage	3ΦV	220、346、380、415
電源容量 Input power	KVA	8
加工電壓 Working voltage	V	100
高壓選擇 High voltage	V	140 or 250
最小放電時間 Min. ON time	μ S	1
最小休止時間 Min. OFF time	μ S	1
最大加工速度 Max. cutting speed	mm3/min	480
最細表面光潔度 Best surface finish	μ m Ra.	0.2
最小電極消耗比 Min. Electrode wear rate	%	0.2
重量 Weight	kg	220

機械規格 Machine Specs

項目 Item	單位 Unit	規格 Specs
Y軸行程 Y axis travel	mm	300
Z軸行程 Z axis travel	mm	700
轉盤尺寸(工作臺) Worktable dimension	mm	900
C軸旋轉角度C axis angle	度 degree	360
X軸解析度(可選配高解析度) X axis resolution (Optional high resolution)	度 degree	0.05
Y軸解析度 Y axis resolution	mm	0.001
Z軸解析度 Z axis resolution	mm	0.001
C軸解析度 C axis resolution	度 degree	0.001
電極荷重 Max.Electrode load	kg	50
工件荷重 Max.Workpiece weight	kg	400
最大工件直徑尺寸 Max. workpiece diameter	mm	1000
最大工件厚度 Max.workpiece thickness	mm	200
油槽內徑尺寸 Work tank inner dimensions	mm	950*490*270
油箱外徑尺寸 Oil tank dimensions	mm	1910*600*340
最大油箱容積 Max. Capacity of Dielectric fluid	Litre	350
油槽移動距離 Oil tank moving distance	mm	195
機器總重(含分度盤)Machine unit weight (Including indexing table)	kg	3000