

HCM

CNC EDM



CNC/DZNC series

SUPER DRILL EDM

和成機電工業股份有限公司
HO CHEN MACHINERY & ELECTRIC INDUSTRIAL CO., LTD.

CNC高速細孔放電加工機

CNC High Speed Drilling EDM

機械特點

- ◆ 操控系統使用Windows CE控制器。
- ◆ 具有USB與網路傳輸資料的功能。
- ◆ 操作對話式視窗，附帶圖片說明各功能。
- ◆ 觸控螢幕操作。
- ◆ 特殊設計的維修頁面可加快排解問題速度。
- ◆ 光學尺閉迴路設計，增加定位精度。
- ◆ 操作介面簡單方便。常用的功能鍵都在手控盒上可以直接使用，螢幕上有熱鍵可快速進入頁面。
- ◆ 可安裝自動換刀ATC以及自動換眼模AGC。
- ◆ 可儲存無限組的加工條件與孔位，每一樣資料都能編輯更改複製，方便查詢以及使用。
- ◆ 可自動尋機械原點以及設置多組座標記憶。
- ◆ 支援中文/英文語言，單位可切換公制英制，以及快速移動低速微調等功能，解析度可達到1 μ m。
- ◆ 所有機器的警報都會被記錄追蹤發生的時間與內容方便維護。
- ◆ 可執行標準的GM code以及追加GM code。
- ◆ 可執行DXF檔案轉換成程式座標之功能。
- ◆ 可選配備AB軸。
- ◆ 加工程式模擬及路徑顯示功能。
- ◆ 加工中電極用完更換電極後具有深度自動補償功能。
- ◆ 節距背隙自動補償功能。
- ◆ 可以做單孔加工，多孔加工，變厚度加工。
- ◆ 盲孔加工功能，可電腦設定加工任何深度。
- ◆ 可設定初始電流減少功能，可防止傷害工件表面。
- ◆ 初始加工極性反轉功能，可防止電極表面不平整而造成效率下降。
- ◆ 六軸直線插值加減速移動。
- ◆ 點、O點、機器各項狀態即時顯示系統。
- ◆ 加工程式以及放電參數轉換。

FEATURES OF THE MACHINE

- ◆ This system utilizes Windows CE controller.
- ◆ Able to store data through USB and internet.
- ◆ Dialogue window, along with picture description functions.
- ◆ Touchscreen type interface.
- ◆ Special repaired frames to quicken the maintenance speed.
- ◆ Close-Loop design of digital feedback on three axis of the machine, significantly increases positioning accuracy.
- ◆ Possessing good and simple operation interfaces. Common function keys are located on the operation panel for direct use, hot key function on screen for quick access.
- ◆ ATC (automatic tool changer) and AGC (automatic guide chnger) can be installed.
- ◆ Unlimited number of machining conditions can be saved as machining archives. Each set of machining conditions can be edited, modified or stored. They are easy to edit and easy to search.
- ◆ Automatic origin search and multi-point coordinate memory capability.
- ◆ Chinese/English versions, Metric/British system switch and quick up, quick down, and slow up and slow down capabilities, resolution can reach 1 μ m.
- ◆ All alarms describe the source, data and exact time of problem occurrence.
- ◆ Able to proceed standard GM code and extra GM code.
- ◆ Able to proceed DXF file transfer to position coordinate function.
- ◆ AB axis rotate table can be installed.
- ◆ Position simulation and work route can be displayed.
- ◆ During discharge change new electrode can automatically compensate depth.
- ◆ Backlash point automatic compensate function.
- ◆ Able to do single hole drilling, multiple hole drilling and multi thickness drilling.
- ◆ Blindhole drilling function, any depth can be set.
- ◆ Initial current can set to reduced value, which can prevent workjob surface damage.
- ◆ Initial polarity reverse function, can prevent uneven electrode caused efficiency decrease.
- ◆ Six axis linear interoperate accelerate speed movement.
- ◆ Input, output, various of machine status real time display system.
- ◆ Discharge program and parameter conversion function.



可執行標準的GM code以及追加GM code。
Able to proceed standard GM code and extra GM code.



程式編輯 (位移編輯)

- ◆ 採用填表方式直接將位置輸入即可直接加工。
- ◆ 可無限延伸加工孔位。
- ◆ 可使用12組加工座標系。

PROGRAM EDITING (MOVEMENT EDITING)

- ◆ Input position values into the table for direct machining.
- ◆ Hole positions can be extended infinitely.
- ◆ 12 sets of machining coordinates.



執行加工 (位移加工)

- ◆ 可透過圖形模擬來確認加工孔位是否正確。
- ◆ 可透過鋼管及材質自動搭配出加工條件(單孔加工)。
- ◆ 可由程式編輯來呼叫加工條件。

MACHINING EXECUTION (MOVE MACHINING)

- ◆ Graphical simulation for checking if hole positions are correct.
- ◆ Machining conditions meet cooper tubes and materials automatically(Single hole machining)
- ◆ Machining conditions can called out through program edit.



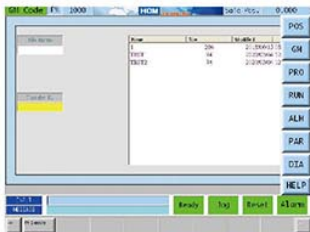
▶ **CNC S3025/S4030/S5040**



▶ **CNC S6040S**
 動柱式細孔放電加工機
 RAM TYPE CNC HIGH
 SPEED DRILLING EDM

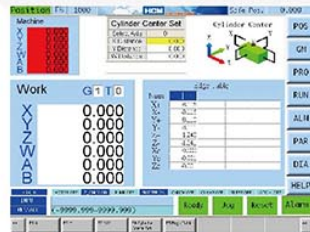


▶ **CNC S6040**
 動柱式細孔放電加工機
 RAM TYPE CNC HIGH
 SPEED DRILLING EDM



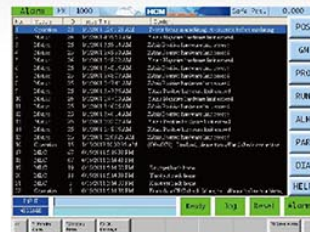
NC檔案可經由USB或網路載入，轉換成位移座標。

The NC file can download from USB or Internet, and convert to movement coordinate.



校模畫面可原點復歸、尋邊、尋內孔中心、尋外孔中心、自動移位、頂點設定、尋模頂點、座標切換。而可紀錄無限多組校模資料。

Mold setup display provides various functions, including home positioning, edge search, internal hole-center search, external hole-center search, auto displacement, top point setting, top point search and coordinate conversion. It also can record unlimited mold setup data.



警報顯示所有的現在警報、歷來警報的問題點包括警報時間和警報日期全部顯示在此畫面，也可將歷來警報儲存到USB碟內。

The alarm display shows all alarms occurred currently and the previous alarms. Display contents include alarm causes, times and dates. The previous alarms can be saved in the USB disc.



系統參數設定：
 可將機台做補正/背隙設定使機台達到最佳狀態。

PARAMETER SETTING:
 This function provides compensation and backlash setting, enabled the machine to achieve the best condition.

DZNC可程式深孔加工機

DZNC Programmable Deep Hole Drilling Machine

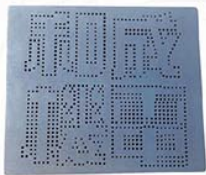
機械特點

- ◆以微電腦控制OSC震盪輸出，加工速度快，可完成高精度之細加工。
- ◆只須輸入所需之電流段數，其餘之加工參數即可自動設定完成。
- ◆使用純水當加工液，無公害。
- ◆加工中，可任意修改加工參數。
- ◆可選擇高速或低損耗加工方式。
- ◆適用於高硬度之合金金屬，及各種不規則形狀、球面、曲面。
- ◆本機有斷電記憶功能，停電後可自動儲存所有加工資料及加工位置值。
- ◆斷電記憶功能十年。
- ◆可做加工深度設定。

FEATURES OF THE MACHINE

- ◆Oscillation output is controlled by a micro-computer, achieving accurate fine machining at high speed.
- ◆The operator only needs to enter the working current. The other working parameters will be generated automatically.
- ◆The working fluid is water--pollution free.
- ◆Machining parameter can be altered during machining.
- ◆Machining at high speed or at a low rate of electrode wear can be chosen according to specific needs.
- ◆It's ideal for machining on hard alloy and various type of surface like spherical, curved and inclined.
- ◆The machine is capable of retaining data in case of a power outage. All machining data and position values are stored automatically when a power failure occurs.
- ◆In case of power outage, this machine prevents data loss for up to ten years.
- ◆The controller allows machining depth setting.

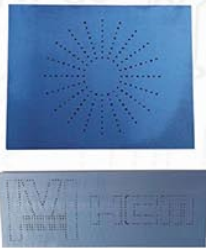
加工範例 Example



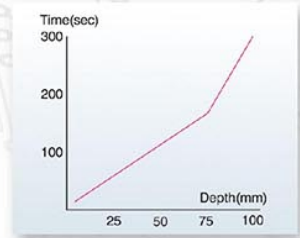
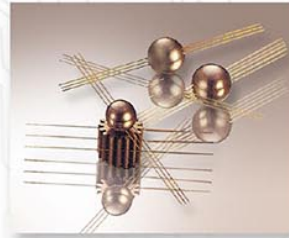
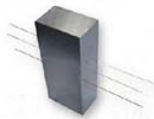
- ◆CNC細孔機+ATC所做的樣品
- ◆Work piece made by CNC drilling EDM equipped with ATC.



- ◆CNC細孔機+ATC+3/6換眼模所做的樣品
- ◆Work piece sample made by CNC drilling EDM, equipped with ATC and 3/6 guide changer.



- ◆以細孔機打 $\phi 0.2$, $\phi 0.5$, $\phi 1.0$ 厚30mm，材質SKD11樣品
- ◆Drilling EDM sample of 30mm thick SKD11 steel with 0.2, 0.5, 1.0mm electrode tube.



- ◆加工速度表現
- ◆Speed performance

智慧型可程式深孔加工機，提供您多元化的選擇，只要輸入加工電流即可自動設定其餘加工參數，簡易的操控性，輕易達成高品質的加工。

An intelligent programmable deep hole drilling machine is designed to meet various machining requirements. Simply enter the machining current alone allows other machining parameters to be set automatically. This machine is easy to operate and will give you the high quality machining you've been looking for.



▶ DZNC S2520

機頭旋轉角度 $\pm 45^\circ$ (選購)
With tilting head $\pm 45^\circ$
(optional)



▶ DZNC S3025 / S4030 / S5040



◆電動幫浦
Electric pump



◆濾杯組
Filtration cup set



◆不鏽鋼過濾水箱
Stainless steel water filtration tank



◆自動銅管防彎輔助裝置
Automatic electrode tube assist device



◆傳統式銅管防彎輔助裝置
Traditional electrode tube assist device



◆止水塞
Water seal

◆銅管眼模
Electrode tube
Electrode guide



◆雙軸旋轉
工作台AB軸
Double axis rotate table
(AB axis)



◆線切割用過濾網
Filter for wirecut

◆校正棒
Calibration rod

◆ER轉精密夾頭
可夾 ϕ 0.1~3.0mm 銅管
ER convert to precision
type chuck able to hold
0.1~3.0mm electrode tube



◆精密電極夾頭
可夾 ϕ 0.1~3.0mm 銅管
Precision electrode
chuck able to hold
0.1~3.0 mm
electrode tube

◆精密型氣動夾頭
可夾 ϕ 0.1~3.0mm 銅管
Precision pneumatic chuck
able to hold 0.1~3.0mm
electrode tube

◆ER型氣動夾頭
可夾 ϕ 0.3~6.35mm 銅管
ER pneumatic chuck able
to hold 0.3~6.35mm
electrode tube

◆平行墊塊
Leveling pad

標準配件

STANDARD ACCESSORIES

項目	ITEM	DZNC	CNC
工具箱	Tool box	√	√
電極眼模 ϕ 1.0	Electrode guide ϕ 1.0	√	√
電極銅管 ϕ 1.0	Electrode tube ϕ 1.0	√	√
石英工作燈	Halogen work lamp	√	√
輔助加工液噴嘴	Work fluid nozzle	√	√
濾心	Filter	√	√
精密電極夾頭 0.1~3.0mm	Precision electrode chuck 0.1~3.0mm	√	√
X.Y1 μ 光學尺	X.Y1 μ optical scale		√
X.Y5 μ 光學尺	X.Y5 μ optical scale	√	
Z軸編碼器	Z axis encoder	√	√
W軸編碼器	W axis encoder		√
平行墊塊	Leveling pad	√	√
止水塞	Water seal	√	√
標準水槽	Standard work tank	√	√
電動幫浦	Electric pump	√	√
自動銅管防彎輔助裝置	Automatic electrode tube assist device		√

特別配件

OPTIONAL ACCESSORIES

項目	ITEM	DZNC	CNC
刀塔式ATC換刀 10/20支	Automatic tool changer turret type 10/20 pieces		√
AGC自動換眼模 3/6(限S6040S)	Automatic guide changer 3/6 (only available on S6040S)		√
機頭旋轉角度 $\pm 45^\circ$	± 45 degree tilt machine head	√	
ER型氣動夾頭 0.3~6.35mm	ER pneumatic chuck 0.3~6.35mm		√
精密型氣動夾頭 0.1~3.0mm	Precision pneumatic chuck 0.1~3.0mm		√
ER轉精密夾頭 0.1~3.0mm	ER convert to precision type chuck 0.1~3.0mm	√	
單軸旋轉工作台(A軸)	Single axis rotate table (A axis)	√	√
雙軸旋轉工作台(AB軸)	Double axis rotate table (AB axis)		√
不鏽鋼浸水式水槽	Stainless steel submerge work tank	√	√
不鏽鋼過濾水箱 200 ℓ	Stainless steel water filtration tank 200 ℓ	√	√
離子樹脂過濾系統	Resin ion filtration system	√	√
水質監測系統	Water purity detection system	√	√
升級75AMP	Upgrade to 75 ampere	√	√
特殊加長型眼模	Special extended guide	√	√
冷卻機	Cooler	√	√
傳統式銅管防彎輔助裝置	Traditional electrode tube assist device	√	

DZNC 可程式深孔加工機
DZNC Programmable deep hole drilling machine

項目	ITEM	單位unit	DZNC S2520	DZNC S3025	DZNC S4030	DZNC S5040
X,Y軸行程	X,Y axis travel	mm(inch)	250x200(10"x8")	300x250(12"x10")	400x300(16"x12")	500x400(20"x16")
Z軸行程(放電軸)	Z axis travel (discharge axis)	mm(inch)	350(14")	350(14")	350(14")	350(14")
W軸行程	W axis travel	mm(inch)	0	200(8")	200(8")	200(8")
工作台	Work table	mm(inch)	450x210(18"x8")	600x300(24"x12")	650x400(26"x16")	800x450(32"x18")
最大工件	Max. work piece	mm (inch)	630x430x160 (25"x17"x6")	850x530x300 (34"x21"x12")	1000x600x300 (40"x24"x12")	1200x700x300 (48"x28"x12")
最大工件重	Max. work piece weight	kg	250	400	600	1000
工作台至眼模板距離	Distance from table to guide plate	mm(inch)	0~150(0~6")	0~350(0~14")	0~350(0~14")	0~350(0~14")
機器淨重	Machine net weight	kg	600	1000	1520	1600
電極直徑	Electrode diameter	mm	0.2~3.0	0.2~3.0	0.2~3.0	0.2~3.0
加工液處理系統	Working fluid system					
加工液種類	Working fluid type		純水Pure water	純水Pure water	純水Pure water	純水Pure water
水箱容量	Working fluid tank capacity	ℓ	20	20	20	20
過濾模式	Filtration		紙過濾系統 Paper filter	紙過濾系統 Paper filter	紙過濾系統 Paper filter	紙過濾系統 Paper filter

CNC 高速細孔放電加工機
CNC High speed drilling EDM

項目	ITEM	單位unit	CNC S3025	CNC S4030	CNC S5040	CNC S6040	CNC S6040S
X軸行程	X axis travel	mm(inch)	300(12")	400(16")	500(20")	600(24")	600(24")
Y軸行程	Y axis travel	mm(inch)	250(10")	300(12")	400(16")	400(16")	400(16")
Z軸行程	Z axis travel	mm(inch)	350(14")	350(14")	350(14")	350(14")	400(16")
W軸行程(放電軸)	W axis travel (discharge axis)	mm(inch)	350(14")	350(14")	350(14")	350(14")	450(18")
工作台	Work table	mm (inch)	600x300 (24"x12")	650x400 (26"x16")	800x450 (32"x18")	800x500 (32"x20")	650x450 (26"x18")
最大工件	Max. work piece	mm (inch)	850x530x300 (34"x21"x12")	1000x600x300 (40"x24"x12")	1200x700x300 (48"x28"x12")	1000x700x300 (40"x28"x12")	900x500x300 (36"x20"x12")
最大工件重	Max. work piece weight	kg	400	600	1000	950	700
工作台面至眼模板距離	Distance from table to guide plate	mm (inch)	50~400 (2"~16")	50~400 (2"~16")	50~400 (2"~16")	20~370 (1"~15")	25~425 (1"~17")
自動換電極系統	Automatic tool changer	支/piece	10/20	10/20	10/20	10/20	10/20
自動換眼模系統	Automatic guide changer	支/piece	無 N/A	無 N/A	無 N/A	無 N/A	3/6
機器淨重	Machine net weight	kg	1100	1500	1600	1650	1200
佔地面積尺寸 (長x寬x高)	Occupancy area (LxWxH)	mm (inch)	1300x1600x2600 (51"x63"x102")	1700x1950x2600 (67"x77"x102")	1800x2050x2600 (71"x81"x102")	2000x2550x2150 (79"x100"x85")	1580x1250x2470 (62"x49"x97")
最大輸出安培	Max. output ampere	A	30	50	50	50	50
最大電流輸入	Max. power input	KVA	3	4.5	4.5	4.5	4.5

※目錄上之規格、尺寸及設計特性若有變更恕不另行通知。 ※All specifications and designs are subject to change without notice.



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