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為您解決熱變位引起的熱變形！
To solve thermal deformation is caused by thermal drift for you!

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本公司通過品質認証ISO 9001：2008體系

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wexten®

放電加工專用冷卻機

EDN MACHINE COOLERS

－使用說明書－

OPERATIONAL MANUAL

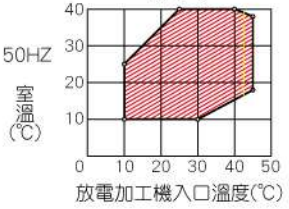
台灣精品2012 TAIWAN EXCELLENCE　Golden Pin DESIGN MARK　經濟部2009創新研究獎　台灣精品2008 TAIWAN EXCELLENCE　CE　EMC tested　ISO 9001

1.一般注意事項：

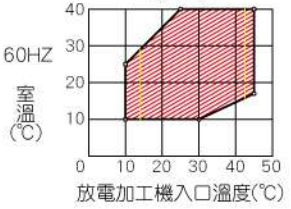
1.1.使用範圍

本機係為放電加工機潤滑系統之冷卻而設計之冷卻裝置，使放電加工機在最佳情況下運轉，故需注意其使用範圍(如圖一、圖二)，若超出範圍得停止使用。

(圖一)



(圖二)



1.2.電壓及頻率容許上下Diff值

①本機功能有壓降±10%內故障保護確保壓縮機馬達，電氣零件正常運轉。

②頻率容許度±1°以內。

1.3.放電加工機及冷卻機進口必須安裝過濾器，以防止冷卻機因鐵屑粉塵阻塞而降低冷卻效率。

1.4.使用油品特性

本機使用放電油(WEXTEN)冷卻機指定油之黏度係數為2~10)。

2.安裝放電加工冷卻機注意事項 ：

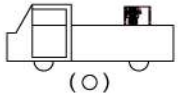
2.1.貨運車搬運中，請勿傾倒或撞擊。(圖一)

2.2.使用堆高機或廠內吊具搬運冷卻機時注意事項：

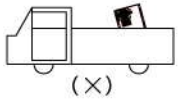
①注意冷卻機的重量及選擇鋼鎖。

②吊具起吊時必須平衡冷卻機，以免機台摔落。(圖二)

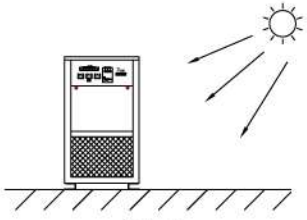
2.3.請安裝於水平的位置，並避免陽光直接照射或有熱源的場所。(圖三)



(圖一)



(圖二)



(圖三)

＊我司商標依美學，會有局部設變，敬請繼續支持愛用。

2.4.冷卻機請安裝在通風良好及遠離灰塵的地方。（圖四）

2.5.冷卻機表面清洗

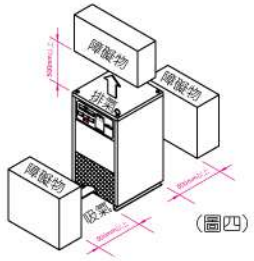
請使用中性清洗劑或高品質肥皂清除冷卻機表面污垢，切勿使用酸類溶劑。

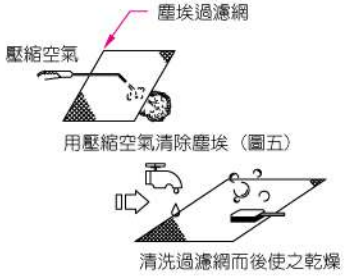
2.6.過濾網清洗

①檢查冷凝器空氣過濾網是否有污塵，並定期一週清洗一次。(圖五)

②若因環境惡劣灰塵過多，則需提早清洗過濾網，以確保冷卻機之使用壽命。

③定期於兩個月內，用壓縮空氣清洗散熱器，清除散熱器內殘存之灰塵，以確保冷卻機之使用效率。





3.電氣配線方式及控制線路圖

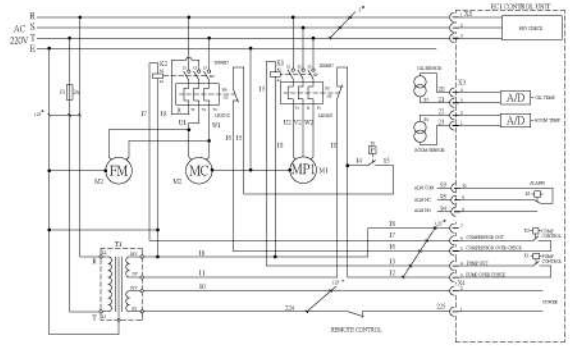
電氣作業時，需看清楚外側銘板規格或參照手冊上之解說及操作說明。

3.1.電源容量表

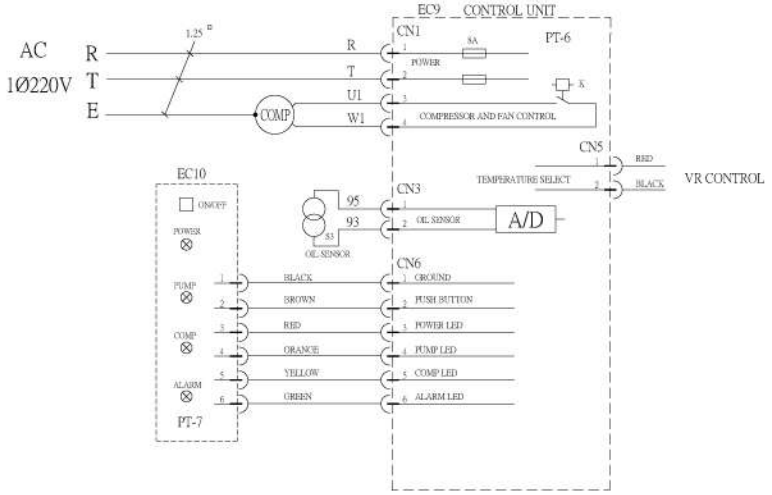
定格電壓有 1φ、3φ、220V、380V、440V(50HZ/60HZ)

3.2.接地線必須為黃綠線，接地螺絲必須用有齒狀可咬住鐵板，破壞烤漆阻隔，預防漏電時無法排除，產生危險。

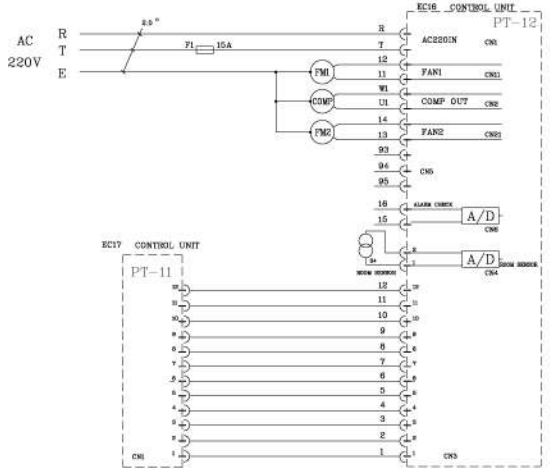
3.3.POINT-S1 控制線路圖



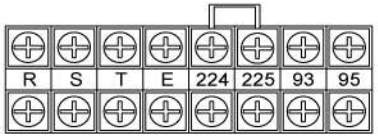
3.4.POINT普通定溫式控制線路圖



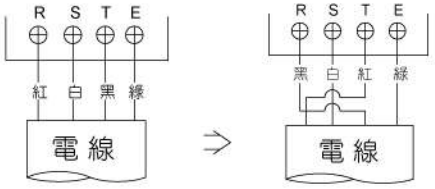
3.5.PT11、PT12面板配線方式及控制線路圖



3.6.電力接點及故障接點和遠控接點端子台圖示說明：

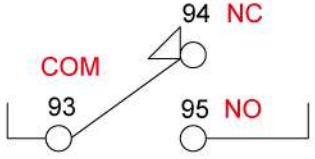


①R.S.T為冷卻機入力電源POINT-S1，有三相逆欠相檢出功能。
例：當相序為逆相序時，S1 ALARM、REV燈會亮，更換電力線如下圖，
RS線對換，即可排除ALARM。



②E為黃綠色接地線

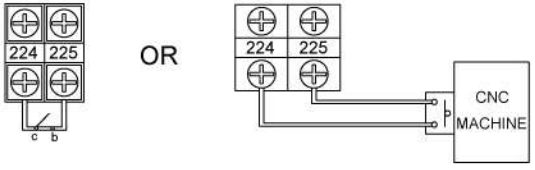
③93、94、95故障接點使用說明，93、95，為一信號b接點，圖形如下：
此一組故障接點可與工作機械控制迴路連線直接讀取冷卻機功能狀態。



(93 94 常閉接點 / 93 95 常開接點) ⇔ (OFF 的情況)

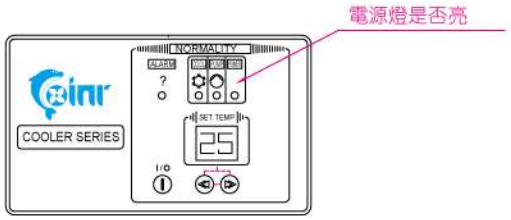
PS. 93，95為故障接點，當您覺得不適合您的機器時，請將94與95對調，94放於配電盤裡的線槽中。

224、225為遠控接點，可與CNC工作母機連線，作ON/OFF控制開關
224及225平常出廠時都是短路狀態，除非使用者有需要，才能將224和225之短路片拆掉，接上CNC控制器b接點使能控制放電加工機運轉停止。

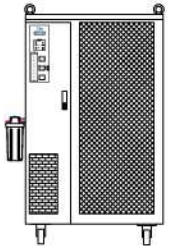


4.操作前的檢查

①檢查三相電源之電壓是否為冷卻機之使用電壓。
②檢查ON/OFF開關是否在OFF處。
③檢查三相電源是否接通,電源燈是否亮起?（圖一）
④檢查過電流保護器是否在ON的位置？
⑤檢查進油口是否加裝油過濾器？（圖二）



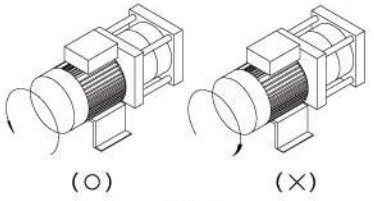
（圖一）



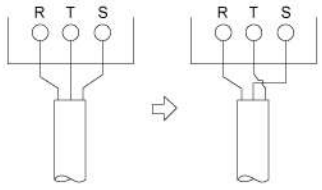
（圖二）

5.運轉上的注意事項及步驟

①瞬間啟動操作開關必須確認油壓馬達泵浦，是否沿箭頭指示方向運轉，若逆相時請將電源線R.S.T任二條線對換。更換時，請先切斷電源。當電源為正向時，所有正向馬達會順時針運轉。(請參考圖一、圖二)



（圖一）

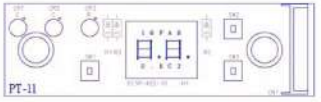


（圖二）

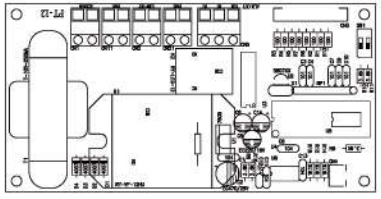
②泵浦正常運轉後，控制器會傳輸正確訊息給壓縮機動作前準備指令，大約120秒後，壓縮機才會開始運轉。
③若需反覆的操作ON-OFF開關，使放電加工機啟動停止，可能會使壓縮機過載跳脫，當停機欲再次運轉時，須間隔2~3分鐘，才可開機使用。

6.螢幕顯示型面板圖

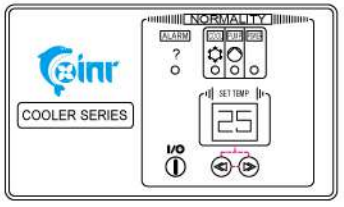
〈PT-11面板正面圖〉



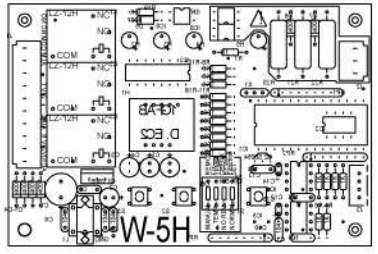
〈PT-11面板背面圖〉



〈PT-12基板背面圖〉



〈橫式小面板正面圖〉



〈橫式小基板背面圖〉

wexten® 威士頓幫您解決熱變位引起的熱變形

6.1.控制面板之功能名稱及操作

NO.	名稱		圖形	操作方式及功能
1	設定鍵	ON/OFF 開關		觸控式開關，冷卻機啟停開關
2		SET TEMP 油溫設定開關		平常顯示液溫，當按下溫度設定鍵後，螢幕會閃爍並顯示設定溫度，此時可利用設定鍵設定溫度
3	運轉指示燈	POWER - 綠色 電源指示燈	POWER	總電源燈，顯示冷卻機已通電
4		COOL - 綠色 冷卻指示燈	COOL	顯示壓縮機正常運轉中
5	ALARM	故障警示燈	ALARM	顯示冷卻機出現異常現象

6.2.橫式小控制面板之功能名稱及操作

NO.	名稱		圖形	操作方式及功能
1	設定鍵	ON/OFF 開關		觸控式開關，冷卻機啟停開關
2		SET TEMP 油溫設定開關		平常顯示液溫，當按下溫度設定鍵後，螢幕會閃爍並顯示設定溫度，此時可利用設定鍵設定溫度
3	運轉指示燈	POWER - 綠色 電源指示燈		總電源燈，顯示冷卻機已通電
4		PUMP - 綠色 泵浦指示燈		顯示泵浦正常運轉中
5		COOL - 綠色 冷卻指示燈		顯示壓縮機正常運轉中
6	ALARM	故障警示燈	?	顯示冷卻機出現異常現象

6.3.PT11、PT12基板操作說明

S4 DIP SW 指撥開關功能

1：OFF - 手動操作 / ON - 遙控操作

2：OFF - 正常動作模式/ ON - 功能設定

S4 DIP SW - 4 ：ON

功能設定：(利用ON/OFF鍵選擇設定項目，再用△▽鍵調整設定值)

設定項目由POWER，COOL，ALARM三個LED閃爍狀態表示

POWER LED	COOL LED	ALARM LED	
●			:超溫警報設定。
	●		:低溫保護，當箱內溫度低於此設定值，壓縮機停止動作。
●	●		:定溫設定上限，用來限制冷氣機定溫操作模式，設定溫度最大值。
		●	:定溫設定下限，用來限制冷氣機定溫操作模式，設定溫度最小值。
●		●	:壓縮機動作溫差(精度)。
	●	●	:箱內溫度校正，當箱內溫度有誤差時，可用此功能校正。
●	●	●	:室溫校正，當室溫有誤差時，可用此功能校正。
			:壓縮機啟動延遲時間設定，時間為”設定值”x10(單位:秒)

6.4.S4 DIP SW 橫式小基板指撥開關功能：

1：OFF-手動操作/ ON-遙控操作

2：OFF-差溫動作模式/ ON-定溫動作模式

3：OFF-不偵測REV/ ON-偵測REV

4：OFF-正常動作模式/ ON-功能設定

6.5.S4 DIP SW- 4：ON 橫式操作方式：

功能設定：(利用ON/OFF鍵選擇設定項目，再用△▽鍵調整設定值)

設定項目ALARM，COOL，POWER三個LED閃爍狀態表示(直式小基板)

設定項目COOL，PUMP，POWER三個LED閃爍狀態表示(橫式小基板)

COOL	PUMP	POWER	·····橫式小基板
ALARM	COOL	POWER	·····直式小基板
LED	LED	LED	
		●	:超溫警報設定。
	●		:低溫保護，當液溫低於此設定值，壓縮機停止動作。
	●	●	:定溫設定上限，用來限制冷卻機定溫操作模式，設定溫度最大值。
●			:定溫設定下限，用來限制冷卻機定溫操作模式，設定溫度最小值。
●		●	:壓縮機動作溫差(精度)。
●	●		:液溫校正，當液溫有誤差時，可用此功能校正。
●	●	●	:室溫校正，當室溫有誤差時，可用此功能校正。

6.6.故障與排除

本機雖經由嚴格的品管下生產，又通過完善的檢查才出廠，但萬一發生故障，請參考下列尋求適當的處理對策，若仍然無法順利運轉，請查看冷卻機將 1.機型、2.製造機號(均在冷卻機規格銘板)、3.機械面板故障燈後向本公司營業處連絡。在從事冷卻機的檢查和保養時，為維護安全起，務必將電源總開關切斷。

※故障說明

●ALARM LED亮起，表示泵浦過載開關、流量開關、壓力開關或壓縮機過載開關之中，有異常現象發生。請檢查是否有開關跳脫，將其復歸，並參考手冊上故障排除的方法，做清洗過濾器...等，以免再次發生ALARM。

●ALARM LED亮起且顯示器顯示 RE .表示電源相序錯誤或欠相。請檢查電源配線，若使用單相電源，請將電路板上S4之DIP-SW中的3切到OFF的位置。

●ALARM LED亮起且顯示器顯示O.S.表示油/水溫度(SERSOR)異常。

●ALARM LED亮起且顯示器顯示R.S.表示室溫(SERSOR)異常。

※冷媒不足

冷卻機ALARM燈沒有顯示故障，冷卻機各馬達都還在運轉著，但是出現冷卻油不冷，主軸發熱這種現象，可能是冷卻系統冷媒不足，請通知本廠或專業技術人員檢修處理。

※油箱及濾油器

●油箱中的油面應維持液面80%高度，以免泵浦吸入空氣，同時應留意油經常保持乾淨狀態。

●請定期更換裝在油冷卻機外，油配管吸入的回油過濾器，以防止因鐵粉積存使泵浦的流量減低，而且發生大聲音，請將回油過濾器清洗或換新。

※備註：未定期清洗過濾網或更換回油過濾器而導致機械損壞之人為疏失，不在保固之內。

7.油配管

1.入口側配管，配管管徑不得小於冷卻機本身之口徑，且真空壓力需-230~0mmHg (-0.3Kgf/cm2)的範圍內。

2.入口油過濾器請使用10mm~15mm 網目規格，否則油泵可能產生故障或降低流量，影響冷卻能力。

3.出口側配管，壓力損失循環約2Kgf/cm^{2}以下。

4.配管管路阻抗計算公式：

$$P = 6.07 \times V \times Q \times L / D^4$$

一般放電油的黏度為2~10CST

V：動黏性係數 (CST)　　Q：流體流量 (L/MIN)

L：油壓管長 (M)　　D：油壓管內徑(mm)

8.運送及木箱裝釘注意事項

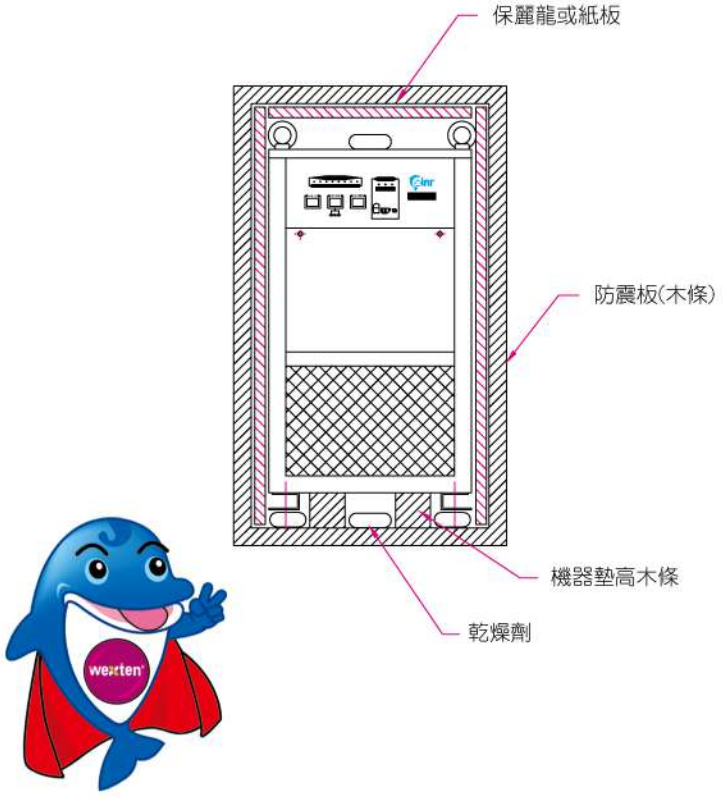
1.本冷卻機由於內部有銅質冷媒管，故搬運途中需注意，以防止震裂冷卻機件。

2.本冷卻機絕對不可倒置裝釘，否則壓縮機會有損壞之虞。

3.客戶若有對裝釘木箱不明瞭之處，請與本公司接洽，並提醒您冷卻機底座需固定牢靠至不會移動為止。

4.請放乾燥劑及做好防潮措施。

注意：因運送過程或裝釘木箱不當而導致之損壞，不在保固責任內。(請參考下圖)



威士頓主要產品系列

產品種類	使用場合	特性
CO 油溫 冷卻機	● CNC綜合切削中心機 ● 車床、磨床、拉床 ● 油壓機械、專用機械 ● CNC折床、高速沖床	●防止CNC電腦機械主軸油溫的變化而影響精度。 ●防油霧、油質裂化，並能保持潤滑油黏度不變使主軸動作穩定。 ●本機採用機體同步溫度控制器，讓油溫追隨室溫，防止機械結構熱脹冷縮。 ●本機附有自動故障檢出功能，可透過電腦連線，並及時告知CNC電腦故障點，以免機件損壞。
CW 水冷卻機	● 雷射切割機 ● 車床 ● 磨床 ● 塑膠射出成型機	●採用頂端排熱冷凝器直接把熱排出。 ●免裝冷卻水塔，安裝簡單，保養容易。 ●採用歐美高效率板式熱交換器及殼管式熱交換器，對提高熱交換量、節省電力有很大的助益。 ●用於線切割機上，使加工液溫穩定，切割機鋼線不易斷，加工速度增快。 ●用於印刷機上，彩印過程中，色彩更穩固艷麗。 ●操作容易，安全裝置完備，並且自動警報裝置，微電腦自動故障檢知及漏電斷路系統。
CA 控制箱 溫度調節機	● NC、CNC電控箱 ● 電力、電機控制箱 ● 雷射加工機控制箱 ● 放電加工機控制箱	●防止電氣控制系統因內部電子元件所產生的熱源使電腦當機。 ●防止塵埃、油霧、溼氣進入箱體內部。 ●可調整溫度控制器於一定的溫度範圍內，控制熱源，提高電子元件壽命。 ●CA系列，可耐高溫，在周圍溫度高於38°C時仍可繼續運轉。 ●使用密閉型設計，內外空氣不會產生對流可裝置於CNC電控箱的內壁、外壁、側壁使用。 ●當電控箱內部熱源無法排出時，CA系列機型是您最佳的選擇 ※註：CA-12以上產品為訂製品
CE 放電加工 專用冷卻機	● 放電加工機	●本機特殊設計的熱交換器，流量大，不會有銅屑的固體微粒及加工積碳殘存於熱交換器內可保持長久運轉，效率不變。 ●防止放電油溫度升高，確保加工零件品質。 ●可以減少放電油油氣揮發，抑制工作環境空氣惡化，維護操作人員身體健康。 ●可以作大電流放電，減少工作時間。 ●避免長時間加工時，因溫度升高造成碳渣增多而容易發生起火之危險。
EA 控制箱 熱交換器	● NC、CNC電控箱 ● 電力、電機控制箱 ● 紡織工廠 ● 電子零件	●熱管式熱交換器是一種節約能量且效率高的傳熱導體。 ●設計成簡化輕巧組合、安裝容易。 ●高效率熱交換器採用密閉型設計，內外空氣不產生對流。 ●熱交換器管內是以一種很穩定且吸熱潛能大、液態物質作媒介，安全性高，熱傳導效率約為銅的1600倍。 ●熱交換可分成箱內型、箱外型二種。
AW 風散熱 式水冷卻機	● 各類點焊機械 ● 印刷機 ● 光學儀器 ● 醫療儀器	●防止點焊機槍頭過熱損壞。 ●本機本身已具備水箱，故可節約自來水流失。 ●構造簡單，保養容易。 ●可保護槍頭使用壽命，提高效率，降低成本。 ●可以增加儀器試驗穩定度。
AO 油箱 散熱器	● CNC車床油壓系統 ● 內外徑研磨油壓油冷卻 ● 各類機械油壓箱冷卻	●可以降低油溫，避免溫度過高造成油裂化。 ●構造簡單，維修容易，壽命長。 ●不會像一般冷凝器用水冷卻，有油水混合的可能，造成機械損害。 ●消耗電力低，節省能源大。

wexten® 威士頓幫您解決熱變位引起的熱變形

威士頓主要產品系列

產品種類	使用場合	特性
EC 控制箱專 用熱交換器 (天井式)	● CNC車床、沖床 ● CNC銑床、磨床 ● CNC綜合加工中心機 ● CNC內外徑研磨機 ● CNC劍尾式紡織機 ● CNC木工雕刻機 ● CNC放電加工機 ● CNC彈簧製造機 ● CNC雷射切割機	●熱管式熱交換器是一種節約能源且效率高的傳熱導體。 ●設計成簡單輕巧組合、安裝容易。 ●高效率熱交換器採用密閉型設計，內外空氣不產生對流。 ●熱交換器管內是一種很穩定且吸熱潛能大、液態物質作媒介，安全性高，熱傳導效率約為銅的1600倍。 ●天井式熱交換器安裝於控制箱頂部不佔空間。
CR CNC線切 割機專用 水冷卻機	● CNC線切割機	●本機採上吹式散熱，可完全將熱氣排出，不影響周圍溫度。 ●採用電子式數位控制面板，精度±1°C。 ●本機採恆溫控制，可確保模具加工精度，減少銅線消耗。 ●蒸發器部份採用大流量高效率，不鏽鋼316材質熱交換器。 ●本機可以和CNC連線，傳送故障訊號。
CAD 冷凍式 空氣乾燥機	● 工作機械、氣動工具機器 ● 醫療機器 ● 塗裝、雷射切割 ● 高速主軸	●可防止工作機械因水份過高而生鏽，造成作動異常。 ●可防止醫療機械軸承及傳動部份生鏽。 ●可防止烤漆塗裝時，所造成泡粒，增加表面亮度。 ●可防止雷射光打穿折射鏡片。 ●可防止高速主軸內生鏽增加散熱。
PF 冷卻風扇	● 電氣箱	●風量大、噪音低。 ●風扇葉片一體射出成型，不易變型。 ●隱藏式端子台，保護接點不氧化。
CL 雷射切割 雕刻專用 冷卻機	● NC、CNC電控箱 ● 大功率雷射(1000W~2500W)及小型雷射機械(50W~300W)	●將雷射頭部之熱源分別冷卻。 ●使用高壓泵浦及迴路洩壓保護系統。 ●使用不鏽鋼316材質板式熱交換器大大提升交換量，節省電源消耗。 ●可以連接CNC雷射切割機作遠控操作及故障信號迴溯等作用。 ●將雕刻雷射頭部之燈管箱及Qsw之熱量冷卻。
CNT 模溫機	● 塑膠機械 ● 射出成型機	●改善模具功能及提升效率有很大的幫助。
CK 切削液 冷卻機	● CNC車床 ● CNC綜合加工機之中心機磨床 ● CNC內外徑研磨機 ● CNC銑床	●本機為切削加工冷卻機，不受雜質污染，切削金屬粉等所干擾。 ●清潔簡單，保養容易。 ●不鏽鋼材質油浸式熱變化器效率高，不會產生氧化鐵。 ●安裝方便，不佔空間。

※本公司因保留技術需求有隨時更改內容，文字之權力，更改內容恕不另行通知。
※使用注意事項:客戶使用冷卻機，若為24小時不停運轉，建議加大冷卻能力，以免造成壓縮機超負載使用，而減損冷卻機壽命。

wexten® 威士頓幫您解決熱變位引起的熱變形

威 士 頓 公 司 售 後 服 務 保 證 書

親愛的客戶：

感謝您使用本公司生產之工業用冷卻機系列，在使用前請詳閱本注意事項，期使能正確使用。

一、注意事項：

（１）請注意定期清理過濾網之灰塵（若落塵量大，請增加次數）。
（２）若冷卻機經搬動，請半小時後再通電，以免壓縮油滲漏，阻塞毛細管。
（３）保固期限：自出廠起一年內(不包括天災損害及人為不當使用如：不按作手冊操作或不清理過濾網等）。

二、以下事項在保證期間內，若發生故障，本公司維修將酌收工本費：

（１）若未依照威士頓之操作事項操作而導致機器毀損，不在此保固內。
（２）使用非本公司提供之零組件或非本公司維修而引起之故障。
（３）耗材（如冷媒CFC-R134、R22、過濾網、濾心、過濾器、回油濾等）。
（４）機器因天災及人為不可抗力（如暴動或戰亂）之原因損壞。
（５）因電力不足或高壓放電對本機造成之損壞。
（６）在本操作手冊所指之使用範圍以外。
（７）由於其他機械故障，以致引起冷卻機在使用中所引起之二次故障。
（８）由於運送及木箱裝釘不當而造成本機損壞（裝釘方法請參考說明書第十一頁）

三、本機之保證限在本國。

四、本保證書須加蓋公司印章，且註明機型機號，方得生效。

五、本保證書塗改無效，請妥為保存，遺失恕不補發。

六、服務專線：

TEL：886-4-24180799代表號　　FAX：886-4-24180699

七、本機品名：

本機機號：

出廠日期：　　年　　月　　日

八、客戶名稱：_____

住　　址：_____

電　　話：_____

公司保固章	

※請填好上列資料，傳真回本公司，建立客戶服務檔案。

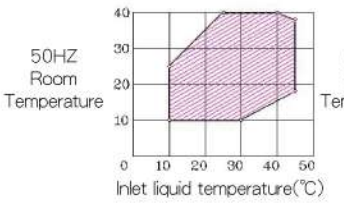
wexten® Cooling system and low temperature expert -Wexten

1. General caution:

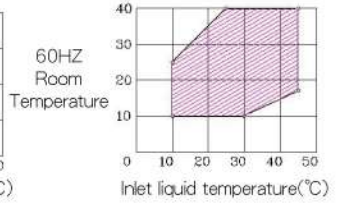
1.1. Application

This oil cooler series is designed specifically to remove heat generated in the lubricative system of CNC EDMs. The following charts indicate the operating oil/liquid temperatures for various ambient room temperatures in order that precision of the finished work piece is obtained.

(figure 1)



(figure 2)



1.2. Diff value of electricity supply and frequency

① The cooler is designed with built in protection for the compressor and electrical parts while the pressure reduction ± 10%.
② Frequency tolerance is within ±1°.

1.3. The filter shall be installed at the inlet of the EDM machine, in order to prevent accumlating iron powder to reduce the cooling capacity.

1.4. Oil cooler uses EDM machine oil. The directed oil for Wexten cooler is 2-10 CST. The oils below are prohibited.

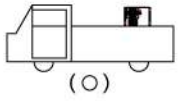
2. Care of the EDM machine cooler

2.1. Keep it upright and steady during transportation. (see figure 1)

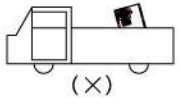
2.2. using a crane or a hoist machine to move the cooler should notice:

① The weight of cooler and the choice of steel wire.
② Keep balance when lifting, lest the cooler falls off. (see figure2)

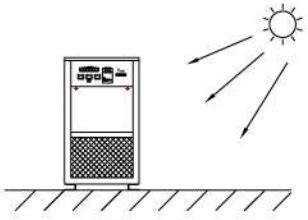
2.3. Place cooler on flat ground and avoid direct sunlight or heat. (see figure 3)



(figure 1)



(figure 2)



(figure 3)

★ Logo is designed by aesthetics and partial will be changed. Pls. keep on supporting us.

2.4. Choose a well - ventilated location and keep away the dust.(see figure 4)

2.5. Wash the cooler surface

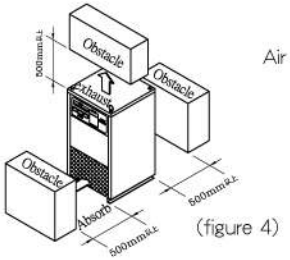
Use a mild solvent to clean the cooler exterior. Do not use anything corrosive or acidic.

2.6. Wash filter

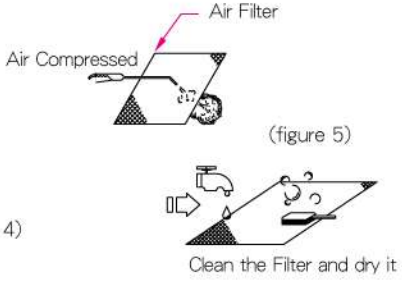
① The air filter shall be washed with soapy once a week.(see figure5)

② If there are too many dusts, need to wash filter early to ensure the cooler.

③ During two months regulary , wash the condenser by compressing air to ensure the efficiency of the cooler.



(figure 4)



(figure 5)

Clean the Filter and dry it

3. Wiring and control circuit diagram:

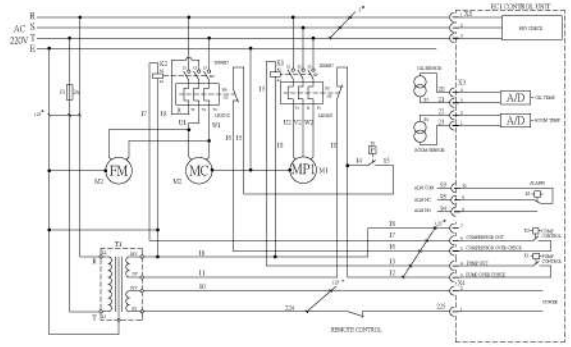
For electrical connections, please refer to the relevant diagram based on the model details shown on side plate of cooler.

3.1. Electrical power source.

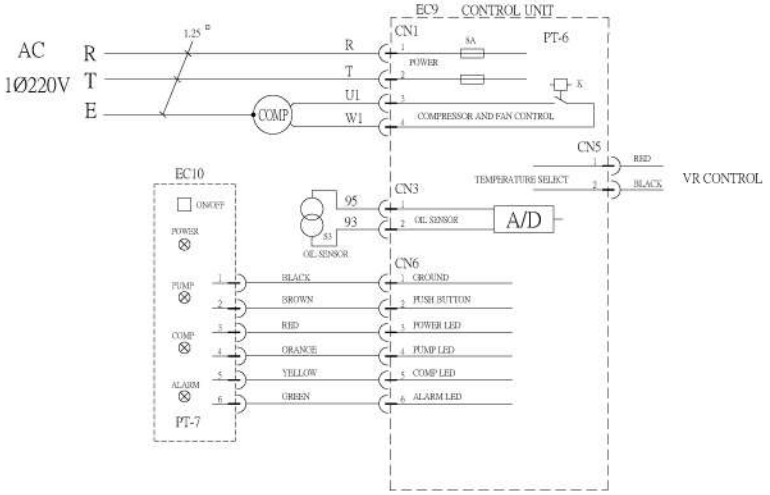
There are options for 1ψ、3ψ、220V、380V、440V (50HZ/60HZ)

3.2. The ground wire must be yellow-green wire. And the pad of screw must be with tooth shape to fasten tightly the iron board for breaking the coating and preventing danger when leaking can't be eliminated.

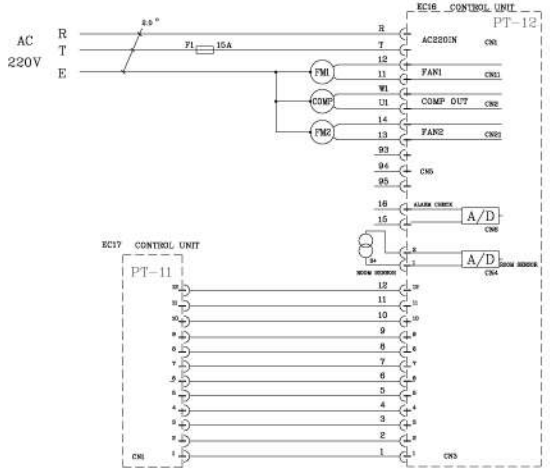
3.3. POINT-S1 control circuit diagram



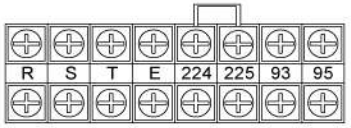
3.4. POINT-S2 Common constant temperature control panel circuit diagram



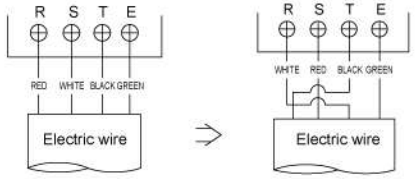
3.5. PT11,PT12 PC board wiring and control circuit diagram



3.6. Diagram of power connection, alarm connection and remote control



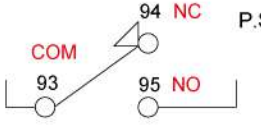
① R.S.T are the power source connections of the cooler. When the phase sequence reverse, the alarm lamp will be shown on the big control panel will display REV. To change electric wire as follow , R wire interchange with the T wire to eliminate ALARM.



② E is the ground wire (yellow -green color)

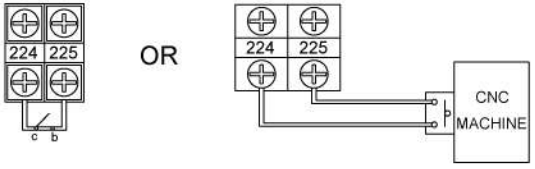
③ Under no power supply condition.
93,95 are the signal connection of the b point. Both of the connection can connect with the control circuit of the working machine, and read out the status of the cooler. (See as folow)

(93,94 are normally close
93,95 are normally open) ⟺ (when the cooler in the off situation)



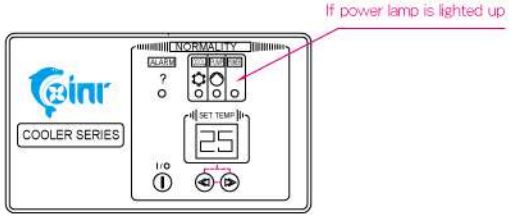
P.S. As usual,93,95 are alarm connection in our cooler. Please change the 94 and 95 when you feel unsuitable for your machine.
(94 is in the line box on the electric panel)

224,225 are the remote control connection and can be connected with the working machine as the ON/OFF switch. 224,225 normally are in the short circuit condition when the cooler shipped out, As for user requirement the short circuit of 224,225 can be released and connected to the b point of the CNC controller to stop or control the EDM machine.

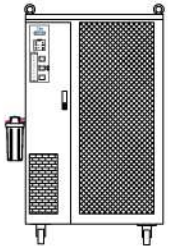


4. Check points before operation

① Check that the voltage of the power source for this cooler.
② Check that ON/OFF switch is at "off" position.
③ When the power source is turned on, check to see if power lamp is lighted up. (see figure 1)
④ Check that the overload switch is at "on" position.
5 Check if the oil inlet is fitted with an oil filter. (see figure 2)



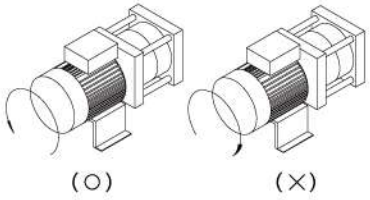
(figure 1)



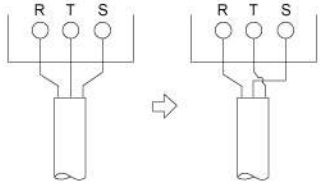
(figure 2)

5. Caution for operation

① Beginning to start the operative switch must be sure if the oil pressure motor pump runs following the arrow direction. If the power source is reversed, please exchange any 2 wires of R.S.T. and turn off the power source while changing the connections. And when the power source is right, all the motors will run as the (○) of figure 1. (see figure1 and figure 2)



(figure 1)

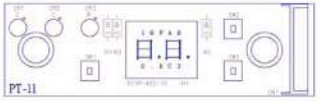


(figure 2)

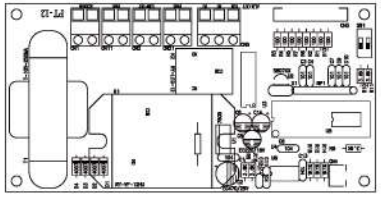
② When the pump is run in, the compressor shall run in about 120 seconds later.
③ Don't turn ON/OFF the cooler repeatedly. Otherwise, that would cause EDM machine stop, and the overload switch may trip. When this happens, it is necessary to take 2-3 minute break then restart the cooler.

6. Monitor display control panel

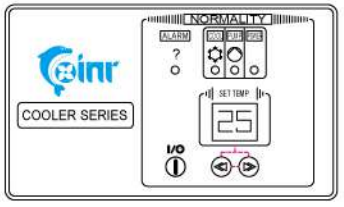
〈PT-11 contol panel front view〉



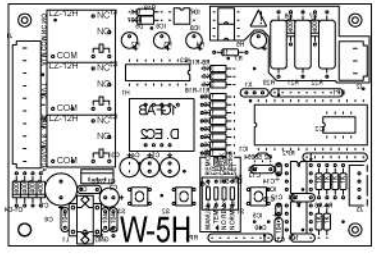
〈PT-11PC board rear view〉



〈PT-12PC board rear view〉



〈Horizontal small control panel front view〉



〈Horizontal small PC board rear view〉

6.1. Operation and function of small control panel

NO.	ITEM		OUTLINE	OPERATION & FUNCTION
1	Set keys	ON/OFF KEY		Touch type switch. start step the air conditioner.
2		TEMPERATURE SETTING		Show the current air temperature in the electrical control box at usual time. If you press the button then adjust the left or right button to set the required output temperature.
3	Working lamp	POWER - green lamp	POWER	Power Source lamp. Show the air conditioner is power on.
4		COOL - green lamp	COOL	Compressor is running normally.
5	ALARM	BREAKDOWN ALARM LAMP	ALARM	air conditioner is unusual.

6.2. Operation and function of horizontal small control panel

NO.	ITEM		OUTLINE	OPERATION & FUNCTION
1	Set keys	ON/OFF SWITCH		Run/Stop Switch (touch type)
2		TEMPERATURE SETTING		Usually display liquid temp,after pressing the temp setting key,monitor will twinkle and display the setting temp,In the mean time, use setting key to set temp.
3	Working lamp	POWER - green lamp		Power Source lamp. Show the cooler is with electricity.
4		PUMP - green lamp		Pump is running normally.
5		COOL - green lamp		Compressor is running normally.
6	ALARM	BREAKDOWN ALARM LAMP	?	Cooler is unusual.

6.3. PT11,PT12 PC BOARD OPERATING MANUAL

S4 DIP SW FUNCTION

1. OFF - > MANUAL CONTROLLED / ON - > REMOTE CONTROLLED
2. OFF - > NORMAL ACTION MODE / ON - > FUNCTION SETTING

S4 DIP SW - 4 : ON

FUNCTION SETTING : USING THE KEY "ON/OFF" TO CHOOSE THE SETTING ITEMS AND THEN USE THE KEY △▽ TO ADJUST THE SETTING VALUE.

Setting items : By POWER , COOL , ALARM 3 LED twinkling status to show *

POWER LED	COOL LED	ALARM LED	HORIZONTAL SMALL PC BOARD VERTICAL SMALL PC BOARD
●			Alarm setting for over temp.
	●		Setting protection for low temp. The compressor will stop running when the temperatue in the electricel control box is lower than the setting value.
●	●		Setting the min fixed temp. It is used to limit the operating mode of fixed temp. of the air conditioner to set the maximum temperature.
		●	Setting the min fixed temp. It is used to limit the operating mode of fixed temp. of the air conditioner to set the maximum temperature.
●		●	The action precision of compressor.
	●	●	Adjusting the temperature in the electrical control box. Using this function to adjust when the temperature in the control box has an error.
●	●	●	Adqusting the ambient temperature. Using this function to adjust when the ambient temperature has an error.
			Setting the compressor start delay time. The delayed time is 〝setting value〞 times 10. (unit : second)

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6.4. HORIZONTAL SMALL PC BOARD OPERATING MANUAL

1.OFF- > MANUAL CONTROLLED / ON- > REMOTE CONTROLLED
2.OFF- > DIFFERENTIAL ACTION MODE / ON- > CONSTANT TEMPERATURE MODE
3.OFF- > NO DETECTION REV/ ON- > DETECTION REV
4.OFF- > NORMAL ACTION MODE / ON- > FUNCTION SETTING

6.5. S4 DIP SW - 4:ON

FUNCTION SETTING: USING THE KEY ON/OFF TO CHOOSE THE SETTING ITEMS AND THEN USE THE KEY△▽TO ADJUST THE SETTING VALUE.

Setting items: By ALARM ,COOL , POWER 3 LED FOR VERTICAL SMALL PC BOARD AND COOL, PUMP,POWER 3 LED FOR HORIZONTAL SMALL PC BOARD

COOL	PUMP	POWER	: HORIZONTAL SMALL PC BOARD
ALARM	COOL	POWER	: VERTICAL SMALL PC BOARD
LED	LED	LED	
		●	: Alarm setting for over temp.
	●		: Setting protection for low temp. The compressor will stop runnin when liquid temperature is lower than the setting value.
	●	●	: Setting the top of constant temp. It is used to limit the operating mode of constant temp. of the cooler, to set the maximum of temp.
●			: Setting the bottom of constant temp. It is used to limit the operating mode of constant temp. of the cooler, to set the minimum of temp.
●		●	: The action precision of compressor.
●	●		: Rectifying the liquid temp. Using this function to rectify when liquid temp. has the tolerance.
●	●	●	: Rectifying the room temp. Using this function to rectify when liquid temperature. has the tolerance.

6.6. Alarm

Possible Causes and Remedial Action

For any alarm signals, please refer to the following recommended remedial action. If problems cannot be solved, please contact us or our nearest agent. Checking the cooler model, serial number and the particular alarm sign shown on control panel.

1. When ALARM LED lights up, it indicates pump overload switch、flow switch、pressure switch or compressor overload switch is unusual.Please check if the switch is turned off, to reset it and refer remedy method from manual, to clean the filter, etc. To avoid ALARM again.
2. When ALARM LED lights up and RE is displayed, it indicates power phase is error. Please check the wiring connections. If you are using a single phase power source, please adjust the "3" of S4 DIP-SW to the position OFF on the electric board.
3. When ALARM LED lights up and O.S. is displayed, which mean oil/water (SENSOR) is unusual.
4. When ALARM LED lights up and R.S. is displayed, which mean room temperature (SENSOR) is unusual.

*****Lack of cooling medium (the refrigerant)**

The following condition is caused by lack of cooling medium: No alarm information but the motors keep running, cooler can not reach to the setting temperature and working machine's spindle is hot. If the above situation occurred, please call us or find the professional technician at local market for repair service.

*****Oil tank and filter**

1. Oil level in tank should be at least at the 80% level mark to prevent the air into the pump At the same time, maintain the oil is clean.
2. The oil filter must be replaced or cleaned periodically, in order to prevent accumulating iron powder to reduce the discharge rate of pump and cause noisy.

7. Plumbing

1. For the inlet plumbing, the pipe diameter connected to the cooler should not be smaller than the cooler's pipe size and the vacuum pressure has to be in the range between -230 and 0 mmHg. (- 0.3Kgf/cm^2)
2. Choose the water filter. Recommended mesh size is between 10mm to 15mm, otherwise that may cause the water pump breakdown or reduce flow rate then affect the cooling capacity.
3. The loss of cycle pressure for outlet plumbing is less than 2 Kgf/cm^2
4. The formula of plumbing pipe resistance:

$$P = 6.07 \times V \times Q \times L / D^4$$

V : CST (Viscosity of water is 1)
Q:Liquid flow rate(l/min)
L : Length of water pipe (m)
D:Water pipe inner diameter(mm)

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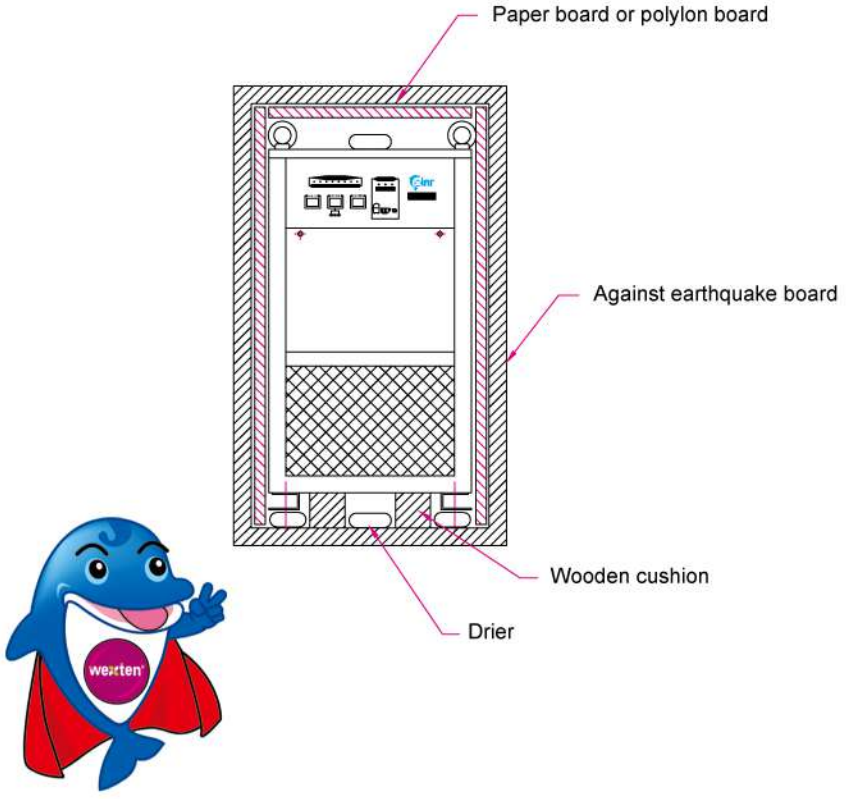
8. Caution for package and moving

1. It is important to prevent the cooler from vibration or any violent shaking during transportation and moving.
2. Do not invert cooler during packing.
3. Fix the cooler base in the wooden case. For those with castors/wheels, lock in position with wooden pieces to base of wooden case during packing.
4. Be sure that the desiccants are property arranged in cooler during packing.

Attention: The damage caused from delivery and unsuitable packing will be not our responsibility.

(Please refer the drawing below)



WEXTEN MAIN PRODUCTS SERIES

TYPE	APPLICATION	FEATURE
CO SERIES-OIL COOLER	• CNC machine center • CNC grinder. Broach Machine • CNC wood carving machine • Oil pressure machine • CNC lathe. High-speed lathe	• Maintain constant oil temperature lubrication oil. • Prevent oil deterioration. Maintain viscosity and stable oil pressure. • Built-in safety protection devices ensure no sudden breakdown. • Computer controlled sensors adjust oil temperature according to ambient temperature ensure precision in machining processes.
CW SERIES-WATER COOLER	• Laser cutting machine • Printing machine • lathe grinder • Ultrasonic machine • Injection Molding Machine	• Condenser unit mounted at top for top heat discharge. • Easy set up. Easy maintenance. No need for cooling tower. Efficient heat exchanger prevent carbon and and dirt accumulation. • Pastel colors ensure easy match with most work environments and CNC machines. • Electronic digital temperature control of ±1 °C
CA SERIES-AIR CONDITIONERS FOR ELECTRICAL CONTROL BOX	• CNC lathe • CNC machining center • CNC planomiller • CNC planogrinder • CNC machining center (5 sides) • CNC laser cutting machine • CNC spring machine • CNC wire cutting machine • CNC instrument box	• Maintain steady, air conditioned cooling within the recommended operating temperature for electrical panels. • Prevent ingress of dust, humidity and moisture into electrical control panels. • Tough design. Can withstand high ambient temperature of 38°C and above. • May be internal or external mounted. Enclosed design ensure no mixing of internal and ambient air. • Most suitable for electrical control boxes or panels when the ambient temperature.
CE SERIES-EDM SPECIAL PURPOSE COOLER	• EDM machine	• Compact heat exchanger design ensure no clogging due to accumulated carbon particles. • Maintain constant oil temperature ensure quality temperature must be lower than the of the EDM process. • Prevent oil carbonization. Help reduce fouling of the air of the working environment ensure operators' health are protected. • EDM can now operate with higher current discharge to help reduce machining time. • Prevent fire risk from carbon accumulation due to continuous machining.
EA SERIES-HEAT EXCHANGER	• CNC lathe • CNC machine center • CNC press machine • CNC grinder • CNC internal & external diameter grinder • CNC papier loom • CNC milling machine • Laser cutting machine	• Ideal and efficient device. Energy saving . • Simple, handy and efficient heat exchanger. Enclosed design ensure no exchange of internal and ambient air. • Build to IP protection ratings. • Heat conduction efficiency 1600 times of copper . • Choice of Internal or External Mount .
AW SERIES-WATER COOLING FOR WELDING MACHINE	• Various welding machines • Printing • Optical instruments • Medical instruments	• Prevent overheating or burned head of welding gun. • Built in water tank reduces water consumption. • Simple design. Easy maintenance. • Improved welding efficiency. Lower cost. • Ensure test instrument reading stability. Little fluctuation

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WEXTEN MAIN PRODUCTS SERIES

TYPE	APPLICATION	FEATURE
AOSERIES-HEAT PIPE HEAT EXCHANGER FOR OIL COOLING	• CNC oil-pressure system of lathe • Oil-pressure of internal & external diameter grinder • Various oil-pressure tank • Oil-pressure system of CNC machine center	• Reduce oil temperature and maintain oil viscosity. • Simple desing.Easy maintenance.Long product life. • Design ensure no mixing of oil and water. • Energy saving. Small power consumption.
EC SERIES-HEAT PIPE HEAT EXCHANGER	• CNC lathe • CNC machining center • CNC press machine • CNC grinder • CNC internal & external diameter grinder • CNC papier loom • CNC milling machine • Laser cutting machine	• Ideal and efficient device. Energy saving • Simple, handy and efficient heat exchanger. Enclosed design ensure no exchange of internal and ambient air. • Build to IP protection ratings. • Heat conduction efficiency 1600 times of copper. • Top mount type, space saving when installed in control box.
CR SERIES-SPECIFIC FOR CNC WIRE CUTTING	• CNC wire cutting machine	• Top discharge of exhaust heat. • Electronic panel temperature control with tolerance of ±1 °C. • Maintain constant cooling temperature ensure product precision. Reduce wire consumption. • Stainless steel heat exchanger. Evaporator design of large pipe diameter ensure high flow. • When interlocked to CNC machine, breakdown, if any, will be indicated.
CADSERIES-COOLING AIR DRYER	• Machining pneumatic tool • Medical appliances • Paint、laser cutting maching • High-speed drive axle	• Prevent corrosion, and rust formation • Increased paint color brilliance. No bubbles. • Improved heat exhaustion. • Prevent refraction mirror breakage caused by laser.
PF SERIES-COOLING EAN	• Electric control box	• High wind power. Low noise. • Tough fan blades. Not easily deformed. • Concealed joint. Help reduce corrosion.
CL SERIES-WATER COOLING FOR CNC LASER CUTTING ENGRAVER MACHINE	• Heavy laser machines (1000W~2500W) • Small-type laser machines (50W~300W)	• Cools the laser cutting head. • Uses high pressure pump and water pressure circuit ensure system protection. • Uses 316 stainless steel compact brazed heat exchanger. Saves on energy consumption and ensure good heat exchanger. • Has remote control operation and breakdown signal indication when connected to CNC laster cut machine. • Cooling the laser head engraving or cutting head compartment.
CK SERIES-CNC CUTTING MACHINE COOLER	• CNC lathe • CNC machining center • CNC grinder • CNC internal & external diameter grinder • CNC milling machine	• This CK series is suitable for turning, grinding and cutting machines. No impurities or metal filing interference. • Easy to maintain and clean. • Stainless steel shell heat exchanger ensures no corrosion problem. • Easy to install. Space saving.
CNT SERIES	• Plastic M/C • Injection M/C	•Improve mould function and promote efficiency.

MEMO