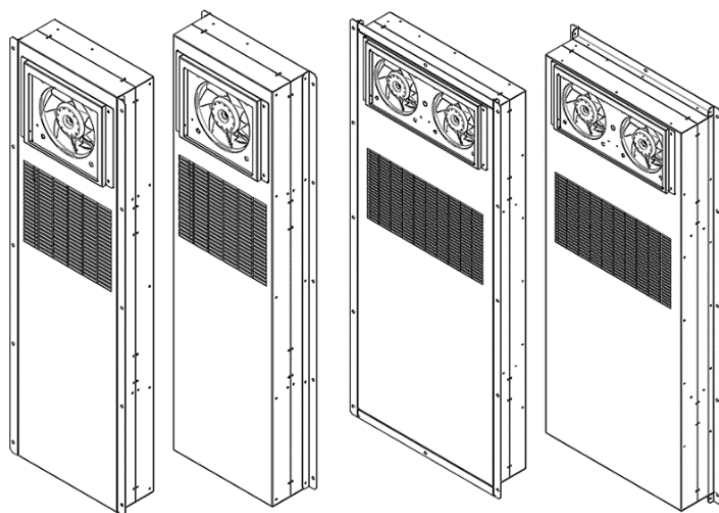




# NHE 系列 熱管式熱交換器 產品使用說明書

NHE Series Heat Pipe Heat Exchanger

Product Instruction Manual



中野精密工業有限公司

Nakano Precision Co., Ltd.

# 前言 Foreword

本產品使用說明書介紹了 NHE 系列熱管式熱交換器的使用須知、操作指導、日常維護等資訊，主要用來指導用戶進行安裝，維護本系列產品。

針對本系列產品的任何操作必須由專業的技術人員根據本手冊的要求進行。

This product manual introduces the use instructions, operation instructions, daily maintenance, and other information of the NHE series heat pipe heat exchangers. It is mainly used to guide users to install and maintain this series of products.

Any operation for this series of products must be carried out by professional technicians in accordance with the requirements of this manual.

# 1. 簡介 Brief Introduction

## 1.1 產品描述 Product description

該系列產品是針對工業設備應用場合而設計的熱交換器，適用於內部設備發熱量大、溫度敏感，且內外完全隔離的應用場合。

適用電源範圍：交流 220VAC $\pm$ 15% 50Hz / 60Hz

This series of products is a heat exchanger designed for industrial equipment applications. It is suitable for applications where the internal equipment generates a large amount of heat, is temperature sensitive, and is completely isolated from the inside and the outside.

Applicable power supply range: 220VAC $\pm$ 15% 50Hz / 60Hz

## 1.2 符合國際標準認證 Conform to the standard

Standard	Description
GB/T 17626.7-1998	Electromagnetic compatibility (EMC)
GB4706.1	Safety household and similar electrical appliance
GB4798.1	Environmental conditions existing in the application of electric and electronic products - storage
GB4798.2	Environmental conditions existing in the application of electric and electronic products - transport
GB4798.3	Environmental conditions existing in the application of electric and electronic products - use
CE	The third-party certification

## 2. 包裝與運輸 Packing and Shipping

- 熱交換器採用紙箱包裝，附件等資料也放置於包裝箱內。


The heat exchanger is packed in a carton, and accessories are also packed in the box.

- 熱交換器在運輸時請注意以下事項：

Please pay attention to the following items when transporting the heat exchanger:



圖 2-1 包裝箱標識 Figure2-1 Packing mark

- 搬運或者運輸過程中熱交換器必須按朝上放置。嚴禁倒置、平放、過度傾斜及碰撞。

During Handling or transport, Heat exchanger must be upward placed as.



It is strictly forbidden to invert, lay flat, over-tilt and collide.

- 熱交換器為精密儀器，在搬運或運輸過程中，應小心輕放，包裝箱禁止踩踏。

The heat exchanger is a precision instrument. It should be handled with care during handling or transportation. It is forbidden to step on the packing box.

- 搬運或運輸過程中，注意防潮、防水、防雨。

During handling or transportation, pay attention to moisture, water, and rain.

### 3. 開箱與驗收 Unpacking and Acceptance

- 開箱前請注意外包装箱按照圖 2-1 所示直立放置，請檢查打包帶是否斷裂、紙箱是否破裂、變形、潮濕。

Before unpacking, please make sure that the outer packing box is placed upright as shown in Figure 2-1. Please check whether the packing belt is broken, or the carton is broken, deformed, or damp.

- 使用剪刀或者小刀拆除打包帶，將包裝拆除。

Use scissors or a knife to remove the packing strap and remove the packing.

- 打開包裝後，請按照裝箱清單核對產品。

Please check the product according to the packing list after opening the package.

## 4. 安裝 Installation

### 4.1 安裝前準備 Before Installation

安裝前至少需準備以下工具：十字螺絲起子、一字螺絲起子、密封膠條、老虎鉗。

The following tools must be prepared before installation: a Phillips screwdriver, a flat-blade screwdriver, a sealing tape, and a vise.

### 4.2 安裝示意 Schematic of Installation

熱交換器的安裝示意圖如下：

The heat exchanger installation is as following picture:

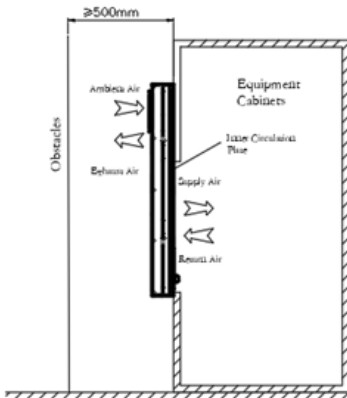


圖 4-1 箱外型

Figure 4-1 Front Type Installation Instruction

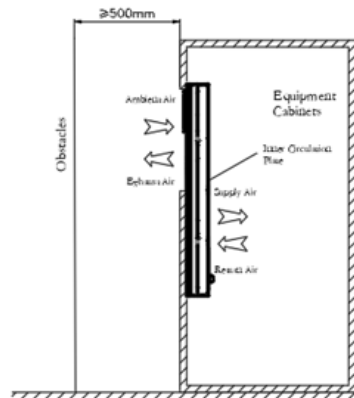


圖 4-2 箱內型

Figure 4-2 Rear Type Installation Instruction

注意：

- 熱交換器為免外罩熱交換器，客戶可根據需要安裝防護罩。本公司不提供防護罩、防護罩由客戶根據需要自行製作。

- 防護罩進風口和出風口開孔率應大於 60%，以確保足夠的迴圈風量。這對於延長熱交換器的使用壽命和減少維護頻率非常的重要。
- 防護罩的進出風口應該防止氣流短路，以便熱交換器可以獲得最佳的冷卻效果。

#### **Attention:**

a) Heat exchanger does not need a cowl; Customers can put a cowl outside unit according to themselves. The cowl can be made by customer self.

b) Shield inlet and outlet opening rate should be greater than 60%, To ensure enough circulation heat exchanger volume. This is very important to have the heat exchanger running with long lifetime and less service.

c) When you make a cowl design/installation, make sure the inlet heat exchanger and outlet heat exchanger not been short cut, this is also critical to keep unit have best cooling performance.

### **4.3 熱交換器安裝 Heat Exchanger Conditioner Installation**

#### **安裝步驟：**

1. 在安裝面上畫出櫃門開孔示意圖，將空白部分切割掉。不同型號熱交換器的櫃門開孔示意圖請參考相應規格書。
2. 根據安裝示意圖中示意的方向，將熱交換器安裝在機櫃上。

#### **Installation steps:**

1. Draw a schematic diagram of the cabinet door opening on the installation surface and cut off the blank part. Please refer to the corresponding specifications for the door opening diagrams of different types of heat exchangers.
2. Install the heat exchanger on the cabinet according to the direction indicated in the installation diagram.

## **安裝完成後的確認檢驗項：**

1. 請勿在高油污、易燃氣體、高腐蝕性及環境溫度超過 70°C、濕度超過 95%的環境下使用該產品。
2. 確保產品安裝後傾斜度不大於 3°。
3. 確保控制櫃密封良好以免漏入空氣產生不必要的冷量損失和產生過多的冷凝水。
4. 產品安裝結束後，確保產品直立 30 分鐘後再加電運行。

## **Double check lists after Installation:**

1. Do not use this product in an environment with high oil pollution, flammable gas, high corrosiveness, and ambient temperature exceeding 70°C and humidity exceeding 95%.
2. Ensure that the inclination of the product after installation is not more than 3°.
3. Ensure that the control cabinet is well sealed to avoid unnecessary cooling loss and excessive condensate from leaking air.
4. The heat exchanger can only be started 30 minutes after installation.



## 5. 產品維護 Maintenance

### 準備工具 Prepare tools

表 5-1 維護工具 (Table 5 -1 Malignance Tools)

	工具 Tools
1	萬用檢測電表 // Multimeter
2	十字螺絲起子 // Phillips screwdriver
3	一字螺絲起子 // Slotted screwdriver

### 日常維護 Routine maintenance

表 5-2 日常維護 (Table 5-2 Routine maintenance)

序號\ No.	檢測項目 Check items	檢測方法 Check methods	故障解決方法 Troubleshooting
1	電源線牢固性 Power line firm	1、關閉熱交換器輸入電源。 Turn off the heat exchanger input power 2、用手拉動電源線，觀察是否有鬆脫現象。 Pull the power cord by hand to observe whether there is any looseness. 3、用螺絲起子轉動電源線端子上的螺絲，觀察是否有鬆動現象。Use a screwdriver to turn the screws on the terminals of the power cord to see if there is any looseness.	若發現有電源線有鬆脫或者鬆動現象，應重新用束帶綁緊電源線；用螺絲起子將鬆動的螺絲轉緊。If you find that the power cord is loose or lose, you should re-fasten the power cord with a tie; use a screwdriver to tighten the loose screws
2	電壓穩定性 Voltage Stability	用萬用電表測量熱交換器輸入電壓，觀察用電壓是否在正常範圍內 Use a multimeter to measure the input voltage of the heat exchanger and observe whether the voltage is within the normal range	若電壓不在正常供電範圍，請立刻關閉輸入電源。直到輸入電源穩定後才可再次運行熱交換器。If the voltage is not within the normal power supply range, please turn off the input power immediately. The heat exchanger cannot be operated again until the input power is stabilized.
3	安裝螺絲牢固性 Mounting screw firmness	用螺絲起子轉動熱交換器的安裝螺絲，觀察是否有鬆動現象。Use a screwdriver to turn the mounting screws of the heat exchanger to observe whether there is any looseness.	若有鬆動現象，則轉緊螺絲 If there is any looseness, tighten the screws

# 產品保固書

本產品由**中野精密工業有限公司**在嚴格的品質管理系統下，設計、生產、品質確認、銷售，本產品在保固期間內正常使用的條件下，若發生故障問題，凡屬於產品本身品質問題而導致故障，本公司將為您免費維修，客戶報修時需提供產品編號。

## 保固期

產品保固從產品發貨日時起算 12 個月，與公司另有協定的以協定為準。

## 保固範圍

- 本產品之保固限於中華民國境內，銷售國外的產品由各國經銷商負責。
- 本產品保固書請妥善保存，恕不補發，無蓋印公司章或內容塗改者無效。

但由以下任何原因造成的故障不屬於我司的保修範圍：

- ◆ 產品超過保修期限
- ◆ 無法提供產品出廠編號（請參照機身貼示的銘牌）
- ◆ 由於在異常條件或環境中運行，或者用非本使用說明書中指定的不恰當安裝方式安裝、維護或操作導致的故障
- ◆ 非本設備造成的故障，比如由使用者的設備、軟體等造成的故障
- ◆ 使用者自行更換或拆裝產品零部件造成損壞的，或由非授權維修服務者拆修而造成損壞的
- ◆ 諸如火災、地震、洪水等不可抗力之天災地變或人為因素而損壞者。

下列情況需本公司服務時，得酌收工資以及材料費用：

- 未按照本公司產品安裝操作手冊使用或使用不當導致損壞者。
- 擅自拆修，增添零配件而引起損壞者。
- 供電錯誤，環境惡劣而引起損壞者。
- 因機械故障導致本產品在使用中引發二次故障者。
- 消耗品。

# Product Warranty

This product is designed, produced, quality confirmed and sold by **Nakano Precision Co., Ltd.** On a strict quality management system. Under the conditions of normal use during the warranty period, if a malfunction occurs, it is caused by the quality of the product itself. In case of failure, our company will repair it free of charge, and the customer must provide the product number when reporting for repair.

## Warranty

The product warranty is 12 months from the date of shipment of the product, and the agreement shall prevail if it is otherwise agreed with the company.

## Warranty scope


- The warranty of this product is limited to the territory of the Republic of China, and the sales of foreign products are borne by distributors in various countries.
- Please keep this product warranty, and it will not be reissued. It will be invalid if the company seal is not stamped, or the content is altered.

However, failures caused by any of the following reasons are not covered by our warranty:

- ◆ The product has exceeded the warranty period
- ◆ The factory number of the product cannot be provided (please refer to the nameplate posted on the body)
- ◆ Failure due to operation in abnormal conditions or environment, or installation, maintenance, or operation in an improper installation method other than those specified in this instruction manual
- ◆ Failures not caused by this equipment, such as failures caused by the user's equipment, software, etc.
- ◆ The user replaces or disassembles the product parts and causes damage or is damaged by unauthorized maintenance service personnel.
- ◆ Damaged by natural disasters such as fire, earthquake, flood and other force majeure or human factors.

When the company's services are required in the following situations, wages and material costs may be collected at the discretion of:

- Failure to follow the company's product installation and operation manual or improper use, resulting in damage.
- Dismantling and repairing without authorization, adding spare parts and causing damage.
- Power supply error, bad environment and cause damage.
- The product causes a secondary failure during use due to a mechanical failure.
- Consumables.

客戶名稱 User Name			
產品型號 Model Name			
產品序號 Serial Number			
出廠日期 Manufacture Date		公司印章 Stamp	
保固期限 Warranty Period	12 個月 / 12 Month		



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