

CN SunCo | SunCoTH

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浙江三可热交换系统有限公司

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Wechat



微信

HEAT EXCHANGER
— PROFESSIONAL MANUFACTURER

换热器专业制造商

ZHEJIANG SUNCO HEAT EXCHANGE SYSTEM CO.,LTD.

浙江三可热交换系统有限公司



COMPANY PROFILE 公司简介

Zhejiang SunCo Heat Exchange System Co.,Ltd.is specialized in R&D, production and sales of heat exchangers. The company is located in the beautiful hometown of Xishi - Zhuji City, Zhejiang Province. SunCo is a group company with one production base in Zhuji City, with 72000 square meters, and one production base in Thailand with 25000 square meters, and an international company in Hangzhou City, Zhejiang Province and the US for sales, technical, and warehouse service. SunCo Thermal Energy(Thailand) Co., Ltd is put into production in April, 2025.

Company adhering to the "innovation, integrity, leading, cooperation " business concepts, In way of comprehensively introducing ISO9001 &IATF16949 quality management system,with an excellent R&D team, reliable products quality and efficient service to target the markets.

Company has strong design and development capability, specializes in designing many fields of air conditioning system, heat pipe heat exchange system. Involved a variety Industries, such as, bus, tele-communications, commercial and industry refrigeration, frozen storage, railway transportation,wood drying, high-voltage substation, aerospace, etc. SunCo technology has won customers'deep trust.

The company already has a number of invention patents and utility model patents, and was invited to become one of " Micro channel heat exchanger for condenser used for air conditioning and refrigeration equipment " national standard drafting units. With excellent management team and leading technology, the products have been exported to Europe, South America, North America, Southeast Asia and Oceania, etc.

" Create value for customers " is the company's pursuing goal, with the continuous promotion and application of heat exchanger technology, we will provide a wide field with high efficiency, low carbon environmental protection products and excellent service.

浙江三可热交换系统有限公司是一家专业研发、生产、销售换热器系列产品的公司。公司位于美丽的西施故里——浙江省诸暨市，在诸暨拥有72000平方米的生产基地，在泰国拥有25000平方米的生产基地，并在浙江杭州和美国拥有销售、技术和仓储服务的国际化公司，三可热能泰国有限公司于2025年4月正式投产。

公司秉承“创新、诚信、领先、合作”的经营理念，全面导入ISO9001、IATF16949质量管理体系，以优秀的设计团队，可信赖的产品质量，高效的服务面向市场。

公司技术团队具备较强的设计开发能力，擅长多种领域的空调系统、热管系统换热器的设计，涉及行业包括大巴空调、通讯、轻商、冷冻冷藏、轨道交通、木材干燥、高压变电、航空航天等，技术能力深受客户信赖。

目前公司已拥有多项发明专利和实用新型专利，并受邀成为《冷冻空调设备冷凝器用微通道热交换器》国家标准起草单位之一。凭借优秀的管理团队与领先的技术水平，目前公司产品已经远销欧洲、南美洲、北美洲、东南亚、大洋洲等。

“为客户创造价值”是公司永恒追求的目标，随着微通道技术的不断推广与应用，我们将为更广泛领域提供高效、低碳环保的产品和优质的服务。

HONOR
CERTIFICATE
荣誉展示



ENTERPRISE
CULTURE
企业文化

Business tenet
经营宗旨

Reliable technology
可靠的技术

Reliable quality
可靠的质量

Reliable service
可靠的服务

Quality policy
质量方针

Seeking development relying on innovation
开拓创新求发展
Creating brand through scientific management
科学管理创品牌
Providing best service for customers
优质服务为顾客

Management
concept
经营理念

Innovation Honesty Leading Cooperating
创新 诚信 领先 合作

HIGH AND NEW TECHNOLOGY ENTERPRISE OF ZHEJIANG PROVINCE

浙江省高新技术企业



ZHEJIANG SUNCO HEAT EXCHANGE SYSTEM CO., LTD

浙江三可热交换系统有限公司

SUNCO THERMAL ENERGY(THAILAND) CO.,LTD
三可热能(泰国)有限公司

BUSINESS ADVANTAGE 企业优势



TECHNOLOGY ADVANTAGE 技术优势

- SunCo is one of the China MCHE industry "national standard" drafting units.
- With a 30 engineers R&D team, 75% of them with 5 year MCHE industry experience.
- With more than 72 items MCHE invention patents and utility patents.
- 三可是中国微通道换热器国家标准的起草单位之一。
- 公司拥有一个30人的设计研发团队，其中75%以上有5年以上的微通道行业工作经验。
- 拥有超过72项的发明专利和实用新型专利。

PRODUCTS ADVANTAGE 产品优势

- Product is with CE, UL, UKCA, ROHS certificate.
- 100% of the products must pass the helium leak inspection before delivery.
- We can offer surface treatments such as powder coating, TCP coating, nano-coating and epoxyelectrophoresis coating, combined with super-long-life alloys, making it suitable for all kinds of harsh environments.
- 产品有CE, UL, UKCA, ROHS certificate 认证。
- 100%产品出货前必须氦检。
- 可以提供喷塑、TCP、纳米、电泳等表面处理，配合超长寿命合金，可用于各类恶劣环境。

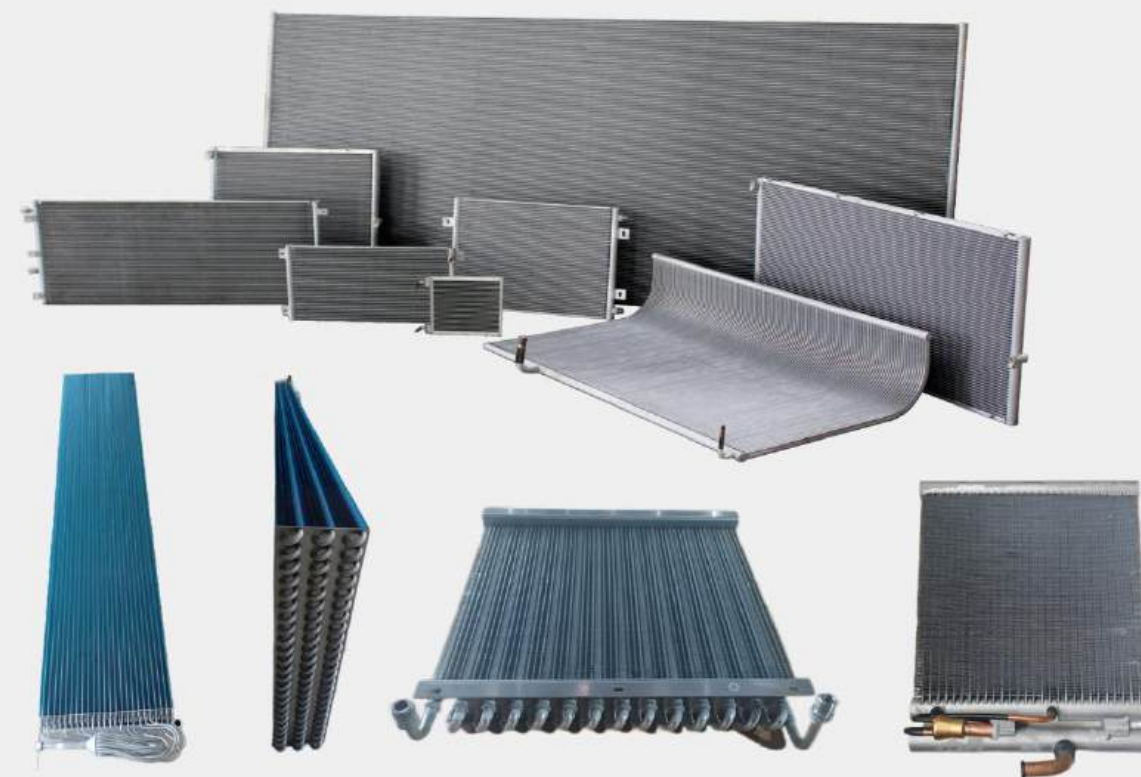
SERVICE ADVANTAGE 服务优势

- Offer Customized Product.
- SunCo offer products capacity simulation and products drawings design service.
- Response time is within 4 hours after receive the customer enquiry or complaints, and offer the reasonable solutions within 24 hours.
- Products production time normally within 10 to 15 days.
- 提供定制化产品。
- SunCo 提供产品性能模拟和图纸设计服务。
- 收到客户的需求或者投诉4个小时内反应，24小时内针对客户的需求或者投诉给出合理的解决方案。
- 产品交货周期：常规10到15天交货。

PRODUCTS 产品展示

WITH SCIENTIFIC MANAGEMENT CONCEPT OF INNOVATION TO
PROVIDE CUSTOMERS WITH QUALITY PRODUCTS AND SERVICES

以科学管理的创新理念为客户提供优质产品及服务



Micro channel heat exchanger suits for all kinds of normal refrigerant and new refrigerants.
微通道换热器适用于各种常规制冷剂和新型制冷剂。

- Working pressure 工作压力: 3.0Mpa-4.5Mpa (30bar-45bar).
Burst pressure 爆破压力: 13.5Mpa (135bar).
Normal refrigerant 常规制冷剂: R22, R134A, R404A, R407C, R410A, R600, R507A etc.
New refrigerant 新型制冷剂: R448A, R449A, R32, R290, R452 etc.
- Dry cooler for water or water and ethylene glycol mixture liquid.
干冷器(水或水和乙二醇的混合液).
Working Pressure工作压力: 0.5Mpa-1Mpa (5bar-10bar).
Burst Pressure爆破压力: 3.0Mpa-5.0Mpa (30bar-50bar).
- SunCo can offer bending MCHE coils, L, U, C shape. 三可提供折弯产品L, U, C型。

Material 材料	Flat tube 扁管	LLA3F03(9153)+Zn	Long life alloy	长寿命合金
		AA3102+Zn	Normal alloy	常规合金
	Fin 翅片	AA4343/3003/4343		
	Header 集流管	AA4045/3003 AA4045/3005	Normal alloy High strength alloy	常规合金 高强度合金
LLA (Long Life Alloy) Material Coil SWAAT time can be more than 4000 hours. 长寿命管材质产品盐雾试验时间可以超过4000小时。				
Heat Exchanger 冷凝器模具	16x1.3~16HOLES 20x1.5 16x8.1mm	16x1.7~15 20x1.5 16x8.1mm	18.8x1.9~13 35x1.8 18.8x7.93mm	20x1.3~21 32x2.5 20x8.1mm
	22x2~10 28x1.7 22x8mm	25.4x1.3~25 32x2.5 25.4x8.1mm	25.4x2~13/15/20 30x1.5 42x2.0 50x3.0 25.4x8mm	32x1.3~32 38x2.0/2.5 32x8.1mm
	25.4x2~5HOLES 42x2.0mm 50x3.0mm	32x2~7 38x2 42x2 32x8mm	36x2~10 42x2 36x8mm	45x3~10 50x3 45x8mm
Dry Cooler 干冷器模具				

A variety of side plate and brackets suit for all kinds of installation.
各种不同的边板和支架可满足各种形式的安装。

Side Plates 型材边板				
Mounting Brackets 安装支架				

SunCo with more than 30 kinds different specification main material for heat exchanger and dry cooler.
三可有超过 30种不同的主材微通道换热器规格。

TUBE CONNECTING TYPE

接管形式

Multiple ways of connection, easy for field connection.
多种连接方式，方便现场连接。



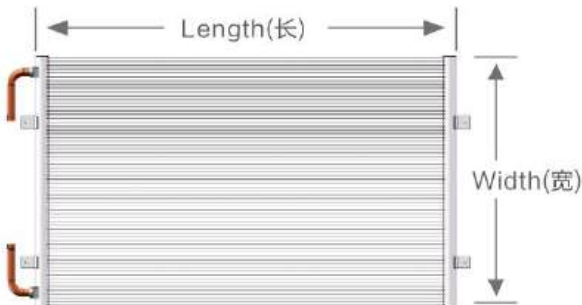
CU-AL welding parts is protected by heat shrinkable tube to avoid the corrosion potential difference.
铜铝焊接点采用热缩套保护，防止电位差腐蚀。



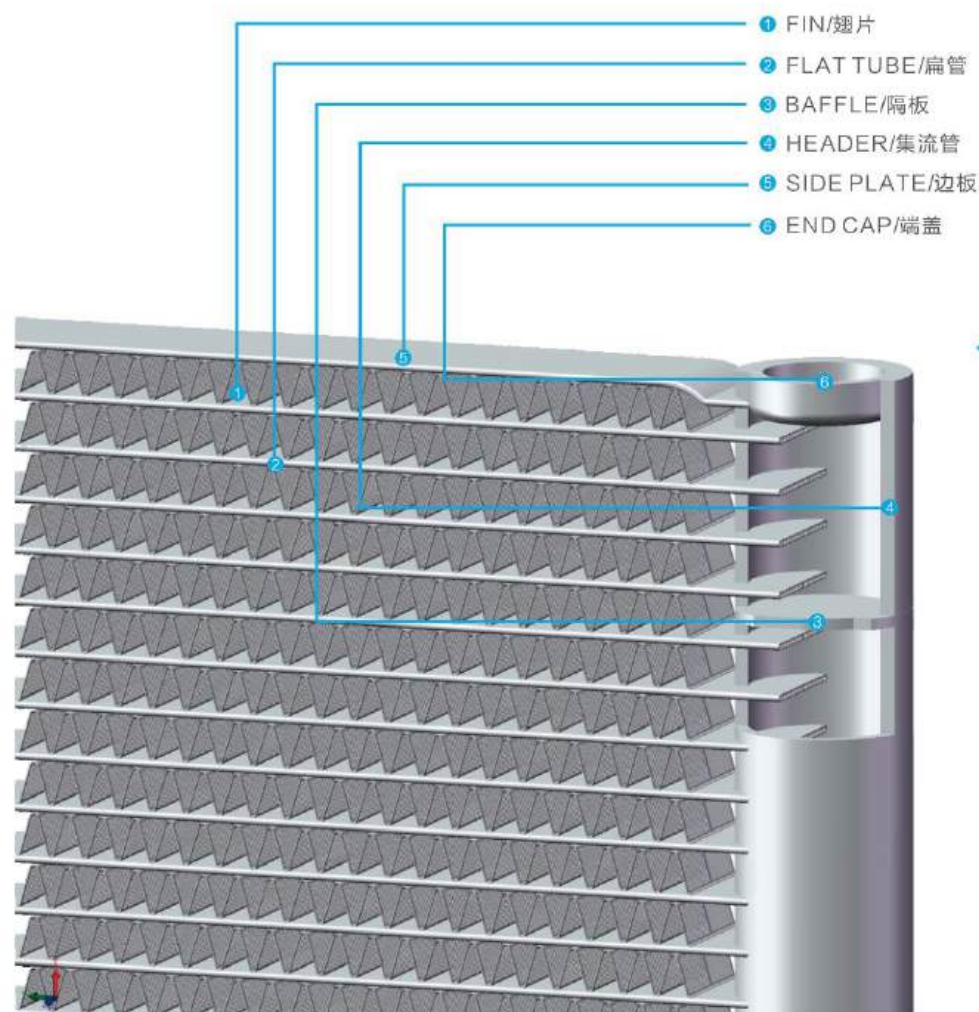
STRUCTURE PARAMETERS

结构参数

Various mould specification for flat tube and capacity choice: 0.8kw to 100kw for wide application area.
多种扁管和翅片模具，覆盖0.8KW到100KW的换热量，适应各种应用领域。



Coil/芯体
Max.Product Dimension/最大产品尺寸
6000mm*1600mm (L*H)/236"*63"(L*H)
Min.Product Dimension/最小产品尺寸
80mm*80mm(L*H) /3.15"*3.15"(L*H)
Coil thickness from 12mm, 16mm....., 32mm, 36mm, 45mm.



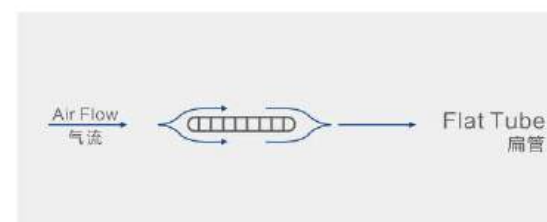
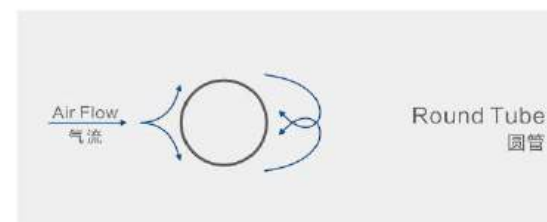
MICRO CHANNEL HEAT EXCHANGER
◆ 微通道换热器



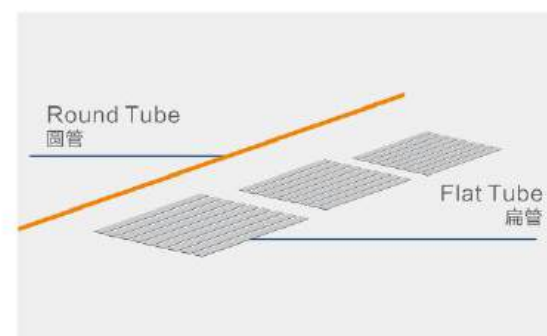
Integral NOCOLOK Brazing, low thermal contact resistance. Improve the heat transfer performance perfectly, AL-AL structure, without electric potential difference, high corrosion resistance.

一体化NOCOLOK 钎焊焊接，翅片与铝合金扁管冶金结合，接触热阻小，能显著提高传热性，铝扁管与铝翅片间，无电位差腐蚀，抗腐蚀性强。

TECHNOLOGY OF MICRO CHANNEL HEAT EXCHANGER
◆ 微通道换热器技术



- Smaller diameter, more tube holes and larger internal surface intensify unit capacity as per volume.
- Small cross sectional area, low air flow resistance, small eddy area, low noise.
- 孔径小，孔数多，内表面积大，单位体积换热量大。
- 横截面积小，空气流动阻力小，涡流区域小，噪音低。



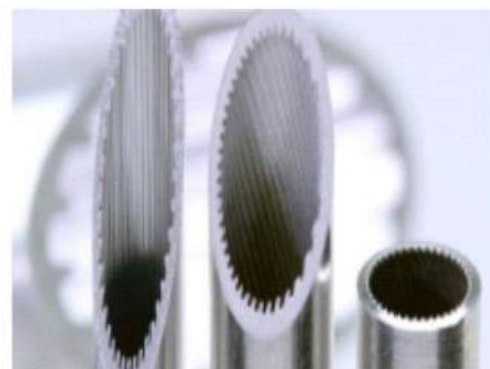
- Parallel arrangement of flat tubes enlarge refrigerant circulation area.
- Adjust the position and quantity of baffles to adapt to the refrigerant phase transition and optimize heat transfer and pressure drop.
- 多根扁管平行布置，制冷剂流通面积大。
- 调整隔板位置和数量，优化传热和压降。



- The structure effectively breaks air thermal boundary layer, reduce heat exchanging resistance.
- Waving path makes the contact longer to intensify heat exchanging.
- 有效打破空气热边界层，降低传热阻力。
- 空气波浪路径流动与翅片接触时间长，强化传热。

◆ Aluminum round tube aluminum fin heat exchanger-Design Parameters
铝圆管铝翅片换热器-设计参数

No. 序号	Diameter 孔径	Pitch-row 孔距	Row spacing 排距	Fin pitch 翅片间距	Fin type 翅片类型	End plate distance 端板间距	Tube type 管型
1	Φ7mm	19.05	16.5	1.3-3.2	Flat(optional for louver) corrugated fins 平片 (百叶窗可选)、波纹片	200-2600	Internal threaded pipe, smooth pipe 内螺纹管、光管
2	Φ7mm	21	12.7	1.2-3.5	Flat(optional for louver) corrugated fins 平片 (百叶窗可选)、波纹片	200-2600	Internal threaded pipe, smooth pipe 内螺纹管、光管
3	Φ7.94mm	25	19	1.3-3.2	Flat(optional for louver) corrugated fins 平片 (百叶窗可选)、波纹片	200-2600	smooth pipe 光管
4	Φ9.52mm	25	21.65	1.3-3.2	Flat(optional for louver) corrugated fins 平片 (百叶窗可选)、波纹片	200-2600	Internal threaded pipe, smooth pipe 内螺纹管、光管
5	Φ9.52mm	25.4	22	1.4-4.0	Flat(optional for louver) corrugated fins 平片 (百叶窗可选)、波纹片	200-2600	Internal threaded pipe, smooth pipe 内螺纹管、光管



- Internally threaded tubes enhance heat transfer: 内螺纹管强化换热:
- Increase the heat transfer area inside the tube. The internally threaded tube can increase the area by 20%~25% compared to the smooth tube with the same outer diameter; 增大管内换热面积, 内螺纹管比相同外径的光管可增大面积20%~25%;
- The internal thread produces spiral flow, increases the speed of the liquid film on the tube wall, and increases the mixing degree of the two-phase fluid 内螺纹产生螺旋流, 增加管壁液膜的速度, 增加两相流体的混合程度;
- During evaporation, the thread processing surface improves the gas core production conditions, increases the number of gasification cores, and enhances boiling; 蒸发时, 螺纹加工面改善气核生产条件, 增加气化核心数量, 强化沸腾;
- During condensation, the internal teeth of the internal thread pierce the liquid film and penetrate into the gas phase area, increasing the contact area with the gas phase; 冷凝时, 内螺纹内齿刺穿液膜深入气相区域, 增加与气相接触面积;

◆ Aluminum round tube aluminum fin heat exchanger-Material Selection
铝圆管铝翅片换热器-材料选用

Part 零部件	Aluminum tube Aluminum fin heat exchanger 铝管铝翅片换热器
Heat exchanger 换热管	AA3003+Zn
Fin 翅片	8011
String board 串板	5052

The density of aluminum is 2.7 g/cm³, and the density of copper is 8.9 g/cm³. The density of aluminum is approximately one-third of that of copper.
铝的密度2.7g/cm³, 铜的密度8.9g/cm³, 差不多是铜的1/3左右

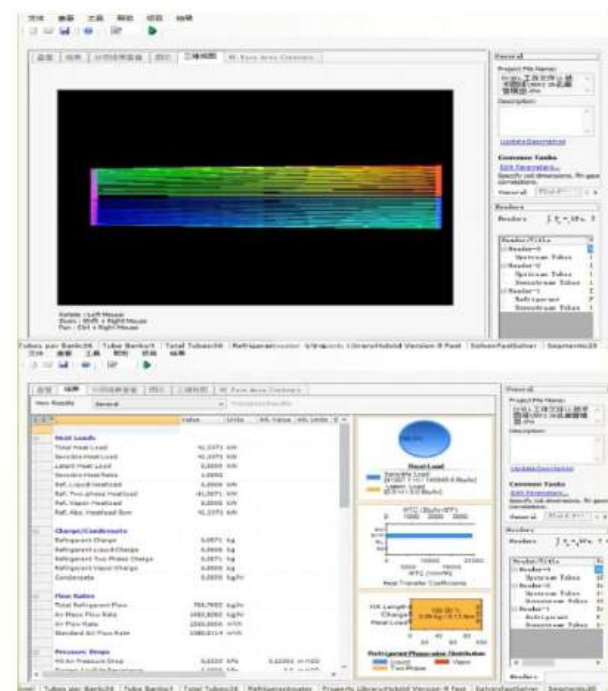
The components made entirely of aluminum materials, such as pipelines and fins, can be directly recycled without the need for separation.
管路和翅片等全铝材, 可不分离直接回收



China is the world's largest aluminum smelting and exporting country, but 80% of its copper is dependent on imports.
我国是世界最大铝冶炼和出口国, 但铜80%依赖进口

There is no obvious potential difference between the aluminum tube and the aluminum fin, resulting in little electrochemical corrosion of the fin.
铝管与铝翅片间无明显电位差, 翅片电腐蚀小

◆ Fin-type microchannel heat exchanger-Design Tool
插翅式微通道换热器-设计工具



- Adopting the microchannel heat exchanger design software developed by the University of Maryland
采用美国马里兰大学研发的微通道换热器设计软件
- Simulation optimization design, mass flow rate and pressure drop to achieve the best match, the best performance
仿真优化设计，质量流速和压降达到最佳匹配，性能最优
- Software simulation design, maximize the speed and accuracy of product design and development
软件仿真设计，最大化提高产品设计开发的速度和准确度

◆ Fin-type microchannel heat exchanger (heat pump)-Design Parameters
插翅式微通道换热器（热泵）-设计参数

Fin width 翅片宽度 (mm)	Fin thickness 翅片厚度 (mm)	Fin pitch 翅片间距 (mm)	Flat tube specification 扁管规格 (mm)	Flat tube distance 扁管间距 (mm)	Manifold specification 集流管规格 (mm)	Max width 最大宽度 (mm)	Max working pressure 最大工作压力 (bar)
33.4	0.1	1.2-2.0	25.4*2	8	ø30、ø32、ø38、ø42、ø50	1500	45
42.5	0.1	1.2-2.0	32*2	8	ø30、ø32、ø38、ø42、ø50	1500	45
23.5	0.1	1.2-2.0	20*2	8	ø25	1500	45
46	0.1	1.2-2.0	36*2	8	ø50	1500	45



◆ Coating Solutions for Fin-and-Tube Heat Exchangers
插片式换热器-涂层解决方案

Coating Description 涂层描述 (Standard 标准 ASTM G85 A3)				
Coating type 涂层类型	LLA3F03 + Zn	LLA3F03 + TCP	LLA3F03 + 亲水	LLA3F03 + TCP+亲水
Coating material 涂层材料	Zn 镀锌	Cr ³⁺ 3价铬离子	hydrophilic coating 亲水涂层	Cr ³⁺ + hydrophilic coating 3价铬离子+亲水涂层
Coating thickness 涂层厚度	7±2 g/m ² on the flat tube 7±2克/平方米(镀锌覆盖率)	≤3μm all surface 3微米(所有表面)	≤1μm all surface 1微米(所有表面)	≤4μm all surface 4微米(所有表面)
Processing methods 加工工艺	Spraying molten zinc 高温熔融喷涂	Immersion 浸入	Immersion 浸入	Immersion 浸入
Impact on capacity 对性能影响	NO 无	Ignore 忽略	Ignore 忽略	Ignore 忽略
SWAAT TEST time 酸性盐雾试验	1500 hours 1500 小时后泄漏	2500 hours 2500 小时后泄漏	1500 hours 1500 小时后泄漏	2500 hours 2500 小时后泄漏
Function Description 功能说明	The long-life alloy can effectively resist external corrosion. The zinc layer on the outer surface can eliminate external pitting corrosion and serves as the simplest and most effective anti-corrosion layer for microchannel heat exchangers. 长寿命合金可以有效抵抗外界腐蚀，外表面锌层可消除外部点蚀，是微通道换热器最简单有效的防腐层。 Enhancing the chemical anti-corrosion ability can effectively inhibit the corrosion caused by Cl ions and S ions. 提升化学防腐能力，可以有效抑制Cl离子、S离子腐蚀。 It can effectively increase the drainage speed of the heat exchange fins for condensate water, enhance the chemical anti-corrosion ability, and effectively inhibit the corrosion of Cl ions and S ions. 有效提高换热翅片对冷凝水的排出速度，提升化学防腐能力，可以有效抑制Cl离子、S离子腐蚀。			

APPLYING FIELD 应用领域

TRANSPORT REFRIGERATION 冷藏车

Light Weight Structure MCHE products has a good performance in the cold chain transport.
轻量化的结构使得产品在冷藏运输中有着出色的表现。

TELECOMMUNICATION CONTROL AIR-CON 通讯控制

High energy efficiency, small size and low power consumption.
能效比高, 体积小, 耗电量低。

Reduce Size from
体积减小30%到50%

30%-50%

Weight Reduce
重量减轻10-60%

10%-60%

Cost Reduce
成本减少5% 到40%

5%-40%

Refrigerant Charge
Reduce more than
制冷剂充注和使用减少50%以上

50%

Fan Motor Consumption Reduce
风机功耗减少50%

50%

Compared with Cu-Al heat Exchanger. | 以上是跟传统铜管换热器对比。

COMMERCIAL AIR-CONDITIONER-AIR COOLED WATER CHILLER 商用空调-风冷冷水机组

Reduce the size of whole machine, easily installation and transportation, long using life and low cost.
能减小整机产品体积, 方便安装和运输, 更长的使用寿命, 成本低。

CONDENSING UNIT 冷凝机组

Widely used freezing and frozen storage, Such as cold room projects, ice maker, ice cream machine, food display, milk fresh and beer refrigeration etc.
广泛应用于冷冻冷藏行业, 冷库工程, 制冰机, 冰淇淋机, 展示柜, 牛奶保鲜以及啤酒制冷等。

PRECISION DATA CENTER AIR-CON 精密机房空调

MCHE is with better dehumidification and refrigeration capacity, which can keep a better constant temperature and humidity effect, also with a low electric consumption, which is widely used in the world.
微通道有良好的除湿以及制冷能力, 具有恒温恒湿及耗电量低等特点, 已被广泛使用。

RAILWAY AIR-CON 轨道交通

SunCo is the first supplier for railway air-conditioner in china domestic markets, offer the bulk order MCHE to a number of famous brand companies, such as Faiveley etc.
SunCo是中国国内第一家为列车空调提供微通道换热器的企业, 目前已为法维莱等大批国际知名企业批量供货。



COACH AND TRUCK AIR-CON
客车, 卡车空调



AIR TO WATER HEAT PUMP
空气源热泵热水器



ENERGY STORAGE THERMAL MANAGEMENT
储能热管理



MEDICAL EQUIPMENT
医疗机械



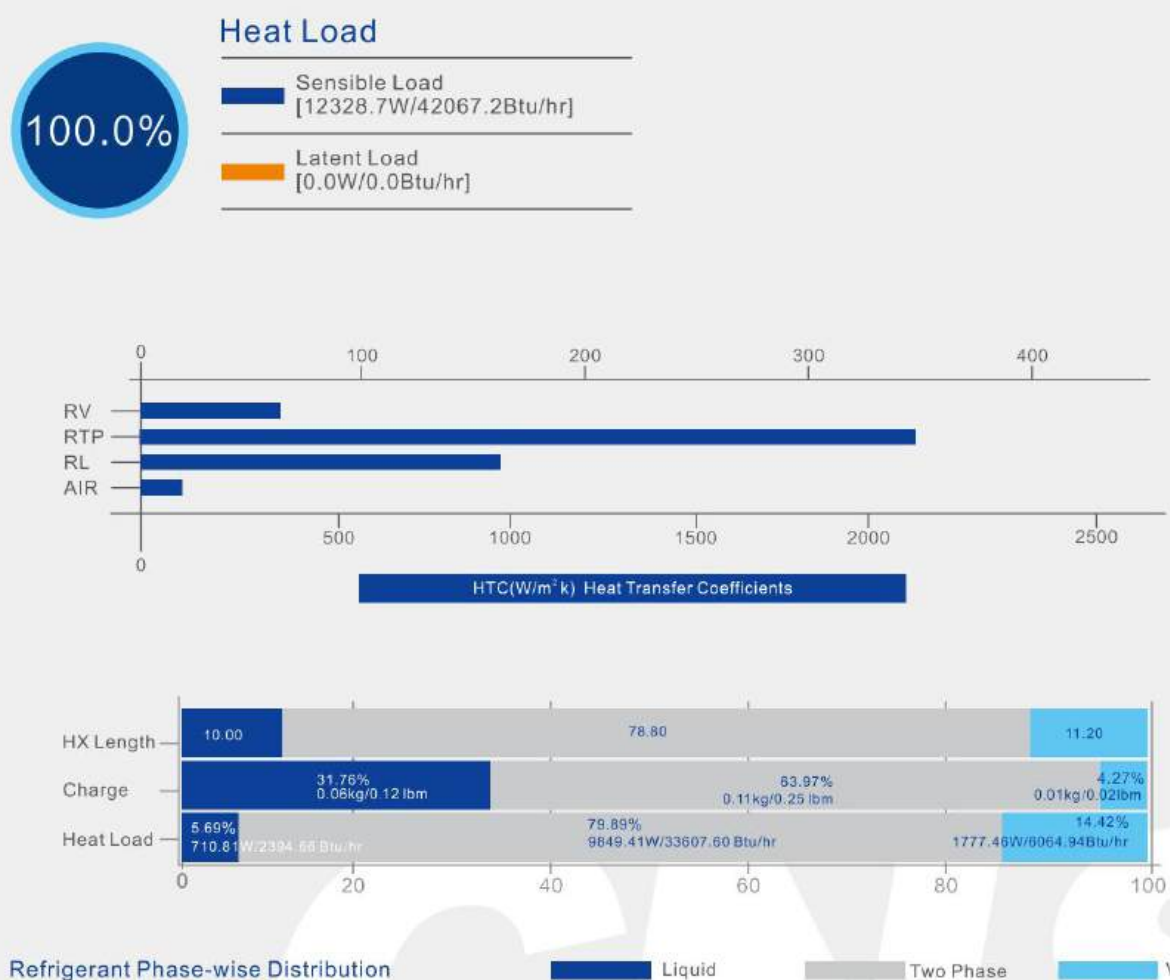
R&D EQUIPMENT

研发设备

- Products structure design based on CAE, optimize products thermal performance process, improve products R&D efficiency, reduce products design cost.
- Environmental simulation and thermal performance test ensure products function, mechanical strength and chemical composition analysis ensure product reliability.
- 计算机辅助设计产品结构，优化产品制冷剂传热流程，提高了产品研发效率，降低了产品设计成本。
- 环境模拟和热工性能测试确保产品的性能，机械强度和化学成份分析保证产品的可靠性。

Thermal performance design results

◆ 热工性能设计结果



1 Metallographic microscope
金相显微镜

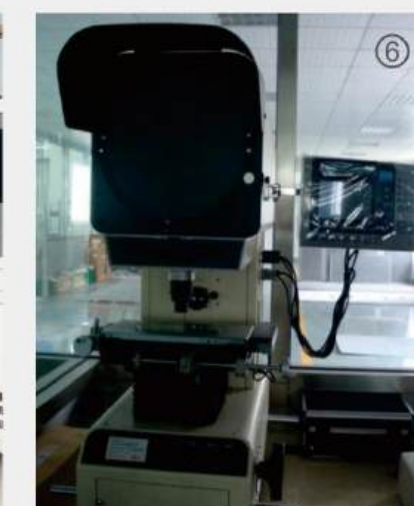
2 Tensile Testing Machine
拉力试验机

3 Thermal infrared imager
红外热像仪

4 Salt spray test chamber
盐雾试验箱

5 Automatic blasting station and
pulse pressure test table
自动爆破脉冲试验平台

6 Projector
投影仪



We cooperate with one of the best refrigeration labs in china--Shanghai Jiaotong University lab for parts of the test, Such as the real refrigeration capacity test and vibration test etc.
部分测试如性能测试以及震动测试与中国上海交通大学实验室合作。



PRODUCTION
EQUIPMENT

生产设备



HELIUM LEAK INSPECTION MACHINE

氦检仪

Each of coil need helium inspection to ensure there is without any leak when customers get the goods.
每台产品发货前100%氦检，确保客户收到无泄漏产品。



NOCOLOK BRAZING FURNACE

NOCOLOK 钎焊炉

Max. products dimension for 6000*1600mm for single coil. High Precision, High automation brazing machine to ensure the high quality products and order delivery timely rate.

最大的产品尺寸6000mm*1600mm。高精度，高自动化，能保证产品的品质和订单交货及时率。



FAST FIN FORMING MACHINE AND COIL AUTOMATIC ASSEMBLE TABLE

翅片快速成型机和自动组装台

Fast fin forming and automatic assembling speed, with the good quality and high assembly consistency.
翅片成型和自动组装速度快，装配质量和一致性高。

SunCo Will Be Your Best Choice

三可是您最好的选择

- To create value for customers is our pursuit. Provide customer the most professional products and service.
- 为客户创造价值是我们的追求，为客户提供专业的产品和服务。
- Based on professional technology and reliable products quality, SunCo has offered products to 270 customers in 30 countries and areas.
- 凭借专业的技术优势和可信赖的产品品质，SunCo已为全球超过30个国家和地区270多家客户提供产品和服务。

COMMERCIAL NETWORK

Asia:



Europe:



South America:



North America:



Africa:



Oceania:



WE HAVE MORE THAN 30 COUNTRIES AND REGIONS OVERSEA CUSTOMERS!

我们有超过30个国家和地区的客户!