山东恒安环保科技有限公司
电话：0536-5607108　传真：0536-5607107
网址：www.wfhengan.com
邮箱：sales01@wfhengan.com
地址：山东省潍坊市奎文区虞河路2613 号

潍坊恒安进出口有限公司
电话：0536 -6103201 传真：0536 6103202
网址：www.hengancooling.com
邮箱：sales01@wfhengan.com
地址：山东省潍坊市奎文区虞河路2613 号

潍坊恒安散热器集团有限公司
电话：0536-4366722
网站：www.henganradiator.com
地址：山东省潍坊市安丘经济开发区莲花山西路

Shandong Heng An Eco- technologies Co.,Ltd.
Tel: +86 536 5607108　Fax:+86 536 5607107
Website:www.wfhengan.com
E-mail:sales01@wfhengan.com
Add:No.2613 Yuhe Road,Weifang City,Shandong Province,China.

Weifang Heng An Imp&Exp Co.,Ltd.
Tel: +86 536 6103201　Fax:+86 536 6103202
Website:www.hengancooling.com
E-mail:sales01@wfhengan.com
Add:No.2613 Yuhe Road,Weifang City,Shandong Province,China.

Weifang Heng An Radiator Group Co.,Ltd.
Tel: +86 536 4366722
Website:www.henganradiator.com
Add:Lianhuashan West Road,Anqiu City ,Shandong Province,China.

HENG AN COOLING

HENG AN COOLING
恒 安 传 热

山东恒安环保科技有限公司
潍坊恒安散热器集团有限公司
WEIFANG HENG AN IMP&EXP CO.,LTD
WEIFANG HENG AN RADIATOR GROUP CO.,LTD

www.hengancooling.com
www.wfhengan.com

公司理念：

诚信经营　追求卓越

制造精品　奉献社会

Philosophy of The Company :
Integrity Management, Pursuit of Excellence,
Manufacturing Quality Products, Contributing to Society

CONTENT

目录
CONTENT

企|业|简|介
About Heng An

中国.潍坊恒安散热器集团始建于1975年，占地500亩，拥有职工1100多人,总资产9.8亿元。集团下设山东恒安环保科技有限公司、潍坊恒安进出口有限公司、潍坊恒星散热器有限公司、潍坊恒安工业换热器有限公司、潍坊恒安热交换器检测有限公司等9家子公司。

公司位于山东半岛中部美丽的风筝都---潍坊市，距离青岛港90公里，是中国最大的热交换器研发、生产和行业的标准制定企业之一。中国汽车工业协会车用散热器委员会理事长单位、国家高新技术企业。先后获得中国名牌产品、国家免检产品等荣誉。

公司在中国同行业首家通过ISO9001质量管理体系认证、TS16949质量体系和环境管理体系认证。拥有国家级检测中心实验室，中国船级社认证、德国莱茵TUV认证、SGS认证、CE认证、和具有压力容器制造资质等国内外认证。拥有12类国家级新产品和121项国家专利技术，并组建参与多项省级重大科研创新项目。

公司有工业换热器、铜质换热器、铝质换热器、和环保节能设备四个国际标准厂区，8条生产线，年生产能力300万台/套。产品广泛应用于汽车、石油、化工、冶金、热电、制冷、环保、建筑、机械、发电机组等领域。在国内市场居于主导地位，并远销欧美亚多个国家和地区，公司已成为美国Caterpiller，法国标致（Peugeot），中国徐工(XCMG)、中国重汽(SINO)等多个世界知名企业多年的战略合作伙伴。

风雨四十年，“恒安”人秉承“诚信经营、追求卓越，制造精品、奉献社会”的企业理念！从标准化产品到最复杂的客户定制产品，“恒安”人为您诠释了最专业的全方位解决方案;以精益求精的产品制造和诚信体贴的服务，与您携手共创美好的未来！

Established in 1975, Weifang Heng An Radiator Group Co., Ltd is a state level high-tech enterprise and the chief director of Radiator Committee of China Association of Automobile Manufacturers, with more than 1100 staffs, an area of 34 hectares and total assets of USD 160 million. The group company currently has 9 subsidiaries, including Weifang Heng An Imp&Exp Co., Ltd., Weifang Heng An Industrial Heat Exchanger Co., Ltd., etc.

Heng An is one of the largest heat exchanger manufacturers, with a state level testing laboratory. It is the first one in the industry gets ISO Quality Management System Certification, TS16949 Quality Management System Certification and Environmental Management System Certification. The company highly focuses on product research& development, it has 12 National New Product categories and 121 patents, and participates many provincial level technology research& innovation projects. Heng An products have been certificated by TUV, SGS, CE, and are awarded China Famous Brand and State Inspection Exemption Product, etc.

Heng An currently has four factories which manufacture industry heat exchangers, copper radiators, aluminum radiators and environmental protecting& energy saving equipment, and the total annual production capability of eight production lines has reached to 3 million units/sets. Heng An products are widely used on automobile, petroleum, chemical engineering, refrigeration and many other areas, and are very popular in both domestic and overseas markets. On account of the great reputation among the customers, Heng An has been selected as the long term supplier of many international brands and cooperates closely with many world-famous enterprises including Caterpiller, Peugeot, XCMG, SINO, etc.

From standardized production to customization, we provide the professional and workable solutions for every customers, and we exceed our customers' expectations by delivering the excellent quality products and service.

铜散热器厂区图（Copper Radiator Plant）

工业换热器和环保设备厂区图
Industrial Heat Exchanger & Environmental Protection Equipment Plant

铝散热器厂区图（Aluminum Radiator Plant）

实力雄厚的研发能力
Outstanding R&D Ability

人员：

拥有专业研发人员52人，高级职称21人，聘请博士12人；

能力：

①根据不同领域设计和验证不同结构与材质的冷却系统，为客户提供定制化产品；

②根据样品装机试验数据，分析冷却系统并提出相关解决措施和专业的解决方案；

③帮助主机厂解决用户在使用过程中遇到的与冷却系统关的问题。

成 果：

拥有12类国家级新产品，121项国家专利技术及多项省级重大科研创新项目

Professionals:

We have 52 professionals working on product R&D area, 21 of them have senior professional titles and 12 professionals have doctor degrees.

Capability:

1. Customize product based on different application areas, structures and materials.
2. Analyze cooling system based on the data collected from the sample installed, and come up with the solution
3. Help end-users to solve the problems related to the cooling system.

Achievements:

12 national new product categories, 121 national patents and Provincial level technology research & innovation projects.

应用软件
Application Software

设计软件：Solidworks

分析软件：
设计、校核Thermsystem
流体仿真分析Flunt
冷却能力分析Star

模拟软件：振动模态分析Abaqus

Software for Design：Solidworks
Software for Analysis：
Design，calibration：Thermsystem
Fluid Simulation Analysis :Flunt
Cooling Capability Analysis: Star

Software for Simulation: Vibration modal analysis- Abaqus

合作创新
Cooperation Innovation

恒安技术中心与山东大学、中国石油大学等5所大学建立了产学研合作基地。成立山东省工程技术研究中心、省级企业技术中心。

国家级检测中心实验室：

公司实验室成立于1983年，2003年，检测中心通过中国合格评定国家认可委员会（CNAS)认可，获国家计量认证，拥有国内最先进、最全面的性能检测设备，能完成风阻、水（油、气）阻、散热性能、高温压力脉冲、盐雾腐蚀、热冲击、内腐蚀性、密封性、耐振性能、强度、拉伸、材质分析等全套检测；拥有国际领先的复合风洞试验设备，能同时检测风阻、介质阻力、散热性能等各项指标，为产品研发提供可靠、权威的数据。

National Testing Laboratory

Heng An establishes production research cooperative bases together with many institutes including Shandong University, China University of Petroleum, etc. We also establish Shandong Engineering Technology Research Center and Provincial Technology Center for product R&D.
Heng An laboratory was established in 1983, it is equipped with the most advanced and comprehensive testing equipment, and is capable of doing wind resistance test, water(oil, air) resistance test, heat dissipation performance test, torsional test, vibration test, thermal shock test, burst test, high temperature& pressure pulse test, salt fog test, etc. The laboratory has passed the assessment by China National Accreditation Service and National Metrology Certification, it can provide reliable and authoritative data for product R&D.

其它验证项
Other testing ability:

- 原材料检测验证 (Metal Element Spectrum)
- 金相分析 (Metallographic Analysis)
- 数码放大 (Digital Magnification)
- 投影仪测量 (Projector Measuring)
- 盐雾试验 (Salt Fog Test)
- 内腐蚀实(Internal Corrosion)

Other testing ability

资质荣誉 Honor

营业执照 (Business License of Legal Entity)

压力容器(Pressure Vessel Manufacturing License)

中国船级社型式认可证书 (China Classification Society Type Approval Certificate)

ISO9001 质量管理体系认证证书(ISO9001 Quality Management System Certificate)

蒸发式冷凝器 CE 证书 (Evaporative Condenser CE certificate)

ISO/TS16949 质量管理体系认证证书 (ISO/TS16949 Quality Management System Certificate)

国家级实验室认可证书 (National Laboratory Accreditation Certificate)

ISO14001 环境管理体系认证证书 (ISO14001 Environment Management System Certificate)

新型闭式冷却塔专利 (New Design Closed Cooling Tower Patent)

复合流蒸发式冷凝器专利(Combine Type Evaporative Condenser Patent)

高新技术企业 (High-tech enterprise)

国家级实验室认可证书 (National Laboratory Accreditation Certificate)

闭式冷却塔 CE证书 (Closed Circuit Cooling Tower CE Certificate)

新型冷却盘管专利 (New Type Heat Exchange Coil Patent)

带有进气机构的管壳式换器专利 (Shell And Tube Type Heat Exchanger With Air-inlet Mechanism Patent)

带有热补偿机构的空气冷却器专利 (Air Cooler With Thermal Compensation Mechanism Patent)

闭式冷却塔
Closed Circuit Cooling Tower

恒安闭式冷却塔在商业制冷和工业制冷过程中得到大量应用，一些实例如下：

Closed Circuit Cooling Towers are routinely selected for numerous commercial and industrial process cooling applications.Some examples include:

- 水源热泵 / Water-source heat pumps
- 独立冷却设备 / Self-contained cooling units
- 制冷主机 / Chillers
- 混合式蒸发式/干式冷却 / Hybrid evaporative /Dry cooling
- 对特殊液体的冷却 / Cooling special fluids
- 压缩机套体冷却、中间冷却、后冷却 / Compressor jacket cooling，intercooling ,aftercooling
- 机器套体冷却 / Machine jacket cooling
- 感应炉冷却 / Induction furances

复合流冷却塔
Combined Flow Closed Circuit Cooling Tower

1、工作原理

BHX复合流系列闭式冷却塔在工作时，流体在冷却盘管内流动，盘管外壁被喷淋水包裹。流体的热量通过管壁传递，与水和空气形成饱和的湿热蒸汽。蒸汽中热量由风机排入大气，水分被挡回水槽循环喷淋，消耗量极少。喷淋水在循环的过程中通过PVC散热片降低水温，并与新鲜入风形成风水同向流动，盘管主要依靠显热热传导方式，这种特别适用于温度与当地湿球温度相近的情况。

BHX Series Combined Flow Closed Circuit Cooling Tower Principle of Operation

The process fluid to be cooled is circulated within a serpentine cooling coil, which is continually wetted on the outside by the spraying water system. The heat is transferred by the wall of coil, becomes saturated steam when it meets spray water and air. Then the heat will be discharged into atmosphere by fan, but water will be collected in the basin by drift eliminator for recirculated spraying. The temperature of spraying water is reduced by PVC fill. spraying water flows in the same direction as the fresh air, to cool coil mainly by significant heat conduction way, which is especially suitable to the cases when cooling tower outlet temperature is much closer to the wet bulb temperature.

2、产品特点

■ 卓越的热交换性能

BHX 系列产品运用了风水同向二次热交换的盘管与填料组合的技术，有效避免了盘管壁干点和结垢的形成，实现了高效换热。

■ 检修方便

巨大的维修空间，为设备的检修提供便利，可在运行条件下通过检修门入塔内维修。实现不停机检修

■ 运输方便，安装简易

产品采用上，下箱体标准化设计，实现分体整装运输，大大节约了运输和安装成本。

■ 倾斜式水池设计

集水池底部向排污口端倾斜和pvc 填料热交换层悬挂结构设计，方便清洗及排除集水池的污水及杂质。

Product Characteristics：

■ Excellent Heat Exchange Performance

Parallel air and water path as well as the combination of coils and PVC fill, this effectively avoid the dry spot and scale formation, and improve the heat exchange performance.

■ Convenient Maintenance

Huge maintenance space makes it convenient to inspect the product. Technicians can enter the cooling tower during operation time.

■ Convenient Transportation and Installation

The cooling tower is designed to be standard upper body part and bottom body part, making it is able to be shipped separately and saves transportation and installation cost.

■ Slope Water Basin Design

Suspended PVC fill and sloped water basin floor toward the drain facilitate cleaning.

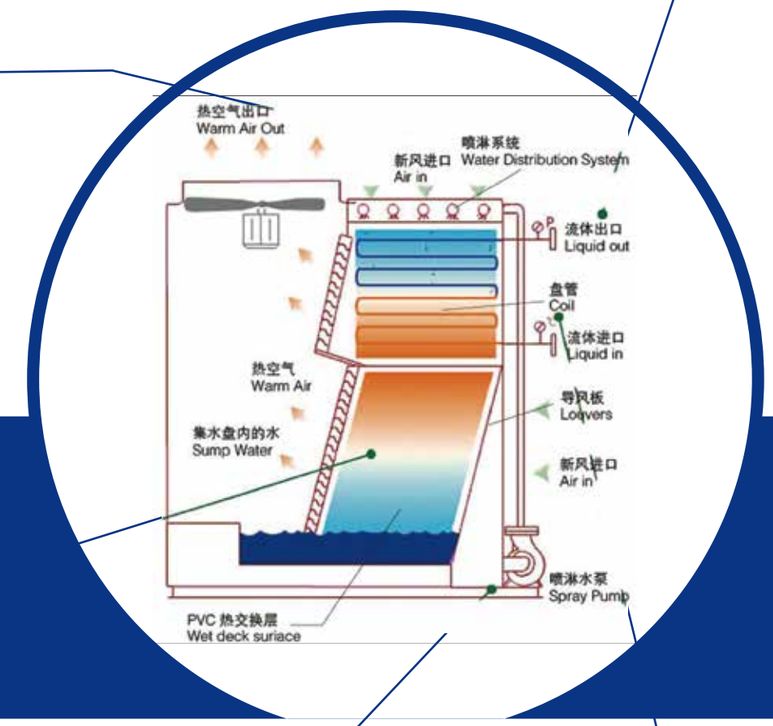
复合流运行原理图 Working Principle

平行的气流和水使传统设计的设备在管子底部出现的能够导致结垢的干点现象降低到最低程度。

Parallel air and water paths minimize the possibility of dry spot forming that may be found on the bottom of tubes in conventional units.

冷却后的喷淋水增加了水和较热的工艺流体之间的温度差，从而降低了盘管的尺寸，减少了盘管的连接点，并减轻了盘管的重量。该特征更进一步减缓了在盘管表面形成结垢的趋势，这是因为低温喷淋水为结垢合成物上提供了更高的溶解度。

The cooled recirculating water increases the temperature differential between the water and the warm process fluid, which results in a reduced coil size, fewer coil connections, and reduced the weight of coils. This feature also reduces the tendency to form scale on the coil since cooler water offers higher solubility for scale producing compounds.



循环喷淋水从盘管上落至PVC换热填料上，并于PVC换热填料上由第二股新鲜空气通过蒸发和显热式的热传导进行冷却。

The recirculating spraying water falls from the condensing coil to PVC fill where it is cooled by a second fresh air steam using both evaporative and sensible heat transfer processes.

流量最小为6.8l/s的喷淋水通过水泵打到盘管表面上，以确保盘管传热表面处于连续浸润的状态，从而提高热传导率，减少结垢。

Spraying water is pumped over the condensing coil surface at a minimum rate of 6.8L/s to ensure continuous flooding of the primary heat transfer surface which enhances heat transfer efficiency and minimizes fouling and scale formation.

盘管段一方面通过新鲜空气的蒸发冷却作用来散热，另一方面更大程度的通过喷淋水的显热冷却作用来散热。降低盘管中蒸发冷却的部分有助于减少盘管表面结垢的可能性。

The coils section rejects heat through both evaporative cooling using the fresh air stream, and through the sensible cooling of pre-cooled spray water which rejects the majority heat. Reducing the evaporative cooling part will help reduce the tendency of scale formation on the surface of coils.

BHX系列(复合流)闭式冷却塔技术参数(国际市场)

BHX Series Closed Circuit Cooling Tower Technical Data (International Market)

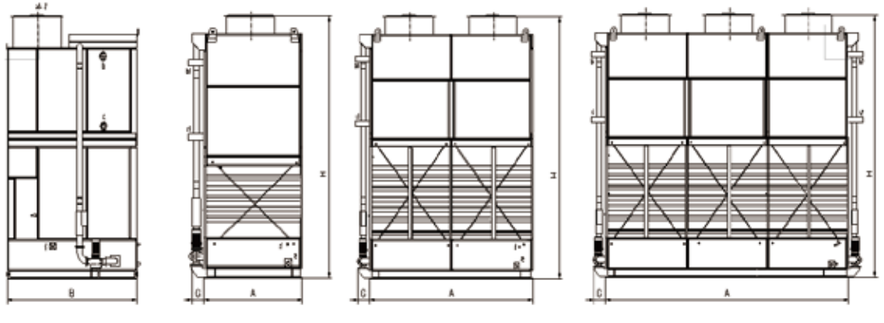
型号 MODEL	处理量 CAPACITY (M3/h)	风 机 FAN			水 泵 WATER SPRAYING PUMP			接管口径 INLET/ OUTLET DN(MM)	近似重量 WEIGHT		外形尺寸 DIMENSION		
		数量 QTY.	功率 POWER (KW)	单台风量 AIR VOLUME PER SET (M3/h)	数量 QTY.	功率 POWER (KW)	单台淋水量 WATER VOLUME PER SET (M3/h)		运输重量 SHIPPING (KG)	运行重量 OPERATING (KG)	总长 LENGTH (MM)	总宽 WIDTH (MM)	总高 HEIGHT (MM)
BHX-30	30	1	3	35000	1	1.1	36	DN80	2390	3790	1925	2380	4220
BHX-40	40	1	4	45000	1	1.1	45	DN100	2510	3910	1925	2380	4220
BHX-50	50	1	5.5	65000	1	1.1	45	DN100	2760	4340	1925	2580	4220
BHX-60	60	1	5.5	75000	1	1.5	65	DN100	3290	5140	1925	2900	4220
BHX-70	70	1	7.5	87000	1	1.5	65	DN100	3680	5530	1925	2900	4965
BHX-80	80	2	4	45000	1	2.2	84	DN100	4230	7650	3770	2200	4220
BHX-90	90	2	4	45000	1	2.2	84	DN125	4510	7930	3770	2200	4720
BHX-100	100	2	4	45000	1	2.2	84	DN125	4620	8040	3770	2200	4965
BHX-110	110	3	3	40000	1	3	120	DN125	6170	10170	4240	2200	4720
BHX-125	125	3	4	45000	1	3	120	2-DN100	6510	10510	4240	2200	4965
BHX-135	135	4	3	45000	1	3	120	2-DN100	7100	11950	5610	2200	4220
BHX-150	150	4	3	40000	1	3	120	2-DN100	7310	12160	5610	2200	4730
BHX-165	165	4	4	45000	1	3	120	2-DN100	7590	12440	5610	2200	4965
BHX-180	183	4	4	45000	1	4	170	2-DN125	8920	15580	7450	2200	4220
BHX-200	200	4	4	45000	1	5.5	230	2-DN125	9330	15990	7450	2200	4720
BHX-225	226	4	4	45000	1	5.5	230	2-DN125	9550	16210	7450	2200	4965
BHX-250	250	5	4	45000	1	5.5	230	4-DN100	11650	19090	9300	2200	4720
BHX-265	265	5	4	45000	1	5.5	230	4-DN100	12350	19790	9300	2200	4965
BHX-280	280	6	4	45000	1	5.5	230	4-DN100	12490	19930	9300	2200	4965

注意:

1.该数据不可用于制造。本手册中的数据只是在出版时有效的数据，在购买时要重新确认。
2.所有盘管接口的位置是大约的，不应使用此尺寸来预接管。
3.本数据表设计条件：湿球温度28.2℃,进水温度37℃,出口温度32℃。

Notes:

1.Do not use for construction. This brochure includes data current at the time of publication which should be reconfirmed at the time of purchase
2.All location dimensions for coil connections are approximate and should not be used for prefabrication of connecting piping.
3.Design conditions：wet bulb temperature 28.2℃,inlet water temperature 37℃,outlet water temperature 32℃



BHX系列(复合流)闭式冷却塔技术参数(国内市场)

BHX Series Closed Circuit Cooling Tower Technical Data (China Market)

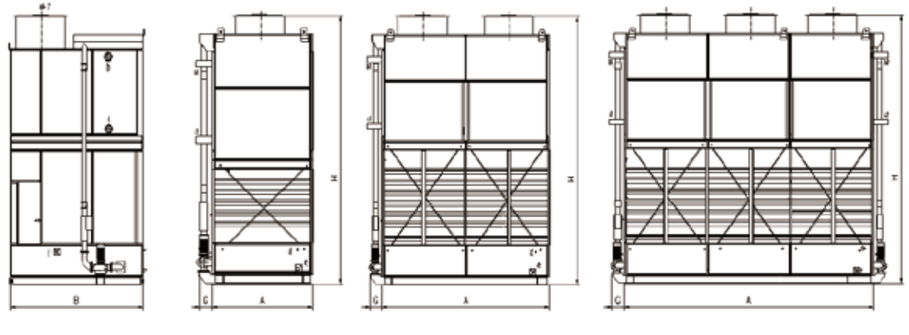
型号 MODEL	名义处理量 CAPACITY	风机功率 FAN MOTOR (KW)	风量 AIR FLOW (M3/h)	水泵功率 PUMP MOTOR (KW)	淋水量 AMOUNT OF WATER (M3/h)	接管口径 INLET/OUTLET DN(MM)	重 量 WEIGHT(KG)		外形尺寸 DIMENSION		
							运输重量 SHIPPING	运行重量 OPERATING	总长 LENGTH	总宽 WIDTH	总高 HEIGHT
BHX-30	33	3	46000	1.1	32	DN80	2950	3880	1785	2380	4220
BHX-40	43	4	60000	1.5	45	DN100	3150	4290	1785	2380	4220
BHX-50	51	5.5	65000	1.5	45	DN100	3680	5100	1925	2380	4220
BHX-60	61	5.5	75000	2.2	65	DN100	3850	5500	1925	2980	4240
BHX-70	70	5.5	75000	2.2	65	DN100	4950	7980	1925	2980	4870
BHX-85	88	2-5.5	2-65000	3	100	DN100	5280	8250	3490	2380	4240
BHX-100	105	2-7.5	2-72000	3	100	DN100	5580	8900	3490	2380	4240
BHX-125	128	2-5.5	2-75000	4	130	2-DN100	5750	9100	3770	2580	4870
BHX-150	152	2-7.5	2-87000	4	150	2-DN100	6550	9850	3770	2980	4870
BHX-175	176	3-7.5	3-87000	5.5	180	2-DN100	6890	10900	5610	2580	4910
BHX-200	201	3-7.5	3-87000	5.5	180	2-DN100	7350	11200	5610	2580	4910
BHX-225	226	3-7.5	3-87000	5.5	180	2-DN100	7880	11800	5610	2980	4910
BHX-250	260	3-7.5	3-100000	2-3	2-100	2-DN125	8860	12600	5610	3420	4910
BHX-300	300	4-7.5	4-870000	2-4	2-130	4-DN100	10600	13900	7050	2980	4910
BHX-350	348	4-7.5	4-100000	2-4	2-130	4-DN100	12500	15800	7450	3520	4910
BHX-400	420	4-11	4-120000	2-4	2-150	4-DN100	13900	18900	7450	3520	4910
BHX-450	460	5-7.5	5-100000	2-5.5	2-180	4-DN125	15600	20500	8630	3520	4910
BHX-500	505	5-11	5-120000	2-5.5	2-180	4-DN125	16900	23900	9280	3520	4910

注意:

1.该数据不可用于制造。本手册中的数据只是在出版时有效的数据，在购买时要重新确认。
2.所有盘管接口的位置是大约的，不应使用此尺寸来预接管。
3.本数据表设计条件：湿球温度28.2℃,进水温度37℃,出口温度32℃。

Notes:

1.Do not use for construction. This brochure includes data current at the time of publication which should be reconfirmed at the time of purchase
2.All location dimensions for coil connections are approximate and should not be used for prefabrication of connecting piping.
3.Design conditions：wet bulb temperature 28.2℃,inlet water temperature 37℃,outlet water temperature 32℃



逆流式冷却塔
Counter Flow Closed Circuit Cooling Tower

BNX逆流式闭式冷却塔，进风形式为底部逆流进风，与下落的喷淋水逆向交替形成饱和湿热空气，热量由顶部风机排出，其中的水份由特殊结构设计的收水器收回集水槽循环喷淋使用，内部空间没有换热填料，腾出更多的空间增加盘管的单位散热面积，结构更紧凑、占地小。特别适合于高温流体的冷却。

For BNX series counter flow type closed circuit cooling tower, the fresh air intakes from bottom air inlet, and will become saturated hot air mixed with spraying water as they flow in reverse direction. The heat will be exhausted out by fans，but the water will be collected to water basin for secondary spraying by its special designed drift eliminator. As no infill inside, BNX series cooling tower has much space to enlarge its coil unit heat rejection area, the structure is more compact and requires less footprint. Especially, its suitable to the fluid with high temperature.

■ 产品特点

1）无填料设计，结构更紧凑，占用空间小，运输安装方便。
2）密闭性好，适用多沙尘等恶劣环境，如炼铁厂，铸造厂及各类厂矿企业。
3）无填料设计，适用高温冷却介质
4）喷淋水流速快，不易结冰，抗冰冻能力强

■ Advantages:

1, No infill designed, more compact structure, lower profile, less installation area required, and easy for transport and installation.
2,Suitable to severe environment as its structure much more close, which could prevent from sand and dust. So it widely used for casting workshop,mining factory etc.
3, Suitable to high temperature fluid, because hot spraying water will not distort PVC fill as no PVC fill designed.
4, Freezing resistance,because there is no PVC fill to slow down spraying water flow speed.

逆流运行原理图
Working Principle

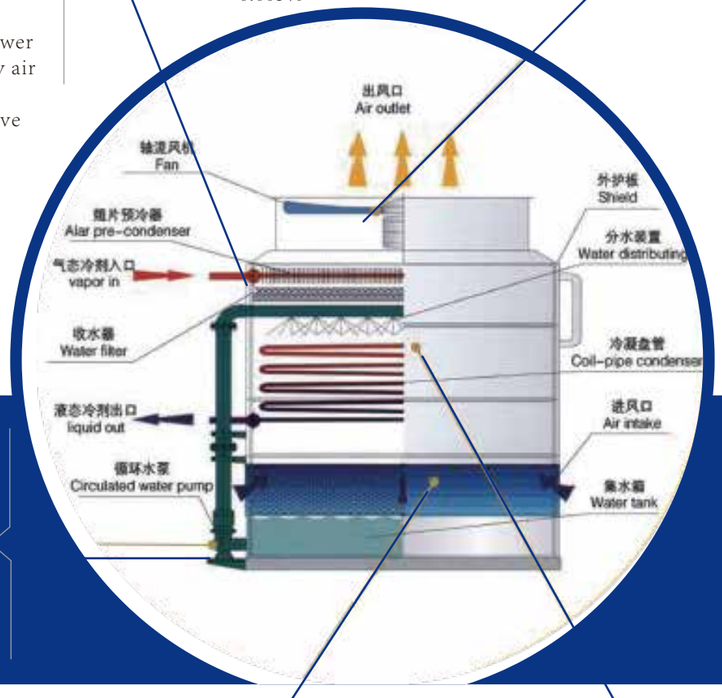
BNX-F干湿结合型闭式冷却塔是在逆流式冷却塔的基础上增加预冷翅片管设计.

增加预冷翅片，实现了高温液体的预冷，减少喷淋水的蒸发，大大节约运行成本

With fin-tube coil designed, BNX-F series ‘Dry-Wet Combined Type’ closed circuit cooling tower could pre-cool the inner fluid by air only, which reduces evaporative amount of spraying water and save operation cost effectively.

收水器由优质PVC材料制成，耐光照，寿命长。可高效去除排出气流中夹带的水滴，水飘逸率≤0.005%

Drift eliminator is made of high quality PVC, sunshine proof and durable. It could effectively collect the water from the hot air that to be exhausted out, to make drift loss rate ≤0.005%



将流量最小为6.8l/s的喷淋水通过水泵打到盘管表面上，以确保主要的传热表面上连续浸润的状态，从而提高热传导率，并将结垢降低到最低程度。

Spaying water is pumped over coil surface at a speed no less than 6.8l/s, and keep coil in continuous soaked state, which effectively improve heat transfer efficiency and reduce scaling.

最新改进的进风格栅，进入水盘时拆卸方便，防止阳光直射，避免水藻的产生，并有效的防止灰尘和脏物进入机组。

Removable air inlet grille with new design, from where easy access to the water basin for maintenance, it prevents from direct sunlight, avoid the production of algae, and protect it from dust and filth.

在管子内可能沉积可溶性污垢或污泥的条件下，采用可清洁式集箱盘管束。

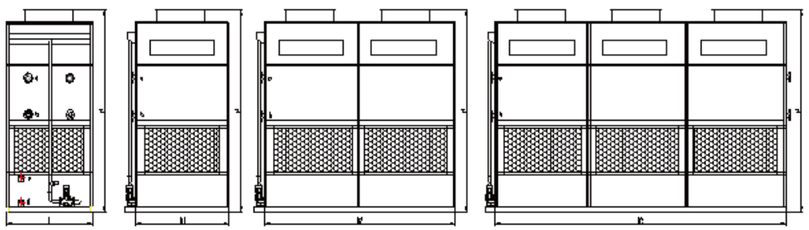
For applications that might deposit soluble scale or sludge within the coil, cleanable tube bundle box type coil is selectable.

BNX系列(逆流)闭式冷却技术参数(国际市场)
BNX Series Closed Circuit Cooling Tower Technical Data (International Market)

型号 MODEL	处理量 CAPACITY (M3/h)	风 机 FAN			水 泵 WATER SPRAYING PUMP			接管口径 INLET/ OUTLET DN(MM)	近似重量 WEIGHT		外形尺寸 DIMENSION		
		数量 QTY.	功率 POWER (KW)	单台风量 AIR VOLUME PER SET (M3/h)	数量 QTY.	功率 POWER (KW)	单台淋水量 WATER VOLUME PERSET (M3/h)		运输重量 SHIPPING (KG)	运行重量 OPERATING (KG)	总长 LENGTH (MM)	总宽 WIDTH (MM)	总高 HEIGHT (MM)
BNX-10	12	1	1.5	18000	1	0.55	23	DN50	890	1660	1230	1150	3440
BNX-20	21	1	2.2	30000	1	0.75	28	DN50	1370	2480	1925	1150	3650
BNX-30	33	1	3	45000	1	0.75	28	DN50	1990	3620	1925	1840	3840
BNX-40	43	1	4	60000	1	1.1	45	DN80	2120	3790	1925	1840	4220
BNX-50	51	1	5.5	75000	1	1.5	65	DN80	2420	4490	2470	1840	4220
BNX-60	61	1	7.5	87000	1	1.5	65	DN80	2690	4760	2470	1840	4450
BNX-70	70	1	7.5	100000	1	2.2	84	DN100	3650	6080	2790	1840	4450
BNX-80	80	2	4	65000	1	2.2	84	DN100	4150	7480	3770	1840	4220
BNX-90	90	2	4	65000	1	2.2	84	DN100	4680	8010	3770	1840	4450
BNX-100	100	2	4	65000	1	2.2	84	DN125	5120	8450	3770	1840	4450
BNX-110	110	2	5.5	75000	1	3	120	DN125	5360	9430	3770	2200	4220
BNX-125	125	2	5.5	75000	1	3	120	2-DN100	5980	10050	3770	2200	4450
BNX-135	135	2	5.5.	87000	1	4	170	2-DN100	6230	11270	4846	2200	4350
BNX-150	150	2	7.5	100000	1	4	170	2-DN100	6560	11590	4846	2200	4650
BNX-165	165	3	4	65000	1	4	170	2-DN100	7850	13730	5610	2200	4350
BNX-180	183	3	5.5	75000	1	4	170	2-DN125	8450	14330	5610	2200	4650
BNX-200	200	3	5.5	75000	1	4	170	4-DN80	9180	15380	6046	2200	4650
BNX-225	225	3	7.5	87000	1	5.5	230	4-DN80	9780	17340	7230	2200	4650
BNX-250	250	4	5.5	75000	2	3	120	4-DN100	10860	18520	7450	2200	4650
BNX-265	265	4	5.5	75000	2	4	170	4-DN100	11480	20880	9030	2200	4965
BNX-280	280	4	5.5	75000	2	4	170	4-DN100	11720	21120	9030	2200	4965

注意:
1.该数据不可用于制造。本手册中的数据只是在出版时有效的数据，在购买时要重新确认。
2.所有盘管接口的位置是大约的，不应使用此尺寸来预接管。
3.本数据表设计条件：湿球温度28.2 C ,进水温度37 C ,出口温度32 C 。

Notes:
1.Do not use for construction. This brochure includes data current at the time of publication which should be reconfirmed at the time of purchase
2.All location dimensions for coil connections are approximate and should not be used for prefabrication of connecting piping.
3.Design conditions：wet bulb temperature 28.2 C ,inlet water temperature 37 C ,outlet water temperature 32 C

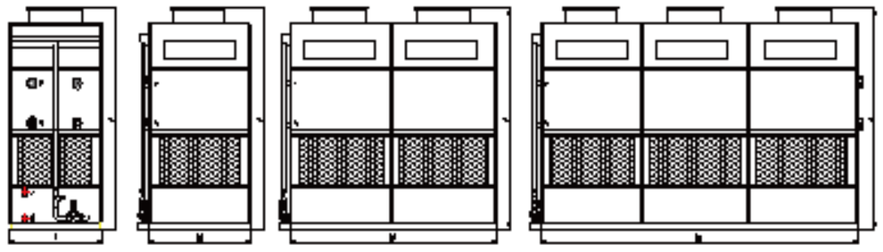


BNX系列（逆流）闭式冷却技术参数（国内市场）
BNX Series Closed Circuit Cooling Tower Technical Data (China Market)

型号 MODEL	名义排热量 CAPACITY	风机功率 FAN MOTOR (KW)	风量 AIR FLOW (M3/h)	水泵功率 PUMP MOTOR (KW)	淋水量 AMOUNT OF WATER (M3/h)	接管口径 INLET/OUTLET DN(MM)	近似重量 WEIGHT(KG)		外形尺寸 DIMENSION		
							运输重量 SHIPPING	运行重量 OPERATING	总长 LENGTH	总宽 WIDTH	总高 HEIGHT
BNX-10	12	1.5	18000	0.55	23	DN50	810	1280	1230	1150	3440
BNX-20	21	2-2.2	25000	0.75	28	DN50	1350	2120	1925	1150	3650
BNX-30	33	4	65000	0.75	28	DN50	1610	2420	1925	1840	3650
BNX-40	43	5.5	72000	1.1	53	DN80	2120	3220	1925	1840	3840
BNX-50	51	5.5	78000	1.5	70	DN80	2410	3530	2470	1840	4010
BNX-60	61	7.5	87000	1.5	70	DN80	2690	3820	2470	1840	4010
BNX-70	70	7.5	100000	2.2	84	DN100	3650	5400	2470	2380	4010
BNX-85	88	2-5.5	2-77000	3	120	DN100	4890	7520	3770	1840	4310
BNX-100	105	2-5.5	2-77000	3	120	DN100	5120	7750	3770	1840	4310
BNX-125	128	2-5.5	2-80000	3	150	2-DN100	6320	9020	3770	2380	4510
BNX-150	152	2-11	2-125000	3	150	2-DN100	6490	9190	3770	2380	4590
BNX-175	176	3-5.5	3-77000	5.5	233	2-DN100	8400	12450	5610	2380	4550
BNX-200	201	3-5.5	3-80000	5.5	233	4-DN100	9420	13460	6046	2380	4550
BNX-225	226	3-5.5	3-80000	5.5	233	4-DN100	9780	13820	6046	2380	4630
BNX-250	260	2-11	2-125000	2-3	2-150	4-DN100	13780	19670	6046	2980	4830
BNX-300	300	2-15	2-180000	2-3	2-150	4-DN100	14320	20210	6046	2980	4830
BNX-350	348	3-11	3-125000	2-4	2-180	4-DN100	16310	24050	7240	2980	4830
BNX-400	420	3-11	3-140000	2-5.5	2-233	4-DN100	20220	29890	8630	3490	4970
BNX-450	460	3-11	3-140000	2-5.5	2-233	4-DN125	22480	32280	8630	3490	4970
BNX-500	505	3-15	3-180000	2-5.5	2-233	4-DN125	24750	35710	9026	3490	4970

注意:
1.该数据不可用于制造。本手册中的数据只是在出版时有效的数据，在购买时要重新确认。
2.所有盘管接口的位置是大约的，不应使用此尺寸来预接管。
3.本数据表设计条件：湿球温度28.2 C ,进水温度37 C ,出口温度32 C 。

Notes:
1.Do not use for construction. This brochure includes data current at the time of publication which should be reconfirmed at the time of purchase
2.All location dimensions for coil connections are approximate and should not be used for prefabrication of connecting piping.
3.Design conditions：wet bulb temperature 28.2 C ,inlet water temperature 37 C ,outlet water temperature 32 C



蒸发式冷凝器
Evaporative Condenser

蒸发式冷凝器产品广泛应用于能源化工、医药、煤炭、电力、工业制冷、啤酒、饮料、食品的低温加工、冷藏、建筑空调制冷等领域。

Evaporative Condenser is widely used in energy chemical industry,Pharmaceuticals coal, electricity, industrial refrigeration, beer,beverage,-food processing, the cold storage, the building air conditioning refrigeration,etc

食品工业The food industry

- 家禽屠宰场 Poultry Slaughtering Plant
- 多用途冷库统 Multi-purpose cold Storage
- 啤酒和饮料工业 Beer and beverage industry
- 工业制冰/溜冰场 Industrial ice/Skating Rink
- 冰淇淋厂 Ice cream factory
- 鱼类加工业 Fish processing industry

化工医药Chemical medicine

- 甲醇/合成氨压缩机间冷却 Inter-cooling of methanol/methanol synthetic ammonia compressor
- 合成气冷却冷凝 Syngas cooling condensation
- 天然气或焦煤气转化工序气体冷却 Methanol distillation process cooling condensation
- 净化工序冷凝冷却 Gas cooling of natural gas or coke gas exchange process
- 尿素的尾气回收 Purification process as weoo as cooling condensation
- 汽轮机的蒸汽冷凝 Steam condensation of turbine
- 乙酸乙酯冷凝 Ethyl acetate condensation

蒸发式冷凝器的优点

相对传统方式的冷凝器，蒸发式冷凝器具有以下几方面的优势：

一、节能

同风冷式冷凝器相比，蒸发式冷凝器冷凝温度较低。而冷凝温度每升高1℃，单位制冷量的耗电量将增加3%～3.5%，所以采用蒸发式冷凝器总功耗也会显著降低，节能效果明显。

二、节水

蒸发式冷凝器充分利用水的汽化潜热，因而大大减少了水的损耗，对于水资源不足的地区非常重要。

三、结构紧凑，节省投资费用

由于不需另外设置冷却塔，故整个装置结构紧凑、体积小、占地面积少，蒸发式冷凝器通过把冷凝器盘管和冷却塔结合成一体节省了宝贵的空间。由于蒸发式冷凝器高效率地利用蒸发式冷却换热方式，所以能有效地减少换热面积、风扇的数量和风机电机功耗。

四、不污染环境

不少化工厂以往采用管壳式或淋激式冷凝器，夏季时由于冷凝压力过高，常采用“放空降压”，但每次放出的并不是不凝性气体，其中含有大量的氨气，据有关部门取样分析，有时高达90%，不仅氨损失相当严重，还造成环境污染。但用蒸发式冷凝器后不存在这种现象。

Evaporative Condenser Advantages：

Compared with the traditional condenser, ‘HAC’evaporative condenser has the following advantages:

1、Energy Saving

Compared with air cooled condenser, the condensing temperature of evaporative condenser is much lower. Every 1℃ the condensing temperature increased, the power consumption for refrigerating capacity per unit will be increased by 3%~3.5%. So ‘HAC’ evaporative condenser has better energy conservation effect.

2、Water Conservation

‘HAC’ evaporative condenser makes full use of the latent heat from water vaporization, which could reduce the water loss of spraying water effectively. Its very important for the region where lack of water.

3、Compact structure, investment cost low

‘HAC’evaporative condenser has compact structure, small size and less footprint, because its structure equal to one unit that combined condensing coil and cooling tower, no need to equip a cooling tower for it any more. Meanwhile, it effectively reduce the coil heat exchange area, fan quantity and motor power consumption by making full use of evaporative cooling.

4、Environmental-friendly

Many chemical plants use tube and shell type or atmospheric type condenser in the past, and vent depressurization is a way often used in the summer due to its condensing pressure too high, but not all non-condensable gas exhausted, which contains a large amount of ammonia, even high to 90% sometimes according to sampling analysis from relevant departments not only ammonia loss much, but also environmental pollution seriously. But it won’t happen for HAC evaporative condenser.

复合流蒸发式冷凝器
Combined Flow Evaporative Condenser

1、工作原理

ZHX复合流系列蒸发式冷凝器，工作流体在盘管中流动，盘管外壁被喷淋水包裹，流体的热量通过管壁传递，与水和空气形成饱和湿热蒸汽,热量由风机排入大气。水份被挡回水槽循环喷淋，消耗量极少。喷淋水在循环的过程中通过PVC散热片降低水温，与新鲜入风形成风水同向流动，盘管主要依靠显热热传导方式.

Working Principle

For ZHX series combined flow type evaporative condenser, the coil will soaked fully by spraying water when process fluid flows inside, meanwhile, the heat of working fluid will be transferred by wall of coil tube, and become saturated wet-hot vapor after mixed with water and air, then it will be discharged into atmosphere by fan, but water will be collected into water basin by drift eliminator for recycled spraying, low water consumption. The spraying water temperature will be reduced by PVC infill during the recycling, and it flows in same direction to fresh air, to cool coil mainly by sensible heat conduction way.

2、产品特点

(1)卓越的热交换性能

ZHX 系列产品运用了风水同向二次热交换的盘管与填料组合的技术，有效避免了盘管壁干点和结垢的形成，实现了高效换热。

(2)检修方便

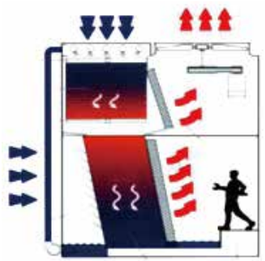
巨大的维修空间，为设备的检修提供便利，可在运行条件下通过检修门入塔内维修。实现不停机检修

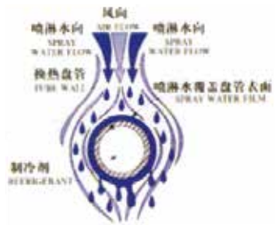
(3)运输方便，安装简易

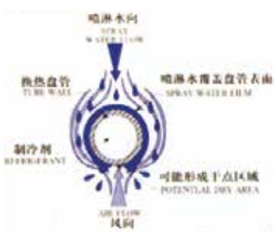
产品采用上，下箱体标准化设计，实现分体整装运输，大大节约了运输和安装成本。

(4)倾斜式水池设计

集水池底部向排污口端倾斜和pvc填料热交换层悬挂结构设计，方便清洗及排除集水池的污水及杂质。







Advantages:

(1)Excellent Heat Exchange Performance

Parallel air and water path as well as the combination of coils and PVC fill, this effectively avoid the dry spot and scale formation, and improve the heat exchange performance.

(2)Convenient Maintenance

Huge maintenance space makes it convenient to inspect the product. Technicians can enter the cooling tower during operation time.

(3)Convenient Transportation and Installation

The Evaporative condenser is designed to be standard upper body part and bottom body part, making it is able to be shipped separately and saves transportation and installation cost.

(4)Slope Water Basin Design

Suspended PVC fill and sloped water basin floor toward the drain facilitate cleaning.

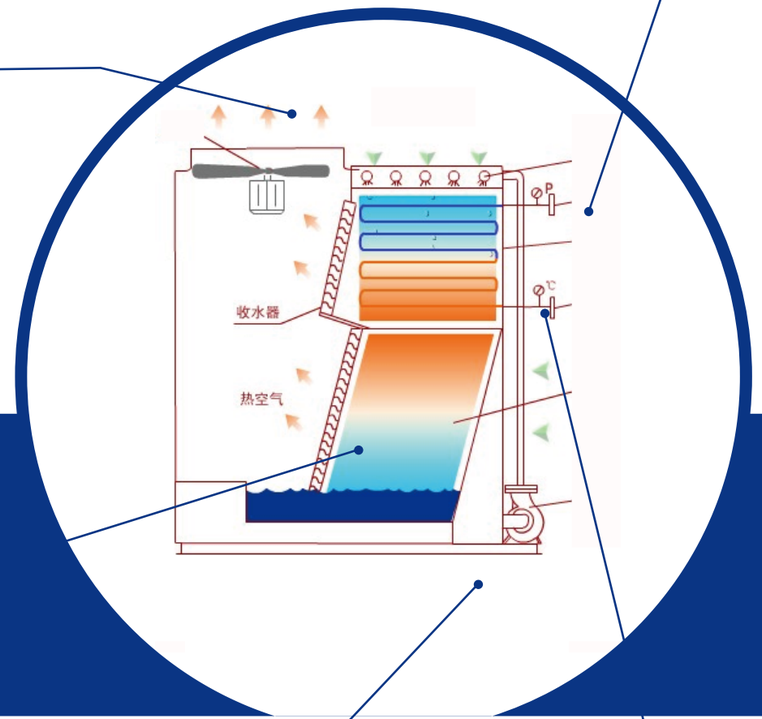
复合流运行原理图
Working Principle Show

平行的气流和水使传统设计的设备在管子底部出现的能够导致结垢的干点现象降低到最低程度。

Parallel air and water paths minimize the possibility of dry spot forming that may be found on the bottom of tubes in conventional units.

冷却后的喷淋水增加了水和较热的工艺流体之间的温度差，从而降低了盘管的尺寸，减少了盘管的连接点，并减轻了盘管的重量。该特征更进一步减缓了在盘管表面形成结垢的趋势，这是因为低温喷淋水为结垢合成物上提供了更高的溶解度。

The cooled recirculating water increases the temperature differential between the water and the warm process fluid, which results in a reduced coil size, fewer coil connections, and reduced the weight of coils. This feature also reduces the tendency to form scale on the coil since cooler water offers higher solubility for scale producing compounds.



循环喷淋水从盘管上落至PVC换热填料上，并于PVC换热填料上由第二股新鲜空气通过蒸发和显热式的热传导进行冷却。

The recirculating spraying water falls from the condensing coil to PVC fill where it is cooled by a second fresh air steam using both evaporative and sensible heat transfer processes.

流量最小为6.8l/s的喷淋水通过水泵打到盘管表面上，以确保盘管传热表面处于连续浸润的状态，从而提高热传导率，减少结垢。

Spaying water is pumped over the condensing coil surface at a minimum rate of 6.8L/s to ensure continuous flooding of the primary heat transfer surface which enhances heat transfer efficiency and minimizes fouling and scale formation.

盘管段一方面通过新鲜空气的蒸发冷却作用来散热，另一方面更大程度的通过喷淋水的显热冷却作用来散热。降低盘管中蒸发冷却的部分有助于减少盘管表面结垢的可能性。

The coils section rejects heat through both evaporative cooling using the fresh air stream, and through the sensible cooling of pre-cooled spray water which rejects the majority heat. Reducing the evaporative cooling part will help reduce the tendency of scale formation on the surface of coils.

逆流系列
Counter Flow Evaporative Condenser

工作原理

ZNX逆流系列蒸发式冷凝器，底部逆流进风，与下落的喷淋水逆向交替形成饱和湿热空气，热量由顶部风机排出，其中的水份由特殊结构设计的收水器收回集水槽循环喷淋使用，内部空间没有换热填料，腾出更多的空间增加盘管的单位散热面积，结构更紧凑、占地小。

Working principle

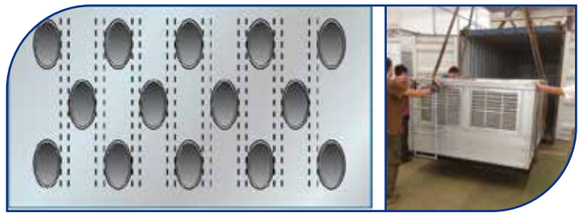
For ZNX series combined flow evaporative condenser, the fresh air intakes from bottom air inlet, and will become saturated hot air mixed with spraying water as they flow in reverse direction. The heat will be exhausted out by fans，but the water will be collected to water basin for secondary spraying by its special designed drift eliminator. As no infill inside, ZNX series combined flow evaporative condenser has much space to enlarge its coil unit heat rejection area, more compact structure and requires less footprint .

产品特点

1）无填料设计，结构更紧凑，占用空间小，运输安装方便。
2）密闭性好，适用多沙尘等恶劣环境
3）无填料设计，适用高温冷却介质
4）喷淋水流速快，不易结冰，抗冰冻能力强

Advantage：

1, No infill designed, more compact structure, lower profile, less installation area required, and easy for transport and installation.
2,Suitable to severe environment as its structure muchmore close, which could prevent from sand and dust.
3, Suitable to high temperature fluid, because hot spraying water will not distort PVC fill as no PVC fill designed.
4, Freezing resistance,because there is no PVC fill to slow down spraying water flow speed.



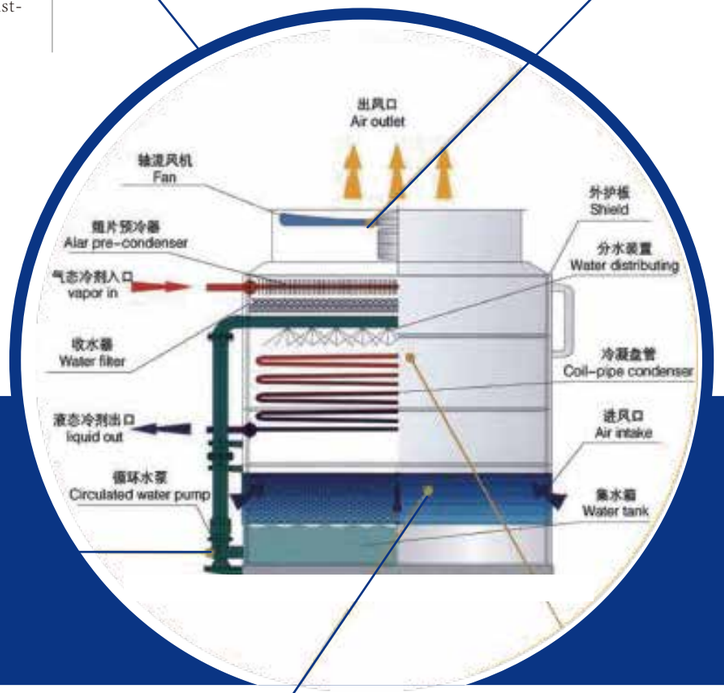
逆流运行原理图
Working Principle Show

收水器由优质PVC材料制成，耐光照，寿命长。可高效去除排出气流中夹带的水滴，水飘逸率≤0.005%

Drift eliminator is made of high quality PVC, sunshine proof and durable. It could effectively collect the water from the hot air that to be exhausted out, to make drift loss rate ≤0.005%

在管子内可能沉积可溶性污垢或污泥的情况下，采用可清洁式集箱盘管束。

For the applications that might deposit soluble scale or sludge within the coil, cleanable tube bundle box type coil is selectable.



将流量最小为6.8l/s的水通过水泵打到盘管表面上，以确保主要的传热表面上连续浸润的状态，从而提高热传导率，并将结垢降低到最低程度。

Spaying water is pumped over coil surface at a speed no less than 6.8l/s, and keep coil in continuous soakedstate, which effectively improve heat transfer efficiency and reduce scaling.

最新改进的进风格栅，进入水盘时拆卸方便，防止阳光直射，避免水藻的产生，并有效的防止灰尘和脏物进入机组。

Removable air inlet grille with new design, from where easy access to the water basin for maintenance, it prevents from direct sunlight, avoid the production of algae, and protect it from dust and filth.

蒸发式冷凝器的选型 Model Selection

一、设备选型

1、确定系统总排热量：总排热量＝管内介质冷凝汽化潜热＋介质冷却的散热量（制冷系统可根据系统制冷量选型）；

2、确定设计条件： 冷凝介质、冷凝温度、及当地的湿球温度；

3、查排热量修正系数表，确定修正系数；

4、确定修正排热量：修正排热量＝总排热量×修正系数；

5、选择蒸发式冷凝器：从恒安蒸发冷型号技术参数表中选择标准排热量等于或大于计算出的修正排热量的蒸发式冷凝器。

二、举例

（以常用氨制冷为例）

1、氨制冷系统总排热量为1200KW。(压缩机制冷量+压缩机轴功率=总排热量)

2、使用条件：冷凝温度36℃，湿球温度28℃。

3、查表，排热量校正系数为1.22。

4、计算冷凝器的实际负荷：

1200KW×l.22=1464 KW

5、ZHX选型表，选ZHX-1520型蒸发式冷凝器，其排热量是所有大于1464KW的型号最小的一个。

三、选型方法注意事项

1、设备配置表中的数据仅供参考；

2、表中运行重量为设备重量加介质充注量及底部水盘贮水的重量；

3、用户非标准的特殊要求，可定制设计；

4、表中的名义工况排热量是指冷凝温度为36℃，使用地夏季湿球温度为26摄氏度时的数据。

1、Model Selection

1, Confirm Total System Heat Rejection Capacity: Total System Heat Rejection Capacity = Total latent heat of condensing medium inside + Total heat rejection of condensing medium (For refrigeration system, it could be selected based on system refrigeration capacity)

2, Confirm the design conditions: Condensing Medium, Condensation Temperature, and Wet Bulb Temperature

3, Determine the correction coefficient ‘R’ by lookup correction coefficient table.

4, Determine Corrected Heat Rejection Capacity: Corrected Heat Rejection Capacity = Total System Heat Rejection Capacity * ‘R’ (correction coefficient).

5, Model selection: select the evaporative condenser model with rated capacity equal to or greater than the Corrected Heat Rejection Capacity.

2、Example

（Take Ammonia refrigeration as an example）

1, Total Heat Rejection Capacity of the ammonia refrigeration system is 1200 kw. (Total Heat Rejection Capacity = Compressor refrigerating capacity + Compressor shaft power)

2, Operating condition: Condensation temperature 36 ℃, Wet Bulb Temperature 28 ℃.

3, Lookup ‘Correction Coefficient Table for R717’, and get the correction coefficient 1.22.

4, Determine Corrected Heat Rejection Capacity: 1200kw x l. 22 = 1464kw

5, According to ZHX model table of HAC evaporative condenser, select model ZHX-1520 as it’s the smallest one in these models with capacity greater than1464 kw.

3、Notice

1, The parameters in the datasheet is for reference only.

2, Operating weight is the weight of equipment full of refrigerant, and bottom water tray full of spraying water.

3, For client’s non-standard requirement, customization available.

4, The rated heat rejection capacity in the datasheet is calculated based on following design conditions: Condensing Temperature=36℃, Maximum Wet bulb Temperature=26℃.

表1：R717 排热量校正系数表 Heat rejection correction index for R717

冷凝温度 Condensing temperature	空气进口湿球温度（℃）Air inlet wet bulb temperature																		
℃	10	12	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
29	0.72	0.78	0.86	0.96	1.01	1.09	1.18	1.30	1.43	1.60	1.84	2.16	2.66	/	/	/	/	/	/
30	0.68	0.73	0.81	0.88	0.94	1.00	1.07	1.15	1.27	1.40	1.59	1.79	2.13	/	/	/	/	/	/
31	0.64	0.68	0.74	0.82	0.86	0.91	0.97	1.04	1.12	1.22	1.36	1.52	1.74	2.06	/	/	/	/	/
32	0.61	0.65	0.69	0.74	0.80	0.84	0.89	0.95	1.02	1.10	1.20	1.34	1.49	1.70	2.02	/	/	/	/
33	0.57	0.61	0.65	0.70	0.73	0.78	0.82	0.87	0.92	0.99	1.07	1.16	1.29	1.45	1.66	1.96	/		
34	0.55	0.58	0.62	0.66	0.69	0.72	0.76	0.80	0.86	0.90	0.96	1.04	1.14	1.27	1.42	1.63	/	/	/
35	0.52	0.54	0.58	0.62	0.64	0.67	0.70	0.73	0.78	0.83	0.88	0.94	1.02	1.11	1.23	1.37	1.59	1.86	2.16
36	0.50	0.52	0.55	0.59	0.61	0.63	0.66	0.69	0.72	0.75	0.81	0.86	0.92	1.00	1.09	1.22	1.35	1.54	1.76
37	0.47	0.49	0.52	0.55	0.57	0.59	0.61	0.64	0.67	0.70	0.73	0.79	0.84	0.90	0.97	1.06	1.21	1.32	1.52
38	0.45	0.47	0.49	0.53	0.55	0.56	0.58	0.60	0.62	0.65	0.68	0.72	0.76	0.82	0.88	0.96	1.04	1.19	1.35
39	0.43	0.45	0.47	0.50	0.52	0.53	0.54	0.56	0.58	0.61	0.63	0.67	0.70	0.74	0.80	0.86	0.95	1.02	1.18
40	0.42	0.43	0.45	0.48	0.49	0.50	0.52	0.53	0.55	0.58	0.60	0.62	0.66	0.69	0.73	0.78	0.85	0.93	1.01
41	0.40	0.41	0.43	0.45	0.46	0.47	0.49	0.50	0.52	0.54	0.58	0.58	0.61	0.64	0.67	0.71	0.76	0.83	0.92
42	0.39	0.40	0.41	0.43	0.44	0.45	0.47	0.48	0.49	0.51	0.55	0.55	0.57	0.60	0.62	0.66	0.70	0.74	0.82
43	0.37	0.38	0.39	0.41	0.42	0.43	0.44	0.45	0.46	0.48	0.51	0.51	0.53	0.55	0.58	0.61	0.65	0.69	0.72
44	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.46	0.49	0.49	0.50	0.52	0.54	0.57	0.60	0.64	0.68
45	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.46	0.46	0.47	0.49	0.51	0.53	0.56	0.59	0.63

表2：R22和R134a 排热量校正系数表 Heat rejection correction index for R22 and R134a

冷凝温度 Condensing temperature	空气进口湿球温度（℃）Air inlet wet bulb temperature															
℃	10	12	14	16	18	19	20	21	22	23	24	25	26	28	30	32
29	0.86	0.94	1.03	1.15	1.37	1.43	1.55	1.68	1.92	2.10	2.52	3.10	/	/	/	/
31	0.77	0.83	0.90	0.99	1.10	1.17	1.24	1.34	1.47	1.62	1.83.2	2.10	2.48	/	/	/
33	0.69	0.73	0.79	0.86	0.94	1.00	1.02	1.10	1.20	1.28	1.40	1.56	1.75	2.38	/	/
35	0.62	0.66	0.70	0.76	0.83	0.86	0.90	0.93	1.00	1.07	1.18	1.25	1.38	1.68	2.12.	2.68
37	0.57	0.60	0.63	0.67	0.72	0.76	0.78	0.82	0.85	0.90	0.96	1.02	1.10	1.30	1.56	1.89
39	0.55	0.57	0.59	0.62	0.65	0.68	0.70	0.72	0.75	0.79	0.84	0.88	0.95	1.10	1.26	1.46
41	0.48	0.49	0.52	0.54	0.57	0.59	0.61	0.63	0.66	0.68	0.71	0.75	0.78	0.90	1.03	1.19
43	0.44	0.46	0.48	0.50	0.52	0.54	0.55	0.57	0.59	0.61	0.63	0.66	0.68	0.75	0.86	0.97
45	0.41	0.42	0.44	0.46	0.48	0.49	0.50	0.52	0.53	0.55	0.56	0.58	0.61	0.66	0.74	0.83

ZHX系列蒸发式冷凝器技术参数(国际市场)

ZHX Series Evaporative Condenser Technical Data (International Market)

型号 MODEL	能力 CAPACITY (M3/h)	风 机 FAN			水 泵 WATER SPRAYING PUMP			接管口径 INLET/ OUTLET	重 量 WEIGHT		外形尺寸 DIMENSION		
		数量 QTY.	功率 POWER (KW)	单台风量 AIR VOLUME PER SET (M3/h)	数量 QTY.	功率 POWER (KW)	单台淋水量 WATER VOLUME PER SET (M3/h)	DN (mm)	运输重量 SHIPPING (KG)	运行重量 OPERATING (KG)	总长 LENGTH (MM)	总宽 WIDTH (MM)	总高 HEIGHT (MM)
ZHX-320	320	1	3	35000	1	1.1	36	DN80	2390	3790	1925	2380	4220
ZHX-430	430	1	4	45000	1	1.1	45	DN100	2510	3910	1925	2380	4220
ZHX-525	525	1	5.5	65000	1	1.1	45	DN100	2760	4340	1925	2580	4220
ZHX-595	595	1	5.5	75000	1	1.5	65	DN100	3290	5140	1925	2900	4220
ZHX-700	700	1	7.5	87000	1	1.5	65	DN100	3680	5530	1925	2900	4965
ZHX-800	800	2	4	45000	1	2.2	84	DN100	4230	7650	3770	2200	4220
ZHX-870	870	2	4	45000	1	2.2	84	DN125	4510	7930	3770	2200	4720
ZHX-980	980	2	4	45000	1	2.2	84	DN125	4620	8040	3770	2200	4965
ZHX-1100	1100	3	3	40000	1	3	120	DN125	6170	10170	4240	2200	4720
ZHX-1250	1250	3	4	45000	1	3	120	2-DN100	6510	10510	4240	2200	4965
ZHX-1380	1380	4	3	45000	1	3	120	2-DN100	7100	11950	5610	2200	4220
ZHX-1520	1520	4	3	40000	1	3	120	2-DN100	7310	12160	5610	2200	4730
ZHX-1680	1680	4	4	45000	1	3	120	2-DN100	7590	12440	5610	2200	4965
ZHX-1840	1840	4	4	45000	1	4	170	2-DN125	8920	15580	7450	2200	4220
ZHX-2010	2010	4	4	45000	1	5.5	230	2-DN125	9330	15990	7450	2200	4720
ZHX-2245	2245	4	4	45000	1	5.5	230	2-DN125	9550	16210	7450	2200	4965
ZHX-2450	2450	5	4	45000	1	5.5	230	4-DN100	11650	19090	9300	2200	4720
ZHX-2600	2680	5	4	45000	1	5.5	230	4-DN100	12350	19790	9300	2200	4965
ZHX-2820	2820	6	4	45000	1	5.5	230	4-DN100	12490	19930	9300	2200	4965

注意:

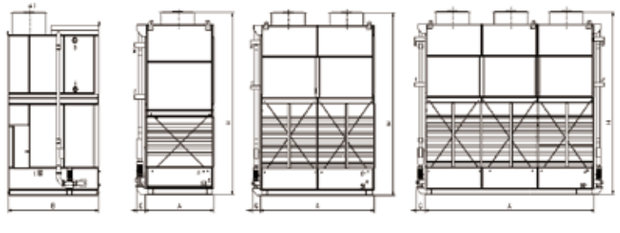
1.该数据不可用于制造。本手册中的数据只是在出版时有效的数据，在购买时要重新确认。

2.所有盘管接口的位置是大约的，不应使用此尺寸来预接管。

Notes:

1.Do not use for construction. This brochure includes data current at the time of publication which should be reconfirmed at the time of purchase

2.All location dimensions for coil connections are approximate and should not be used for prefabrication of connecting piping.



ZHX系列蒸发式冷凝器技术参数(国内市场)

ZHX Series Evaporative Condenser Technical Data (China Market)

型号 MODEL	名义处理量 CAPACITY	风机功率 FAN MOTOR (KW)	风量 AIR FLOW (M3/h)	水泵功率 PUMP MOTOR (KW)	淋水量 AMOUNT OF WATER (M3/h)	接管口径 INLET/OUTLET DN(MM)	重 量 WEIGHT(KG)		外形尺寸 DIMENSION		
							运输重量 SHIPPING	运行重量 OPERATING	总长 LENGTH	总宽 WIDTH	总高 HEIGHT
ZHX-320	320	3	46000	1.1	32	DN80	2950	3880	1785	2380	4220
ZHX-380	380	4	58000	1.5	45	DN80	3150	4290	1785	2380	4220
ZHX-475	475	4	60000	1.5	45	DN100	3680	5100	1925	2380	4220
ZHX-595	595	5.5	75000	2.2	65	DN100	3850	5500	1925	2980	4240
ZHX-735	735	7.5	87000	2.2	65	DN100	4950	7980	1925	2980	4870
ZHX-850	850	2-5.5	2-65000	3	100	DN100	5280	8250	3490	2380	4240
ZHX-1050	1050	2-7.5	2-72000	3	100	DN100	5580	8900	3490	2380	4240
ZHX-1285	1285	2-5.5	2-75000	4	130	2-DN100	5750	9100	3770	2580	4870
ZHX-1490	1490	2-7.5	2-87000	4	150	2-DN100	6550	9850	3770	2980	4870
ZHX-1765	1765	3-7.5	3-87000	5.5	180	2-DN100	6890	10900	5610	2580	4910
ZHX-2010	2010	3-7.5	3-87000	5.5	180	2-DN100	7350	11200	5610	2580	4910
ZHX-2245	2245	3-7.5	3-87000	5.5	180	2-DN100	7880	11800	5610	2980	4910
ZHX-2450	2450	3-7.5	4-100000	2-3	2-100	2-DN125	8320	12300	5610	3420	4910
ZHX-2600	2600	3-7.5	3-100000	2-3	2-100	2-DN125	8860	12600	5610	3420	4910
ZHX-2850	2850	3-7.5	3-100000	2-3	2-100	2-DN100	9650	13260	5610	3420	4910
ZHX-3000	3000	4-7.5	4-870000	2-4	2-130	4-DN100	10600	13900	7050	2980	4910
ZHX-3400	3400	4-7.5	4-100000	2-4	2-130	4-DN100	12500	15800	7450	2980	4910
ZHX-3800	3800	4-7.5	4-100000	2-4	2-150	4-DN100	13280	17600	7050	3520	4910
ZHX-4200	4200	4-11	4-120000	2-4	2-150	4-DN100	13900	18900	7450	3520	4910
ZHX-4600	4600	5-7.5	5-10000	2-5.5	2-180	4-DN125	15600	20500	8600	3520	4910
ZHX-5000	5000	5-11	5-12000	2-5.5	2-180	4-DN125	16900	23900	8600	3520	4910

注意:

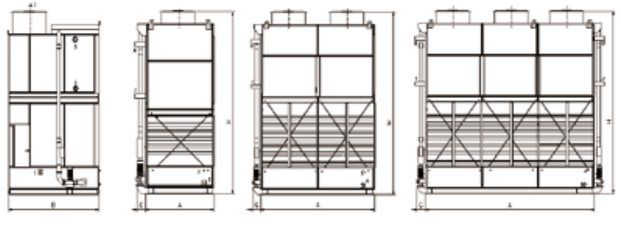
1.该数据不可用于制造。本手册中的数据只是在出版时有效的数据，在购买时要重新确认。

2.所有盘管接口的位置是大约的，不应使用此尺寸来预接管。

Notes:

1.Do not use for construction. This brochure includes data current at the time of publication which should be reconfirmed at the time of purchase

2.All location dimensions for coil connections are approximate and should not be used for prefabrication of connecting piping.



ZNX系列蒸发式冷凝器技术参数（国际市场）

ZNX Series Evaporative Condenser Technical Data (International Market)

型号 MODEL	处理量 CAPACITY (M3/h)	风 机 FAN			水 泵 WATER SPRAYING PUMP			接管口径 INLET/ OUTLET	重 量 WEIGHT		外形尺寸 DIMENSION		
		数量 QTY.	功率 POWER (KW)	单台风量 AIR VOLUME PER SET (M3/h)	数量 QTY.	功率 POWER (KW)	单台淋水量 WATER VOLUME PER SET (M3/h)	DN (MM)	运输重量 SHIPPING (KG)	运行重量 OPERATING (KG)	总长 LENGTH (MM)	总宽 WIDTH (MM)	总高 HEIGHT (MM)
ZNX-100	100	1	1.5	18000	1	0.55	23	DN50	890	1660	1230	1150	3440
ZNX-200	200	1	2.2	30000	1	0.75	28	DN50	1370	2480	1925	1150	3650
ZNX-320	320	1	3	45000	1	0.75	28	DN50	1990	3620	1925	1840	3840
ZNX-430	430	1	4	60000	1	1.1	45	DN80	2120	3790	1925	1840	4220
ZNX-525	525	1	5.5	75000	1	1.5	65	DN80	2420	4490	2470	1840	4220
ZNX-595	595	1	7.5	87000	1	1.5	65	DN80	2690	4760	2470	1840	4450
ZNX-700	700	1	7.5	100000	1	2.2	84	DN100	3650	6080	2790	1840	4450
ZNX-800	800	2	4	65000	1	2.2	84	DN100	4150	7480	3770	1840	4220
ZNX-870	870	2	4	65000	1	2.2	84	DN100	4680	8010	3770	1840	4450
ZNX-980	980	2	4	65000	1	2.2	84	DN125	5120	8450	3770	1840	4450
ZNX-1100	1100	2	5.5	75000	1	3	120	DN125	5360	9430	3770	2200	4220
ZNX-1250	1250	2	5.5	75000	1	3	120	2-DN100	5980	10050	3770	2200	4450
ZNX-1380	1380	2	5.5.	87000	1	4	170	2-DN100	6230	11270	4846	2200	4350
ZNX-1520	1520	2	7.5	100000	1	4	170	2-DN100	6560	11590	4846	2200	4650
ZNX-1680	1680	3	4	65000	1	4	170	2-DN100	7850	13730	5610	2200	4350
ZNX-1840	1840	3	5.5	75000	1	4	170	2-DN125	8450	14330	5610	2200	4650
ZNX-2010	2010	3	5.5	75000	1	4	170	4-DN80	9180	15380	6046	2200	4650
ZNX-2245	2245	3	7.5	87000	1	5.5	230	4-DN80	9780	17340	7230	2200	4650
ZNX-2450	2450	4	5.5	75000	2	3	120	4-DN100	10860	18520	7450	2200	4650
ZNX-2600	2600	4	5.5	75000	2	4	170	4-DN100	11480	20880	9030	2200	4965
ZNX-2820	2820	4	5.5	75000	2	4	170	4-DN100	11720	21120	9030	2200	4965

注意:

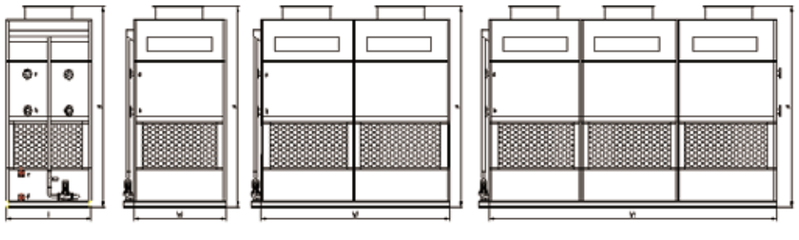
1.该数据不可用于制造。本手册中的数据只是在出版时有效的数据，在购买时要重新确认。

2.所有盘管接口的位置是大约的，不应使用此尺寸来预接管。

Notes:

1.Do not use for construction. This brochure includes data current at the time of publication which should be reconfirmed at the time of purchase

2.All location dimensions for coil connections are approximate and should not be used for prefabrication of connecting piping.



ZNX系列蒸发式冷凝器技术参数（国内市场）

ZNX Series Evaporative Condenser Technical Data (China Market)

型号 MODEL	名义处理量 CAPACITY	风机功率 FAN MOTOR (KW)	风量 AIR FLOW (M3/h)	水泵功率 PUMP MOTOR (KW)	淋水量 AMOUNT OF WATER (M3/h)	接管口径 INLET/OUTLET DN(MM)	重 量 WEIGHT(KG)		外形尺寸 DIMENSION		
							运输重量 SHIPPING	运行重量 OPERATING	总长 LENGTH	总宽 WIDTH	总高 HEIGHT
ZNX-320	320	4	65000	0.75	28	DN80	1610	2420	1925	1840	3650
ZNX-380	380	4	65000	1.1	36	DN80	1790	2580	1925	1840	3650
ZNX-475	475	5.5	72000	1.1	53	DN80	2250	3360	1925	1840	3900
ZNX-595	595	7.5	87000	1.5	70	DN80	2690	3820	2470	1840	4100
ZNX-735	735	11	125000	2.2	84	DN100	3690	5440	2470	2380	4100
ZNX-850	850	2-5.5	2-77000	3	120	DN100	4890	7520	3770	1840	4310
ZNX-1050	1050	2-5.5	2-77000	3	120	DN100	5120	7750	3770	1840	4310
ZNX-1285	1285	2-5.5	2-80000	3	150	2-DN100	6320	9020	3770	2380	4510
ZNX-1490	1490	2-11	2-125000	3	150	2-DN100	6490	9190	3770	2380	4510
ZNX-1765	1765	3-5.5	3-77000	5.5	233	2-DN100	8400	12450	5610	2380	4550
ZNX-2010	2010	3-5.5	3-80000	5.5	233	4-DN100	9420	13460	6046	2380	4550
ZNX-2245	2245	3-5.5	3-80000	5.5	233	4-DN100	9780	13820	6046	2380	4630
ZNX-2450	2450	2-11	2-125000	2-3	2-150	4-DN100	12360	18170	6046	2980	4830
ZNX-2600	2600	2-11	2-125000	2-3	2-150	4-DN100	13780	19670	6046	2980	4830
ZNX-2850	2850	2-11	2-140000	2-3	2-150	4-DN100	13900	19790	6046	2980	4830
ZNX-3000	3000	2-15	2-180000	2-3	2-150	4-DN100	14320	20210	6046	2980	4830
ZNX-3400	3400	3-11	3-125000	2-4	2-180	4-DN100	16310	24050	7240	2980	4830
ZNX-3800	3800	3-11	3-125000	2-4	2-180	4-DN100	17810	25660	7830	2980	4830
ZNX-4200	4200	3-11	3-140000	2-5.5	2-233	4-DN100	20220	29890	8630	3490	4970
ZNX-4600	4600	3-11	3-140000	2-5.5	2-233	4-DN125	22480	32280	8630	3490	4970
ZNX-5000	5000	3-15	3-180000	2-5.5	2-233	4-DN125	24750	35710	9026	3490	4970

注意:

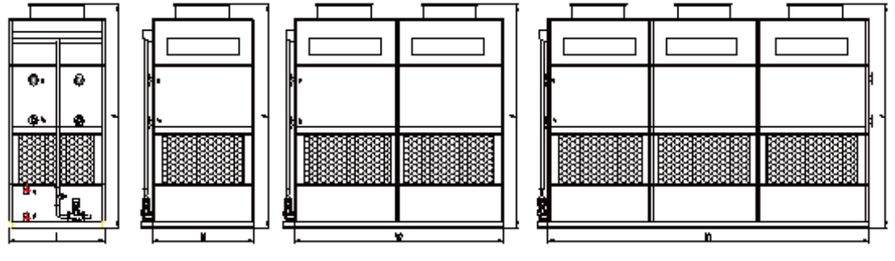
1.该数据不可用于制造。本手册中的数据只是在出版时有效的数据，在购买时要重新确认。

2.所有盘管接口的位置是大约的，不应使用此尺寸来预接管。

Notes:

1.Do not use for construction. This brochure includes data current at the time of publication which should be reconfirmed at the time of purchase

2.All location dimensions for coil connections are approximate and should not be used for prefabrication of connecting piping.



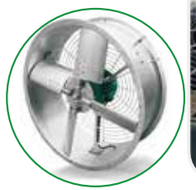
主要部件说明
Main Components

风机（Fan）

采用铝合金轴流风机，前倾式风叶结构设，流线型入口风筒。无皮带传动的结构，减少了传动部件，并采用Siemens,WEG国际品牌专用电机，具有体积小、重量轻、启动性能佳、运行可靠、经久耐用等优点。

轴流式风机系统只需要同级别离心式风机系统中大约一半的电机马力，节能效果显著。

Special axial flow type fan, with forward tilting blades and streamline cylinder, direct driven no belt. All motors are Siemens or WEG brand, has advantages of compact size, light weight, good start performance, durable and reliable abilities.
Compared with same level centrifugal fan system, axial flow type need half motor power only, effectively saves energy.




喷淋水泵（Spraying Pump）


循环泵采用不受转向限制的优质机械密封，无泄漏，寿命长。并选用Siemens，WEG等品牌的专用户外型电机，配置进口轴承保证机泵长期可靠运行，具有小功率，大流量，低噪音，性能优异等特点。

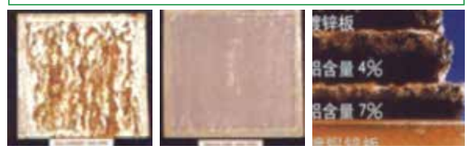
The spraying water pump designed with high-quality non-steering restricted mechanical seal, no leakage and long lifespan. Adopt Siemens or WEG brand special outdoor type motors and equipped with imported bearings, which could guarantee its long-term operation, low noise, and high performance.

不锈钢或进口镀铝锌板外壳(SS304 or Imported Aluminum-Zinc Alloy Plate Casing)

除不锈钢板外，产品外壳可采用进口镀铝锌合金板，它是当今耐腐蚀性能最强的板材之一，使用寿命是普通镀锌板的3～6倍。并且具有阻热性强、耐热性高、外表美观等优点。

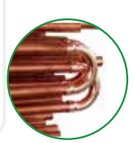
Besides stainless steel plate, Aluminum-Zinc Alloy plate is also available for equipment casing. Aluminum-Zinc Alloy plate is one of the plates with strongest corrosion-resistant characteristics, and its lifetime is 3 to 6 times of common galvanized steel, with advantages of heat resistance, high temperature resistance, beautiful appearance and so on.

盐酸喷雾1000小时试验及曝晒试验



普通镀锌板　　镀铝锌板　　17年户外曝晒

表冷器（Heat Exchange Coil）

表冷器由优质的钢管制成。闭式冷却塔的盘管可选用紫铜管，不锈钢管，和热浸锌钢管，蒸发式冷凝器一般选用不锈钢管和热浸锌钢管。其中，热浸锌钢管为优质无缝钢管，耐压性能强。我公司设计的蒸发式冷凝器，在运行产品的运行设计压力达到30mpa, 远超同行业水准。

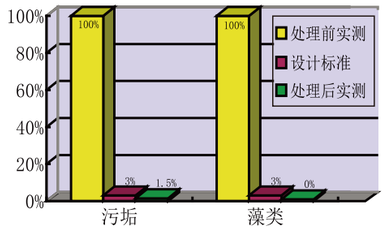
表冷器根据工艺选用椭圆管、翅片管、波接管、复合型表冷器等型式。

The heat exchange coil is made by top quality steel pipe. For closed circuit cooling tower, red copper, stainless steel, and galvanized steel available. For evaporative condenser, stainless steel and galvanized steel selected mostly. And the galvanized steel coil is made by top quality seamless steel pipe, strong pressure resistance. Till now, the biggest operating pressure of coil we designed reach to 30mpa, far more than the competitors level.
Various type coil tube available which depends on operating requirements, such like elliptical tube, finned tube, wave tube, compound type coils.

电子水处理仪（Electric Water Treatment Device）

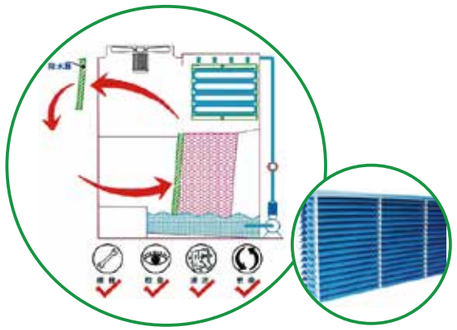
配置先进的电子水除垢仪，其利用电子脉冲技术对循环水进行防垢除垢、杀菌灭藻的处理,有效的避免了盘管壁、填料上污垢的形成。

Equipped with advanced water treatment electronic device to anti-scale and sterilization by electronic pulse technology, which could effectively prevent coil wall and infill from scaling.



注：此表据上海交通大学低温研究与测试中心数据汇编

可拆式除水器（Removable Drift Eliminator）



产品独创的可拆式除水器采用耐腐蚀PVC材料，其结构通过改变气流流向，能有效地去除从盘管中出来的湿空气水份，使水的飘逸率降低至0.005%以下。当清洗填料时，可方便的将出水器卸除。

Removable type drift eliminator, made of high quality PVC material, Special designed structure could effectively collect vapors from wet air, and keep water drift loss rate no more than 0.005%. Removable design is convenient for cleaning.

先进的水分配系统（Advanced Water Distribution System）

产品冷却水喷淋系统采用大流量防堵塞的提蓝式喷嘴，保证了布水的连续均匀喷洒在盘管表面上的水，在引风的作用下让水最大限度的覆盖于盘管表面，使水、空气与制冷剂充分进行热交换，从而提高了传热效果。喷嘴扣接于喷淋支管上，当清洗喷嘴及喷淋支管时可方便将其拆卸。

Large discharge and anti-blockage nozzles equipped in water spraying system, which ensures cooling water spraying on coil surface continuously and evenly, make a high efficient heat exchange between air, spraying water and cooling media. Removable nozzles are easy for maintenance and cleaning.

PVC填料热交换层（PVC Fills）


特殊设计的PVC蜂窝式横流填料，捷径的横进风结构，使空气能迅速带走水中的热量,独特的填料流道，使水流在填料表面能形成大面积的流动水膜，延长了水在填料里的冷却时间，提高了水冷却效果。具有风阻系数小、抗老化、不易变形等优点。

Cross flow type honeycomb PVC infill, special designed with distinctive big surface area air channel where spraying water flow as a big water film and enlarge water flow time inside of infill, to extend the water cooling effect. And have advantages of small drag coefficient, anti-aging, no easy to deformation.

工程应用中的注意事项
Engineering Considerations

位置要求：Location

设备必须在进风口处供给充足的新鲜空气。在设备的位置靠近墙壁或者位于密封空间时，必须采取相应措施以确保排除的高温、饱和气体不会发生转向而直接流进进风口。

Equipment must have an adequate supply of fresh air to all air inlets. When units are located adjacent to building walls or in enclosures, care must be taken to ensure that the warm, saturated discharge air is not deflected and drawn back to the air inlets.

考虑流体的兼容性:Compatibility of liquid(gas)

流体必须与盘管材质有兼容性。与盘管材质不兼容的流体会导致盘管腐蚀和破坏。某些特定的流体可能要求对盘管内侧不定期的进行有压清洗或机械式清洗。在这种情况之下，所提供的盘管必须在设计中考虑这方面的能力。

The fluid to be cooled must be compatible with the coil material. If not, it can lead to corrosion and tube failure. Certain fluids may require occasional pressure cleaning or mechanical cleaning of the inside of coil tubes. In such cases the coil must be designed to provide this compatibility.

管路和阀门:Piping and Valves

管道的尺寸和安装必须符合良好的管道设计规范。所有的管道必须采用管道吊架或者其他支撑装置进行支撑。如果系统设计中有必要将各个设备单元相互隔离，也可考虑采用外部截止阀。

Piping must be sized and installed in accordance with good piping practice. All piping should be supported by pipe hangers or other supports, but not by the equipment. External shutoff valves may also be required if the system design necessitates the isolation of individual tower cells.

容量控制:Capacity Control

大多数的设备在平常的运行季节中随环境湿球温度工况的变化而变化，所以由于环境温度变化而引起的流体温度的偏差时就需要采用容量控制。

风机的周期性运行是容量控制的最简单方式，多应用于多风机或多单元设备的系统。在出水温度控制要求不高的场合，风机周期性运行将可以满足温度控制的需要而且简单易行。使用双速风机可以增加能量控制的档位数，与简单的风机周期性运行方式相比，这种方案对于节能更有效。

In general season, the performance of majority equipment will vary dues to the change of its environmental wet bulb temperature. Therefore, capacity control will be required when the change of environmental temperature leads to the difference of liquid temperature. Fan cycling is the simplest method of capacity control for our equipment, normally used in multi-fan unit system or multi-cell unit system. In some circumstances of low requirement on outlet water temperature control, periodicity fan operation can meet with temperature control, and it is easy to handle. Using two-speed fan can provide substantial energy savings when compared to simple fan cycling.

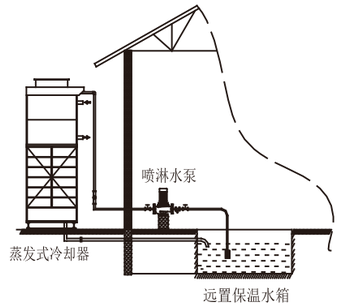
注意：周期性的频繁开停，会导致风机电机过热，建议每小时的开停次数不能超过6次。
Warning: Rapid on-off cycling can cause the fan motor to overheat. It is suggested that controls be set to allow a maximum of 6 on-off cycles per hour.

设备防冻（特别重要）
Protection Against Freezing (Very Important)

集水盘喷淋水的防冻 Protection Against Basin Water Freezing

当温度低于冰点，冷却设备在停机情况下，水池内的水就必须采取防冻措施。应该提供进一步的结冰防护，将集水盘中的水排至室内的辅助水箱，或者通过浸没式电加热器、蒸汽加热盘管或热水盘管束来为配水盘中的水提供辅助加热。

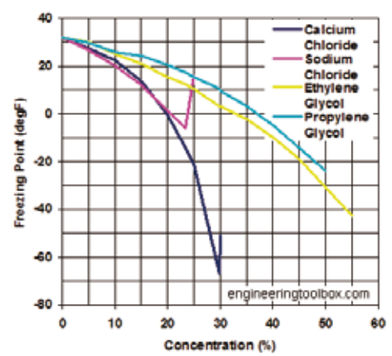
When the tower is shut down in freezing weather, the basin water mast be protected further by draining to an indoor auxiliary remote basin tank or by providing supplementary heat to the basin water by means of electric immersion heaters, steam coils or hot water coils.



对于盘管的防冻 Protection Against Coil Freezing

当环境温度低于冰点时，即使循环水泵和风机不运行，工业流体设备也将有热量损失。在循环流体没有热负荷的情况下，及时在全流量下也会发生盘管结冰现象。为了避免这种可能的结冰问题，可供选用的保护措施是很易于采用的。在系统允许的情况下，对于盘管结冰的最佳保护措施就是采用防冻液，在无法采用防冻液时，系统可以设计成能够满足以下条件的形式：在循环流体中保持一定的热负荷，以保证流出盘管的流体温度不得低于7℃。

如不使用防冻液，可在盘管进出口设置放气阀和排水阀，冬季停机时手动放空管内介质。



At below freezing ambient conditions, the equipment can experience heat loss even without the recirculating spray water pump and fans in operation. Without a heat load on the circulating fluid, coil freezing can occur even at full flow condition. Protective means are readily available to avoid potential freeze problems. Where the system will permit, the best protection against coil freeze-up is the use of an anti-freeze solution. When this is not possible, the system must be designed to meet the following conditions: Maintain a heat load on the circulating fluid so that the temperature of the fluid leaving the coil will not fall below 7℃.

If the anti-freeze solution is not applied, the vent valve and drain valve must be installed at the inlet and outlet so that you can manually empty the condensing coil.

请在购买本公司产品时，参见适用且在当时有效的保修书，并参考限制条件。
Please reter to the Limitation of warranties applicable to and in effect at the time of purchase of these products.

空冷器
Air Cooled Heat Exchanger

空气冷却器是以环境空气作为冷却介质，横掠翅片管外使管内高温工艺流体得到冷却或冷凝的设备，简称“空冷器”，也称“空冷式热交换器”。

空冷器由翅片管束、风机、百叶窗、构架、检修平台和其它用户要求的部件构成。

空冷器运行时，被冷却的物料走管内，环境空气在风机的作用下走管外，利用两者之间的温差来冷却。采用空冷器代替水冷器进行介质的冷却或冷却凝的优势在于，不仅节约了宝贵的水资源，还可以减少水污染。此外还具有维护费用低、运转安全可靠、使用寿命长等优点。特别是在一些缺水地区，空冷器较其他换热设备有很大成本和环保的优势。空冷器可广泛应用于石化、化工、医药、煤炭、电力、冶金等领域。

Air cooled heat exchanger is an equipment that use air as the cooling medium to cool or condense the fluid inside of its fin-tube.

An air cooled heat exchanger consists of fin tube bundles, fan, louver, framework, maintenance platform and other components required by the users.

Air cooled heat exchangers feature low maintenance cost, safe and reliable operation and long service life. Many users select air cooled heat exchangers in their project because water usage issue and water pollution issue are eliminated. So it’s mainly used in the area lack of water.

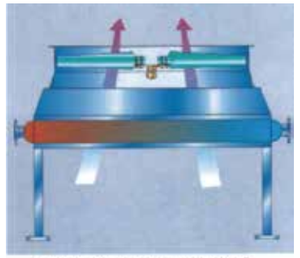
Air cooled heat exchangers are widely used in metallurgy, petrochemical industry, chemical industry, pharmaceutical industry, coal industry, electric power industry, etc.

空冷器结构形式
Structure of Air Cooled Heat Exchanger

► 引风式 Induced Draft Type

翅片管束位于风机、风筒的下侧，因为风筒对于翅片管束有很好的防尘、防雨雪、防爆晒的作用，故而引风式空冷器具有相对稳定的换热性能。同时它还具有如下优点：风量分配均匀、热循环少、噪音低、使用寿命长等特点。

The fin-tube bundle is mounted below the fan and air duct. Induced draft type air cooled heat exchanger has stable heat exchange performance because the air duct can keep the fin tube bundle from dust, rain, snow and exposure. Meanwhile, it has advantages of equal air distribution, low noise, long service time and less heat exchange circulation.

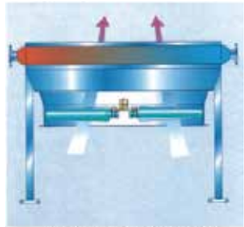


引风式 Induced draft

► 鼓风式 Forced Draft Type

翅片管束位于风机、风筒的上侧，风机电机位于空冷器的底部，维修十分方便。并且，风机电机的环境温度比较低，大大延长了电机的使用寿命。

Forced draft type air cooled heat exchanger is easy for maintenance because the fin tube bundle is mounted on the top of the fan and air duct; the fan motor is mounted below of the equipment . In addition, the fan motor has longer service life because of the lower work temperature.



鼓风式 Forced draft

► 斜顶式 Pent-roof Type

翅片管束60°斜置于构架顶部，占地面积相对较小，适合于物料的冷凝，管内阻力降和传热系数要比水平式空冷器优良。

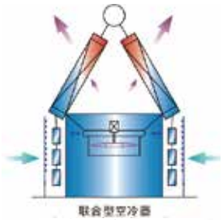
The fin-tube bundles are mounted on the top of the framework at a slant angle of 60°, this covers a smaller area and suitable for gas condensing. The resistance of inside tube and heat transfer coefficient of pent-roof air cooled heat exchanger are better than the horizontal type.

斜顶式 Pentroof

► 联合式空冷器 Integrative Type

翅片管束（一段）60°斜置于构架顶部，占地面积相对较小；翅片管束（二段）布置于风机进风口两侧，并且在翅片管束（二段）的迎风侧，布置了增湿喷水系统。在极高环境温度条件下，增湿喷水系统将大幅度提高设备的排热能力，使空冷器轻松过夏。

Fin-tube bundle (Part I) is mounted on the top of framework at a slant angle of 60°, it covers a smaller area. Fin-tube bundles (Part II) are placed at the both sides of the fan air inlet, and the water spraying system is installed at the windward side of the tube bundles. The water spraying system will greatly enhance the thermal discharge performance of the equipment under the condition of extremely high temperature.



联合型空冷器
Integrative Type

翅片管结构形式

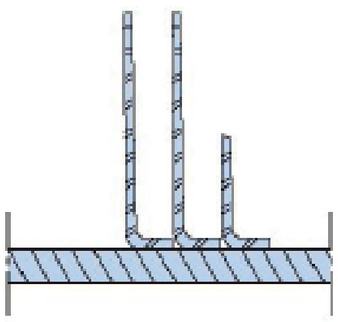
Structure of Fin-tube

翅片管是空气冷却器的主要热交换元件，其结构形式直接决定了整个换热器的性能。同时，翅片与基管的连接方式也对热传递有很大的影响，用于钢管、不锈钢管上的翅片主要由铝片、钢片或热镀锌钢片制成。

Fin-tube is the most important heat exchange components for air cooled heat exchanger, and its structure determines the overall performance of the air cooled heat exchanger. In addition, the way of connection between fin and bare tube also affects the heat transfer performance. The fin connected to steel tube or stainless steel tube is mainly made from aluminum, steel or hot-dip galvanized steel.

▲高效换热翅片管

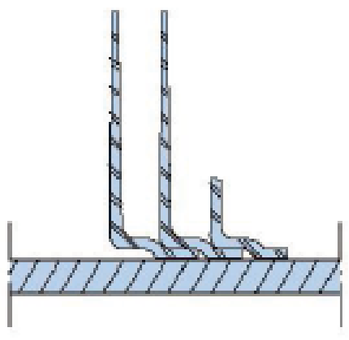
High-efficiency heat exchange fin tube



► L型绕片管 L type twined tube

适用于温度较低的工况，预制成L形的铝带螺旋缠绕在换热基管上，采用这种工艺的铝带和基管的接触面积较大，热量从基管表面传递到翅片上，较大的接触面积提高了热交换效率。造价较低，适用温度不超过150℃的系统。

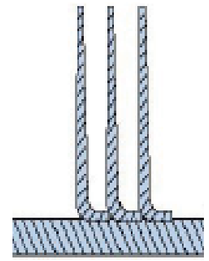
The aluminum tape is prefabricated into L type and spirally twines around the bare tube, this technology increases the contact area between the aluminum tape and the bare tube. Heat is transferred from the surface of bare tube to the fin tube, and larger contact area greatly improve the heat exchange efficiency. L type twined tube is suitable to be used under low temperature condition. It is applicable to the system with low budget and the system temperature does not exceed 150℃.



► LL型绕片管 Double L type twined tube

铝带经过绕制，在基管的根部形成双L形状，这种翅片管翅片根部互相重叠，与管壁接触更好，保证了对管壁的完全覆盖，抗腐蚀能力提高，适用温度可在200℃以内，也可适用于湿式空冷器；但加工难度和价格也相应较高。

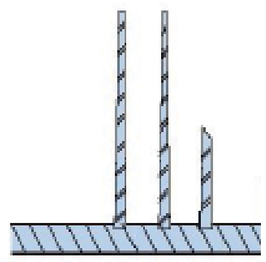
The aluminum tape is made into double L shape after twisting. The root of the fin overlaps each other and contacts well with the tube wall. this ensures the full coverage of the wall, and improves the corrosion resistance. It is applicable to the system temperature within 200℃, and can be applied in wet air cooler, but it is difficult to process and the cost is accordingly high.



► KL型滚花翅片管 KL knurling type fin tube

它是L形绕片管的改进，制造时，基管表面先经滚花，绕片时再在L根部的上面同步滚压一次，使L根部一部分面积嵌入基管表面，这样换热效率和防腐蚀能力更高，使用温度可达250℃。

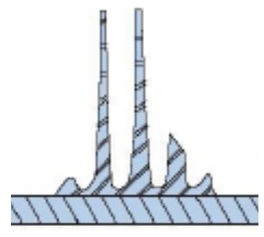
It is an improvement of L type twined tube. The bare tube surface was knurled and followed by rolling on the root of “L” which implants part of the root of “L” into the parent tube surface. This process improves the heat exchange efficiency and anti-corrosion ability, making the operating temperature could reach up to 250℃.



► G型镶嵌式翅片管 G type embedded fin tube

采用在基管表面预先制成等距的槽，安装翅片，然后轧制槽的边缘的工艺，使翅片和基管之间形成牢固的连接，传热效率高，且高温和外力对这种翅片管几乎没有影响，但其缺点是不耐腐蚀，造价较低。

The surface of bare tube is dug with equidistant grooves before the installation of fin. After that the rolling on the edge of grooves helps form a strong connection between fin and tube. This technology features with high heat transfer efficiency, and hardly being affected by the high temperature and external force, but it is not resistant to corrosion and the cost is low.



► DR型翅片管 DR type fin tube

是铝管套在基管上，经过机械轧制紧箍在管子上，这种制造工艺使翅片管抗腐蚀性能好，传热效率高，翅片的整体性和刚度高，易于蒸汽和高压水的清洗，但设备造价高，耗铝材增多。

The aluminum tube is mechanically rolled on the bare tube. This manufacturing process makes the corrosion resistant performance of fin tube is good and the heat transfer efficiency is high. And also the integrity of the fin and rigidity is great. The DR type fin tube is easy to clean but the cost is very high and requires large consumption of aluminum.

空冷器型号的说明

Instruction of air cooled heat exchanger model

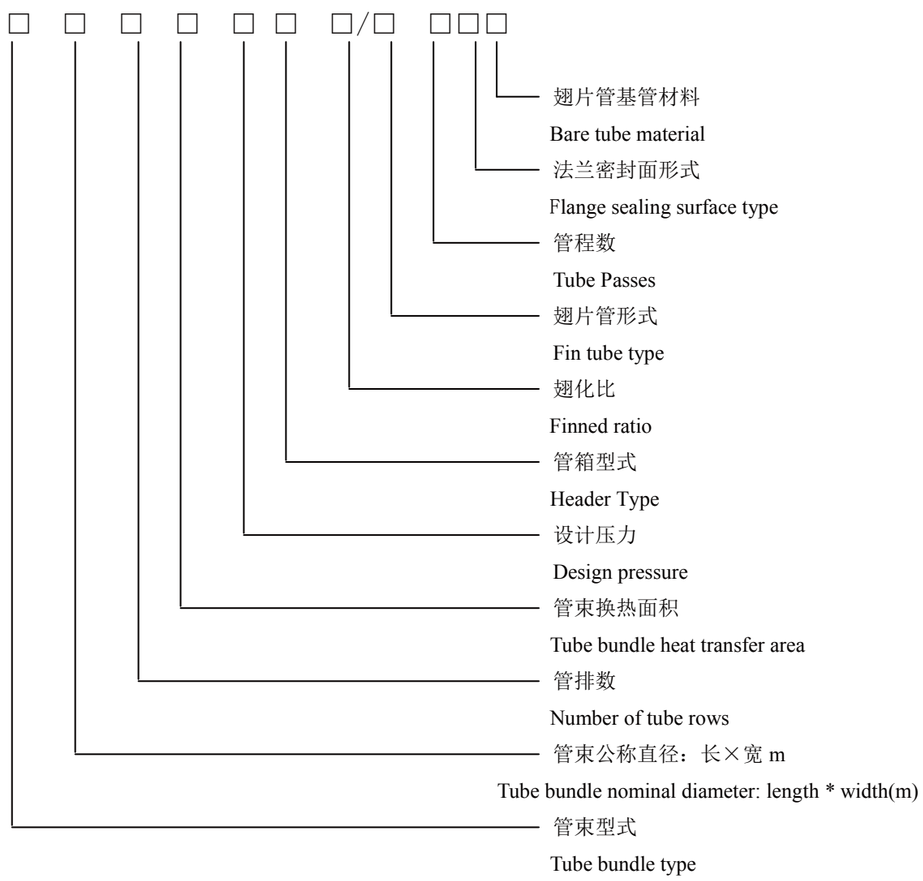
为方便用户，我公司空冷器型号均参照NBT 47007-2010 《空冷式热交换器》编制。

For the convenience of end users, our air cooled heat exchangers are categorized according to NBT 47007-2010 standard .

1.1管束 Bundle

1.1.1管束型号的表示方法：

1.1.1 Representation of tube bundle model:



1.1.2管束型式与代号见表

1.1.2 Tube bundle type and code table

表1 管束型式与代号

Table 1 Tube bundle types and codes

管束型式 Tube bundle type	代号 Code	管箱型式 Tube box type	代号 Code	接管法兰密封面型式 Flange sealing surface	代号 Code	翅片管型式 Fin tube type	代号 Code
鼓风式水平管束 Forced draft horizontal tube bundle	GP	丝堵式管束 Screwed Plug type	S	突面法兰 Raised face flange	RF	L 型翅片管 L type	L
斜顶管束 Pent-roof tube bundle	X	可卸盖板式管箱 Detachable cover plate type	K1	凸（凹）面法兰 Male (Female) flange	M (FM)	双 L 型翅片管 Double L type	LL
引风式水平管束 Induced draft horizontal tube bundle	YP	可卸帽盖式管箱 Detachable cap type	K2	榫（槽）面法兰 Tenon (groove) flange	T (G)	滚花型翅片管 Knurling type	KL
湿式立置管束 Wet standing tube bundl	SL	集合管式管箱 Collecting Pipe Type	J	环连接面法兰 Ring junction flange	RJ	双金属轧制翅片管 Bimetal rolled type	DR
干—湿联合斜置管束 Dry and wet combined pent-roof tube bundle	SX			透镜垫法兰 Lens gasket flange	TJ	镶嵌型翅片 Inlaid type	G

翅片管基管材料：当选用碳钢时可缺省，当选用潍坊恒安散热器有限公司的抗H2S、Cl-腐蚀稀土合金材料09Cr2AlMoRE时标注D，12Cr2AlMoV时标注R，选用其它材料也应标注。

Fin Tube bare tube material codel: nothing need to mark when select carbon steel, but have to mark ‘D’ when select H2S, Cl- anti corrosion of rare earth alloys 09Cr2AlMoRE, mark ‘R’ for 12Cr2AlMoV, and should mark specially for other materials.

标注示例 Label sample:

a.鼓风式水平管束：长9m、宽2m；6排管；基管换热面积140m2；设计压力4Mpa；可卸盖板式管箱；双金属轧制翅片管，翅化比23.4；Ⅵ管程；接管法兰密封面凹凸面；材料09Cr2AlMoRE，管束型号为：GP9×2-6-140-4.0K1-23.4/DR-VIMFMD。

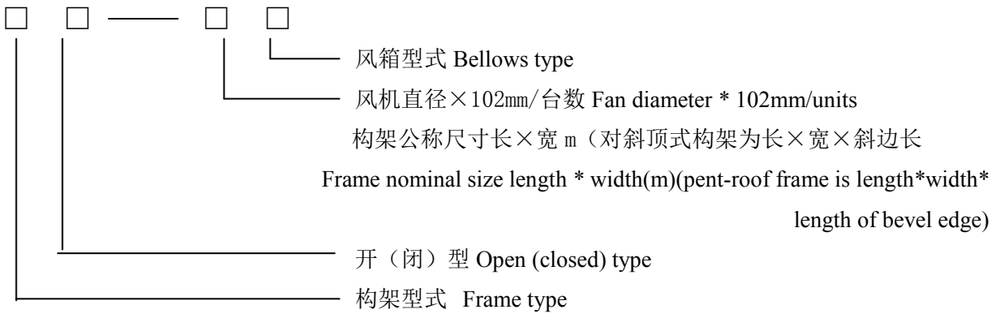
a. Forced draft horizontal tube bundle: length 9m, width 2m; 6 row tube; bare tube heat exchange area 140m2; design pressure 4Mpa ; detachable cover plate header ; bimetal rolled fin tube, fin ratio 23.4; VI tube pass; male (female) flange sealing surface; 09Cr2AlMoRE material. The tube bundle code is GP9*2-6-140-4.0K1-23.4/DR-VIM-FMD.

b.引风式水平管束：长9m、宽3m；6排管；基管换热面积193m2；设计压力2.5Mpa；丝堵式管箱；L型翅片管，翅化比23.4；Ⅱ管程；接管法兰密封面环连接面；材料为碳钢的管束型号为：YP9×3-6-193-2.5S-23.4/L-ⅡRJ。

b. Induced draft horizontal tube bundle: length 9m, width 3m; 6 row tube; bare tube heat exchange area 193m2; 2.5Mpa design pressure; screwed plug tube box; L type finned tube, fin ratio 23.4; II tube passes; ring junction flange sealing surface; carbon steel material. The tube bundle code is YP9*3-6-193-2.5S-23.4 /L- II RJ.

1.2构架Frame

1.2.1构架型号表示方法：
1.2.1 Representation of the frame:



标注示例：
Label sample:
a.鼓风式空冷器水平构架长9m、宽4m；风机直径3000mm，2台，方箱型风箱；闭式构架型号为：GJP9×4B-30/2F。
a. Forced draft air cooled heat exchanger horizontal frame: length 9m, width 4m; fan diameter 3000mm, 2 units, square bellows; The code of closed type frame type is GJP9*4B-30/2F.

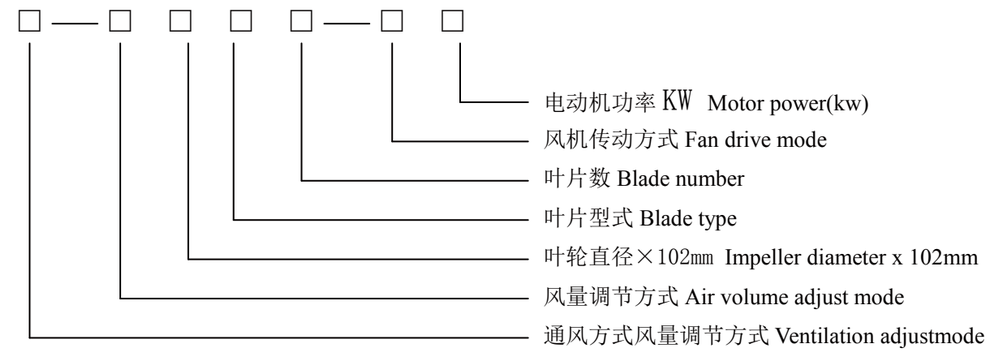
1.2.2型式与代号
1.2.2 Type and Code

表2
Table 2

构架型式 Frame type	代号 Code	构架开（闭）型式 Frame open (closed) type	代号 Code	风箱型号 Bellows type	代号 Code
鼓风式水平构架 Forced draft horizontal type	GJP	开式构架 Open type frame	K	方箱型 Square box type	F
斜顶构架 Inclined roof truss	JX	闭式构架 Closed type frame	B	过渡锥型 Transition cone type	Z
引风式水平构架 Air draft type horizontal frame	YJP			斜坡型 Ramp type	P
湿式构架 Wet frame	JS				
干-湿联合构架 Dry and wet combined structure	JL				

1.3风机Fan

1.3.1风机型号表示方法：
1.3.1 Representation of the fan:



标注示例：
Label sample:

a.鼓风式，停机手动调角风机；直径2400mm、B型玻璃钢叶片；叶片数4个；悬挂式电动机轴朝上V带传动、电动机功率18.5KW的风机型号：G-TF24B4-Vs18.5
a. Forced draft type, manual angle adjustable fan; 2400mm diameter, B type FRP blade; 4 blades; suspended motor shaft upward V belt drive, 18.5kw motor power. The representation of this fan is: G-TF24B4-Vs18.5

b.引风式，自动调角风机；直径3000mm、R型玻璃钢叶片；叶片数6个；悬挂式电动机轴朝上V带传动、电动机功率15KW的风机型号：Y-2FJ30R6-Vs15
b. Induced draft type, automatic angle adjustable fan; 3000mm diameter, R type FRP blade; 6 blades; suspension type motor shaft upward V belt drive, 15kw motor power fan representation is：Y-2FJ30R6-Vs15

1.3.2型式与代号
1.3.2 Type and code

表3
Table 3

通风方式 Ventilation mode	代号 Code	风量调节方式 Air volume adjust mode	代号 Code	叶片型式 Blade type	代号 Code	风机传动方式 Fan drive mode	代号 Code
鼓风式 Forced draft type	G	停机手动调角风机 Stop manual angle adjustable fan	TF	R 型玻璃钢叶片 R type fiber reinforced plastic blade	R	V 带传动 V-belt drive	V
引风式 Induced draft type	Y	不停机手动调角风机 NO-Stop manual angle adjustable fan	BF	B 型玻璃钢叶片 B type fiber reinforced plastic blade	B	电动机直接传动 Motor drive	Z
		自动调角风机 Automatic angle adjustable fan	ZFJ	W 型玻璃钢叶片 W type fiber reinforced plastic blade	W	悬挂式 V 带传动，电动机轴朝上 Hanging V belt drive, the motor shaft upwards	Vs
		自动调速风机 Automatic speed adjustable fan	ZFS	铸铝叶片 Cast aluminum blade	L	悬挂式 V 带传动，电动机轴朝下 Hanging V belt drive, the motor shaft downwards	Vx

1.4百叶窗 Louver

1.4.1百叶窗型号表示方法：

1.4.1 Louver type representation method:

□ □

公称尺寸，长×宽 m Nominal size, length * width (m)

调节方式 Regulation mode

标注示例：

Label sample:

a.手动调节百叶窗，长9m，宽3m，其型号SC9×3

a.manual adjustable louver, length 9m, width 3M, its model SC9 * 3

b.自动调节百叶窗，长6m，宽2m，其型号ZC6×2

b.automatic adjustable louver, length6m, wide 2m, its model ZC6 * 2

1.5喷淋装置 spraying device

□ □

喷淋装置的公称尺寸长×宽（m）Nominal size length * width (m) of spraying device

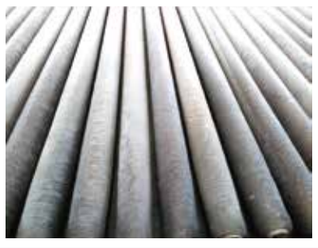
喷淋装置代号 Spraying device code

标注示例：

Label sample:

喷淋装置长9m、宽3m，其型号为P9×3

Spraying device length 9m, width 3m, its model is P9*3



1.6 空冷器型号的表示方法 Representation of air cooled heat exchanger

□ □ □ □

百叶窗型式，公称尺寸/台数

Louver type, nominal size/units

架构形式，公称尺寸开（闭）型式/跨数

Framework type, nominal size open(close)type/span

风机型式，叶轮直径×102，mm/台数

Fan type, impeller diameter×102, mm/units

管束型式，管束材质，公称尺寸/片数

Tube bundle type& material, nominal size/pieces

标注示例：

Label sample:

A.鼓风式空冷器 水平式管束，长×宽为12m×3m，4片，停机手动调角风机，直径3600mm，6台，水平构架。长×宽为12m×6m，1跨开式构架，手动调节百叶窗，4台。长×宽为12m×3m的空冷器型号为：

GP12×3/4-TF36/5-GJP12×6B/1 GJP12×6K/1-SC12×3/4

A.Forced draft air cooled heat exchanger: parallel tube bundle,12m(length)×3m(width), 4pieces; manual adjustable angle of fan blade after machine stop running, 3600mm diameter, 6 units; horizontal framework, 12m(length)×6m(width), manual adjustable louver, 4 pieces. The model number is GP12×3/4-TF36/5-GJP12×6B/1 GJP12×6K/1-SC12×3/4

B.引风式空冷器水平式管束，长×宽为12m×3m，2片，停机手动调角风机，直径3600mm，2台，自动调速风机，直径3600m,1台。水平构架，长×宽为12m×6m。1跨闭式构架，手动调节百叶窗，2台，长×宽12m×3m的空冷器型号为：YP12×3/2-TF36/3-ZFS36/1-GJP12×6B/1-SC12×3/2

B. Induced draft air cooled heat exchanger: parallel tube bundle, 12m(length)×3m(width), 2 pieces; manual adjustable angle of fan blade after machine stop running, 3600mm diameter, 2 units; automatic speed-regulation fan, 3600mm diameter,1 unit; horizontal framework,12m (length)×6m(width);manual-regulationshutters,2units.The model number is YP12×3/2-TF36/3-ZFS36/1-GJP12×6B/1-SC12×3/2

部分产品现场照片 Part of the product photos

企业合作名录
Cooperation Partners

中石油	中石化	中海油	中国重汽	中盐集团
铁道科学院	中国化工集团	中核集团	航天科工集团	中钢集团
晋煤集团	新奥集团	潍柴集团	史丹利集团	阳煤集团
青海盐湖集团	青岛啤酒	兰花集团	中国北车	湖北兴发
巨化集团	晋西车轴集团	金正大国际	济南日报	华茂集团
昊华集团	北汽福田	盾安集团	金禾实业	三角集团

国内业绩表
Parts of China Project Lists

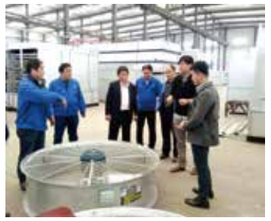
公司名称	项目工段
中国铁道部	循环冷却水系统
晋西车轴	循环冷却水系统
浙江盾安集团	循环冷却水系统
恒安集团	循环冷却水系统
中核集团	循环冷却水系统
新地能源	循环冷却水系统
宁夏镁业	闭式冷却塔
中钢集团	闭式冷却塔
安徽金禾	闭式冷却塔
青海镁业	闭式冷却塔
三角轮胎	闭式冷却塔
潍焦集团	闭式冷却塔
新地能源	闭式冷却塔
青岛中车集团	闭式冷却塔
费舍尔橡胶机械	闭式冷却塔
中国航天科工	闭式冷却塔
凯跃化工集团	蒸发冷
阳煤化工	蒸发冷
阳煤集团	蒸发冷
兰花集团	蒸发冷
金德铝业	蒸发冷

奥宝化工集团	蒸发冷
德普化工	蒸发冷
青岛啤酒集团	蒸发冷
浙江晋巨化工	蒸发冷
晋煤化工集团	蒸发冷
滨州大有新能源	蒸发冷
金太阳热电	蒸发冷
江西世龙	蒸发冷
江苏诺恩科学	蒸发冷
永顺泰麦芽	蒸发冷
山东滨庆新能源	蒸发冷
江西华电电力	蒸发冷
中盐红四方股份	蒸发冷
辛集化工集团	空冷器
乌鲁木齐盛世联成	空冷器
神驰化工集团	空冷器
巨涛油田服务（天津）	淡水空冷器
凯仕利合成材料	空冷器
神驰石化	空冷器
威特化工	空冷器
中天科技工程	空冷器
航天德林液体装备制造	空冷器

部分国外项目发货和现场照片
Parts Of Foreign Project Delivery And Application Photos

Country 国家	Model 型号	Qty. 数量	Remark 备注
Australia (澳大利亚)	ZHX-700 ZHX-1680 ZHX-1800 ZHX-2245	7	Evaporative Condenser 蒸发式冷凝器
Australia (澳大利亚)	BHX-100	2	Closed Circuit Cooling Tower 闭式冷却塔
Paraguay （巴拉圭）	ZNX-1800	2	Evaporative Condenser 蒸发式冷凝器
Paraguay （巴拉圭）	BNX-150 BNX-85	4	Closed Circuit Cooling Tower 闭式冷却塔
Pakistan （巴基斯坦）	ZHX-1490	1	Evaporative Condenser 蒸发式冷凝器
Haiti （海地）	ZNX-1500 ZHX-1050	2	Evaporative Condenser 蒸发式冷凝器
India （印度）	ZHX-1450 ZHX-1380 ZNX-595	6	Evaporative Condenser 蒸发式冷凝器
India （印度）	BHX-200	5	Closed Circuit Cooling Tower 闭式冷却塔
Sudan （苏丹）	ZNX-1765	1	Evaporative Condenser 蒸发式冷凝器
Lebanon （黎巴嫩）	ZHX-1050	1	Evaporative Condenser 蒸发式冷凝器
Greece （希腊）	ZHX-2000	4	Evaporative Condenser 蒸发式冷凝器
Chile （智利）	ZNX-1765 ZHX-735	4	Evaporative Condenser 蒸发式冷凝器
Peru （秘鲁）	ZHX-1735 ZHX-1680 ZHX-1490	3	Evaporative Condenser 蒸发式冷凝器

Columbia （哥伦比亚）	ZHX-1285 ZHX-1160 ZHX-2240	5	Evaporative Condenser 蒸发式冷凝器
Mexico （墨西哥）	TZNX-440	2	Evaporative Condenser 蒸发式冷凝器
Mexico （墨西哥）	BHX-125	2	Closed Circuit Cooling Tower 闭式冷却塔
Myanmar （缅甸）	ZHX-550	2	Evaporative Condenser 蒸发式冷凝器
Thailand （泰国）	ZHX-1490	6	Evaporative Condenser 蒸发式冷凝器
Thailand （泰国）	BHX-70	3	Closed Circuit Cooling Tower 闭式冷却塔
Cambodia （柬埔寨）	ZHX-1050	1	Evaporative Condenser 蒸发式冷凝器
Uzbekistan （乌兹别克斯坦）	BNX-200	6	Closed Circuit Cooling Tower 闭式冷却塔
France （法国）	BHX-150	3	Closed Circuit Cooling Tower 闭式冷却塔
Vietnam （越南）	BHX-175	2	Closed Circuit Cooling Tower 闭式冷却塔
Canada （加拿大）	BHX-200	2	Closed Circuit Cooling Tower 闭式冷却塔
Malaysia （马来西亚）	BHX-225	3	Closed Circuit Cooling Tower 闭式冷却塔
U.S.A （美国）	BHX-150	2	Closed Circuit Cooling Tower 闭式冷却塔
U.S.A （美国）	ZHX-1765 ZHX-2010 ZHX-1160	5	Evaporative Condenser 蒸发式冷凝器



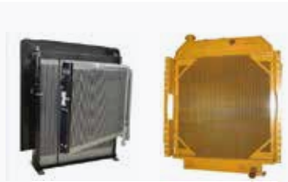
国外客户参观工厂及国外展会展示

Customer Visiting And Exhibition

About Radiator Factory
散热器

散热器公司年生产能力210万台套，是中国最大的散热器生产基地之一，产品主要包括水散热器，油散热器，空气中冷器，暖风机，冷凝器，蒸发器，车用空调，EGR冷却器等十几类，配套机型覆盖工厂机械，卡车，乘用车，农业机械，摩托车以及发电机组等.在国内装载机，挖掘机，推土机，压路机，平地机，摊铺机等大中型工程机械领域，处于龙头地位，占国内前十大工程机械厂家40%-70%不等的配套份额，并且200多个品种出口美国，加拿大，欧洲等国家地区，并直接为卡特彼勒，法国标致，美国ROCORE、PGL、Manitowoc、俄罗斯重工、意大利、澳大利亚、印度BANCO 配套。

Weifang Heng An Radiator Group company is one of the largest radiator manufacturers in China, with 2.1 million units annual production ability. The company mainly produces radiators, oil coolers, intercoolers, air heaters, condensers, evaporators, automotive air conditioners, EGR coolers, and other heat exchange products. These products are widely used on machinery, trucks, cars, agricultural machinery, motorcycles, generators and other areas, and are very popular in excavators, bulldozers, road rollers, land levelers, pavers and other engineering machinery fields. The company currently has a 40%-70% domestic OEM market share among top 10 engineering companies in China, and more than 200 varieties have been sold world widely including USA, Canada, Europe and other areas, and OEM for global companies including Caterpillar, Peugeot, Rocore, PGL, Manitowoc, Russia Heavy Construction Equipment, Banco, etc.

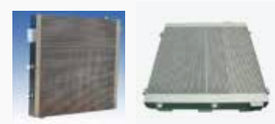

工程机械配套
Engineering Equipment


卡车配套
Light and Heavy Truck


汽车配套
Passenger Car


农业机械配套
Agricultural machine


发电机组配套
Power Generator Set


空压机配套
Compressor

工厂车间展示
Workshop


铝制散热器 Aluminum Radiator


机器人焊接 Robot Welding


板翅式散热器生产车间 Plate-Bar Radiator Workshop


散热器钎焊系统 Radiator Brazing System


卡特彼勒产品组装生产线
Assembly line for Caterpillar Company


高频焊接制管机
High frequency aluminium tube welding machine

Environmental Protection Equipment
环保设备

■ 环保设备公司主要致力于除尘、脱硫、脱硝、物料输送、高效传热等技术与设备的研发设计、生产制作、安装调试与售后服务，广泛应用于冶金、电力、矿山、石油、化工、水泥、医药、食品、机械、建筑等领域。产品遍布全国各地，并出口韩国、日本、印度、东南亚等国家和地区。

■ The company is focus on the R&D, production, installation and after-sales service of dust removal, desulfurization and denitrification , material logistics and efficient heat transfer products which are used in metallurgy, electric power, mining, petroleum, chemical, cement, Pharmaceuticals, food, machinery, construction and other fields. Our products are popular in the domestic market and exported to Korea, Japan, India, South-east Asia and other areas.


Bag dust precipitator


Desulfurization System


Denitrification


Industrial Waste Heat Recovery Exchanger


Dust Removal System

除尘器
1.布袋除尘器
2.静电除尘器
3.电袋复合除尘器
4.旋风除尘器
5.除尘器改造

脱硫装置
1.石灰石-石膏法
2.双碱法
3.氧化镁法

脱硝装置
1.SCR
2. SNCR

物料输送
1.气力输灰系统
2.机械输灰系统

工业余热换热器

除尘系统

Dust Remover:
1.Bag Dust Precipitator
2.Electrostatic Precipitator
3. Electrostatic-bag Type Dust Precipitator
4.Cyclone Dust Precipitator
5.ESP Improveme

Desulfurization Equipment
1.Lime-gypsum Process
2.Dual-alkali
3.Magnesium Oxide

Denitrification
1.SCR
2.SNCR

Material Logistics
1.Pneumatic Ash Conveying System
2. Machanical Ash Conveying System

Industrial Waste heat dust removal system

Dust Removal System

Social Responsibility
企业社会责任

■ 潍坊恒安散热器集团有限公司在努力做大企业的同时，不忘履行社会责任，积极从事慈善公益事业。近几年来先后为安丘市凌河镇东石庙村、沈家庄村，官庄镇水码头村，柘山镇西古庙村投资86万元用于修建村庄主干道、抗旱救灾、失学儿童捐助；参与政协组织的看望贫困家庭和残疾儿童康复中心活动；为安丘特殊教育学校、安丘兴华学校等投资57万元用于改善教学条件；2012-2015年连续四年参与党派捐助安丘贫困大学生和民主党派捐助贫困家庭活动,收到当地政府和群众的高度赞扬。

■ Weifang Heng An Radiator Group Co., Ltd. devotes itself to company development as well as the charity activities. In the past few years, it invested more than RMB860,000 in rural road construction and RMB570,000 in schools to improve the teaching conditions. It also donates for drought relief, dropout, disabled children, etc. From 2012 to 2015, Heng An continuously donated for poor undergraduates and needy families, and filled with praise from the public.